



Well Name: HFE 24-22

Surface Location: HFE 14-22 Pad Sec.22-T4N-R68W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4920.0
Northing 1350598.47 Easting 3140661.53 Latitude 40.294695 Longitude -104.995731 Slot
Original Well Elev WELL @ 4933.0ft (Original Well Elev)

+N/-S 0.0
+E/-W 0.0

Northing
1350598.47

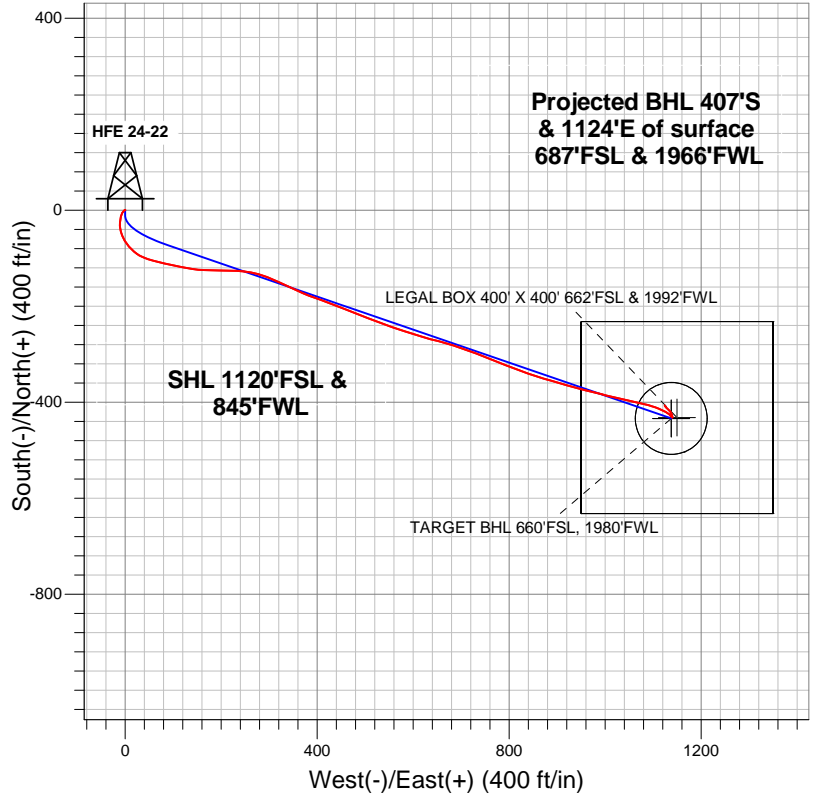
Easting
3140661.53

Latitude
40.294695

Longitude
-104.995731

Slot

Sundance Energy, Weld County, CO



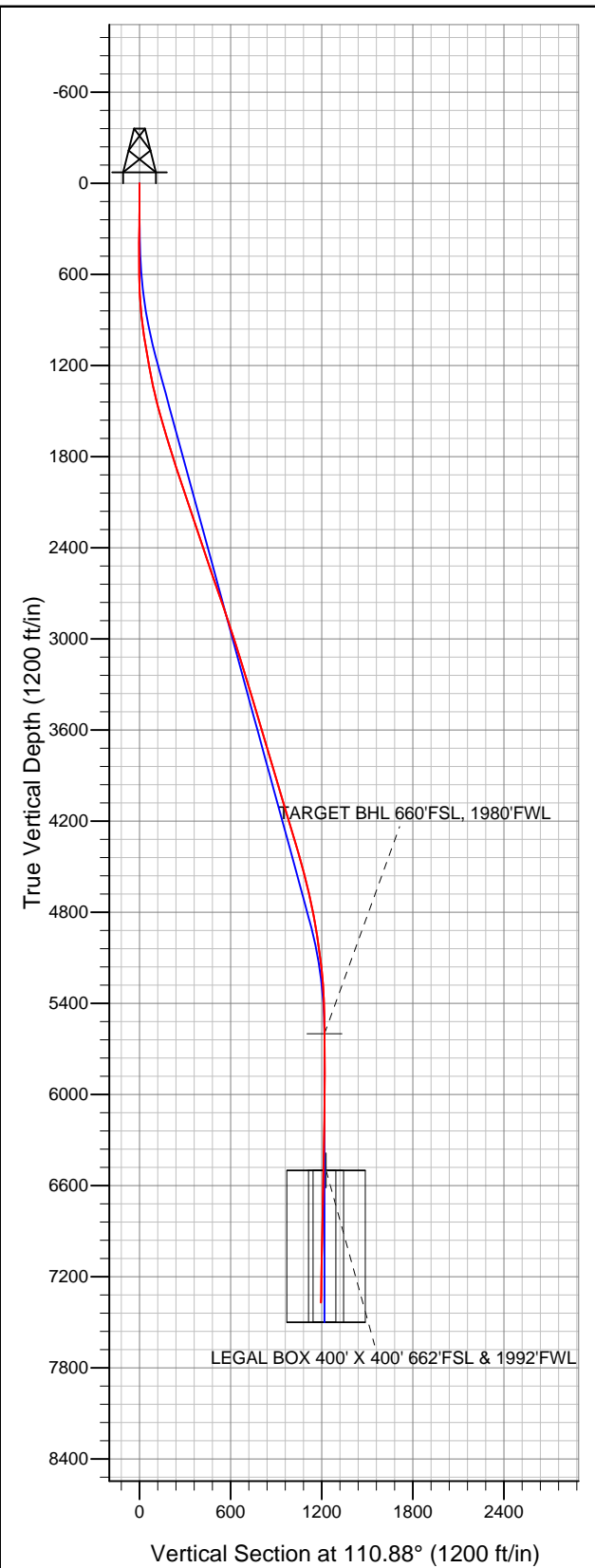
LEGEND

- HFE 24-22, Wellbore #1, Plan #1 (9-12-12) R V0
- Wellbore #1
- Survey #1

Final Survey Plot

**Projected Final Survey -
7547'MD & 7370'TVD @ 1195'VS
1.10 deg Inc 322.40 deg AZ**

Project: SEC.22-T4N-R68W
Site: HFE 14-22 Pad Sec.22-T4N-R68W
Well: HFE 24-22
Plan: Wellbore #1





Directional

Sundance Energy, Weld County, CO

SEC.22-T4N-R68W

HFE 14-22 Pad Sec.22-T4N-R68W

HFE 24-22

Wellbore #1

Survey: Survey #1

Standard Survey Report

01 October, 2012

Company:	Sundance Energy, Weld County, CO	Local Co-ordinate Reference:	Well HFE 24-22
Project:	SEC.22-T4N-R68W	TVD Reference:	WELL @ 4933.0ft (Original Well Elev)
Site:	HFE 14-22 Pad Sec.22-T4N-R68W	MD Reference:	WELL @ 4933.0ft (Original Well Elev)
Well:	HFE 24-22	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.22-T4N-R68W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		HFE 14-22 Pad Sec.22-T4N-R68W			
Site Position:		Northing:		1,350,597.13ft	
