



Project: COLORADO NORTHERN ZONE - 83

Site: HOUSTON 9-8HZ PAD

Well: HOUSTON 12C-8HZ

Wellbore: OH

Design: PLAN #1 PRELIMINARY



WELL DETAILS: HOUSTON 12C-8HZ

GL 4807 & KB 17 @ 4824.00ft (ASSUMED)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1330072.58	3165551.63	40.2379280	-104.9069950

SECTION DETAILS

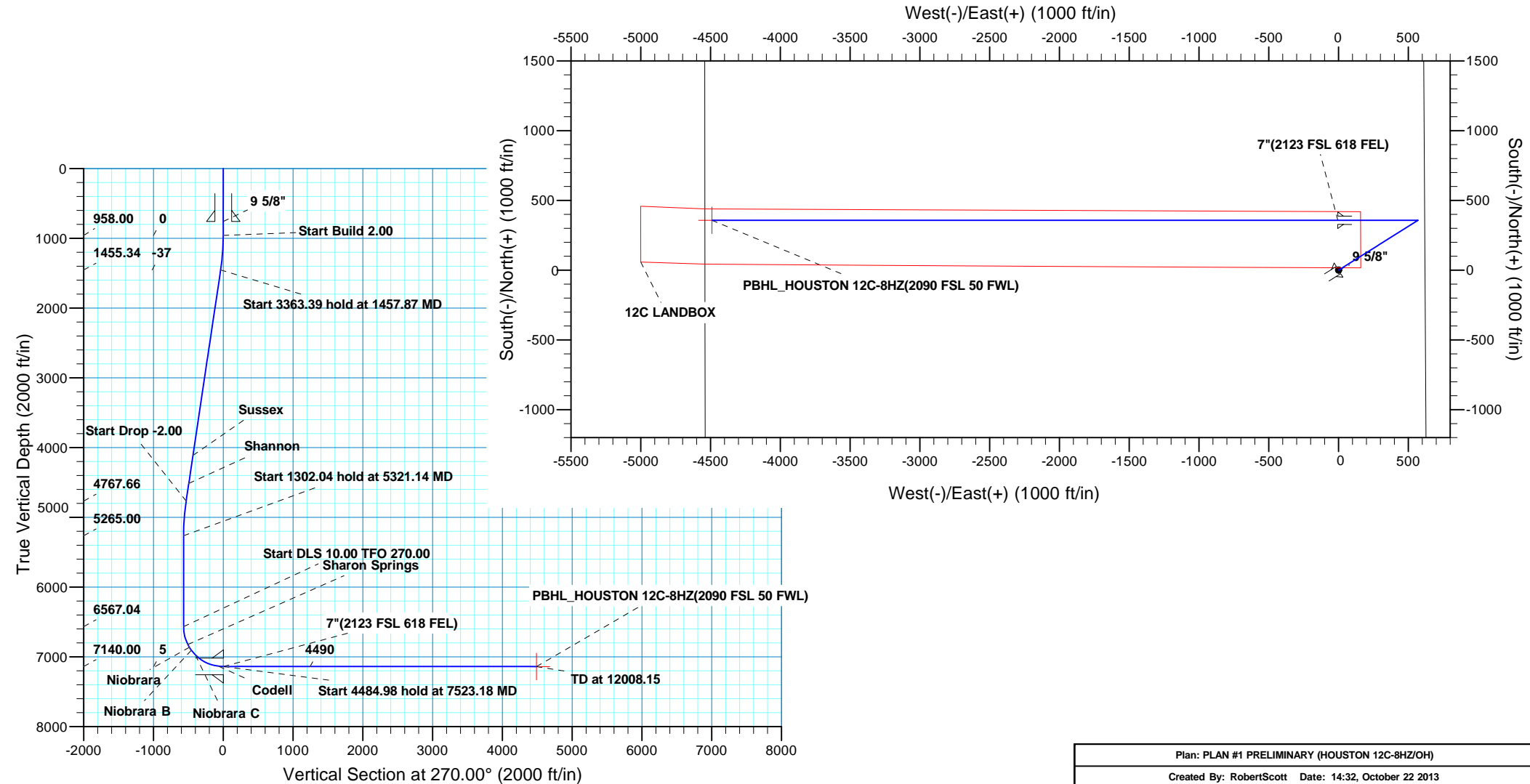
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
958.00	0.00	0.00	958.00	0.00	0.00	0.00	0.00	0.00	
1457.87	10.00	57.85	1455.34	23.15	36.83	2.00	57.85	-36.83	
4821.26	10.00	57.85	4767.66	333.90	531.17	0.00	0.00	-531.17	
5321.14	0.00	0.00	5265.00	357.05	568.00	2.00	180.00	-568.00	
6623.18	0.00	0.00	6567.04	357.05	568.00	0.00	0.00	-568.00	
7523.18	90.00	270.00	7140.00	357.05	-4.96	10.00	270.00	4.96	
12008.15	90.00	270.00	7140.00	357.05	-4489.93	0.00	0.00	4489.93	PBHL_HOUSTON 12C-8HZ(2090 FSL 50 FWL)

