

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-65W-08 English Farms 34C-9HZ Pad

ENGLISH FARMS 34C-9HZ

Plan B

Plan: Permit Rev-1

Sperry Drilling Services

Proposal Report

06 January, 2015

Well Coordinates: 14,553,145.51 N, 1,730,055.40 E (40° 04' 19.52" N, 104° 40' 46.50" W)

Ground Level: 4,932.00 usft

Local Coordinate Origin: Centered on Well ENGLISH FARMS 34C-9HZ

Viewing Datum: RKB = 17' @ 4949.00usft (D Rig)

TVDs to System: N

North Reference: True

Unit System: Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
 Site: 1N-65W-08 English Farms 34C-9HZ Pad
 Well: ENGLISH FARMS 34C-9HZ
 Wellbore: Plan B
 Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

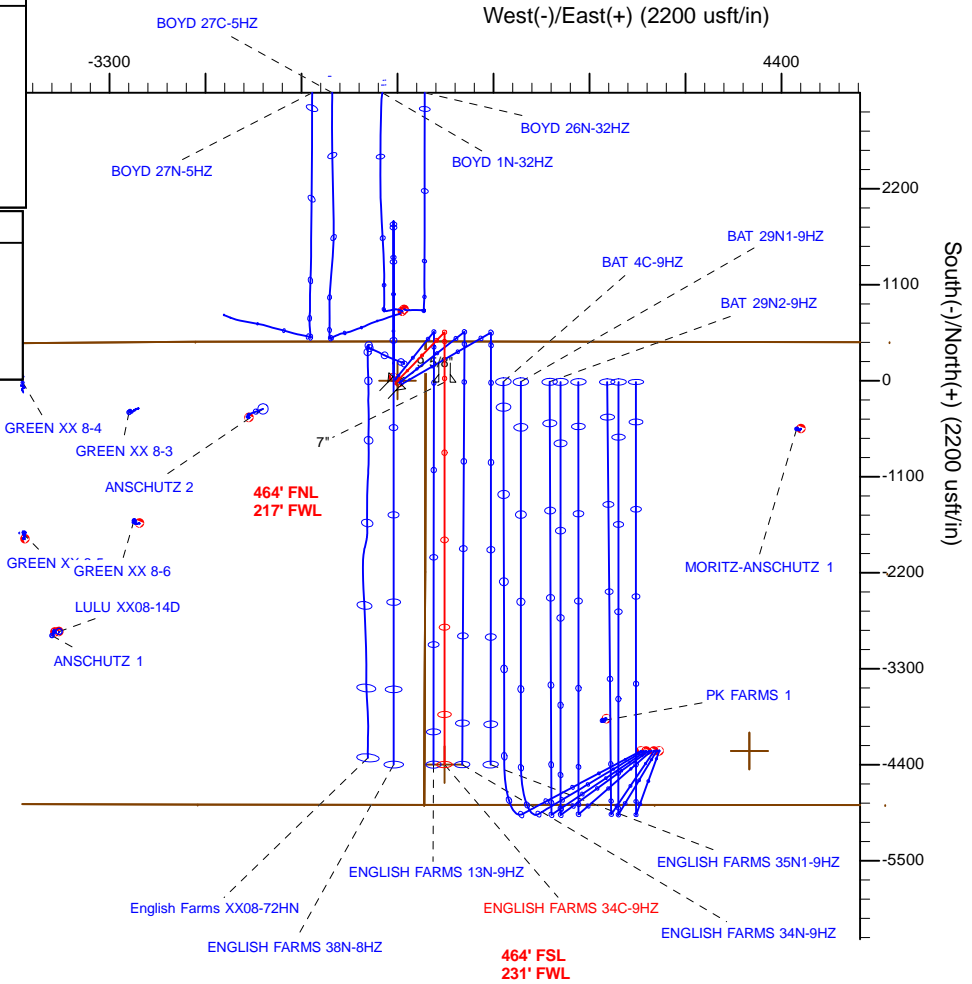
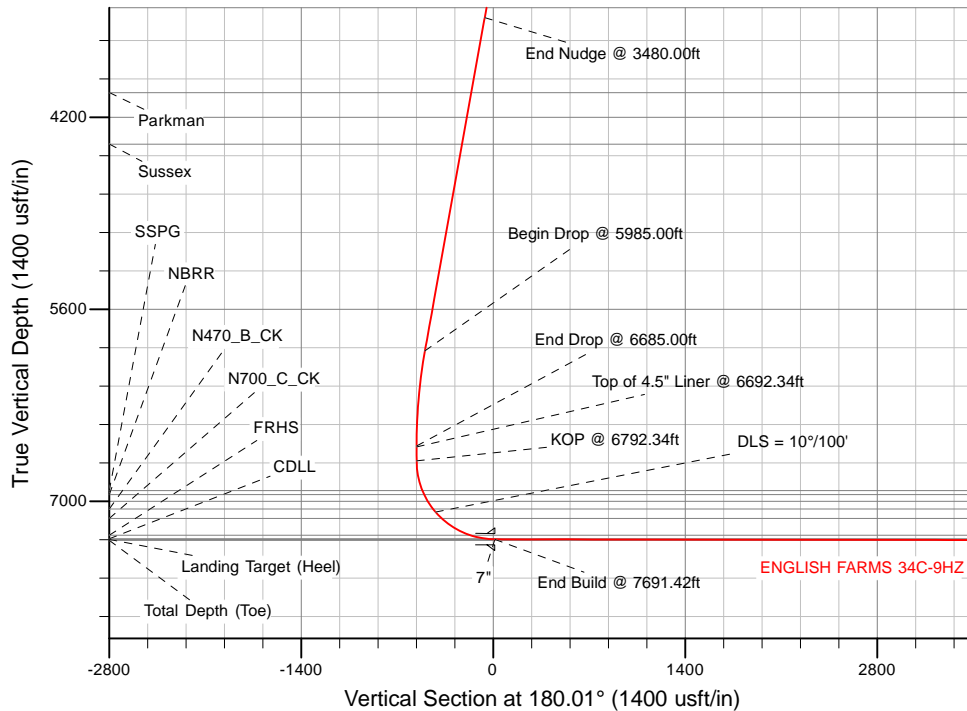