From:	Lat/Long	Easting:		Longitude:	
		3,140,616.63ft		-104.995892	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
0.0 ft		"		0.33 °	

Well	HFE 24-22					
Well Position	+N/-S	0.0 ft	Northing:	1,350,598.47 ft	Latitude:	40.294695
	+E/-W	0.0 ft	Easting:	3,140,661.53 ft	Longitude:	-104.995731
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,920.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/12/2012	8.81	66.88	52,919

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	110.88

Survey Program		Date	10/1/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
96.0	7,547.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey	Wellbore Data									
	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
	96.0	0.30	22.20	96.0	0.2	0.1	0.0	0.31	0.31	0.00
	217.0	1.50	240.80	217.0	-0.2	-1.2	-1.0	1.44	0.99	-116.86
	339.0	2.50	220.30	338.9	-3.1	-4.3	-2.9	1.00	0.82	-16.80
	459.0	3.60	201.50	458.7	-8.6	-7.4	-3.8	1.23	0.92	-15.67
	556.0	4.90	192.10	555.5	-15.4	-9.3	-3.2	1.52	1.34	-9.69
	640.0	6.10	187.90	639.1	-23.4	-10.7	-1.7	1.51	1.43	-5.00
	765.0	7.20	171.90	763.3	-37.7	-10.5	3.6	1.72	0.88	-12.80
	890.0	8.70	157.00	887.1	-54.2	-5.7	14.0	2.03	1.20	-11.92
	1,014.0	10.20	143.50	1,009.4	-71.6	4.5	29.7	2.15	1.21	-10.89
	1,139.0	10.70	129.00	1,132.3	-87.8	20.1	50.1	2.14	0.40	-11.60
	1,264.0	10.60	110.80	1,255.2	-99.2	39.9	72.6	2.68	-0.08	-14.56
	1,389.0	12.80	104.60	1,377.6	-106.8	64.0	97.9	2.02	1.76	-4.96

