

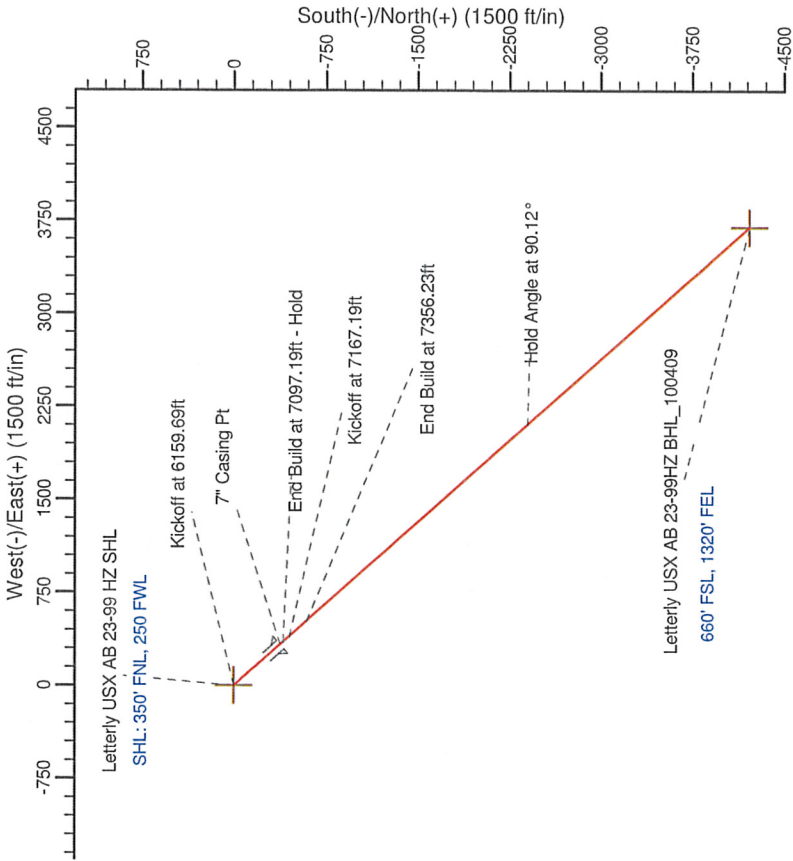
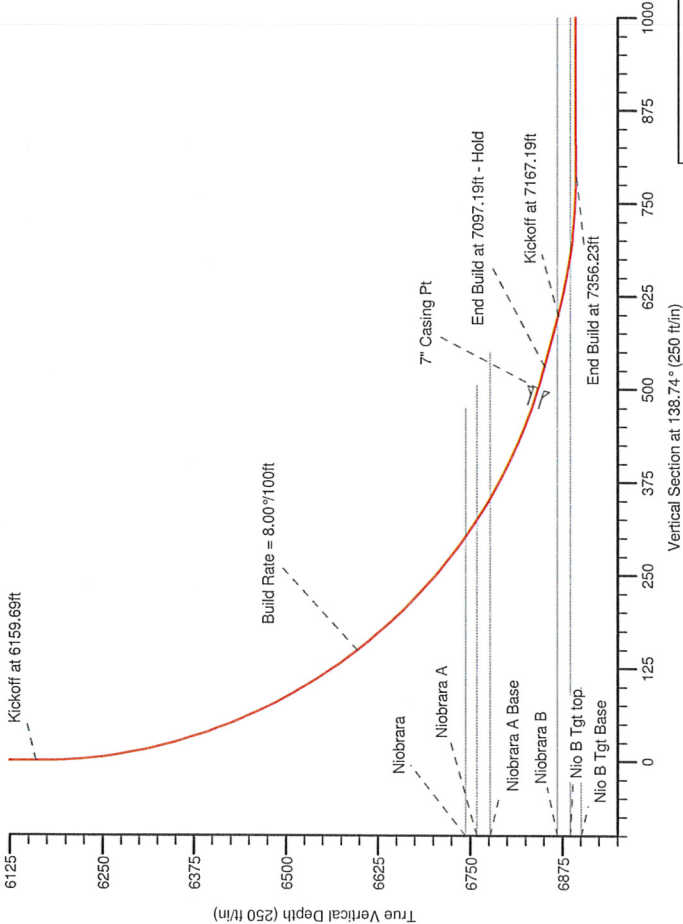
Project: Weld County, CO  
Site: Sec. 23-T7N-R64W  
Well: Letterly USX AB 23-99 HZ  
Wellbore: Wellbore #1  
Design: Plan #2 Proposal

