

# Shell Exploration & Production Co. Inc.

Harper Co. (NAD-27)

Sec 15-T34S-R07W

Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774

Wellbore #1

Design: Wellbore #1

## Sperry Drilling Services

# Combo Report With Grid North & True North

19 April, 2012

Well Coordinates: 151,019.46 N, 2,124,510.90 E (37° 04' 50.29" N, 098° 04' 23.58" W)

Ground Level: 1,393.72 ft

Local Coordinate Origin:	Centered on Well Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774
Viewing Datum:	Well @ 1415.40ft
TVDs to System:	N
North Reference:	True
Unit System:	API-US New

Version: 2003.21 Build: 43

**HALLIBURTON**

## Design Report for Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
0.00	0.00	359.74	0.00	-1,415.40	0.00	0.00 N	0.00 E	151,019.46	2,124,510.90	0.00	0.00	Abandoned Well
208.00	0.42	85.86	86.12	-1,207.40	208.00	0.05 N	0.76 E	151,019.51	2,124,511.66	0.20	0.04	First MWD Survey
303.00	1.27	5.06	5.32	-1,112.41	302.99	1.12 N	1.21 E	151,020.59	2,124,512.10	1.34	1.11	
334.00	1.66	357.94	358.20	-1,081.42	333.98	1.91 N	1.22 E	151,021.38	2,124,512.11	1.39	1.90	
365.00	2.49	6.55	6.81	-1,050.44	364.96	3.03 N	1.29 E	151,022.50	2,124,512.17	2.85	3.02	
395.00	3.16	355.02	355.28	-1,020.48	394.92	4.50 N	1.30 E	151,023.97	2,124,512.18	2.92	4.49	
433.00	3.75	1.42	1.68	-982.55	432.85	6.79 N	1.25 E	151,026.25	2,124,512.12	1.85	6.77	
464.00	4.24	1.88	2.14	-951.62	463.78	8.95 N	1.32 E	151,028.41	2,124,512.18	1.58	8.93	
495.00	4.70	5.31	5.57	-920.72	494.68	11.36 N	1.49 E	151,030.82	2,124,512.33	1.72	11.34	
526.00	4.77	3.15	3.41	-889.82	525.58	13.91 N	1.69 E	151,033.37	2,124,512.52	0.62	13.89	
549.00	5.15	352.77	353.03	-866.91	548.49	15.89 N	1.62 E	151,035.35	2,124,512.45	4.23	15.87	
579.00	5.48	348.64	348.90	-837.04	578.36	18.63 N	1.18 E	151,038.09	2,124,511.99	1.68	18.61	
610.00	5.54	343.85	344.11	-806.18	609.22	21.52 N	0.48 E	151,040.98	2,124,511.29	1.50	21.51	
702.00	5.16	348.88	349.14	-714.58	700.82	29.85 N	1.51 W	151,049.31	2,124,509.25	0.66	29.87	
743.00	4.36	354.86	355.12	-673.72	741.68	33.22 N	1.99 W	151,052.67	2,124,508.76	2.29	33.24	