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2780.00	0.00	0.00	2780.00	0.00	0.00	0.00	0.00	0.00	
3	3480.00	14.00	44.00	3473.06	61.21	59.11	2.00	44.00	-61.22	
4	5985.00	14.00	44.00	5903.65	497.14	480.09	0.00	0.00	-497.23	
5	6685.00	0.00	0.00	6596.70	558.36	539.20	2.00	180.00	-558.45	
6	6792.34	0.00	0.00	6704.04	558.36	539.20	0.00	0.00	-558.45	
7	7691.42	89.91	180.01	7277.00	-13.69	539.07	10.00	180.01	13.59	
8	12073.73	89.91	180.01	7284.00	-4395.99	538.07	0.00	0.00	4395.89	ENGLISH FARMS 34C-9HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
ENGLISH FARMS 34C-9HZ_SHL	0.00	0.00	0.00	40.072089	-104.679583
ENGLISH FARMS 34C-9HZ_BHL	7284.00	-4395.99	538.07	40.060017	-104.677660



WELL DETAILS: ENGLISH FARMS 34C-9HZ	
Ground Level: 4932.00	
RKB = 17' @ 4949.00usft (D Rig)	
Plan: Permit Rev-1 (ENGLISH FARMS 34C-9HZ/Plan B)	
Created By: Clint Eshelman	Date: 1/06/2014
Reviewed: _____	Date: _____