Company:	Sundance Energy, Weld County, CO	Local Co-ordinate Reference:	Well HFE 24-22
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Site:	HFE 14-22 Pad Sec.22-T4N-R68W	MD Reference:	WELL @ 4933.0ft (Original Well Elev)
Well:	HFE 24-22	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
1,513.0	15.30	102.30	1,497.9	-113.7	93.3	127.7	2.07	2.02	-1.85
1,638.0	17.00	100.40	1,618.0	-120.6	127.4	162.0	1.42	1.36	-1.52
1,763.0	18.20	93.20	1,737.1	-124.9	164.8	198.5	1.99	0.96	-5.76
1,888.0	19.70	89.30	1,855.4	-125.8	205.4	236.7	1.57	1.20	-3.12
2,012.0	18.70	96.00	1,972.5	-127.6	246.1	275.4	1.95	-0.81	5.40
2,137.0	17.60	108.10	2,091.3	-135.6	284.0	313.7	3.14	-0.88	9.68
2,262.0	19.30	115.20	2,209.9	-150.2	320.6	353.1	2.25	1.36	5.68
2,387.0	19.30	114.60	2,327.9	-167.6	358.1	394.3	0.16	0.00	-0.48
2,511.0	17.80	109.00	2,445.4	-182.3	394.7	433.7	1.88	-1.21	-4.52
2,636.0	19.30	111.60	2,563.9	-196.2	432.0	473.5	1.37	1.20	2.08
2,761.0	19.10	111.60	2,682.0	-211.3	470.2	514.6	0.16	-0.16	0.00
2,886.0	18.90	110.90	2,800.2	-226.0	508.1	555.3	0.24	-0.16	-0.56
3,010.0	17.90	109.90	2,917.8	-239.7	544.8	594.4	0.85	-0.81	-0.81
3,135.0	18.10	107.80	3,036.7	-252.2	581.3	633.0	0.54	0.16	-1.68
3,260.0	17.50	106.70	3,155.7	-263.5	617.8	671.2	0.55	-0.48	-0.88
3,385.0	16.60	104.40	3,275.2	-273.3	653.1	707.7	0.90	-0.72	-1.84
3,509.0	16.70	107.60	3,394.0	-283.1	687.3	743.0	0.74	0.08	2.58
3,634.0	16.90	110.60	3,513.7	-295.0	721.4	779.1	0.71	0.16	2.40
3,759.0	16.60	112.30	3,633.4	-308.1	754.9	815.2	0.46	-0.24	1.36
3,884.0	15.80	111.50	3,753.4	-321.1	787.3	850.0	0.66	-0.64	-0.64
4,009.0	17.10	109.70	3,873.3	-333.6	820.4	885.4	1.12	1.04	-1.44
4,133.0	16.50	108.10	3,992.0	-345.2	854.3	921.2	0.61	-0.48	-1.29
4,258.0	16.50	106.70	4,111.9	-355.8	888.2	956.7	0.32	0.00	-1.12
4,383.0	16.50	105.80	4,231.7	-365.7	922.3	992.1	0.20	0.00	-0.72
4,508.0	16.90	103.60	4,351.5	-374.8	957.0	1,027.8	0.60	0.32	-1.76
4,632.0	16.30	104.30	4,470.3	-383.4	991.4	1,062.9	0.51	-0.48	0.56
4,757.0	13.80	102.00	4,591.0	-390.8	1,023.0	1,095.1	2.06	-2.00	-1.84
4,882.0	12.50	103.60	4,712.7	-397.1	1,050.7	1,123.2	1.08	-1.04	1.28
5,007.0	11.00	102.00	4,835.1	-402.8	1,075.5	1,148.4	1.23	-1.20	-1.28
5,131.0	8.60	107.40	4,957.3	-408.0	1,095.9	1,169.4	2.07	-1.94	4.35
5,256.0	7.70	112.20	5,081.0	-414.0	1,112.6	1,187.1	0.90	-0.72	3.84
5,381.0	5.90	120.30	5,205.1	-420.4	1,125.9	1,201.8	1.63	-1.44	6.48
5,506.0	3.00	133.30	5,329.7	-425.8	1,133.8	1,211.2	2.44	-2.32	10.40
5,630.0	1.70	139.60	5,453.6	-429.5	1,137.4	1,215.8	1.07	-1.05	5.08
5,755.0	0.60	131.00	5,578.6	-431.3	1,139.1	1,218.0	0.89	-0.88	-6.88
5,776.4	0.55	130.07	5,600.0	-431.5	1,139.3	1,218.2	0.25	-0.24	-4.36
TARGET BHL 660'FSL, 1980'FWL									
5,880.0	0.30	121.00	5,703.6	-431.9	1,139.9	1,219.0	0.25	-0.24	-8.75
6,005.0	0.30	28.80	5,828.6	-431.8	1,140.3	1,219.3	0.35	0.00	-73.76
6,129.0	0.50	344.60	5,952.6	-431.0	1,140.3	1,219.0	0.29	0.16	-35.65
6,254.0	0.80	348.60	6,077.6	-429.6	1,140.0	1,218.3	0.24	0.24	3.20
6,379.0	1.20	339.60	6,202.6	-427.5	1,139.4	1,216.9	0.34	0.32	-7.20
6,504.0	1.30	338.60	6,327.5	-425.0	1,138.4	1,215.1	0.08	0.08	-0.80
6,628.0	1.60	331.30	6,451.5	-422.1	1,137.1	1,212.8	0.28	0.24	-5.89
6,676.1	1.71	330.19	6,499.5	-420.9	1,136.4	1,211.8	0.25	0.24	-2.30
LEGAL BOX 400' X 400' 662'FSL & 1992'FWL									
6,676.2	1.72	330.19	6,499.6	-420.9	1,136.4	1,211.8	0.25	0.24	-2.15
TARGET CIRCLE 660'FSL & 1980'FWL									
6,753.0	1.90	328.70	6,576.4	-418.8	1,135.1	1,209.9	0.25	0.24	-1.94
6,878.0	1.70	304.30	6,701.4	-416.0	1,132.5	1,206.4	0.63	-0.16	-19.52
7,003.0	1.00	307.50	6,826.3	-414.3	1,130.1	1,203.6	0.56	-0.56	2.56
7,127.0	0.90	312.00	6,950.3	-413.0	1,128.6	1,201.6	0.10	-0.08	3.63
7,252.0	1.00	322.20	7,075.3	-411.5	1,127.2	1,199.8	0.16	0.08	8.16
7,377.0	1.10	324.70	7,200.3	-409.6	1,125.8	1,197.9	0.09	0.08	2.00

