

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

ENGLISH FARMS 8-10HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.059617/-104.686797

Survey Program: MWD+IFR+MSA

Standard Planning Report

09 October, 2017

Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-08 ENGLISH FARMS 15-8HZ PAD
Well: ENGLISH FARMS 8-10HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS			WELL DETAILS: ENGLISH FARMS 8-10HZ
TVD	MD	Size	
1500.00 7177.00	1512.06 7582.90	9-5/8 5-1/2	
			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	903.33	9.80	297.10	900.15	25.39	-49.62	1.50	297.10	-24.94	
4	3603.33	9.80	297.10	3560.75	234.74	-458.73	0.00	0.00	-230.57	
5	4093.33	0.00	0.00	4048.37	253.79	-495.94	2.00	180.00	-249.28	
6	6585.35	0.00	0.00	6540.39	253.79	-495.94	0.00	0.00	-249.28	
7	7582.90	89.78	180.52	7177.00	-380.35	-501.64	9.00	180.52	384.89	
8	20303.77	89.78	180.52	7226.00	-13100.62	-615.99	0.00	0.001310567		ENGLISH FARMS 8-10HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
ENGLISH FARMS 8-10HZ_SHL	0.00	0.00	0.00	40.059617	-104.686797
ENGLISH FARMS 8-10HZ_BHL	7226.00	-13100.62	-615.99	40.023641	-104.688997