887.00	3.79	4.17	4.43	-530.09	885.31	43.42 N	2.09 W	151,062.87	2,124,508.61	0.61	43.44	
981.00	1.58	15.22	15.48	-436.19	979.21	47.76 N	1.50 W	151,067.21	2,124,509.18	2.40	47.78	
1,076.00	0.97	80.48	80.74	-341.21	1,074.19	49.16 N	0.36 W	151,068.61	2,124,510.32	1.55	49.16	
1,170.00	0.90	73.85	74.11	-247.23	1,168.17	49.49 N	1.14 E	151,068.95	2,124,511.81	0.14	49.47	
1,265.00	0.79	62.31	62.57	-152.24	1,263.16	49.99 N	2.43 E	151,069.46	2,124,513.11	0.21	49.96	
1,359.00	0.83	63.58	63.84	-58.25	1,357.15	50.59 N	3.62 E	151,070.06	2,124,514.29	0.05	50.55	
1,454.00	0.46	95.85	96.11	36.75	1,452.15	50.85 N	4.62 E	151,070.33	2,124,515.28	0.53	50.80	
1,548.00	0.17	1.30	1.56	130.75	1,546.15	50.95 N	5.00 E	151,070.43	2,124,515.66	0.53	50.89	
1,643.00	0.46	338.89	339.15	225.75	1,641.15	51.45 N	4.87 E	151,070.93	2,124,515.53	0.33	51.39	
1,737.00	0.28	72.67	72.93	319.74	1,735.14	51.87 N	4.95 E	151,071.35	2,124,515.61	0.59	51.81	
1,832.00	0.50	353.70	353.96	414.74	1,830.14	52.35 N	5.13 E	151,071.83	2,124,515.79	0.55	52.29	
1,927.00	0.48	12.23	12.49	509.74	1,925.14	53.15 N	5.17 E	151,072.63	2,124,515.83	0.17	53.09	
2,021.00	0.33	21.56	21.82	603.74	2,019.14	53.79 N	5.36 E	151,073.27	2,124,516.01	0.17	53.72	
2,116.00	0.56	18.93	19.19	698.73	2,114.13	54.48 N	5.61 E	151,073.96	2,124,516.26	0.24	54.41	
2,210.00	0.67	14.01	14.27	792.73	2,208.13	55.45 N	5.90 E	151,074.93	2,124,516.54	0.13	55.38	
2,305.00	0.28	325.97	326.23	887.73	2,303.13	56.18 N	5.91 E	151,075.66	2,124,516.55	0.55	56.11	
2,399.00	0.34	303.76	304.02	981.72	2,397.12	56.52 N	5.55 E	151,076.01	2,124,516.19	0.14	56.46	
2,494.00	0.37	348.00	348.26	1,076.72	2,492.12	56.98 N	5.25 E	151,076.46	2,124,515.89	0.28	56.92	
2,588.00	0.33	112.12	112.38	1,170.72	2,586.12	57.18 N	5.44 E	151,076.66	2,124,516.08	0.66	57.11	
2,683.00	0.64	84.13	84.39	1,265.72	2,681.12	57.12 N	6.22 E	151,076.61	2,124,516.86	0.40	57.05	
2,778.00	0.39	131.79	132.05	1,360.71	2,776.11	56.96 N	6.99 E	151,076.45	2,124,517.63	0.50	56.88	
2,872.00	0.07	330.14	330.40	1,454.71	2,870.11	56.79 N	7.20 E	151,076.29	2,124,517.84	0.49	56.71	