TVD	MD
6604.04	6692.34
6704.04	6792.34

Top of 4.5" Liner @ 6692.34ft
 KOP @ 6792.34ft



Plan Report for ENGLISH FARMS 34C-9HZ - Permit Rev-1

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)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENGLISH FARMS 34C-9HZ_SHL - 1N-R65W-Sec. 9_Section lines - 1N-R65W-Sec. 8_Section lines										
100.00	0.00	0.00	100.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
945.00	0.00	0.00	945.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Fox Hills										
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,477.00	0.00	0.00	1,477.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Csg Setting Depth - 9 5/8"										
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,780.00	0.00	0.00	2,780.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2780.00ft										
2,800.00	0.40	44.00	2,800.00	0.05	0.05	-0.05	2.00	2.00	0.00	44.00
2,900.00	2.40	44.00	2,899.96	1.81	1.75	-1.81	2.00	2.00	0.00	0.00
3,000.00	4.40	44.00	2,999.78	6.07	5.87	-6.07	2.00	2.00	0.00	0.00
3,100.00	6.40	44.00	3,099.33	12.84	12.40	-12.84	2.00	2.00	0.00	0.00
3,200.00	8.40	44.00	3,198.50	22.11	21.35	-22.11	2.00	2.00	0.00	0.00
3,300.00	10.40	44.00	3,297.15	33.86	32.69	-33.86	2.00	2.00	0.00	0.00
3,400.00	12.40	44.00	3,395.17	48.07	46.42	-48.08	2.00	2.00	0.00	0.00
3,480.00	14.00	44.00	3,473.06	61.21	59.11	-61.22	2.00	2.00	0.00	0.00
End Nudge @ 3480.00ft										
3,500.00	14.00	44.00	3,492.46	64.69	62.47	-64.70	0.00	0.00	0.00	0.00
3,600.00	14.00	44.00	3,589.49	82.10	79.28	-82.11	0.00	0.00	0.00	0.00
3,700.00	14.00	44.00	3,686.52	99.50	96.08	-99.52	0.00	0.00	0.00	0.00
3,800.00	14.00	44.00	3,783.55	116.90	112.89	-116.92	0.00	0.00	0.00	0.00
3,900.00	14.00	44.00	3,880.58	134.30	129.70	-134.33	0.00	0.00	0.00	0.00
4,000.00	14.00	44.00	3,977.61	151.71	146.50	-151.73	0.00	0.00	0.00	0.00
4,044.72	14.00	44.00	4,021.00	159.49	154.02	-159.51	0.00	0.00	0.00	0.00
Parkman										
4,100.00	14.00	44.00	4,074.64	169.11	163.31	-169.14	0.00	0.00	0.00	0.00
4,200.00	14.00	44.00	4,171.67	186.51	180.11	-186.54	0.00	0.00	0.00	0.00
4,300.00	14.00	44.00	4,268.70	203.91	196.92	-203.95	0.00	0.00	0.00	0.00
4,400.00	14.00	44.00	4,365.73	221.32	213.72	-221.35	0.00	0.00	0.00	0.00
4,431.20	14.00	44.00	4,396.00	226.74	218.96	-226.78	0.00	0.00	0.00	0.00