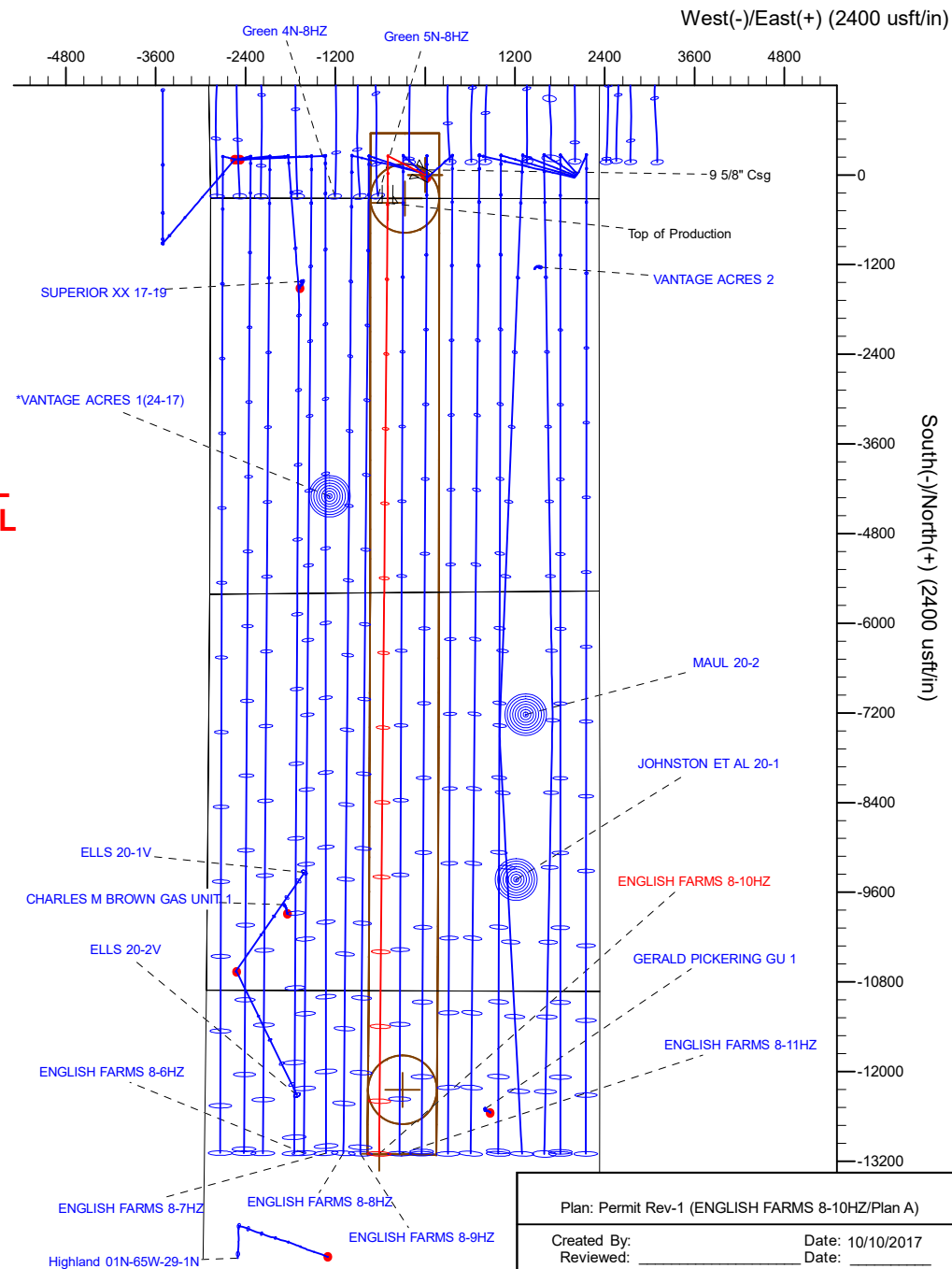
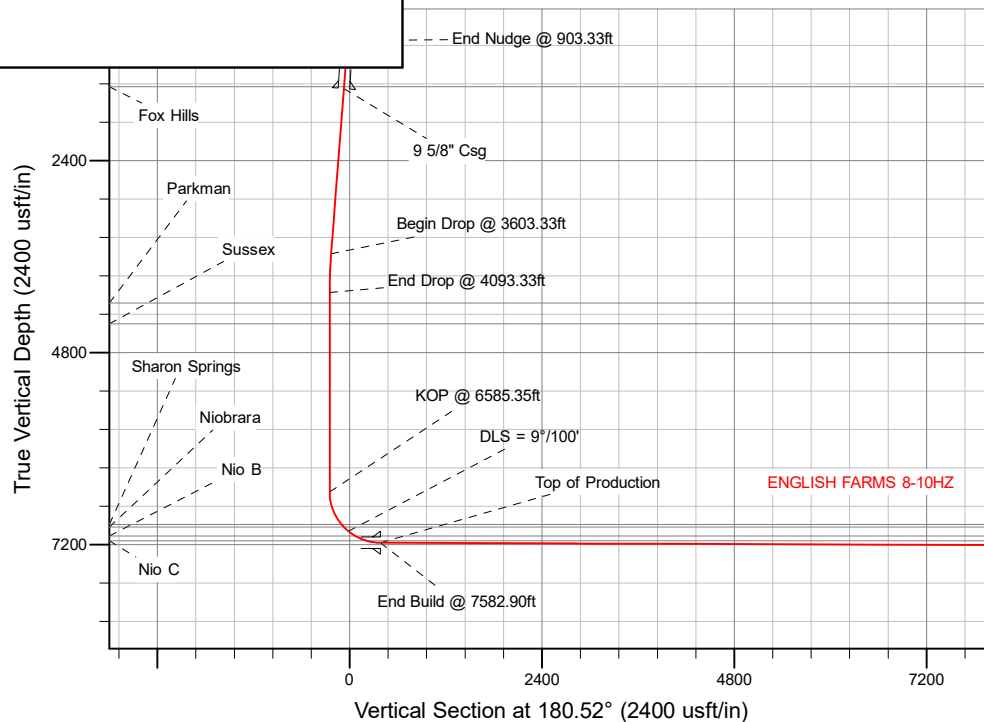
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1473.00	1484.66	Fox Hills
4180.00	4224.97	Parkman
4439.00	4483.97	Sussex
6947.00	7026.41	Sharon Springs
6981.00	7071.99	Niobrara
7091.00	7250.59	Nio B
7152.00	7406.32	Nio C

SHL
315' FSL
2326' FEL

HEEL
50' FNL
2399' FWL

TOE
2183' FNL
2334' FWL



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-10HZ
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 8-10HZ	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		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 8-10HZ					
Well Position	+N/-S	-22.94 usft	Northing:	14,548,596.70 usft	Latitude:	40.059617
	+E/-W	19.03 usft	Easting:	1,728,053.21 usft	Longitude:	-104.686797
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	52,295.17033715

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	180.52

Plan Survey Tool Program	Date	10/9/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio
2	1,500.00	20,303.78	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +

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Well:	ENGLISH FARMS 8-10HZ	Survey Calculation Method:	Minimum Curvature
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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
903.33	9.80	297.10	900.15	25.39	-49.62	1.50	1.50	0.00	297.10	
3,603.33	9.80	297.10	3,560.75	234.74	-458.73	0.00	0.00	0.00	0.00	
4,093.33	0.00	0.00	4,048.37	253.79	-495.94	2.00	-2.00	0.00	180.00	
6,585.35	0.00	0.00	6,540.39	253.79	-495.94	0.00	0.00	0.00	0.00	
7,582.90	89.78	180.52	7,177.00	-380.35	-501.64	9.00	9.00	-17.99	180.52	
20,303.78	89.78	180.52	7,226.00	-13,100.62	-615.99	0.00	0.00	0.00	0.00	ENGLISH FARMS 8-1

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 8-10HZ	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
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	297.10	300.00	0.15	-0.29	-0.15	1.50	1.50	0.00
400.00	2.25	297.10	399.96	1.34	-2.62	-1.32	1.50	1.50	0.00
500.00	3.75	297.10	499.82	3.73	-7.28	-3.66	1.50	1.50	0.00
600.00	5.25	297.10	599.51	7.30	-14.26	-7.17	1.50	1.50	0.00
700.00	6.75	297.10	698.96	12.06	-23.57	-11.85	1.50	1.50	0.00
800.00	8.25	297.10	798.10	18.01	-35.19	-17.69	1.50	1.50	0.00
900.00	9.75	297.10	896.87	25.13	-49.11	-24.69	1.50	1.50	0.00
903.33	9.80	297.10	900.15	25.39	-49.62	-24.94	1.50	1.50	0.00
End Nudge @ 903.33ft									
1,000.00	9.80	297.10	995.41	32.89	-64.27	-32.30	0.00	0.00	0.00
1,100.00	9.80	297.10	1,093.95	40.64	-79.42	-39.92	0.00	0.00	0.00
1,200.00	9.80	297.10	1,192.49	48.39	-94.57	-47.53	0.00	0.00	0.00
1,300.00	9.80	297.10	1,291.03	56.15	-109.72	-55.15	0.00	0.00	0.00
1,400.00	9.80	297.10	1,389.57	63.90	-124.87	-62.77	0.00	0.00	0.00
1,484.66	9.80	297.10	1,473.00	70.47	-137.70	-69.21	0.00	0.00	0.00
Fox Hills									
1,500.00	9.80	297.10	1,488.11	71.66	-140.03	-70.38	0.00	0.00	0.00
1,512.06	9.80	297.10	1,500.00	72.59	-141.85	-71.30	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	9.80	297.10	1,586.65	79.41	-155.18	-78.00	0.00	0.00	0.00
1,700.00	9.80	297.10	1,685.19	87.16	-170.33	-85.61	0.00	0.00	0.00
1,800.00	9.80	297.10	1,783.73	94.92	-185.48	-93.23	0.00	0.00	0.00
1,900.00	9.80	297.10	1,882.28	102.67	-200.64	-100.85	0.00	0.00	0.00
2,000.00	9.80	297.10	1,980.82	110.42	-215.79	-108.46	0.00	0.00	0.00
2,100.00	9.80	297.10	2,079.36	118.18	-230.94	-116.08	0.00	0.00	0.00
2,200.00	9.80	297.10	2,177.90	125.93	-246.09	-123.69	0.00	0.00	0.00
2,300.00	9.80	297.10	2,276.44	133.69	-261.25	-131.31	0.00	0.00	0.00
2,400.00	9.80	297.10	2,374.98	141.44	-276.40	-138.93	0.00	0.00	0.00
2,500.00	9.80	297.10	2,473.52	149.19	-291.55	-146.54	0.00	0.00	0.00
2,600.00	9.80	297.10	2,572.06	156.95	-306.70	-154.16	0.00	0.00	0.00
2,700.00	9.80	297.10	2,670.60	164.70	-321.85	-161.77	0.00	0.00	0.00
2,800.00	9.80	297.10	2,769.14	172.45	-337.01	-169.39	0.00	0.00	0.00
2,900.00	9.80	297.10	2,867.68	180.21	-352.16	-177.01	0.00	0.00	0.00
3,000.00	9.80	297.10	2,966.22	187.96	-367.31	-184.62	0.00	0.00	0.00
3,100.00	9.80	297.10	3,064.77	195.72	-382.46	-192.24	0.00	0.00	0.00
3,200.00	9.80	297.10	3,163.31	203.47	-397.62	-199.85	0.00	0.00	0.00
3,300.00	9.80	297.10	3,261.85	211.22	-412.77	-207.47	0.00	0.00	0.00
3,400.00	9.80	297.10	3,360.39	218.98	-427.92	-215.09	0.00	0.00	0.00
3,500.00	9.80	297.10	3,458.93	226.73	-443.07	-222.70	0.00	0.00	0.00
3,600.00	9.80	297.10	3,557.47	234.49	-458.22	-230.32	0.00	0.00	0.00
3,603.33	9.80	297.10	3,560.75	234.74	-458.73	-230.57	0.00	0.00	0.00
Begin Drop @ 3603.33ft									
3,700.00	7.87	297.10	3,656.27	241.51	-471.94	-237.21	2.00	-2.00	0.00
3,800.00	5.87	297.10	3,755.55	246.95	-482.59	-242.56	2.00	-2.00	0.00
3,900.00	3.87	297.10	3,855.18	250.82	-490.14	-246.36	2.00	-2.00	0.00
4,000.00	1.87	297.10	3,955.05	253.09	-494.59	-248.60	2.00	-2.00	0.00
4,093.33	0.00	0.00	4,048.37	253.79	-495.94	-249.28	2.00	-2.00	0.00
End Drop @ 4093.33ft									