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Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
2,967.00	0.25	241.16	241.42	1,549.71	2,965.11	56.75 N	6.99 E	151,076.24	2,124,517.63	0.27	56.66	
3,061.00	0.31	213.71	213.97	1,643.71	3,059.11	56.44 N	6.66 E	151,075.92	2,124,517.31	0.15	56.36	
3,156.00	0.69	212.49	212.75	1,738.71	3,154.11	55.74 N	6.21 E	151,075.23	2,124,516.86	0.40	55.67	
3,250.00	0.30	156.97	157.23	1,832.71	3,248.11	55.04 N	6.00 E	151,074.52	2,124,516.65	0.61	54.97	
3,345.00	0.04	326.56	326.82	1,927.71	3,343.11	54.84 N	6.08 E	151,074.32	2,124,516.73	0.36	54.77	
3,439.00	0.31	81.87	82.13	2,021.70	3,437.10	54.90 N	6.31 E	151,074.39	2,124,516.96	0.35	54.83	
3,534.00	0.25	47.42	47.68	2,116.70	3,532.10	55.08 N	6.72 E	151,074.56	2,124,517.37	0.18	55.00	
3,628.00	0.35	62.23	62.49	2,210.70	3,626.10	55.35 N	7.13 E	151,074.84	2,124,517.77	0.13	55.26	
3,723.00	0.27	33.21	33.47	2,305.70	3,721.10	55.67 N	7.51 E	151,075.16	2,124,518.15	0.18	55.58	
3,817.00	0.61	301.17	301.43	2,399.70	3,815.10	56.11 N	7.20 E	151,075.60	2,124,517.85	0.72	56.03	
3,912.00	0.13	304.94	305.20	2,494.70	3,910.10	56.44 N	6.68 E	151,075.93	2,124,517.32	0.51	56.36	
4,010.00	3.32	11.39	11.65	2,592.64	4,008.04	59.28 N	7.17 E	151,078.77	2,124,517.79	3.34	59.20	
4,041.00	5.99	13.83	14.09	2,623.54	4,038.94	61.73 N	7.74 E	151,081.22	2,124,518.36	8.63	61.64	
4,073.00	8.54	13.75	14.01	2,655.28	4,070.68	65.66 N	8.72 E	151,085.15	2,124,519.32	7.97	65.56	
4,105.00	10.98	13.99	14.25	2,686.81	4,102.21	70.92 N	10.05 E	151,090.42	2,124,520.62	7.63	70.80	
4,136.00	13.62	13.66	13.92	2,717.10	4,132.50	77.32 N	11.65 E	151,096.83	2,124,522.20	8.52	77.19	
4,168.00	16.54	13.90	14.16	2,747.99	4,163.39	85.40 N	13.67 E	151,104.92	2,124,524.18	9.13	85.24	
4,199.00	19.47	13.92	14.18	2,777.47	4,192.87	94.69 N	16.02 E	151,114.22	2,124,526.49	9.45	94.50	
4,231.00	22.26	13.70	13.96	2,807.37	4,222.77	105.74 N	18.79 E	151,125.28	2,124,529.20	8.72	105.53	
4,262.00	25.09	14.01	14.27	2,835.76	4,251.16	117.81 N	21.83 E	151,137.37	2,124,532.19	9.14	117.56	
4,293.00	27.13	14.16	14.42	2,863.59	4,278.99	131.03 N	25.21 E	151,150.60	2,124,535.51	6.58	130.74	
4,325.00	29.13	14.28	14.54	2,891.81	4,307.21	145.64 N	28.98 E	151,165.22	2,124,539.21	6.25	145.30	
4,356.00	31.60	14.06	14.32	2,918.56	4,333.96	160.81 N	32.88 E	151,180.42	2,124,543.05	7.98	160.43	
4,388.00	34.20	14.42	14.68	2,945.42	4,360.82	177.64 N	37.24 E	151,197.26	2,124,547.32	8.15	177.21	
4,419.00	36.36	15.26	15.52	2,970.73	4,386.13	194.92 N	41.90 E	151,214.57	2,124,551.91	7.14	194.44	
4,451.00	37.94	16.06	16.32	2,996.23	4,411.63	213.50 N	47.21 E	151,233.17	2,124,557.13	5.16	212.96	
4,482.00	39.90	16.45	16.71	3,020.35	4,435.75	232.17 N	52.74 E	151,251.87	2,124,562.58	6.37	231.57	
4,514.00	42.40	15.80	16.06	3,044.44	4,459.84	252.37 N	58.68 E	151,272.10	2,124,568.42	7.93	251.71	
4,545.00	45.23	14.25	14.51	3,066.81	4,482.21	273.08 N	64.33 E	151,292.82	2,124,573.98	9.76	272.34	
4,577.00	47.27	13.70	13.96	3,088.94	4,504.34	295.48 N	70.01 E	151,315.26	2,124,579.56	6.49	294.68	
4,608.00	50.61	13.46	13.72	3,109.30	4,524.70	318.17 N	75.60 E	151,337.97	2,124,585.04	10.79	317.31	
4,640.00	53.31	13.32	13.58	3,129.01	4,544.41	342.66 N	81.55 E	151,362.49	2,124,590.88	8.44	341.73	
4,672.00	55.22	13.40	13.66	3,147.70	4,563.10	367.91 N	87.66 E	151,387.76	2,124,596.88	5.97	366.91	
4,703.00	57.02	13.78	14.04	3,164.98	4,580.38	392.89 N	93.83 E	151,412.78	2,124,602.93	5.89	391.83	
4,735.00	59.18	13.53	13.79	3,181.89	4,597.29	419.26 N	100.36 E	151,439.17	2,124,609.34	6.78	418.12	
4,766.00	60.08	13.68	13.94	3,197.57	4,612.97	445.23 N	106.77 E	151,465.17	2,124,615.63	2.93	444.01	
4,798.00	60.36	13.90	14.16	3,213.46	4,628.86	472.17 N	113.51 E	151,492.14	2,124,622.25	1.06	470.88	

