

Unit Petroleum

Reno County, Kansas [NAD 83]

Section 30 T25S-R10W

Black Farms 30-1H

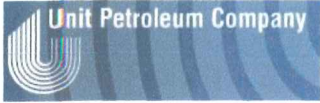
OH

Design: OH

Standard Survey Report

21 January, 2014





Unit Petroleum
 Project: Reno County, Kansas [NAD 83]
 Site: Section 30 T255-R10W
 Well: Black Farms 30-1H
 Wellbore: OH
 Design: Design #5
 Lat: 37° 56' 24.841 N
 Long: 98° 27' 21.687 W
 Pad GL: 1761.00
 KB: 20' KB @ 1781.00ustf (UDI 303)



SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3134.49	0.00	0.00	3134.49	0.00	0.00	0.00	0.00	0.00	
3694.49	56.00	179.74	3699.49	-252.56	1.15	10.00	179.74	252.56	
3844.49	56.00	179.74	3693.37	-376.92	1.71	0.00	0.00	376.92	
4127.82	90.00	179.74	3775.00	-643.91	2.93	12.00	-0.01	643.91	
8264.27	90.00	179.74	3775.00	-4800.31	22.00	0.00	0.00	4800.36	

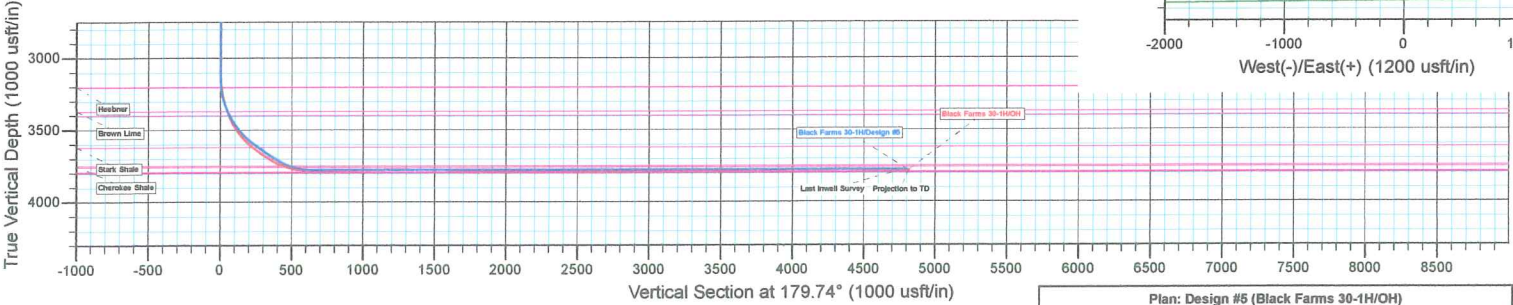
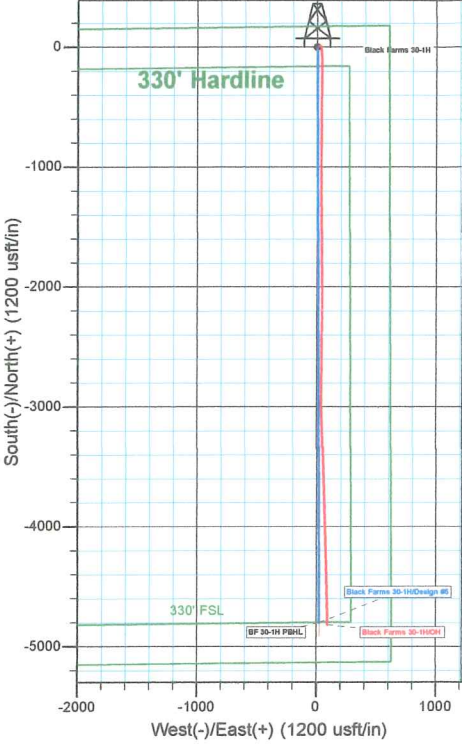
WELL DETAILS: Black Farms 30-1H						
+N-S	+E-W	Northing	Ground Level: Easting	1761.00 Latitude	Longitude	Slot
0.00	0.00	1776071.00	1325015.00	37° 56' 24.841 N	98° 27' 21.687 W	

PROJECT DETAILS: Reno County, Kansas [NAD 83]
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Kansas Southern Zone
 System Datum: Mean Sea Level

WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape Point
BF 30-1H PBHL	3775.00	-4800.31	22.00	37° 55' 37.386 N	98° 27' 21.441 W	

Azimuths to Grid North
 True North: -0.03°
 Magnetic North: 4.64°
 Magnetic Field
 Strength: 52111.9nT
 Dip Angle: 65.83°
 Date: 12/25/2013
 Model: IGRF2010

NOTE: All Lease lines and Hard lines are estimates only and are subject to the customers' approval.