Plan Report for ENGLISH FARMS 34C-9HZ - Permit Rev-1

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)	Toolface Azimuth (°)
Sussex										
4,500.00	14.00	44.00	4,462.76	238.72	230.53	-238.76	0.00	0.00	0.00	0.00
4,600.00	14.00	44.00	4,559.79	256.12	247.33	-256.16	0.00	0.00	0.00	0.00
4,700.00	14.00	44.00	4,656.82	273.52	264.14	-273.57	0.00	0.00	0.00	0.00
4,800.00	14.00	44.00	4,753.85	290.93	280.94	-290.97	0.00	0.00	0.00	0.00
4,900.00	14.00	44.00	4,850.88	308.33	297.75	-308.38	0.00	0.00	0.00	0.00
5,000.00	14.00	44.00	4,947.90	325.73	314.55	-325.78	0.00	0.00	0.00	0.00
5,100.00	14.00	44.00	5,044.93	343.13	331.36	-343.19	0.00	0.00	0.00	0.00
5,200.00	14.00	44.00	5,141.96	360.53	348.16	-360.60	0.00	0.00	0.00	0.00
5,300.00	14.00	44.00	5,238.99	377.94	364.97	-378.00	0.00	0.00	0.00	0.00
5,400.00	14.00	44.00	5,336.02	395.34	381.77	-395.41	0.00	0.00	0.00	0.00
5,500.00	14.00	44.00	5,433.05	412.74	398.58	-412.81	0.00	0.00	0.00	0.00
5,600.00	14.00	44.00	5,530.08	430.14	415.39	-430.22	0.00	0.00	0.00	0.00
5,700.00	14.00	44.00	5,627.11	447.55	432.19	-447.62	0.00	0.00	0.00	0.00
5,800.00	14.00	44.00	5,724.14	464.95	449.00	-465.03	0.00	0.00	0.00	0.00
5,900.00	14.00	44.00	5,821.17	482.35	465.80	-482.43	0.00	0.00	0.00	0.00
5,985.00	14.00	44.00	5,903.65	497.14	480.09	-497.23	0.00	0.00	0.00	0.00
Begin Drop @ 5985.00ft										
6,000.00	13.70	44.00	5,918.21	499.73	482.58	-499.81	2.00	-2.00	0.00	180.00
6,100.00	11.70	44.00	6,015.76	515.54	497.85	-515.63	2.00	-2.00	0.00	-180.00
6,200.00	9.70	44.00	6,114.01	528.90	510.75	-528.98	2.00	-2.00	0.00	180.00
6,300.00	7.70	44.00	6,212.86	539.78	521.26	-539.87	2.00	-2.00	0.00	180.00
6,400.00	5.70	44.00	6,312.17	548.17	529.36	-548.26	2.00	-2.00	0.00	180.00
6,500.00	3.70	44.00	6,411.83	554.06	535.05	-554.15	2.00	-2.00	0.00	-180.00
6,600.00	1.70	44.00	6,511.71	557.45	538.32	-557.54	2.00	-2.00	0.00	180.00
6,685.00	0.00	0.00	6,596.70	558.36	539.20	-558.45	2.00	-2.00	0.00	-180.00
End Drop @ 6685.00ft										
6,692.34	0.00	0.00	6,604.04	558.36	539.20	-558.45	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 6692.34ft										
6,700.00	0.00	0.00	6,611.70	558.36	539.20	-558.45	0.00	0.00	0.00	0.00
6,792.34	0.00	0.00	6,704.04	558.36	539.20	-558.45	0.00	0.00	0.00	0.00
KOP @ 6792.34ft										
6,800.00	0.77	180.01	6,711.70	558.31	539.20	-558.40	10.00	10.00	0.00	180.01
6,900.00	10.77	180.01	6,811.07	548.27	539.20	-548.37	10.00	10.00	0.00	0.00
7,000.00	20.77	180.01	6,907.18	521.14	539.19	-521.23	10.00	10.00	0.00	0.00
7,014.85	22.25	180.01	6,921.00	515.69	539.19	-515.79	10.00	10.00	0.00	0.00
SSPG										
7,047.67	25.53	180.01	6,951.00	502.40	539.19	-502.50	10.00	10.00	0.00	0.00
NBRR										
7,100.00	30.77	180.01	6,997.13	477.72	539.18	-477.81	10.00	10.00	0.00	0.00
7,171.34	37.90	180.01	7,056.00	437.51	539.17	-437.61	10.00	10.00	0.00	0.00
N470_B_CK										
7,200.00	40.77	180.01	7,078.17	419.35	539.17	-419.44	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,263.78	47.14	180.01	7,124.06	375.10	539.16	-375.19	10.00	10.00	0.00	0.00
N700_C_CK										
7,300.00	50.77	180.01	7,147.84	347.79	539.15	-347.88	10.00	10.00	0.00	0.00
7,400.00	60.77	180.01	7,204.02	265.22	539.13	-265.31	10.00	10.00	0.00	0.00
7,500.00	70.77	180.01	7,245.02	174.15	539.11	-174.24	10.00	10.00	0.00	0.00
7,509.46	71.71	180.01	7,248.06	165.19	539.11	-165.28	10.00	10.00	0.00	0.00
FRHS										
7,600.00	80.77	180.01	7,269.57	77.34	539.09	-77.43	10.00	10.00	0.00	0.00
7,625.12	83.28	180.01	7,273.06	52.47	539.08	-52.56	10.00	10.00	0.00	0.00
CDLL										
7,691.42	89.91	180.01	7,277.00	-13.68	539.07	13.59	10.00	10.00	0.00	0.00
End Build @ 7691.42ft - Landing Target (Heel) - 7"										
7,700.00	89.91	180.01	7,277.01	-22.26	539.07	22.17	0.01	0.01	0.00	0.00
7,800.00	89.91	180.01	7,277.17	-122.26	539.04	122.17	0.00	0.00	0.00	0.00