Corporate
Planning Report

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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 8-10HZ	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)
4,100.00	0.00	0.00	4,055.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,200.00	0.00	0.00	4,155.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,224.97	0.00	0.00	4,180.00	253.79	-495.94	-249.28	0.00	0.00	0.00
Parkman									
4,300.00	0.00	0.00	4,255.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,400.00	0.00	0.00	4,355.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,483.97	0.00	0.00	4,439.00	253.79	-495.94	-249.28	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,455.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,600.00	0.00	0.00	4,555.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,700.00	0.00	0.00	4,655.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,800.00	0.00	0.00	4,755.03	253.79	-495.94	-249.28	0.00	0.00	0.00
4,900.00	0.00	0.00	4,855.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,000.00	0.00	0.00	4,955.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,100.00	0.00	0.00	5,055.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,200.00	0.00	0.00	5,155.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,300.00	0.00	0.00	5,255.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,400.00	0.00	0.00	5,355.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,500.00	0.00	0.00	5,455.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,600.00	0.00	0.00	5,555.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,700.00	0.00	0.00	5,655.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,800.00	0.00	0.00	5,755.03	253.79	-495.94	-249.28	0.00	0.00	0.00
5,900.00	0.00	0.00	5,855.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,000.00	0.00	0.00	5,955.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,100.00	0.00	0.00	6,055.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,200.00	0.00	0.00	6,155.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,300.00	0.00	0.00	6,255.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,400.00	0.00	0.00	6,355.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,500.00	0.00	0.00	6,455.03	253.79	-495.94	-249.28	0.00	0.00	0.00
6,585.35	0.00	0.00	6,540.39	253.79	-495.94	-249.28	0.00	0.00	0.00
KOP @ 6585.35ft									
6,600.00	1.32	180.52	6,555.03	253.62	-495.95	-249.11	9.00	9.00	0.00
6,700.00	10.32	180.52	6,654.42	243.49	-496.04	-238.98	9.00	9.00	0.00
6,800.00	19.32	180.52	6,750.99	217.94	-496.27	-213.43	9.00	9.00	0.00
6,900.00	28.32	180.52	6,842.38	177.60	-496.63	-173.09	9.00	9.00	0.00
7,000.00	37.32	180.52	6,926.33	123.46	-497.12	-118.95	9.00	9.00	0.00
7,026.41	39.70	180.52	6,947.00	107.02	-497.26	-102.50	9.00	9.00	0.00
Sharon Springs									
7,071.99	43.80	180.52	6,981.00	76.68	-497.54	-72.16	9.00	9.00	0.00
Niobrara									
7,100.00	46.32	180.52	7,000.78	56.86	-497.71	-52.34	9.00	9.00	0.00
7,150.00	50.82	180.52	7,033.86	19.38	-498.05	-14.86	9.00	9.00	0.00
DLS = 9°/100'									
7,200.00	55.32	180.52	7,063.90	-20.57	-498.41	25.10	9.00	9.00	0.00
7,250.59	59.87	180.52	7,091.00	-63.27	-498.79	67.80	9.00	9.00	0.00
Nio B									
7,300.00	64.32	180.52	7,114.12	-106.92	-499.19	111.45	9.00	9.00	0.00
7,400.00	73.32	180.52	7,150.21	-200.07	-500.02	204.60	9.00	9.00	0.00
7,406.32	73.89	180.52	7,152.00	-206.13	-500.08	210.66	9.00	9.00	0.00
Nio C									
7,500.00	82.32	180.52	7,171.29	-297.71	-500.90	302.25	9.00	9.00	0.00
7,582.90	89.78	180.52	7,177.00	-380.35	-501.64	384.89	9.00	9.00	0.00
End Build @ 7582.90ft - Top of Production									