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
7,502.0	1.10	322.40	7,325.3	-407.7	1,124.4	1,195.8	0.04	0.00	-1.84
7,547.0	1.10	322.40	7,370.3	-407.0	1,123.8	1,195.1	0.00	0.00	0.00

Wellbore Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TARGET BHL 660'FS	0.00	0.00	5,600.0	-433.9	1,137.6	1,350,171.11	3,141,801.53	40.293504	-104.991653
- survey misses target center by 2.9ft at 5776.4ft MD (5600.0 TVD, -431.5 N, 1139.3 E)									
- Point									
TARGET CIRCLE 660'	0.00	0.00	6,500.0	-433.9	1,137.6	1,350,171.11	3,141,801.53	40.293504	-104.991653
- survey misses target center by 13.0ft at 6676.2ft MD (6499.6 TVD, -420.9 N, 1136.4 E)									
- Circle (radius 75.0)									
LEGAL BOX 400' X 400'	0.00	0.00	6,500.0	-431.9	1,149.6	1,350,173.14	3,141,813.52	40.293509	-104.991610
- survey misses target center by 17.2ft at 6676.1ft MD (6499.5 TVD, -420.9 N, 1136.4 E)									
- Rectangle (sides W400.0 H400.0 D1,000.0)									

Checked By: _____ Approved By: _____ Date: _____