

# Tekton Energy

Well Name: **Frye Farms 9 1-5-33-090-4-NH**

Surface Location: Frye Farms Pad Sec.32-T6N-R67W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

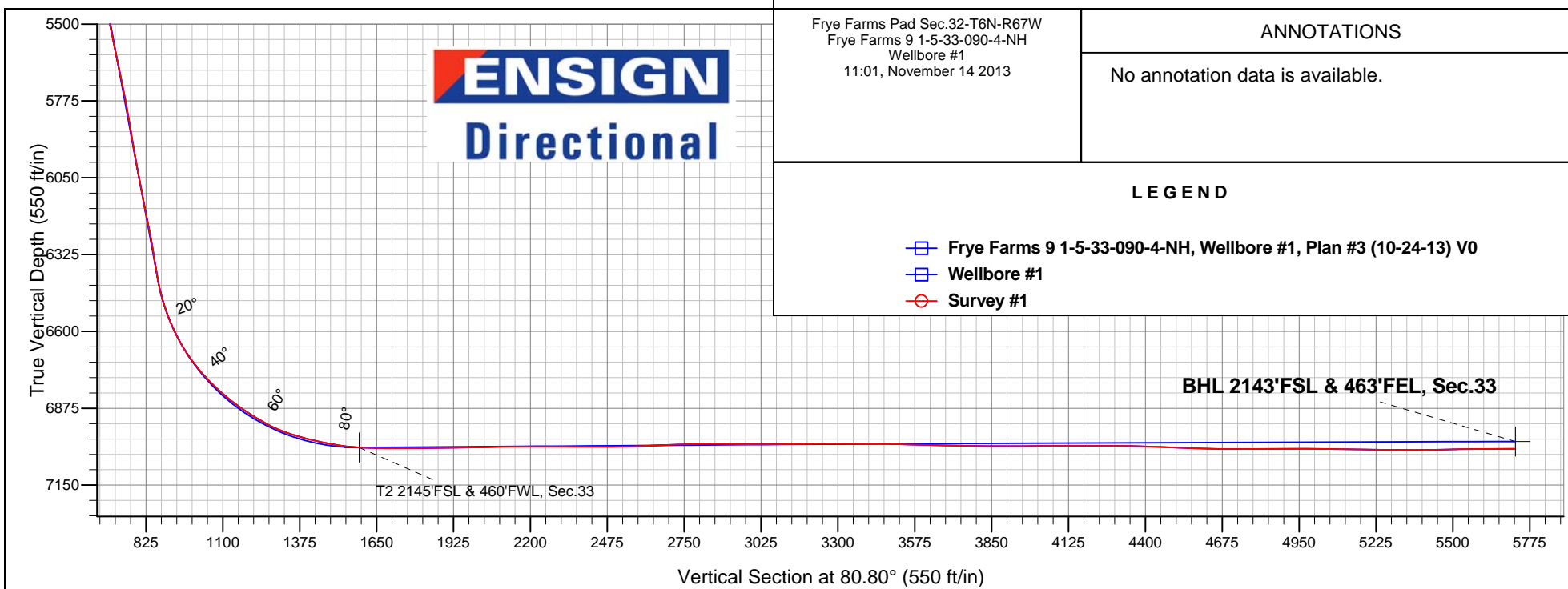
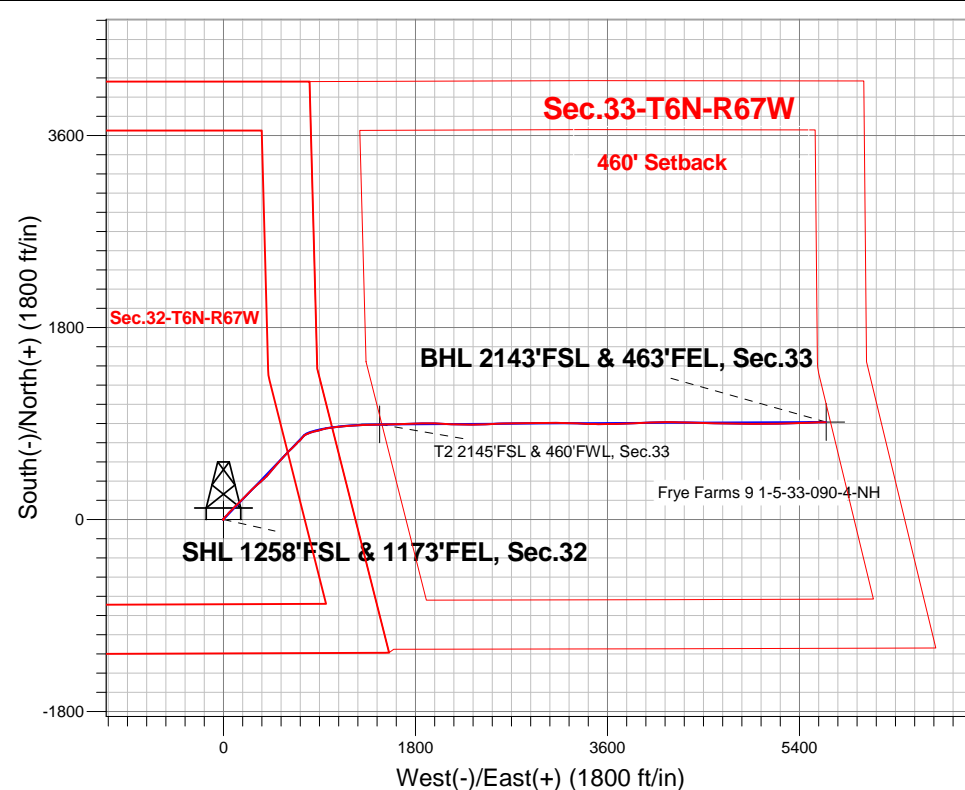
Ground Elevation: 4880.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1403480.56	3164018.28	40.439460	-104.910740	