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Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
4,829.00	60.76	14.01	14.27	3,228.70	4,644.10	498.34 N	120.14 E	151,518.34	2,124,628.76	1.33	496.97	
4,861.00	61.26	14.10	14.36	3,244.20	4,659.60	525.46 N	127.06 E	151,545.50	2,124,635.55	1.58	524.02	
4,892.00	62.19	14.31	14.57	3,258.89	4,674.29	551.90 N	133.88 E	151,571.96	2,124,642.25	3.06	550.38	
4,924.00	65.18	14.12	14.38	3,273.07	4,688.47	579.67 N	141.05 E	151,599.76	2,124,649.29	9.36	578.06	
4,955.00	67.85	14.11	14.37	3,285.43	4,700.83	607.21 N	148.11 E	151,627.34	2,124,656.23	8.61	605.52	
4,987.00	69.57	13.64	13.90	3,297.04	4,712.44	636.12 N	155.39 E	151,656.28	2,124,663.37	5.55	634.35	
5,008.30	70.69	13.70	13.96	3,304.28	4,719.68	655.56 N	160.21 E	151,675.74	2,124,668.11	5.27	653.74	Miss POE 4740' TVD (993' FSL, 528' FWL)
5,018.00	71.20	13.73	13.99	3,307.45	4,722.85	664.46 N	162.42 E	151,684.65	2,124,670.28	5.27	662.61	
5,050.00	73.27	13.64	13.90	3,317.21	4,732.61	694.03 N	169.77 E	151,714.26	2,124,677.49	6.47	692.10	
5,081.00	76.69	13.66	13.92	3,325.25	4,740.65	723.09 N	176.96 E	151,743.35	2,124,684.55	11.03	721.08	
5,113.00	79.92	14.03	14.29	3,331.73	4,747.13	753.48 N	184.60 E	151,773.77	2,124,692.05	10.16	751.38	
5,144.00	81.90	14.39	14.65	3,336.63	4,752.03	783.12 N	192.25 E	151,803.45	2,124,699.56	6.49	780.93	
5,176.00	82.53	14.43	14.69	3,340.96	4,756.36	813.79 N	200.28 E	151,834.15	2,124,707.45	1.97	811.51	
5,207.00	84.31	14.26	14.52	3,344.52	4,759.92	843.59 N	208.04 E	151,863.99	2,124,715.08	5.77	841.22	
5,239.00	86.76	13.46	13.72	3,347.01	4,762.41	874.52 N	215.82 E	151,894.96	2,124,722.72	8.05	872.07	
5,270.00	88.70	13.49	13.75	3,348.23	4,763.63	904.61 N	223.18 E	151,925.08	2,124,729.94	6.26	902.08	
5,302.00	89.29	13.62	13.88	3,348.80	4,764.20	935.68 N	230.82 E	151,956.19	2,124,737.43	1.89	933.06	
5,333.00	89.69	14.04	14.30	3,349.07	4,764.47	965.75 N	238.37 E	151,986.29	2,124,744.84	1.87	963.04	
5,370.00	90.06	14.08	14.34	3,349.15	4,764.55	1,001.60 N	247.52 E	152,022.18	2,124,753.83	1.01	998.78	
5,466.00	90.62	14.25	14.51	3,348.58	4,763.98	1,094.57 N	271.43 E	152,115.26	2,124,777.32	0.61	1,091.48	
5,497.00	90.96	13.51	13.77	3,348.16	4,763.56	1,124.63 N	279.00 E	152,145.35	2,124,784.75	2.63	1,121.46	
5,528.00	90.77	13.29	13.55	3,347.69	4,763.09	1,154.75 N	286.32 E	152,175.50	2,124,791.93	0.94	1,151.49	
5,558.00	90.25	13.19	13.45	3,347.42	4,762.82	1,183.92 N	293.33 E	152,204.70	2,124,798.80	1.77	1,180.58	
5,589.00	89.35	13.48	13.74	3,347.53	4,762.93	1,214.05 N	300.61 E	152,234.87	2,124,805.95	3.05	1,210.63	
5,620.00	89.54	13.33	13.59	3,347.83	4,763.23	1,244.17 N	307.94 E	152,265.02	2,124,813.14	0.78	1,240.67	
5,651.00	89.75	13.28	13.54	3,348.02	4,763.42	1,274.30 N	315.21 E	152,295.19	2,124,820.27	0.70	1,270.72	
5,681.00	90.22	13.15	13.41	3,348.03	4,763.43	1,303.48 N	322.20 E	152,324.39	2,124,827.13	1.63	1,299.81	
5,774.00	88.12	12.53	12.79	3,349.38	4,764.78	1,394.04 N	343.27 E	152,415.05	2,124,847.79	2.35	1,390.14	
5,869.00	88.89	12.19	12.45	3,351.85	4,767.25	1,486.72 N	364.02 E	152,507.82	2,124,868.11	0.89	1,482.58	
5,963.00	90.00	11.45	11.71	3,352.77	4,768.17	1,578.63 N	383.69 E	152,599.82	2,124,887.36	1.42	1,574.26	
6,057.00	90.83	11.02	11.28	3,352.08	4,767.48	1,670.74 N	402.42 E	152,692.02	2,124,905.67	0.99	1,666.16	
6,152.00	90.65	11.73	11.99	3,350.86	4,766.26	1,763.78 N	421.58 E	152,785.14	2,124,924.40	0.77	1,758.98	
6,246.00	90.89	12.23	12.49	3,349.59	4,764.99	1,855.63 N	441.51 E	152,877.09	2,124,943.91	0.59	1,850.61	
6,341.00	91.26	13.05	13.31	3,347.81	4,763.21	1,948.22 N	462.71 E	152,969.77	2,124,964.69	0.95	1,942.95	
6,435.00	90.56	14.70	14.96	3,346.32	4,761.72	2,039.36 N	485.67 E	153,061.01	2,124,987.22	1.91	2,033.83	
6,530.00	90.09	14.64	14.90	3,345.78	4,761.18	2,131.15 N	510.14 E	153,152.91	2,125,011.28	0.50	2,125.34	