Plan: Design #5 (Black Farms 30-1H/OH)
 Created By: Derek Stephens Date: 5:35, January 21 2014

Company:	Unit Petroleum	Local Co-ordinate Reference:	Well Black Farms 30-1H
Project:	Reno County, Kansas [NAD 83]	TVD Reference:	20' KB @ 1781.00usft (UDI 303)
Site:	Section 30 T25S-R10W	MD Reference:	20' KB @ 1781.00usft (UDI 303)
Well:	Black Farms 30-1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Reno County, Kansas [NAD 83]		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Kansas Southern Zone		Using geodetic scale factor

Site	Section 30 T25S-R10W				
Site Position:		Northing:	1,776,071.00 usft	Latitude:	37° 56' 24.841 N
From:	Map	Easting:	1,325,015.00 usft	Longitude:	98° 27' 21.687 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.03 °

Well	Black Farms 30-1H					
Well Position	+N/-S	0.00 usft	Northing:	1,776,071.00 usft	Latitude:	37° 56' 24.841 N
	+E/-W	0.00 usft	Easting:	1,325,015.00 usft	Longitude:	98° 27' 21.687 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	1,761.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/25/2013	4.67	65.83	52,112

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.74	

Survey Program	Date	1/21/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
80.86	3,062.62	Gyro (OH)	CB-GYRO-MS	Camera based gyro multishot	
3,099.00	8,320.00	MWD (OH)	MWD	MWD - Standard	

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	0.00
80.86	0.78	54.40	80.86	0.32	0.45	-0.32	0.96	0.96	0.00	0.00
267.22	1.74	50.81	267.17	2.85	3.67	-2.83	0.52	0.52	-1.93	0.00
453.58	1.97	52.84	453.43	6.57	8.42	-6.53	0.13	0.12	1.09	0.00
639.94	1.44	62.36	639.71	9.59	13.04	-9.53	0.32	-0.28	5.11	0.00
826.30	1.10	74.27	826.02	11.16	16.84	-11.08	0.23	-0.18	6.39	0.00
1,012.66	0.83	78.24	1,012.36	11.92	19.88	-11.83	0.15	-0.14	2.13	0.00
1,199.02	0.65	99.56	1,198.70	12.02	22.25	-11.92	0.17	-0.10	11.44	0.00
1,385.38	1.05	132.43	1,385.04	10.69	24.55	-10.58	0.33	0.21	17.64	0.00
1,571.74	0.93	139.13	1,571.37	8.40	26.80	-8.28	0.09	-0.06	3.60	0.00