Frontier 10 RKB - 22.5' WELL @ 4902.5ft (Frontier 10 RKB - 22.5')

## FINAL SURVEY

Projected Bottom Hole Location  
11740'MD 7020'TVD 913'N & 5647'E of SHL  
90.5 degree Incl @ 88.2 degree AZM



Frye Farms Pad Sec.32-T6N-R67W  
Frye Farms 9 1-5-33-090-4-NH  
Wellbore #1  
11:01, November 14 2013

### ANNOTATIONS

No annotation data is available.

### LEGEND

- Frye Farms 9 1-5-33-090-4-NH, Wellbore #1, Plan #3 (10-24-13) V0
- Wellbore #1
- Survey #1



## **Tekton Energy**

**SEC.32-T6N-R67W**

**Frye Farms Pad Sec.32-T6N-R67W**

**Frye Farms 9 1-5-33-090-4-NH**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**14 November, 2013**

<b>Company:</b>	Tekton Energy	<b>Local Co-ordinate Reference:</b>	Well Frye Farms 9 1-5-33-090-4-NH
<b>Project:</b>	SEC.32-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4902.5ft (Frontier 10 RKB - 22.5')
<b>Site:</b>	Frye Farms Pad Sec.32-T6N-R67W	<b>MD Reference:</b>	WELL @ 4902.5ft (Frontier 10 RKB - 22.5')
<b>Well:</b>	Frye Farms 9 1-5-33-090-4-NH	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.32-T6N-R67W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Frye Farms Pad Sec.32-T6N-R67W			
Site Position:		Northing:		1,403,480.58ft	
From:	Lat/Long	Easting:		Longitude:	
		3,164,018.28ft		-104.910740	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
0.0 ft		"		0.38 °	

Well	Frye Farms 9 1-5-33-090-4-NH					
Well Position	+N/-S	0.0 ft	Northing:	1,403,480.56 ft	Latitude:	40.439460
	+E/-W	0.0 ft	Easting:	3,164,018.28 ft	Longitude:	-104.910740
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,880.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/2/2013	8.64	66.98	52,894