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Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
6,625.00	91.39	13.88	14.14	3,344.55	4,759.95	2,223.10 N	533.96 E	153,244.98	2,125,034.67	1.59	2,217.03	
6,719.00	90.06	14.74	15.00	3,343.36	4,758.76	2,314.07 N	557.60 E	153,336.05	2,125,057.90	1.68	2,307.73	
6,814.00	89.78	14.77	15.03	3,343.50	4,758.90	2,405.83 N	582.21 E	153,427.92	2,125,082.09	0.30	2,399.20	
6,908.00	90.86	14.47	14.73	3,342.97	4,758.37	2,496.67 N	606.35 E	153,518.87	2,125,105.81	1.19	2,489.77	
7,003.00	89.54	15.34	15.60	3,342.64	4,758.04	2,588.36 N	631.20 E	153,610.67	2,125,130.25	1.66	2,581.18	
7,097.00	90.31	15.26	15.52	3,342.76	4,758.16	2,678.91 N	656.42 E	153,701.34	2,125,155.05	0.82	2,671.45	
7,192.00	88.80	15.59	15.85	3,343.50	4,758.90	2,770.37 N	682.10 E	153,792.92	2,125,180.31	1.63	2,762.61	
7,287.00	89.41	15.14	15.40	3,344.98	4,760.38	2,861.85 N	707.68 E	153,884.51	2,125,205.47	0.80	2,853.80	
7,381.00	90.34	14.57	14.83	3,345.19	4,760.59	2,952.59 N	732.19 E	153,975.37	2,125,229.57	1.16	2,944.27	
7,476.00	88.36	15.51	15.77	3,346.27	4,761.67	3,044.22 N	757.26 E	154,067.10	2,125,254.21	2.31	3,035.61	
7,570.00	89.14	15.33	15.59	3,348.32	4,763.72	3,134.70 N	782.66 E	154,157.70	2,125,279.20	0.85	3,125.80	
7,665.00	90.65	15.16	15.42	3,348.49	4,763.89	3,226.24 N	808.05 E	154,249.35	2,125,304.17	1.60	3,217.05	
7,759.00	92.10	14.43	14.69	3,346.24	4,761.64	3,316.98 N	832.46 E	154,340.21	2,125,328.17	1.73	3,307.52	
7,854.00	91.11	15.51	15.77	3,343.58	4,758.98	3,408.60 N	857.41 E	154,431.95	2,125,352.69	1.54	3,398.86	
7,948.00	89.60	16.69	16.95	3,342.99	4,758.39	3,498.79 N	883.88 E	154,522.25	2,125,378.75	2.04	3,488.75	
8,043.00	91.21	17.28	17.54	3,342.32	4,757.72	3,589.52 N	912.04 E	154,613.10	2,125,406.50	1.80	3,579.15	
8,137.00	89.17	17.01	17.27	3,342.01	4,757.41	3,679.21 N	940.16 E	154,702.92	2,125,434.20	2.19	3,668.53	
8,232.00	90.03	16.91	17.17	3,342.67	4,758.07	3,769.95 N	968.28 E	154,793.79	2,125,461.91	0.91	3,758.95	
8,326.00	90.86	16.55	16.81	3,341.94	4,757.34	3,859.84 N	995.75 E	154,883.81	2,125,488.97	0.96	3,848.53	
8,421.00	89.72	14.97	15.23	3,341.46	4,756.86	3,951.14 N	1,021.96 E	154,975.23	2,125,514.76	2.05	3,939.54	
8,515.00	90.31	13.57	13.83	3,341.44	4,756.84	4,042.14 N	1,045.55 E	155,066.33	2,125,537.93	1.62	4,030.26	
8,610.00	88.86	12.75	13.01	3,342.13	4,757.53	4,134.54 N	1,067.59 E	155,158.83	2,125,559.55	1.75	4,122.41	
8,704.00	89.66	12.22	12.48	3,343.34	4,758.74	4,226.21 N	1,088.33 E	155,250.60	2,125,579.87	1.02	4,213.85	
8,799.00	90.62	12.54	12.80	3,343.11	4,758.51	4,318.91 N	1,109.12 E	155,343.39	2,125,600.23	1.07	4,306.31	
8,893.00	91.45	12.08	12.34	3,341.41	4,756.81	4,410.64 N	1,129.57 E	155,435.21	2,125,620.27	1.01	4,397.81	
8,988.00	92.72	12.10	12.36	3,337.95	4,753.35	4,503.38 N	1,149.88 E	155,528.04	2,125,640.15	1.34	4,490.31	
9,013.00	93.08	12.46	12.72	3,336.69	4,752.09	4,527.75 N	1,155.30 E	155,552.44	2,125,645.46	2.04	4,514.62	Last MWD Survey
9,063.00	93.08	12.46	12.72	3,334.00	4,749.40	4,576.45 N	1,166.29 E	155,601.19	2,125,656.23	0.00	4,563.20	Projection to TD - PBHL ACF 3407 15-1H (340' FNL, 1599' FWL)