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Well:	ENGLISH FARMS 8-10HZ	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)
7,600.00	89.78	180.52	7,177.07	-397.45	-501.80	401.99	0.00	0.00	0.00
7,700.00	89.78	180.52	7,177.45	-497.45	-502.70	501.99	0.00	0.00	0.00
7,800.00	89.78	180.52	7,177.84	-597.44	-503.60	601.99	0.00	0.00	0.00
7,900.00	89.78	180.52	7,178.22	-697.44	-504.49	701.99	0.00	0.00	0.00
8,000.00	89.78	180.52	7,178.61	-797.43	-505.39	801.99	0.00	0.00	0.00
8,100.00	89.78	180.52	7,178.99	-897.43	-506.29	901.99	0.00	0.00	0.00
8,200.00	89.78	180.52	7,179.38	-997.42	-507.19	1,001.99	0.00	0.00	0.00
8,300.00	89.78	180.52	7,179.77	-1,097.42	-508.09	1,101.99	0.00	0.00	0.00
8,400.00	89.78	180.52	7,180.15	-1,197.41	-508.99	1,201.98	0.00	0.00	0.00
8,500.00	89.78	180.52	7,180.54	-1,297.41	-509.89	1,301.98	0.00	0.00	0.00
8,600.00	89.78	180.52	7,180.92	-1,397.41	-510.79	1,401.98	0.00	0.00	0.00
8,700.00	89.78	180.52	7,181.31	-1,497.40	-511.69	1,501.98	0.00	0.00	0.00
8,800.00	89.78	180.52	7,181.69	-1,597.40	-512.58	1,601.98	0.00	0.00	0.00
8,900.00	89.78	180.52	7,182.08	-1,697.39	-513.48	1,701.98	0.00	0.00	0.00
9,000.00	89.78	180.52	7,182.46	-1,797.39	-514.38	1,801.98	0.00	0.00	0.00
9,100.00	89.78	180.52	7,182.85	-1,897.38	-515.28	1,901.98	0.00	0.00	0.00
9,200.00	89.78	180.52	7,183.23	-1,997.38	-516.18	2,001.98	0.00	0.00	0.00
9,300.00	89.78	180.52	7,183.62	-2,097.37	-517.08	2,101.98	0.00	0.00	0.00
9,400.00	89.78	180.52	7,184.00	-2,197.37	-517.98	2,201.98	0.00	0.00	0.00
9,500.00	89.78	180.52	7,184.39	-2,297.36	-518.88	2,301.98	0.00	0.00	0.00
9,600.00	89.78	180.52	7,184.77	-2,397.36	-519.78	2,401.98	0.00	0.00	0.00
9,700.00	89.78	180.52	7,185.16	-2,497.35	-520.68	2,501.98	0.00	0.00	0.00
9,800.00	89.78	180.52	7,185.54	-2,597.35	-521.57	2,601.97	0.00	0.00	0.00
9,900.00	89.78	180.52	7,185.93	-2,697.34	-522.47	2,701.97	0.00	0.00	0.00
10,000.00	89.78	180.52	7,186.31	-2,797.34	-523.37	2,801.97	0.00	0.00	0.00
10,100.00	89.78	180.52	7,186.70	-2,897.33	-524.27	2,901.97	0.00	0.00	0.00
10,200.00	89.78	180.52	7,187.08	-2,997.33	-525.17	3,001.97	0.00	0.00	0.00
10,300.00	89.78	180.52	7,187.47	-3,097.32	-526.07	3,101.97	0.00	0.00	0.00
10,400.00	89.78	180.52	7,187.85	-3,197.32	-526.97	3,201.97	0.00	0.00	0.00
10,500.00	89.78	180.52	7,188.24	-3,297.31	-527.87	3,301.97	0.00	0.00	0.00
10,600.00	89.78	180.52	7,188.62	-3,397.31	-528.77	3,401.97	0.00	0.00	0.00
10,700.00	89.78	180.52	7,189.01	-3,497.30	-529.66	3,501.97	0.00	0.00	0.00
10,800.00	89.78	180.52	7,189.39	-3,597.30	-530.56	3,601.97	0.00	0.00	0.00
10,900.00	89.78	180.52	7,189.78	-3,697.30	-531.46	3,701.97	0.00	0.00	0.00
11,000.00	89.78	180.52	7,190.16	-3,797.29	-532.36	3,801.97	0.00	0.00	0.00
11,100.00	89.78	180.52	7,190.55	-3,897.29	-533.26	3,901.96	0.00	0.00	0.00