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	80.80	

Survey Program		Date	11/14/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
135.0	7,529.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	
7,623.0	11,740.0	Survey #2 - Lateral (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.01	280.60	1.0	0.0	0.0	0.0	0.96	0.96	0.00
SHL 1258'FSL & 1173'FEL, Sec.32									
135.0	1.30	280.60	135.0	0.3	-1.5	-1.4	0.96	0.96	0.00
226.0	0.20	224.50	226.0	0.4	-2.6	-2.5	1.32	-1.21	-61.65
318.0	0.40	245.20	318.0	0.1	-3.0	-3.0	0.24	0.22	22.50
410.0	0.90	82.10	410.0	0.1	-2.6	-2.6	1.40	0.54	-177.28
502.0	1.10	77.20	502.0	0.4	-1.0	-1.0	0.24	0.22	-5.33
594.0	0.10	148.90	594.0	0.5	-0.1	-0.1	1.17	-1.09	77.93
686.0	0.20	197.60	686.0	0.3	-0.1	-0.1	0.17	0.11	52.93
778.0	0.20	192.20	778.0	0.0	-0.2	-0.2	0.02	0.00	-5.87
870.0	0.20	162.10	870.0	-0.3	-0.2	-0.3	0.11	0.00	-32.72

<b>Company:</b>	Tekton Energy	<b>Local Co-ordinate Reference:</b>	Well Frye Farms 9 1-5-33-090-4-NH
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<b>Site:</b>	Frye Farms Pad Sec.32-T6N-R67W	<b>MD Reference:</b>	WELL @ 4902.5ft (Frontier 10 RKB - 22.5')
<b>Well:</b>	Frye Farms 9 1-5-33-090-4-NH	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

#### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,005.0	0.30	237.70	1,005.0	-0.8	-0.4	-0.5	0.23	0.07	56.00
1,098.0	0.30	244.40	1,098.0	-1.0	-0.9	-1.0	0.04	0.00	7.20
1,191.0	0.80	277.60	1,190.9	-1.0	-1.7	-1.9	0.62	0.54	35.70
1,284.0	0.70	246.50	1,283.9	-1.2	-2.9	-3.0	0.44	-0.11	-33.44
1,374.0	1.50	30.50	1,373.9	-0.4	-2.8	-2.8	2.34	0.89	160.00
1,466.0	2.80	30.10	1,465.9	2.6	-1.1	-0.6	1.41	1.41	-0.43
1,557.0	5.00	29.70	1,556.6	8.0	2.0	3.3	2.42	2.42	-0.44
1,650.0	6.10	37.10	1,649.2	15.5	7.0	9.4	1.41	1.18	7.96
1,741.0	6.50	47.00	1,739.7	22.8	13.7	17.2	1.27	0.44	10.88
1,833.0	7.00	47.70	1,831.0	30.1	21.7	26.2	0.55	0.54	0.76
1,926.0	9.20	41.00	1,923.1	39.6	30.7	36.7	2.57	2.37	-7.20
2,018.0	9.80	45.20	2,013.8	50.6	41.1	48.7	1.00	0.65	4.57
2,110.0	10.40	37.80	2,104.4	62.7	51.8	61.1	1.55	0.65	-8.04
2,201.0	11.90	45.90	2,193.7	75.7	63.5	74.8	2.38	1.65	8.90
2,295.0	13.40	42.00	2,285.4	90.6	77.8	91.3	1.84	1.60	-4.15
2,390.0	14.00	45.20	2,377.7	106.9	93.3	109.2	1.02	0.63	3.37
2,484.0	16.40	48.90	2,468.4	123.6	111.4	129.7	2.75	2.55	3.94
2,578.0	16.70	44.70	2,558.5	141.9	130.9	151.9	1.31	0.32	-4.47
2,672.0	15.10	44.50	2,648.9	160.3	148.9	172.7	1.70	-1.70	-0.21
2,765.0	14.20	40.80	2,738.9	177.5	164.9	191.2	1.40	-0.97	-3.98
2,860.0	15.60	45.60	2,830.7	195.3	181.6	210.5	1.96	1.47	5.05
2,955.0	13.50	48.00	2,922.7	211.6	199.0	230.3	2.30	-2.21	2.53
3,049.0	14.80	47.10	3,013.8	227.2	216.0	249.5	1.40	1.38	-0.96
3,144.0	14.00	42.20	3,105.8	243.9	232.6	268.6	1.53	-0.84	-5.16
3,238.0	12.70	36.80	3,197.3	260.6	246.4	284.9	1.91	-1.38	-5.74
3,331.0	11.80	44.90	3,288.2	275.6	259.2	299.9	2.08	-0.97	8.71
3,425.0	12.40	50.80	3,380.1	288.7	273.8	316.5	1.46	0.64	6.28
3,518.0	11.80	49.80	3,471.0	301.2	288.8	333.3	0.68	-0.65	-1.08
3,612.0	11.30	47.30	3,563.1	313.6	302.9	349.2	0.75	-0.53	-2.66
3,707.0	13.00	50.10	3,656.0	326.8	318.0	366.1	1.89	1.79	2.95
3,802.0	13.30	48.40	3,748.5	340.9	334.4	384.6	0.52	0.32	-1.79
3,895.0	13.50	47.00	3,839.0	355.4	350.3	402.6	0.41	0.22	-1.51
3,990.0	12.70	45.40	3,931.5	370.3	365.8	420.3	0.92	-0.84	-1.68
4,085.0	12.00	47.70	4,024.3	384.3	380.6	437.1	0.90	-0.74	2.42
4,178.0	12.30	50.10	4,115.2	397.2	395.3	453.7	0.63	0.32	2.58
4,272.0	14.00	45.90	4,206.7	411.5	411.2	471.7	2.07	1.81	-4.47
4,365.0	14.00	40.50	4,297.0	427.9	426.6	489.5	1.40	0.00	-5.81
4,457.0	13.40	38.20	4,386.4	444.7	440.4	505.8	0.88	-0.65	-2.50
4,552.0	12.60	34.10	4,478.9	462.0	453.0	521.0	1.28	-0.84	-4.32
4,647.0	12.70	38.90	4,571.6	478.7	465.4	535.9	1.11	0.11	5.05
4,740.0	12.90	43.40	4,662.3	494.2	478.9	551.8	1.09	0.22	4.84
4,833.0	12.70	40.60	4,753.0	509.5	492.7	567.8	0.70	-0.22	-3.01
4,928.0	13.70	41.50	4,845.5	525.8	507.0	584.5	1.07	1.05	0.95
5,023.0	13.20	45.60	4,937.9	541.8	522.2	602.1	1.13	-0.53	4.32
5,118.0	11.80	42.20	5,030.6	556.6	536.4	618.5	1.66	-1.47	-3.58
5,212.0	11.00	40.50	5,122.8	570.6	548.7	632.9	0.92	-0.85	-1.81
5,307.0	11.80	43.60	5,215.9	584.5	561.3	647.5	1.06	0.84	3.26
5,403.0	11.60	42.60	5,309.9	598.7	574.6	662.9	0.30	-0.21	-1.04
5,497.0	12.60	39.90	5,401.8	613.5	587.6	678.1	1.22	1.06	-2.87
5,591.0	14.20	42.70	5,493.3	629.9	602.0	694.9	1.84	1.70	2.98
5,687.0	13.50	48.50	5,586.5	645.9	618.3	713.7	1.62	-0.73	6.04
5,782.0	14.30	48.00	5,678.7	661.1	635.4	732.9	0.85	0.84	-0.53
5,876.0	13.30	42.20	5,770.0	676.9	651.3	751.1	1.81	-1.06	-6.17
5,970.0	12.30	44.10	5,861.7	692.1	665.5	767.6	1.15	-1.06	2.02

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<b>Site:</b>	Frye Farms Pad Sec.32-T6N-R67W	<b>MD Reference:</b>	WELL @ 4902.5ft (Frontier 10 RKB - 22.5')
<b>Well:</b>	Frye Farms 9 1-5-33-090-4-NH	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

#### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,062.0	12.10	42.90	5,951.6	706.2	678.9	783.0	0.35	-0.22	-1.30
6,155.0	12.00	48.90	6,042.5	719.7	692.8	798.9	1.35	-0.11	6.45
6,251.0	13.90	46.40	6,136.1	734.2	708.7	816.9	2.06	1.98	-2.60
6,344.0	14.10	44.30	6,226.3	750.0	724.7	835.3	0.59	0.22	-2.26
6,438.0	12.40	37.30	6,317.8	766.3	738.8	851.8	2.48	-1.81	-7.45
6,485.0	11.80	37.10	6,363.8	774.1	744.7	858.9	1.28	-1.28	-0.43
6,531.0	12.80	41.50	6,408.7	781.7	751.0	866.3	2.98	2.17	9.57
6,578.0	15.40	55.20	6,454.3	789.1	759.5	875.9	8.97	5.53	29.15
6,625.0	18.60	62.10	6,499.3	796.2	771.3	888.7	8.04	6.81	14.68
6,672.0	20.80	64.50	6,543.5	803.3	785.4	903.8	4.99	4.68	5.11
6,720.0	25.20	71.00	6,587.7	810.3	802.8	922.0	10.57	9.17	13.54
6,767.0	28.20	70.50	6,629.7	817.3	822.7	942.8	6.40	6.38	-1.06
6,813.0	33.00	75.60	6,669.3	824.0	845.1	966.0	11.86	10.43	11.09
6,860.0	36.40	77.40	6,707.9	830.3	871.2	992.7	7.55	7.23	3.83
6,908.0	40.40	75.40	6,745.5	837.3	900.1	1,022.4	8.73	8.33	-4.17
6,955.0	44.60	72.80	6,780.2	846.0	930.6	1,053.9	9.68	8.94	-5.53
7,002.0	48.60	78.80	6,812.5	854.3	963.7	1,087.9	12.58	8.51	12.77
7,049.0	51.80	80.40	6,842.5	860.8	999.2	1,124.0	7.29	6.81	3.40
7,095.0	54.50	81.80	6,870.1	866.5	1,035.6	1,160.8	6.35	5.87	3.04
7,142.0	56.30	84.20	6,896.8	871.2	1,074.0	1,199.5	5.69	3.83	5.11
7,189.0	60.60	86.90	6,921.4	874.3	1,113.9	1,239.4	10.38	9.15	5.74
7,236.0	65.00	87.20	6,942.9	876.5	1,155.6	1,280.9	9.38	9.36	0.64
7,284.0	70.30	87.60	6,961.1	878.5	1,200.0	1,325.0	11.07	11.04	0.83
7,331.0	73.90	86.70	6,975.6	880.7	1,244.6	1,369.4	7.87	7.66	-1.91
7,378.0	76.60	86.50	6,987.5	883.4	1,290.0	1,414.6	5.76	5.74	-0.43
7,425.0	78.60	87.20	6,997.6	885.9	1,335.8	1,460.3	4.50	4.26	1.49
7,472.0	80.40	86.90	7,006.2	888.3	1,382.0	1,506.2	3.88	3.83	-0.64
7,529.0	85.60	88.60	7,013.1	890.5	1,438.5	1,562.4	9.59	9.12	2.98
7,554.8	86.43	88.54	7,014.9	891.1	1,464.2	1,587.8	3.24	3.23	-0.22
<b>T2 2145'FSL &amp; 460'FWL, Sec.33</b>									
7,623.0	88.64	88.39	7,017.9	893.0	1,532.3	1,655.4	3.24	3.23	-0.22
7,717.0	90.92	87.97	7,018.2	896.0	1,626.3	1,748.6	2.47	2.43	-0.45
7,812.0	90.22	88.80	7,017.3	898.6	1,721.2	1,842.8	1.14	-0.74	0.87
7,906.0	91.01	88.34	7,016.3	901.0	1,815.2	1,935.9	0.97	0.84	-0.49
8,001.0	91.54	89.66	7,014.2	902.6	1,910.2	2,029.9	1.50	0.56	1.39
8,095.0	90.75	92.60	7,012.3	900.8	2,004.1	2,122.3	3.24	-0.84	3.13
8,189.0	89.78	92.79	7,011.8	896.4	2,098.0	2,214.3	1.05	-1.03	0.20
8,284.0	89.60	92.67	7,012.4	891.8	2,192.9	2,307.3	0.23	-0.19	-0.13
8,378.0	89.78	90.53	7,012.9	889.2	2,286.9	2,399.6	2.28	0.19	-2.28
8,473.0	90.40	88.23	7,012.7	890.2	2,381.8	2,493.5	2.51	0.65	-2.42
8,567.0	92.15	86.71	7,010.6	894.4	2,475.7	2,586.9	2.47	1.86	-1.62
8,661.0	92.51	87.84	7,006.8	898.9	2,569.5	2,680.2	1.26	0.38	1.20
8,756.0	91.45	88.97	7,003.5	901.5	2,664.4	2,774.3	1.63	-1.12	1.19
8,850.0	89.69	89.54	7,002.6	902.7	2,758.4	2,867.3	1.97	-1.87	0.61
8,944.0	89.08	88.69	7,003.6	904.2	2,852.4	2,960.3	1.11	-0.65	-0.90
9,039.0	90.22	88.92	7,004.2	906.2	2,947.4	3,054.3	1.22	1.20	0.24
9,133.0	90.84	89.63	7,003.3	907.3	3,041.4	3,147.3	1.00	0.66	0.76
9,228.0	90.48	91.50	7,002.2	906.4	3,136.4	3,240.9	2.00	-0.38	1.97
9,322.0	90.04	90.80	7,001.8	904.5	3,230.3	3,333.4	0.88	-0.47	-0.74
9,417.0	89.78	92.80	7,001.9	901.5	3,325.3	3,426.6	2.12	-0.27	2.11
9,511.0	88.20	92.31	7,003.6	897.3	3,419.2	3,518.6	1.76	-1.68	-0.52
9,605.0	88.64	89.78	7,006.2	895.6	3,513.1	3,611.1	2.73	0.47	-2.69
9,700.0	88.55	89.90	7,008.5	895.9	3,608.1	3,704.9	0.16	-0.09	0.13
9,794.0	89.25	88.72	7,010.3	897.0	3,702.1	3,797.8	1.46	0.74	-1.26