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
208.00	208.00	0.05	0.76	First MWD Survey
9,013.00	4,752.09	4,527.75	1,155.30	Last MWD Survey
9,063.00	4,749.40	4,576.45	1,166.29	Projection to TD

**Design Report for Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774 - Wellbore #1**

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	359.36	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
208.00	9,063.00	MWD Surveys	MWD+SC

**Design Targets**

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	( )	( )	( )	( )	( )	( )	( )		
- Shape	( )	( )	( )	( )	( )	( )	( )		

**Directional Difficulty Index**

Average Dogleg over Survey:	1.81 °/100ft	Maximum Dogleg over Survey:	11.03 °/100ft at 5,081.00 ft
Net Tortousity applicable to Plans:	0.02 °/100ft	Directional Difficulty Index:	6.169

**Audit Info**

## North Reference Sheet for Sec 15-T34S-R07W - Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774 - Wellbore #1

All data is in Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to Well @ 1415.40ft. Northing and Easting are relative to Albright Farms 3407 #15-1H / Job# 9199272/ Nabors 774

Coordinate System is US State Plane 1927 (Exact solution), Kansas South 1502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 98° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:37° 16' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 1.00004177

Grid Coordinates of Well: 151,019.46 ft N, 2,124,510.90 ft E

Geographical Coordinates of Well: 37° 04' 50.29" N, 098° 04' 23.58" W

Grid Convergence at Surface is: 0.26°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,063.00ft the Bottom Hole Displacement is 4,722.73ft in the Direction of 14.30° (True).

Magnetic Convergence at surface is: -4.49° (12 January 2012, , BGGM2011)