# Noble Energy (Rockies)

HALLIBURTON

## 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	6159.69	0.00	0.00	6159.69	0.00	0.00	0.00	0.00	0.00	
3	7097.19	75.00	138.74	6851.48	-399.01	350.11	8.00	138.74	530.83	
4	7167.19	75.00	138.74	6869.60	-449.83	394.70	0.00	0.00	598.45	
5	7356.23	90.12	138.74	6894.00	-590.32	517.97	8.00	0.00	785.35	
6	12177.86	90.12	138.74	6893.64	-4214.60	3698.01	0.00	0.00	5606.97	Letterly USX AB 23-99HZ BHL_100409



## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Letterly USX AB 23-99HZ BHL	6700.00	-4214.60	3698.01	40° 33' 12.096 N	104° 30' 43.236 W	Point
Letterly USX AB 23-99HZ BHL_100409	6883.64	-4214.60	3698.01	40° 33' 12.096 N	104° 30' 43.236 W	Point
Letterly USX AB 23-99HZ Nio B Tgt Line	6894.00	0.00	0.00	40° 33' 54.144 N	104° 31' 30.540 W	Polygon

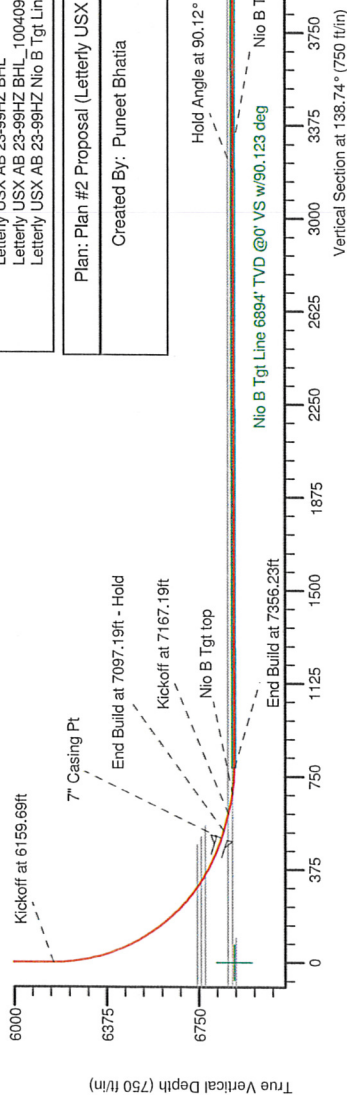
Plan: Plan #2 Proposal (Letterly USX AB 23-99 HZ/Wellbore #1)

Created By: Puneet Bhatia

Date: 11/04/2009

WELL DETAILS: Letterly USX AB 23-99 HZ

Ground Level:	4826.00	Longitude
North	1450173.87	Latitude
East	3270839.38	Longitude
South	40° 33' 54.144 N	Latitude
West	104° 31' 30.540 W	Longitude