Plan Report for ENGLISH FARMS 34C-9HZ - Permit Rev-1

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)	Toolface Azimuth (°)
7,900.00	89.91	180.01	7,277.33	-222.26	539.02	222.17	0.00	0.00	0.00	0.00
8,000.00	89.91	180.01	7,277.49	-322.26	539.00	322.17	0.00	0.00	0.00	0.00
8,100.00	89.91	180.01	7,277.65	-422.26	538.98	422.17	0.00	0.00	0.00	0.00
8,200.00	89.91	180.01	7,277.81	-522.26	538.95	522.17	0.00	0.00	0.00	0.00
8,300.00	89.91	180.01	7,277.97	-622.26	538.93	622.17	0.00	0.00	0.00	0.00
8,400.00	89.91	180.01	7,278.13	-722.26	538.91	722.17	0.00	0.00	0.00	0.00
8,500.00	89.91	180.01	7,278.29	-822.26	538.88	822.17	0.00	0.00	0.00	0.00
8,600.00	89.91	180.01	7,278.45	-922.26	538.86	922.17	0.00	0.00	0.00	0.00
8,700.00	89.91	180.01	7,278.61	-1,022.26	538.84	1,022.17	0.00	0.00	0.00	0.00
8,800.00	89.91	180.01	7,278.77	-1,122.26	538.82	1,122.17	0.00	0.00	0.00	0.00
8,900.00	89.91	180.01	7,278.93	-1,222.26	538.79	1,222.17	0.00	0.00	0.00	0.00
9,000.00	89.91	180.01	7,279.09	-1,322.26	538.77	1,322.17	0.00	0.00	0.00	0.00
9,100.00	89.91	180.01	7,279.25	-1,422.26	538.75	1,422.17	0.00	0.00	0.00	0.00
9,200.00	89.91	180.01	7,279.41	-1,522.26	538.72	1,522.16	0.00	0.00	0.00	0.00
9,300.00	89.91	180.01	7,279.57	-1,622.26	538.70	1,622.16	0.00	0.00	0.00	0.00
9,400.00	89.91	180.01	7,279.73	-1,722.26	538.68	1,722.16	0.00	0.00	0.00	0.00
9,500.00	89.91	180.01	7,279.89	-1,822.26	538.66	1,822.16	0.00	0.00	0.00	0.00
9,600.00	89.91	180.01	7,280.05	-1,922.26	538.63	1,922.16	0.00	0.00	0.00	0.00
9,700.00	89.91	180.01	7,280.21	-2,022.26	538.61	2,022.16	0.00	0.00	0.00	0.00
9,800.00	89.91	180.01	7,280.37	-2,122.26	538.59	2,122.16	0.00	0.00	0.00	0.00
9,900.00	89.91	180.01	7,280.53	-2,222.26	538.56	2,222.16	0.00	0.00	0.00	0.00
10,000.00	89.91	180.01	7,280.69	-2,322.26	538.54	2,322.16	0.00	0.00	0.00	0.00
10,100.00	89.91	180.01	7,280.85	-2,422.26	538.52	2,422.16	0.00	0.00	0.00	0.00
10,200.00	89.91	180.01	7,281.01	-2,522.26	538.50	2,522.16	0.00	0.00	0.00	0.00
10,300.00	89.91	180.01	7,281.17	-2,622.26	538.47	2,622.16	0.00	0.00	0.00	0.00
10,400.00	89.91	180.01	7,281.33	-2,722.26	538.45	2,722.16	0.00	0.00	0.00	0.00
10,500.00	89.91	180.01	7,281.49	-2,822.26	538.43	2,822.16	0.00	0.00	0.00	0.00
10,600.00	89.91	180.01	7,281.65	-2,922.26	538.40	2,922.16	0.00	0.00	0.00	0.00
10,700.00	89.91	180.01	7,281.81	-3,022.26	538.38	3,022.16	0.00	0.00	0.00	0.00
10,800.00	89.91	180.01	7,281.96	-3,122.26	538.36	3,122.16	0.00	0.00	0.00	0.00
10,900.00	89.91	180.01	7,282.12	-3,222.26	538.34	3,222.16	0.00	0.00	0.00	0.00
11,000.00	89.91	180.01	7,282.28	-3,322.26	538.31	3,322.16	0.00	0.00	0.00	0.00
11,100.00	89.91	180.01	7,282.44	-3,422.26	538.29	3,422.16	0.00	0.00	0.00	0.00
11,200.00	89.91	180.01	7,282.60	-3,522.26	538.27	3,522.16	0.00	0.00	0.00	0.00
11,300.00	89.91	180.01	7,282.76	-3,622.26	538.24	3,622.16	0.00	0.00	0.00	0.00
11,400.00	89.91	180.01	7,282.92	-3,722.26	538.22	3,722.16	0.00	0.00	0.00	0.00
11,500.00	89.91	180.01	7,283.08	-3,822.26	538.20	3,822.16	0.00	0.00	0.00	0.00
11,600.00	89.91	180.01	7,283.24	-3,922.26	538.18	3,922.16	0.00	0.00	0.00	0.00
11,700.00	89.91	180.01	7,283.40	-4,022.26	538.15	4,022.16	0.00	0.00	0.00	0.00
11,800.00	89.91	180.01	7,283.56	-4,122.26	538.13	4,122.16	0.00	0.00	0.00	0.00
11,900.00	89.91	180.01	7,283.72	-4,222.26	538.11	4,222.16	0.00	0.00	0.00	0.00
12,000.00	89.91	180.01	7,283.88	-4,322.26	538.09	4,322.16	0.00	0.00	0.00	0.00
12,073.73	89.91	180.01	7,284.00	-4,395.99	538.07	4,395.89	0.00	0.00	0.00	0.00

