

Noble Energy

Weld County, CO (NAD 83)

Sec. 12-T3N-R65W

Stroh H12-99HZ

Plan #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

30 July, 2010

Well Coordinates: 1,332,826.12 N, 3,245,658.65 E (40° 14' 37.18" N, 104° 37' 11.89" W)

Ground Level: 4,834.00 ft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

Centered on Well Stroh H12-99HZ

RKB 24' @ 4858.00ft (H&P 315)

N

Grid

API - US Survey Feet - Custom

HALLIBURTON

Plan Report for Stroh H12-99HZ - Plan #1 Proposal

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)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
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
1,500.00	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
2,696.00	0.00	0.00	2,696.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Silt										
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,876.00	0.00	0.00	3,876.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parkman										
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,267.00	0.00	0.00	4,267.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sussex										
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,976.00	0.00	0.00	4,976.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shannon										

Plan Report for Stroh H12-99HZ - Plan #1 Proposal

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)	Toolface Azimuth (°)
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,180.19	0.00	0.00	6,180.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kickoff at 6180.19ft										
6,200.00	1.58	84.65	6,200.00	0.03	0.27	0.27	8.00	8.00	0.00	84.65
6,300.00	9.58	84.65	6,299.44	0.93	9.95	10.00	8.00	8.00	0.00	0.00
6,400.00	17.58	84.65	6,396.57	3.12	33.32	33.47	8.00	8.00	0.00	0.00
6,500.00	25.58	84.65	6,489.48	6.55	69.92	70.23	8.00	8.00	0.00	0.00
6,600.00	33.58	84.65	6,576.37	11.16	119.03	119.56	8.00	8.00	0.00	0.00
6,700.00	41.58	84.65	6,655.55	16.84	179.71	180.50	8.00	8.00	0.00	0.00
Build Rate = 8.00°/100ft										
6,800.00	49.58	84.65	6,725.48	23.50	250.77	251.87	8.00	8.00	0.00	0.00
6,896.43	57.30	84.65	6,782.87	30.72	327.84	329.27	8.00	8.00	0.00	0.00
Sharon Springs Mrkr										
6,900.00	57.58	84.65	6,784.79	31.00	330.83	332.28	8.00	8.00	0.00	0.00
6,955.17	62.00	84.65	6,812.55	35.45	378.29	379.95	8.00	8.00	0.00	0.00
Niobrara										
7,000.00	65.58	84.65	6,832.34	39.20	418.33	420.16	8.00	8.00	0.00	0.00
7,012.02	66.55	84.65	6,837.22	40.23	429.26	431.14	8.00	8.00	0.00	0.00
Niobrara A										
7,063.25	70.64	84.65	6,855.91	44.68	476.74	478.83	8.00	8.00	0.00	0.00
Niobrara A Base										
7,100.00	73.58	84.65	6,867.19	47.94	511.56	513.80	8.00	8.00	0.00	0.00
7,131.73	76.12	84.65	6,875.48	50.80	542.05	544.43	8.00	8.00	0.00	0.00
Niobrara B										
7,200.00	81.58	84.65	6,888.68	57.05	608.72	611.39	8.00	8.00	0.00	0.00
7,242.69	85.00	84.65	6,893.66	61.00	650.92	653.78	8.00	8.00	0.00	0.00
End Build at 7242.69ft - 7" Casing Pt.										
7,265.30	85.00	84.65	6,895.63	63.11	673.35	676.30	0.00	0.00	0.00	0.00
Nio B Target Top										
7,280.00	85.00	84.65	6,896.91	64.47	687.93	690.94	0.00	0.00	0.00	0.00
Hold Angle at 85.00										
7,300.00	85.00	84.65	6,898.66	66.33	707.77	710.87	0.00	0.00	0.00	0.00
7,317.69	85.00	84.65	6,900.20	67.97	725.31	728.49	0.00	0.00	0.00	0.00
Kickoff at 7317.69ft										
7,350.00	87.58	84.65	6,902.29	70.98	757.41	760.73	8.00	8.00	0.00	0.00
Build Rate = 8.00°/100ft										
7,376.66	89.72	84.65	6,902.92	73.47	783.95	787.38	8.00	8.00	0.00	0.00
Nio B Target										
7,380.19	90.00	84.65	6,902.92	73.80	787.46	790.91	8.00	8.00	0.00	0.00
7,384.80	90.37	84.65	6,902.91	74.23	792.05	795.52	8.00	8.00	0.00	0.04
End Build at 7384.80ft										
7,400.00	90.37	84.65	6,902.81	75.65	807.18	810.72	0.00	0.00	0.00	0.00
7,500.00	90.37	84.65	6,902.17	84.98	906.75	910.72	0.00	0.00	0.00	0.00
7,600.00	90.37	84.65	6,901.52	94.31	1,006.31	1,010.72	0.00	0.00	0.00	0.00
7,700.00	90.37	84.65	6,900.88	103.64	1,105.87	1,110.72	0.00	0.00	0.00	0.00
7,800.00	90.37	84.65	6,900.24	112.97	1,205.43	1,210.71	0.00	0.00	0.00	0.00
7,900.00	90.37	84.65	6,899.59	122.30	1,304.99	1,310.71	0.00	0.00	0.00	0.00