**Plan Report for Letterly USX AB 23-99 HZ - Plan #2 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
2,700.00	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
2,959.00	0.00	0.00	2,959.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Pierre Silt</b>										
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
3,729.00	0.00	0.00	3,729.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	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
4,300.00	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
4,517.00	0.00	0.00	4,517.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sussex</b>										
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
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,085.00	0.00	0.00	5,085.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Plan Report for Letterly USX AB 23-99 HZ - Plan #2 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 (°)
<b>Shannon</b>										
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
5,968.00	0.00	0.00	5,968.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Teepee Buttes</b>										
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
6,159.69	0.00	0.00	6,159.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Kickoff at 6159.69ft</b>										
6,200.00	3.22	138.74	6,199.98	-0.85	0.75	1.13	8.00	8.00	0.00	138.74
6,300.00	11.22	138.74	6,299.10	-10.30	9.04	13.70	8.00	8.00	0.00	0.00
6,400.00	19.22	138.74	6,395.52	-30.02	26.34	39.94	8.00	8.00	0.00	0.00
6,500.00	27.22	138.74	6,487.34	-59.64	52.33	79.34	8.00	8.00	0.00	0.00
6,600.00	35.22	138.74	6,572.78	-98.57	86.49	131.14	8.00	8.00	0.00	0.00
6,630.00	37.62	138.74	6,596.92	-111.96	98.24	148.95	8.00	8.00	0.00	0.00
<b>Build Rate = 8.00°/100ft</b>										
6,700.00	43.22	138.74	6,650.19	-146.07	128.17	194.32	8.00	8.00	0.00	0.00
6,722.96	45.06	138.74	6,666.66	-158.09	138.71	210.31	8.00	8.00	0.00	0.00
<b>Letterly USX AB 23-99HZ Nio B Tgt Line</b>										
6,800.00	51.22	138.74	6,718.04	-201.20	176.54	267.67	8.00	8.00	0.00	0.00
6,843.08	54.67	138.74	6,744.00	-227.04	199.21	302.05	8.00	8.00	0.00	0.00
<b>Niobrara</b>										
6,869.73	56.80	138.74	6,759.00	-243.59	213.74	324.07	8.00	8.00	0.00	0.00
<b>Niobrara A</b>										
6,900.00	59.22	138.74	6,775.03	-262.89	230.67	349.74	8.00	8.00	0.00	0.00
6,903.86	59.53	138.74	6,777.00	-265.39	232.86	353.06	8.00	8.00	0.00	0.00
<b>Niobrara A Base</b>										
7,000.00	67.22	138.74	6,820.05	-329.94	289.50	438.95	8.00	8.00	0.00	0.00
7,066.27	72.53	138.74	6,842.84	-376.70	330.53	501.15	8.00	8.00	0.00	0.00
<b>7" Casing Pt</b>										
7,097.19	75.00	138.74	6,851.48	-399.01	350.11	530.83	8.00	8.00	0.00	0.00
<b>End Build at 7097.19ft - Hold</b>										
7,100.00	75.00	138.74	6,852.21	-401.05	351.90	533.55	0.00	0.00	0.00	0.00
7,132.00	75.00	138.74	6,860.49	-424.28	372.28	564.46	0.00	0.00	0.00	0.00
<b>75.00 Inclination</b>										
7,161.01	75.00	138.74	6,868.00	-445.34	390.76	592.47	0.00	0.00	0.00	0.00
<b>Niobrara B</b>										
7,167.19	75.00	138.74	6,869.60	-449.83	394.70	598.45	0.00	0.00	0.00	0.00
<b>Kickoff at 7167.19ft</b>										
7,200.00	77.62	138.74	6,877.36	-473.79	415.72	630.32	8.00	8.00	0.00	0.00
7,247.51	81.43	138.74	6,886.00	-508.90	446.53	677.03	8.00	8.00	0.00	0.00
<b>Nio B Tgt top</b>										
7,257.00	82.18	138.74	6,887.35	-515.96	452.73	686.42	8.00	8.00	0.00	0.00
<b>Build Rate = 8.00°/100ft</b>										
7,300.00	85.62	138.74	6,891.92	-548.10	480.92	729.18	8.00	8.00	0.00	0.00
7,356.23	90.12	138.74	6,894.00	-590.32	517.97	785.35	8.00	8.00	0.00	0.00
<b>End Build at 7356.23ft</b>										
7,400.00	90.12	138.74	6,893.91	-623.22	546.84	829.12	0.00	0.00	0.00	0.00
7,500.00	90.12	138.74	6,893.69	-698.39	612.79	929.12	0.00	0.00	0.00	0.00
7,600.00	90.12	138.74	6,893.48	-773.56	678.75	1,029.12	0.00	0.00	0.00	0.00