TD Well @ 12073.73ft - ENGLISH FARMS 34C-9HZ_BHL

Plan Report for ENGLISH FARMS 34C-9HZ - Permit Rev-1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,780.00	2,780.00	0.00	0.00	Begin Nudge @ 2780.00ft
3,480.00	3,473.06	61.21	59.11	End Nudge @ 3480.00ft
5,985.00	5,903.65	497.14	480.09	Begin Drop @ 5985.00ft
6,685.00	6,596.70	558.36	539.20	End Drop @ 6685.00ft
6,692.34	6,604.04	558.36	539.20	Top of 4.5" Liner @ 6692.34ft
6,792.34	6,704.04	558.36	539.20	KOP @ 6792.34ft
7,200.00	7,078.17	419.35	539.17	DLS = 10°/100'
7,691.42	7,277.00	-13.68	539.07	End Build @ 7691.42ft
12,073.73	7,284.00	-4,395.99	538.07	TD Well @ 12073.73ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.01	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,691.42	Permit Rev-1	MWD+IFR1
7,691.42	12,073.73	Permit Rev-1	MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,477.00	1,477.00	9 5/8"	9-5/8	13-1/2
7,691.42	7,277.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
945.00	945.00	Base Fox Hills		0.00	
1,477.00	1,477.00	Surface Csg Setting Depth		0.00	
4,044.72	4,021.00	Parkman		0.00	
4,431.20	4,396.00	Sussex		0.00	
7,014.85	6,921.00	SSPG		0.00	
7,047.67	6,951.00	NBRR		0.00	
7,171.34	7,056.00	N470_B_CK		0.00	
7,263.78	7,124.06	N700_C_CK		0.00	
7,509.46	7,248.06	FRHS		0.00	
7,625.12	7,273.06	CDLL		0.00	
7,691.42	7,277.00	Landing Target (Heel)		0.00	
12,073.73	7,284.00	Total Depth (Toe)		0.00	

Plan Report for ENGLISH FARMS 34C-9HZ - Permit Rev-1

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
ENGLISH FARMS 34C-9HZ_SHL	0.00	0.00	0.00	Point
1N-R65W-Sec. 9_Section lines	-32.00	-4,240.54	4,033.41	Polygon
ENGLISH FARMS 34C-9HZ_BHL	7,284.00	-4,395.99	538.07	Point
1N-R65W-Sec. 8_Section lines	-32.00	-4,240.54	4,033.41	Polygon

North Reference Sheet for 1N-65W-08 English Farms 34C-9HZ Pad - ENGLISH FARMS 34C-9HZ - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.
 Vertical Depths are relative to RKB = 17' @ 4949.00usft (D Rig). Northing and Easting are relative to ENGLISH FARMS 34C-9HZ
 Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid
 Projection method is Transverse Mercator (Gauss-Kruger)
 Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°
 False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960919

Grid Coordinates of Well: 14,553,145.51 usft N, 1,730,055.40 usft E
 Geographical Coordinates of Well: 40° 04' 19.52" N, 104° 40' 46.50" W
 Grid Convergence at Surface is: 0.21°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,073.73usft the Bottom Hole Displacement is 4,428.79usft in the Direction of 173.02° (True).

Magnetic Convergence at surface is: -8.13° (21 October 2014, , IGRF2010)