Plan Report for Stroh H12-99HZ - Plan #1 Proposal

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)	Toolface Azimuth (°)
8,000.00	90.37	84.65	6,898.95	131.63	1,404.55	1,410.71	0.00	0.00	0.00	0.00
8,100.00	90.37	84.65	6,898.31	140.96	1,504.12	1,510.71	0.00	0.00	0.00	0.00
8,200.00	90.37	84.65	6,897.66	150.29	1,603.68	1,610.70	0.00	0.00	0.00	0.00
8,300.00	90.37	84.65	6,897.02	159.62	1,703.24	1,710.70	0.00	0.00	0.00	0.00
8,400.00	90.37	84.65	6,896.38	168.95	1,802.80	1,810.70	0.00	0.00	0.00	0.00
8,500.00	90.37	84.65	6,895.73	178.28	1,902.36	1,910.70	0.00	0.00	0.00	0.00
8,600.00	90.37	84.65	6,895.09	187.61	2,001.92	2,010.70	0.00	0.00	0.00	0.00
8,700.00	90.37	84.65	6,894.45	196.94	2,101.49	2,110.69	0.00	0.00	0.00	0.00
8,800.00	90.37	84.65	6,893.80	206.27	2,201.05	2,210.69	0.00	0.00	0.00	0.00
8,900.00	90.37	84.65	6,893.16	215.60	2,300.61	2,310.69	0.00	0.00	0.00	0.00
9,000.00	90.37	84.65	6,892.52	224.93	2,400.17	2,410.69	0.00	0.00	0.00	0.00
9,100.00	90.37	84.65	6,891.87	234.26	2,499.73	2,510.69	0.00	0.00	0.00	0.00
9,200.00	90.37	84.65	6,891.23	243.59	2,599.30	2,610.68	0.00	0.00	0.00	0.00
9,300.00	90.37	84.65	6,890.59	252.92	2,698.86	2,710.68	0.00	0.00	0.00	0.00
9,400.00	90.37	84.65	6,889.94	262.25	2,798.42	2,810.68	0.00	0.00	0.00	0.00
9,500.00	90.37	84.65	6,889.30	271.58	2,897.98	2,910.68	0.00	0.00	0.00	0.00
Hold Angle at 90.37										
9,600.00	90.37	84.65	6,888.66	280.91	2,997.54	3,010.68	0.00	0.00	0.00	0.00
9,700.00	90.37	84.65	6,888.01	290.24	3,097.10	3,110.67	0.00	0.00	0.00	0.00
9,800.00	90.37	84.65	6,887.37	299.57	3,196.67	3,210.67	0.00	0.00	0.00	0.00
9,900.00	90.37	84.65	6,886.73	308.91	3,296.23	3,310.67	0.00	0.00	0.00	0.00
10,000.00	90.37	84.65	6,886.08	318.24	3,395.79	3,410.67	0.00	0.00	0.00	0.00
10,100.00	90.37	84.65	6,885.44	327.57	3,495.35	3,510.67	0.00	0.00	0.00	0.00
10,200.00	90.37	84.65	6,884.80	336.90	3,594.91	3,610.66	0.00	0.00	0.00	0.00
10,300.00	90.37	84.65	6,884.15	346.23	3,694.47	3,710.66	0.00	0.00	0.00	0.00