11,200.00	89.78	180.52	7,190.94	-3,997.28	-534.16	4,001.96	0.00	0.00	0.00
11,300.00	89.78	180.52	7,191.32	-4,097.28	-535.06	4,101.96	0.00	0.00	0.00
11,400.00	89.78	180.52	7,191.71	-4,197.27	-535.96	4,201.96	0.00	0.00	0.00
11,500.00	89.78	180.52	7,192.09	-4,297.27	-536.86	4,301.96	0.00	0.00	0.00
11,600.00	89.78	180.52	7,192.48	-4,397.26	-537.75	4,401.96	0.00	0.00	0.00
11,700.00	89.78	180.52	7,192.86	-4,497.26	-538.65	4,501.96	0.00	0.00	0.00
11,800.00	89.78	180.52	7,193.25	-4,597.25	-539.55	4,601.96	0.00	0.00	0.00
11,900.00	89.78	180.52	7,193.63	-4,697.25	-540.45	4,701.96	0.00	0.00	0.00
12,000.00	89.78	180.52	7,194.02	-4,797.24	-541.35	4,801.96	0.00	0.00	0.00
12,100.00	89.78	180.52	7,194.40	-4,897.24	-542.25	4,901.96	0.00	0.00	0.00
12,200.00	89.78	180.52	7,194.79	-4,997.23	-543.15	5,001.96	0.00	0.00	0.00
12,300.00	89.78	180.52	7,195.17	-5,097.23	-544.05	5,101.96	0.00	0.00	0.00
12,400.00	89.78	180.52	7,195.56	-5,197.22	-544.95	5,201.96	0.00	0.00	0.00
12,500.00	89.78	180.52	7,195.94	-5,297.22	-545.85	5,301.95	0.00	0.00	0.00
12,600.00	89.78	180.52	7,196.33	-5,397.21	-546.74	5,401.95	0.00	0.00	0.00
12,700.00	89.78	180.52	7,196.71	-5,497.21	-547.64	5,501.95	0.00	0.00	0.00
12,800.00	89.78	180.52	7,197.10	-5,597.20	-548.54	5,601.95	0.00	0.00	0.00
12,900.00	89.78	180.52	7,197.48	-5,697.20	-549.44	5,701.95	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 8-10HZ
Wellbore: Plan A
Design: Permit Rev-1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Well ENGLISH FARMS 8-10HZ
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)
13,000.00	89.78	180.52	7,197.87	-5,797.19	-550.34	5,801.95	0.00	0.00	0.00
13,100.00	89.78	180.52	7,198.25	-5,897.19	-551.24	5,901.95	0.00	0.00	0.00
13,200.00	89.78	180.52	7,198.64	-5,997.19	-552.14	6,001.95	0.00	0.00	0.00
13,300.00	89.78	180.52	7,199.02	-6,097.18	-553.04	6,101.95	0.00	0.00	0.00
13,400.00	89.78	180.52	7,199.41	-6,197.18	-553.94	6,201.95	0.00	0.00	0.00
13,500.00	89.78	180.52	7,199.79	-6,297.17	-554.83	6,301.95	0.00	0.00	0.00
13,600.00	89.78	180.52	7,200.18	-6,397.17	-555.73	6,401.95	0.00	0.00	0.00
13,700.00	89.78	180.52	7,200.56	-6,497.16	-556.63	6,501.95	0.00	0.00	0.00
13,800.00	89.78	180.52	7,200.95	-6,597.16	-557.53	6,601.94	0.00	0.00	0.00
13,900.00	89.78	180.52	7,201.33	-6,697.15	-558.43	6,701.94	0.00	0.00	0.00
14,000.00	89.78	180.52	7,201.72	-6,797.15	-559.33	6,801.94	0.00	0.00	0.00
14,100.00	89.78	180.52	7,202.11	-6,897.14	-560.23	6,901.94	0.00	0.00	0.00
14,200.00	89.78	180.52	7,202.49	-6,997.14	-561.13	7,001.94	0.00	0.00	0.00
14,300.00	89.78	180.52	7,202.88	-7,097.13	-562.03	7,101.94	0.00	0.00	0.00
14,400.00	89.78	180.52	7,203.26	-7,197.13	-562.92	7,201.94	0.00	0.00	0.00
14,500.00	89.78	180.52	7,203.65	-7,297.12	-563.82	7,301.94	0.00	0.00	0.00
14,600.00	89.78	180.52	7,204.03	-7,397.12	-564.72	7,401.94	0.00	0.00	0.00