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Site:	Section 30 T25S-R10W	MD Reference:	20' KB @ 1781.00usft (UDI 303)
Well:	Black Farms 30-1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)
1,758.10	0.87	138.98	1,757.71	6.19	28.72	-6.06	0.03	-0.03	-0.08
1,944.46	1.00	136.49	1,944.05	3.94	30.77	-3.80	0.07	0.07	-1.34
2,130.82	0.69	151.91	2,130.39	1.77	32.42	-1.62	0.20	-0.17	8.27
2,317.18	0.87	157.92	2,316.73	-0.53	33.48	0.68	0.11	0.10	3.22
2,503.54	0.11	188.04	2,503.08	-2.02	33.98	2.17	0.42	-0.41	16.16
2,689.90	0.05	229.40	2,689.44	-2.25	33.90	2.40	0.04	-0.03	22.19
2,876.26	0.40	286.62	2,875.80	-2.12	33.21	2.27	0.20	0.19	30.70
3,062.62	0.58	323.89	3,062.15	-1.17	32.03	1.31	0.19	0.10	20.00
3,099.00	0.30	300.80	3,098.53	-0.97	31.84	1.12	0.90	-0.77	-63.47
3,131.00	1.50	189.50	3,130.53	-1.34	31.70	1.49	5.10	3.75	-347.81
3,162.00	3.80	181.50	3,161.49	-2.77	31.61	2.91	7.50	7.42	-25.81
3,194.00	6.50	177.50	3,193.36	-5.64	31.66	5.78	8.51	8.44	-12.50
3,225.00	9.10	176.30	3,224.07	-9.84	31.89	9.98	8.40	8.39	-3.87
3,256.00	11.80	174.70	3,254.55	-15.44	32.34	15.59	8.76	8.71	-5.16
3,288.00	14.20	174.90	3,285.73	-22.61	32.99	22.76	7.50	7.50	0.63
3,319.00	16.30	175.20	3,315.64	-30.73	33.70	30.89	6.78	6.77	0.97
3,351.00	18.30	175.90	3,346.19	-40.22	34.43	40.38	6.28	6.25	2.19
3,382.00	20.40	175.70	3,375.44	-50.46	35.18	50.62	6.78	6.77	-0.65
3,414.00	23.10	176.30	3,405.16	-62.29	36.01	62.45	8.47	8.44	1.88
3,445.00	26.30	176.60	3,433.32	-75.22	36.81	75.39	10.33	10.32	0.97
3,477.00	29.70	176.60	3,461.57	-90.21	37.70	90.38	10.63	10.63	0.00
3,508.00	32.90	177.10	3,488.05	-106.29	38.58	106.47	10.36	10.32	1.61
3,540.00	36.40	177.40	3,514.37	-124.46	39.45	124.64	10.95	10.94	0.94
3,572.00	39.80	178.60	3,539.55	-144.19	40.13	144.37	10.87	10.63	3.75
3,602.00	42.50	180.80	3,562.14	-163.93	40.23	164.11	10.21	9.00	7.33
3,634.00	45.60	181.00	3,585.14	-186.17	39.87	186.35	9.70	9.69	0.63
3,666.00	49.50	180.80	3,606.73	-209.78	39.51	209.95	12.20	12.19	-0.63
3,698.00	53.20	181.00	3,626.71	-234.76	39.11	234.94	11.57	11.56	0.63
3,729.00	54.70	180.70	3,644.96	-259.82	38.74	259.99	4.90	4.84	-0.97
3,761.00	55.00	180.60	3,663.38	-285.98	38.44	286.16	0.97	0.94	-0.31
3,792.00	55.90	180.80	3,680.96	-311.51	38.13	311.68	2.95	2.90	0.65
3,823.00	58.40	180.60	3,697.77	-337.55	37.81	337.72	8.08	8.06	-0.65
3,855.00	61.40	180.70	3,713.82	-365.23	37.50	365.40	9.38	9.38	0.31
3,886.00	64.70	180.90	3,727.87	-392.86	37.11	393.02	10.66	10.65	0.65
3,917.00	68.10	180.50	3,740.28	-421.26	36.77	421.42	11.03	10.97	-1.29
3,948.00	72.00	180.20	3,750.85	-450.39	36.59	450.56	12.61	12.58	-0.97
3,980.00	74.70	180.30	3,760.02	-481.05	36.46	481.21	8.44	8.44	0.31
4,011.00	78.30	180.30	3,767.26	-511.19	36.30	511.35	11.61	11.61	0.00
4,120.00	86.30	180.70	3,781.85	-619.11	35.35	619.27	7.35	7.34	0.37
4,152.00	89.90	180.40	3,782.91	-651.09	35.05	651.24	11.29	11.25	-0.94
4,183.00	91.10	180.30	3,782.64	-682.08	34.86	682.24	3.88	3.87	-0.32
4,247.00	91.30	180.20	3,781.30	-746.07	34.58	746.22	0.35	0.31	-0.16
4,343.00	92.30	179.70	3,778.28	-842.02	34.66	842.17	1.16	1.04	-0.52