10,400.00	90.37	84.65	6,883.51	355.56	3,794.04	3,810.66	0.00	0.00	0.00	0.00
10,500.00	90.37	84.65	6,882.87	364.89	3,893.60	3,910.66	0.00	0.00	0.00	0.00
10,600.00	90.37	84.65	6,882.22	374.22	3,993.16	4,010.66	0.00	0.00	0.00	0.00
10,700.00	90.37	84.65	6,881.58	383.55	4,092.72	4,110.65	0.00	0.00	0.00	0.00
10,800.00	90.37	84.65	6,880.94	392.88	4,192.28	4,210.65	0.00	0.00	0.00	0.00
10,900.00	90.37	84.65	6,880.29	402.21	4,291.84	4,310.65	0.00	0.00	0.00	0.00
11,000.00	90.37	84.65	6,879.65	411.54	4,391.41	4,410.65	0.00	0.00	0.00	0.00
11,015.66	90.37	84.65	6,879.55	413.00	4,407.00	4,426.31	0.00	0.00	0.00	0.00
Total Depth = 11015.66ft - Stroh H12-99HZ Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,180.19	6,180.19	0.00	0.00	Kickoff at 6180.19ft
6,700.00	6,655.55	16.84	179.71	Build Rate = 8.00°/100ft
7,242.69	6,893.66	61.00	650.92	End Build at 7242.69ft
7,280.00	6,896.91	64.47	687.93	Hold Angle at 85.00
7,317.69	6,900.20	67.97	725.31	Kickoff at 7317.69ft
7,350.00	6,902.29	70.98	757.41	Build Rate = 8.00°/100ft
7,384.80	6,902.91	74.23	792.05	End Build at 7384.80ft
9,500.00	6,889.30	271.58	2,897.98	Hold Angle at 90.37
11,015.66	6,879.55	413.00	4,407.00	Total Depth = 11015.66ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Stroh H12-99HZ Plan #1 BH Tgt	84.65	Slot	0.00	0.00	0.00

Plan Report for Stroh H12-99HZ - Plan #1 Proposal

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,015.66	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,242.69	6,893.66	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,696.00	2,696.00	Pierre Silt		-0.37	84.65
3,876.00	3,876.00	Parkman		-0.37	84.65
4,267.00	4,267.00	Sussex		-0.37	84.65
4,976.00	4,976.00	Shannon		-0.37	84.65
6,896.43	6,785.00	Sharon Springs Mrkr		-0.37	84.65
6,955.17	6,815.00	Niobrara		-0.37	84.65
7,012.02	6,840.00	Niobrara A		-0.37	84.65
7,063.25	6,859.00	Niobrara A Base		-0.37	84.65
7,131.73	6,879.00	Niobrara B		-0.37	84.65
7,265.30	6,900.00	Nio B Target Top		-0.37	84.65
7,376.66	6,908.00	Nio B Target		-0.37	84.65