14,700.00	89.78	180.52	7,204.42	-7,497.11	-565.62	7,501.94	0.00	0.00	0.00
14,800.00	89.78	180.52	7,204.80	-7,597.11	-566.52	7,601.94	0.00	0.00	0.00
14,900.00	89.78	180.52	7,205.19	-7,697.10	-567.42	7,701.94	0.00	0.00	0.00
15,000.00	89.78	180.52	7,205.57	-7,797.10	-568.32	7,801.94	0.00	0.00	0.00
15,100.00	89.78	180.52	7,205.96	-7,897.09	-569.22	7,901.94	0.00	0.00	0.00
15,200.00	89.78	180.52	7,206.34	-7,997.09	-570.12	8,001.93	0.00	0.00	0.00
15,300.00	89.78	180.52	7,206.73	-8,097.08	-571.01	8,101.93	0.00	0.00	0.00
15,400.00	89.78	180.52	7,207.11	-8,197.08	-571.91	8,201.93	0.00	0.00	0.00
15,500.00	89.78	180.52	7,207.50	-8,297.08	-572.81	8,301.93	0.00	0.00	0.00
15,600.00	89.78	180.52	7,207.88	-8,397.07	-573.71	8,401.93	0.00	0.00	0.00
15,700.00	89.78	180.52	7,208.27	-8,497.07	-574.61	8,501.93	0.00	0.00	0.00
15,800.00	89.78	180.52	7,208.65	-8,597.06	-575.51	8,601.93	0.00	0.00	0.00
15,900.00	89.78	180.52	7,209.04	-8,697.06	-576.41	8,701.93	0.00	0.00	0.00
16,000.00	89.78	180.52	7,209.42	-8,797.05	-577.31	8,801.93	0.00	0.00	0.00
16,100.00	89.78	180.52	7,209.81	-8,897.05	-578.21	8,901.93	0.00	0.00	0.00
16,200.00	89.78	180.52	7,210.19	-8,997.04	-579.11	9,001.93	0.00	0.00	0.00
16,300.00	89.78	180.52	7,210.58	-9,097.04	-580.00	9,101.93	0.00	0.00	0.00
16,400.00	89.78	180.52	7,210.96	-9,197.03	-580.90	9,201.93	0.00	0.00	0.00
16,500.00	89.78	180.52	7,211.35	-9,297.03	-581.80	9,301.92	0.00	0.00	0.00
16,600.00	89.78	180.52	7,211.73	-9,397.02	-582.70	9,401.92	0.00	0.00	0.00
16,700.00	89.78	180.52	7,212.12	-9,497.02	-583.60	9,501.92	0.00	0.00	0.00
16,800.00	89.78	180.52	7,212.50	-9,597.01	-584.50	9,601.92	0.00	0.00	0.00
16,900.00	89.78	180.52	7,212.89	-9,697.01	-585.40	9,701.92	0.00	0.00	0.00
17,000.00	89.78	180.52	7,213.28	-9,797.00	-586.30	9,801.92	0.00	0.00	0.00
17,100.00	89.78	180.52	7,213.66	-9,897.00	-587.20	9,901.92	0.00	0.00	0.00
17,200.00	89.78	180.52	7,214.05	-9,996.99	-588.09	10,001.92	0.00	0.00	0.00
17,300.00	89.78	180.52	7,214.43	-10,096.99	-588.99	10,101.92	0.00	0.00	0.00
17,400.00	89.78	180.52	7,214.82	-10,196.98	-589.89	10,201.92	0.00	0.00	0.00
17,500.00	89.78	180.52	7,215.20	-10,296.98	-590.79	10,301.92	0.00	0.00	0.00
17,600.00	89.78	180.52	7,215.59	-10,396.97	-591.69	10,401.92	0.00	0.00	0.00
17,700.00	89.78	180.52	7,215.97	-10,496.97	-592.59	10,501.92	0.00	0.00	0.00
17,800.00	89.78	180.52	7,216.36	-10,596.97	-593.49	10,601.92	0.00	0.00	0.00
17,900.00	89.78	180.52	7,216.74	-10,696.96	-594.39	10,701.91	0.00	0.00	0.00
18,000.00	89.78	180.52	7,217.13	-10,796.96	-595.29	10,801.91	0.00	0.00	0.00
18,100.00	89.78	180.52	7,217.51	-10,896.95	-596.18	10,901.91	0.00	0.00	0.00
18,200.00	89.78	180.52	7,217.90	-10,996.95	-597.08	11,001.91	0.00	0.00	0.00