**Plan Report for Letterly USX AB 23-99 HZ - Plan #2 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 (°)
7,700.00	90.12	138.74	6,893.26	-848.73	744.70	1,129.12	0.00	0.00	0.00	0.00
7,800.00	90.12	138.74	6,893.05	-923.89	810.65	1,229.12	0.00	0.00	0.00	0.00
7,900.00	90.12	138.74	6,892.83	-999.06	876.61	1,329.12	0.00	0.00	0.00	0.00
8,000.00	90.12	138.74	6,892.62	-1,074.23	942.56	1,429.12	0.00	0.00	0.00	0.00
8,100.00	90.12	138.74	6,892.40	-1,149.39	1,008.51	1,529.12	0.00	0.00	0.00	0.00
8,200.00	90.12	138.74	6,892.19	-1,224.56	1,074.47	1,629.12	0.00	0.00	0.00	0.00
8,300.00	90.12	138.74	6,891.97	-1,299.73	1,140.42	1,729.12	0.00	0.00	0.00	0.00
8,400.00	90.12	138.74	6,891.76	-1,374.90	1,206.38	1,829.12	0.00	0.00	0.00	0.00
8,500.00	90.12	138.74	6,891.54	-1,450.06	1,272.33	1,929.12	0.00	0.00	0.00	0.00
8,600.00	90.12	138.74	6,891.33	-1,525.23	1,338.28	2,029.12	0.00	0.00	0.00	0.00
8,700.00	90.12	138.74	6,891.11	-1,600.40	1,404.24	2,129.12	0.00	0.00	0.00	0.00
8,800.00	90.12	138.74	6,890.90	-1,675.56	1,470.19	2,229.12	0.00	0.00	0.00	0.00
8,900.00	90.12	138.74	6,890.68	-1,750.73	1,536.14	2,329.12	0.00	0.00	0.00	0.00
9,000.00	90.12	138.74	6,890.47	-1,825.90	1,602.10	2,429.12	0.00	0.00	0.00	0.00
9,100.00	90.12	138.74	6,890.26	-1,901.06	1,668.05	2,529.12	0.00	0.00	0.00	0.00
9,200.00	90.12	138.74	6,890.04	-1,976.23	1,734.00	2,629.12	0.00	0.00	0.00	0.00
9,300.00	90.12	138.74	6,889.83	-2,051.40	1,799.96	2,729.12	0.00	0.00	0.00	0.00
9,400.00	90.12	138.74	6,889.61	-2,126.57	1,865.91	2,829.12	0.00	0.00	0.00	0.00
9,500.00	90.12	138.74	6,889.40	-2,201.73	1,931.86	2,929.12	0.00	0.00	0.00	0.00
9,600.00	90.12	138.74	6,889.18	-2,276.90	1,997.82	3,029.12	0.00	0.00	0.00	0.00
9,700.00	90.12	138.74	6,888.97	-2,352.07	2,063.77	3,129.12	0.00	0.00	0.00	0.00
9,760.00	90.12	138.74	6,888.84	-2,397.17	2,103.34	3,189.12	0.00	0.00	0.00	0.00
<b>Hold Angle at 90.12°</b>										
9,800.00	90.12	138.74	6,888.75	-2,427.23	2,129.72	3,229.12	0.00	0.00	0.00	0.00
9,900.00	90.12	138.74	6,888.54	-2,502.40	2,195.68	3,329.12	0.00	0.00	0.00	0.00
10,000.00	90.12	138.74	6,888.32	-2,577.57	2,261.63	3,429.12	0.00	0.00	0.00	0.00
10,100.00	90.12	138.74	6,888.11	-2,652.74	2,327.58	3,529.12	0.00	0.00	0.00	0.00
10,200.00	90.12	138.74	6,887.89	-2,727.90	2,393.54	3,629.12	0.00	0.00	0.00	0.00
10,300.00	90.12	138.74	6,887.68	-2,803.07	2,459.49	3,729.12	0.00	0.00	0.00	0.00
10,400.00	90.12	138.74	6,887.46	-2,878.24	2,525.45	3,829.12	0.00	0.00	0.00	0.00
10,500.00	90.12	138.74	6,887.25	-2,953.40	2,591.40	3,929.11	0.00	0.00	0.00	0.00
10,600.00	90.12	138.74	6,887.03	-3,028.57	2,657.35	4,029.11	0.00	0.00	0.00	0.00
10,700.00	90.12	138.74	6,886.82	-3,103.74	2,723.31	4,129.11	0.00	0.00	0.00	0.00
10,800.00	90.12	138.74	6,886.60	-3,178.91	2,789.26	4,229.11	0.00	0.00	0.00	0.00
10,900.00	90.12	138.74	6,886.39	-3,254.07	2,855.21	4,329.11	0.00	0.00	0.00	0.00
11,000.00	90.12	138.74	6,886.17	-3,329.24	2,921.17	4,429.11	0.00	0.00	0.00	0.00
12,177.86	90.12	138.74	6,883.64	-4,214.60	3,698.01	5,606.97	0.00	0.00	0.00	0.00
<b>Total Depth = 12177.86ft - Letterly USX AB 23-99HZ BHL - Letterly USX AB 23-99HZ BHL_100409</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,159.69	6,159.69	0.00	0.00	Kickoff at 6159.69ft
6,630.00	6,596.92	-111.96	98.24	Build Rate = 8.00°/100ft
7,097.19	6,851.48	-399.01	350.11	End Build at 7097.19ft - Hold
7,132.00	6,860.49	-424.28	372.28	75.00 Inclination
7,167.19	6,869.60	-449.83	394.70	Kickoff at 7167.19ft
7,257.00	6,887.35	-515.96	452.73	Build Rate = 8.00°/100ft
7,356.23	6,894.00	-590.32	517.97	End Build at 7356.23ft
9,760.00	6,888.84	-2,397.17	2,103.34	Hold Angle at 90.12°
12,177.86	6,883.64	-4,214.60	3,698.01	Total Depth = 12177.86ft