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Stroh H12-99HZ E. 460' Setback	0.00	0.00	0.00	Polygon
Stroh H12-99HZ N. 460' Setback	0.00	0.00	0.00	Polygon
Aristocrat 11-1	0.00	-747.82	-832.93	Circle
Stroh H12-99HZ W. 460' Setback	0.00	0.00	0.00	Polygon
Stroh H12-99HZ E. Section Line	0.00	0.00	0.00	Polygon
Stroh H12-99HZ Plan #1 BH Tgt	6,879.55	413.00	4,407.00	Point
Stroh H12-99HZ W. Section Line	0.00	0.00	0.00	Polygon
Stroh H12-99HZ S. Section Line	0.00	0.00	0.00	Polygon
Stroh H12-99HZ S. 460' Setback	0.00	0.00	0.00	Polygon
Aristocrat 11-2	0.00	566.80	-890.60	Circle
Stroh H12-5	0.00	-400.03	805.23	Circle
Stroh H12-99HZ N. Section Line	0.00	0.00	0.00	Polygon
Stroh H12-4	0.00	738.90	299.75	Circle

North Reference Sheet for Sec. 12-T3N-R65W - Stroh H12-99HZ - Plan #1

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

Vertical Depths are relative to RKB 24' @ 4858.00ft (H&P 315). Northing and Easting are relative to Stroh H12-99HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995685

Grid Coordinates of Well: 1,332,826.12 ft N, 3,245,658.65 ft E

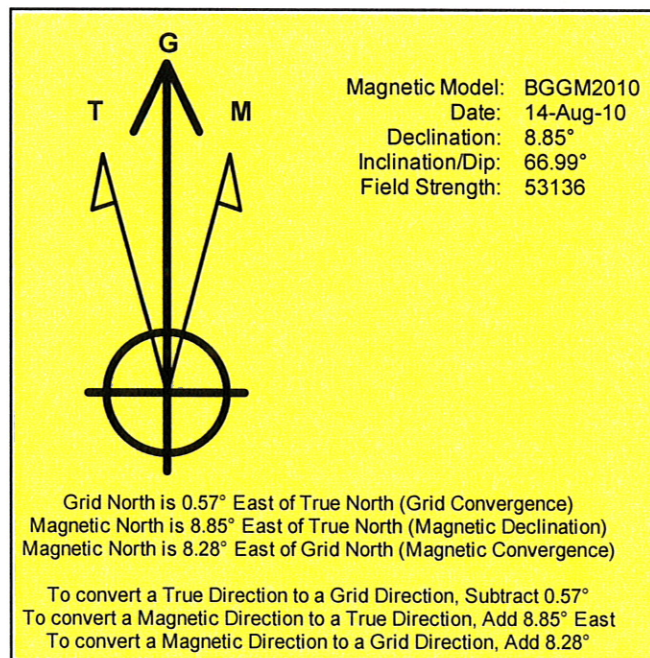
Geographical Coordinates of Well: 40° 14' 37.18" N, 104° 37' 11.89" W

Grid Convergence at Surface is: 0.57°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,015.66ft

the Bottom Hole Displacement is 4,426.31ft in the Direction of 84.65° (Grid).

Magnetic Convergence at surface is: -8.28° (14 August 2010, , BGGM2010)



Project: Weld County, CO (NAD 83)
Site: Sec. 12-T3N-R65W
Well: Stroh H12-99HZ
Wellbore: Plan #1
Design: Plan #1 Proposal

Noble Energy

HALLIBURTON
Geosy Drilling

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	6180.19	0.00	0.00	6180.19	0.00	0.00	0.00	0.00	0.00	
3	7242.69	85.00	84.65	6893.66	61.00	0.00	0.00	84.65	653.78	
4	7317.69	85.00	84.65	6900.20	67.97	725.31	0.00	0.00	728.49	
5	7380.19	90.00	84.65	6902.92	73.80	787.46	8.00	0.00	790.91	
6	7384.80	90.37	84.65	6902.91	74.23	792.05	8.00	0.04	795.52	
7	11015.66	90.37	84.65	6879.55	413.00	4407.00	0.00	0.00	4426.31	Stroh H12-99HZ Plan #1 BH Tgt