18,300.00	89.78	180.52	7,218.28	-11,096.94	-597.98	11,101.91	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-10HZ
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 8-10HZ	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)
18,400.00	89.78	180.52	7,218.67	-11,196.94	-598.88	11,201.91	0.00	0.00	0.00
18,500.00	89.78	180.52	7,219.05	-11,296.93	-599.78	11,301.91	0.00	0.00	0.00
18,600.00	89.78	180.52	7,219.44	-11,396.93	-600.68	11,401.91	0.00	0.00	0.00
18,700.00	89.78	180.52	7,219.82	-11,496.92	-601.58	11,501.91	0.00	0.00	0.00
18,800.00	89.78	180.52	7,220.21	-11,596.92	-602.48	11,601.91	0.00	0.00	0.00
18,900.00	89.78	180.52	7,220.59	-11,696.91	-603.38	11,701.91	0.00	0.00	0.00
19,000.00	89.78	180.52	7,220.98	-11,796.91	-604.27	11,801.91	0.00	0.00	0.00
19,100.00	89.78	180.52	7,221.36	-11,896.90	-605.17	11,901.91	0.00	0.00	0.00
19,200.00	89.78	180.52	7,221.75	-11,996.90	-606.07	12,001.90	0.00	0.00	0.00
19,300.00	89.78	180.52	7,222.13	-12,096.89	-606.97	12,101.90	0.00	0.00	0.00
19,400.00	89.78	180.52	7,222.52	-12,196.89	-607.87	12,201.90	0.00	0.00	0.00
19,500.00	89.78	180.52	7,222.90	-12,296.88	-608.77	12,301.90	0.00	0.00	0.00
19,600.00	89.78	180.52	7,223.29	-12,396.88	-609.67	12,401.90	0.00	0.00	0.00
19,700.00	89.78	180.52	7,223.67	-12,496.87	-610.57	12,501.90	0.00	0.00	0.00
19,800.00	89.78	180.52	7,224.06	-12,596.87	-611.47	12,601.90	0.00	0.00	0.00
19,900.00	89.78	180.52	7,224.44	-12,696.86	-612.37	12,701.90	0.00	0.00	0.00
20,000.00	89.78	180.52	7,224.83	-12,796.86	-613.26	12,801.90	0.00	0.00	0.00
20,100.00	89.78	180.52	7,225.22	-12,896.86	-614.16	12,901.90	0.00	0.00	0.00
20,200.00	89.78	180.52	7,225.60	-12,996.85	-615.06	13,001.90	0.00	0.00	0.00
20,300.00	89.78	180.52	7,225.99	-13,096.85	-615.96	13,101.90	0.00	0.00	0.00
20,303.77	89.78	180.52	7,226.00	-13,100.62	-615.99	13,105.67	0.00	0.00	0.00
TD Well @ 20303.77ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,512.06	1,500.00	9 5/8" Csg	9-5/8	13-1/2
7,582.90	7,177.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,484.66	1,473.00	Fox Hills			
4,224.97	4,180.00	Parkman			
4,483.97	4,439.00	Sussex			
7,026.41	6,947.00	Sharon Springs			
7,071.99	6,981.00	Niobrara			
7,250.59	7,091.00	Nio B			
7,406.32	7,152.00	Nio C			

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-10HZ
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 8-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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
903.33	900.15	25.39	-49.62	End Nudge @ 903.33ft
3,603.33	3,560.75	234.74	-458.73	Begin Drop @ 3603.33ft
4,093.33	4,048.37	253.79	-495.94	End Drop @ 4093.33ft
6,585.35	6,540.39	253.79	-495.94	KOP @ 6585.35ft
7,150.00	7,033.86	19.38	-498.05	DLS = 9°/100'
7,582.90	7,177.00	-380.35	-501.64	End Build @ 7582.90ft
20,303.77	7,226.00	-13,100.62	-615.99	TD Well @ 20303.77ft