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<b>Well:</b>	Frye Farms 9 1-5-33-090-4-NH	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
9,888.0	90.13	87.25	7,010.8	900.3	3,796.0	3,891.1	1.82	0.94	-1.56	
9,983.0	91.01	87.31	7,009.9	904.8	3,890.9	3,985.5	0.93	0.93	0.06	
10,077.0	89.60	87.53	7,009.4	909.1	3,984.8	4,078.9	1.52	-1.50	0.23	
10,172.0	90.04	88.77	7,009.7	912.1	4,079.7	4,173.1	1.38	0.46	1.31	
10,266.0	90.04	90.01	7,009.6	913.1	4,173.7	4,266.0	1.32	0.00	1.32	
10,360.0	88.64	92.18	7,010.7	911.3	4,267.7	4,358.5	2.75	-1.49	2.31	
10,455.0	87.93	91.23	7,013.5	908.5	4,362.6	4,451.7	1.25	-0.75	-1.00	
10,549.0	87.93	91.75	7,016.9	906.1	4,456.5	4,544.0	0.55	0.00	0.55	
10,643.0	88.46	90.17	7,019.9	904.5	4,550.4	4,636.5	1.77	0.56	-1.68	
10,738.0	90.04	91.37	7,021.1	903.2	4,645.4	4,730.1	2.09	1.66	1.26	
10,832.0	90.48	92.33	7,020.7	900.2	4,739.4	4,822.3	1.12	0.47	1.02	
10,927.0	90.22	90.37	7,020.1	898.0	4,834.3	4,915.7	2.08	-0.27	-2.06	
11,021.0	89.69	90.25	7,020.2	897.4	4,928.3	5,008.4	0.58	-0.56	-0.13	
11,115.0	89.08	89.78	7,021.2	897.4	5,022.3	5,101.2	0.82	-0.65	-0.50	
11,210.0	89.08	89.26	7,022.7	898.2	5,117.3	5,195.1	0.55	0.00	-0.55	
11,304.0	89.25	88.84	7,024.1	899.8	5,211.3	5,288.1	0.48	0.18	-0.45	
11,399.0	90.31	88.53	7,024.5	902.0	5,306.3	5,382.2	1.16	1.12	-0.33	
11,493.0	91.71	87.82	7,022.8	904.9	5,400.2	5,475.4	1.67	1.49	-0.76	
11,587.0	90.40	88.22	7,021.1	908.2	5,494.1	5,568.7	1.46	-1.39	0.43	
11,660.0	90.48	88.23	7,020.5	910.5	5,567.1	5,641.0	0.11	0.11	0.01	
11,740.0	90.48	88.23	7,019.9	912.9	5,647.0	5,720.4	0.00	0.00	0.00	
BHL 2145'FSL & 460'FEL, Sec.33										

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_