## Plan Report for Letterly USX AB 23-99 HZ - Plan #2 Proposal

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Letterly USX AB 23-99HZ BHL	138.74	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,177.17	Plan #2 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,066.27	6,842.84	7" Casing Pt	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	6,901.00	Nio B Tgt Base		0.00	
2,959.00	2,959.00	Pierre Silt		0.00	
3,729.00	3,729.00	Parkman		0.00	
4,517.00	4,517.00	Sussex		0.00	
5,085.00	5,085.00	Shannon		0.00	
5,968.00	5,968.00	Teepee Buttes		0.00	
6,843.08	6,744.00	Niobrara		0.00	
6,869.73	6,759.00	Niobrara A		0.00	
6,903.86	6,777.00	Niobrara A Base		0.00	
7,161.01	6,868.00	Niobrara B		0.00	
7,247.51	6,886.00	Nio B Tgt top		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Letterly USX AB 23-99HZ Nio B Tgt Line	6,894.00	0.00	0.00	Polygon
Letterly USX AB 23-99HZ BHL	6,700.00	-4,214.60	3,698.01	Point
Letterly USX AB 23-99HZ BHL_100409	6,883.64	-4,214.60	3,698.01	Point

## North Reference Sheet for Sec. 23-T7N-R64W - Letterly USX AB 23-99 HZ - Wellbore #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 - 13' @ 4839.00ft. Northing and Easting are relative to Letterly USX AB 23-99 HZ

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° 0' 0.000 E°, Latitude Origin: 40° 47' 0.000 N°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99997186

Grid Coordinates of Well: 1,450,173.87 ft N, 3,270,839.38 ft E

Geographical Coordinates of Well: 40° 33' 54.14" N, 104° 31' 30.54" W

Grid Convergence at Surface is: 0.63°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,177.86ft

the Bottom Hole Displacement is 5,606.97ft in the Direction of 138.74° (Grid).

Magnetic Convergence at surface is: -8.28° (21 December 2009, , BGGM2008)