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Well:	Black Farms 30-1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)
4,439.00	91.00	179.40	3,775.52	-937.98	35.42	938.13	1.39	-1.35	-0.31
4,535.00	89.70	180.00	3,774.93	-1,033.97	35.92	1,034.12	1.49	-1.35	0.63
4,630.00	90.20	179.30	3,775.01	-1,128.97	36.50	1,129.12	0.91	0.53	-0.74
4,726.00	91.00	179.30	3,774.01	-1,224.95	37.67	1,225.11	0.83	0.83	0.00
4,822.00	89.40	179.50	3,773.67	-1,320.95	38.68	1,321.11	1.68	-1.67	0.21
4,917.00	89.50	179.80	3,774.59	-1,415.94	39.26	1,416.10	0.33	0.11	0.32
5,012.00	89.90	180.00	3,775.08	-1,510.94	39.42	1,511.10	0.47	0.42	0.21
5,108.00	87.90	180.00	3,776.93	-1,606.91	39.42	1,607.08	2.08	-2.08	0.00
5,203.00	88.30	179.80	3,780.08	-1,701.86	39.59	1,702.03	0.47	0.42	-0.21
5,295.00	89.40	179.30	3,781.92	-1,793.84	40.31	1,794.01	1.31	1.20	-0.54
5,387.00	89.10	179.00	3,783.13	-1,885.82	41.67	1,885.99	0.46	-0.33	-0.33
5,480.00	90.70	179.10	3,783.29	-1,978.80	43.22	1,978.98	1.72	1.72	0.11
5,572.00	91.90	179.40	3,781.20	-2,070.77	44.42	2,070.95	1.34	1.30	0.33
5,664.00	90.30	180.90	3,779.44	-2,162.75	44.18	2,162.93	2.38	-1.74	1.63
5,757.00	88.80	181.20	3,780.17	-2,255.73	42.48	2,255.90	1.64	-1.61	0.32
5,848.00	89.30	180.80	3,781.68	-2,346.70	40.89	2,346.86	0.70	0.55	-0.44
5,941.00	89.30	180.50	3,782.81	-2,439.69	39.83	2,439.84	0.32	0.00	-0.32
6,033.00	89.60	181.00	3,783.69	-2,531.68	38.63	2,531.83	0.63	0.33	0.54
6,125.00	89.80	180.90	3,784.18	-2,623.66	37.10	2,623.80	0.24	0.22	-0.11
6,218.00	90.00	179.90	3,784.34	-2,716.66	36.45	2,716.80	1.10	0.22	-1.08
6,310.00	89.80	179.90	3,784.50	-2,808.66	36.61	2,808.80	0.22	-0.22	0.00
6,401.00	90.00	179.40	3,784.66	-2,899.66	37.17	2,899.79	0.59	0.22	-0.55
6,493.00	89.40	178.70	3,785.14	-2,991.64	38.70	2,991.79	1.00	-0.65	-0.76
6,586.00	90.30	178.60	3,785.38	-3,084.61	40.89	3,084.77	0.97	0.97	-0.11
6,678.00	90.30	178.00	3,784.90	-3,176.57	43.62	3,176.74	0.65	0.00	-0.65
6,770.00	91.00	177.90	3,783.86	-3,268.51	46.91	3,268.69	0.77	0.76	-0.11
6,862.00	91.70	178.10	3,781.69	-3,360.42	50.12	3,360.62	0.79	0.76	0.22
6,954.00	89.80	178.40	3,780.49	-3,452.37	52.93	3,452.57	2.09	-2.07	0.33
7,047.00	90.10	178.90	3,780.57	-3,545.34	55.12	3,545.56	0.63	0.32	0.54
7,139.00	90.70	178.80	3,779.92	-3,637.32	56.96	3,637.54	0.66	0.65	-0.11
7,231.00	90.30	178.30	3,779.12	-3,729.29	59.29	3,729.52	0.70	-0.43	-0.54
7,323.00	90.50	177.90	3,778.48	-3,821.23	62.34	3,821.48	0.49	0.22	-0.43
7,419.00	91.50	177.60	3,776.80	-3,917.14	66.11	3,917.41	1.09	1.04	-0.31
7,514.00	90.00	178.10	3,775.56	-4,012.07	69.67	4,012.34	1.66	-1.58	0.53
7,610.00	91.50	177.40	3,774.30	-4,107.98	73.44	4,108.27	1.72	1.56	-0.73
7,706.00	89.70	179.10	3,773.30	-4,203.92	76.37	4,204.23	2.58	-1.88	1.77
7,801.00	90.50	178.70	3,773.13	-4,298.90	78.20	4,299.22	0.94	0.84	-0.42
7,899.00	88.60	178.80	3,773.90	-4,396.87	80.33	4,397.20	1.94	-1.94	0.10
7,993.00	88.80	178.80	3,776.04	-4,490.83	82.30	4,491.16	0.21	0.21	0.00
8,088.00	89.40	178.60	3,777.53	-4,585.79	84.46	4,586.13	0.67	0.63	-0.21
8,186.00	89.80	178.60	3,778.21	-4,683.76	86.85	4,684.11	0.41	0.41	0.00
8,273.00	90.20	178.10	3,778.21	-4,770.72	89.36	4,771.08	0.74	0.46	-0.57

Last Inwell Survey



Company:	Unit Petroleum	Local Co-ordinate Reference:	Well Black Farms 30-1H
Project:	Reno County, Kansas [NAD 83]	TVD Reference:	20' KB @ 1781.00usft (UDI 303)
Site:	Section 30 T25S-R10W	MD Reference:	20' KB @ 1781.00usft (UDI 303)
Well:	Black Farms 30-1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)	
8,300.35	90.20	178.10	3,778.12	-4,798.05	90.26	4,798.42	0.00	0.00	0.00	
BF 30-1H PBHL										
8,320.00	90.20	178.10	3,778.05	-4,817.70	90.91	4,818.06	0.00	0.00	0.00	
Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,273.00	3,778.21	-4,770.72	89.36	Last Inwell Survey	
8,320.00	3,778.05	-4,817.70	90.91	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____