CASING DETAILS

TVD	MD	Name	Size
758.00	758.00	9 5/8"	9.625
7140.00	7523.18	7"	7.000

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	Inc
708.00	708.00	Fox Hills Base	0.00
4112.00	4155.49	Sussex	10.00
4515.00	4564.71	Shannon	10.00
6825.00	6890.76	Sharon Springs	26.76
6865.00	6936.53	Niobrara	31.33
6906.00	6985.88	Niobrara B	36.27
6976.00	7078.60	Niobrara C	45.54
7117.00	7360.29	Fort Hays	73.71
7136.00	7455.45	Codell	83.23



Plan: PLAN #1 PRELIMINARY (HOUSTON 12C-8HZ/OH)

Created By: RobertScott Date: 14:32, October 22 2013



Scientific Drilling

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**HOUSTON 9-8HZ PAD**

**HOUSTON 12C-8HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**22 October, 2013**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HOUSTON 12C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 12C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

<b>Project</b>	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	HOUSTON 9-8HZ PAD, SECTION 8 T3N R67W			
<b>Site Position:</b>		<b>Northing:</b>	1,330,057.10 usft	<b>Latitude:</b> 40.2378850
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,165,577.42 usft	<b>Longitude:</b> -104.9069030
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.38 °

<b>Well</b>	HOUSTON 12C-8HZ, 1765 FSL 620 FEL			
<b>Well Position</b>	<b>+N/-S</b>	15.66 ft	<b>Northing:</b>	1,330,072.58 usft
	<b>+E/-W</b>	-25.68 ft	<b>Easting:</b>	3,165,551.63 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b> 4,807.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	10/17/13	8.65	66.81	52,713

<b>Design</b>	PLAN #1 PRELIMINARY			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	270.00

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
958.00	0.00	0.00	958.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,457.87	10.00	57.85	1,455.34	23.15	36.83	2.00	2.00	0.00	57.85	
4,821.26	10.00	57.85	4,767.66	333.90	531.17	0.00	0.00	0.00	0.00	
5,321.14	0.00	0.00	5,265.00	357.05	568.00	2.00	-2.00	0.00	180.00	
6,623.18	0.00	0.00	6,567.04	357.05	568.00	0.00	0.00	0.00	0.00	
7,523.18	90.00	270.00	7,140.00	357.05	-4.96	10.00	10.00	-10.00	270.00	
12,008.15	90.00	270.00	7,140.00	357.05	-4,489.93	0.00	0.00	0.00	0.00	PBHL_HOUSTON 12

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HOUSTON 12C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 12C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned 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)
0.00	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
200.00	0.00	0.00	200.00	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
400.00	0.00	0.00	400.00	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
600.00	0.00	0.00	600.00	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
708.00	0.00	0.00	708.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>									
758.00	0.00	0.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
800.00	0.00	0.00	800.00	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
958.00	0.00	0.00	958.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,000.00	0.84	57.85	1,000.00	0.16	0.26	-0.26	2.00	2.00	0.00
1,100.00	2.84	57.85	1,099.94	1.87	2.98	-2.98	2.00	2.00	0.00
1,200.00	4.84	57.85	1,199.71	5.44	8.65	-8.65	2.00	2.00	0.00
1,300.00	6.84	57.85	1,299.19	10.85	17.26	-17.26	2.00	2.00	0.00
1,400.00	8.84	57.85	1,398.25	18.11	28.81	-28.81	2.00	2.00	0.00
1,457.87	10.00	57.85	1,455.34	23.15	36.83	-36.83	2.00	2.00	0.00
<b>Start 3363.39 hold at 1457.87 MD</b>									
1,500.00	10.00	57.85	1,496.83	27.04	43.02	-43.02	0.00	0.00	0.00
1,600.00	10.00	57.85	1,595.31	36.28	57.72	-57.72	0.00	0.00	0.00
1,700.00	10.00	57.85	1,693.79	45.52	72.42	-72.42	0.00	0.00	0.00
1,800.00	10.00	57.85	1,792.27	54.76	87.11	-87.11	0.00	0.00	0.00
1,900.00	10.00	57.85	1,890.75	64.00	101.81	-101.81	0.00	0.00	0.00
2,000.00	10.00	57.85	1,989.24	73.24	116.51	-116.51	0.00	0.00	0.00
2,100.00	10.00	57.85	2,087.72	82.48	131.21	-131.21	0.00	0.00	0.00
2,200.00	10.00	57.85	2,186.20	91.72	145.90	-145.90	0.00	0.00	0.00
2,300.00	10.00	57.85	2,284.68	100.96	160.60	-160.60	0.00	0.00	0.00
2,400.00	10.00	57.85	2,383.16	110.20	175.30	-175.30	0.00	0.00	0.00
2,500.00	10.00	57.85	2,481.64	119.43	190.00	-190.00	0.00	0.00	0.00
2,600.00	10.00	57.85	2,580.12	128.67	204.70	-204.70	0.00	0.00	0.00
2,700.00	10.00	57.85	2,678.61	137.91	219.39	-219.39	0.00	0.00	0.00
2,800.00	10.00	57.85	2,777.09	147.15	234.09	-234.09	0.00	0.00	0.00
2,900.00	10.00	57.85	2,875.57	156.39	248.79	-248.79	0.00	0.00	0.00
3,000.00	10.00	57.85	2,974.05	165.63	263.49	-263.49	0.00	0.00	0.00
3,100.00	10.00	57.85	3,072.53	174.87	278.18	-278.18	0.00	0.00	0.00
3,200.00	10.00	57.85	3,171.01	184.11	292.88	-292.88	0.00	0.00	0.00
3,300.00	10.00	57.85	3,269.50	193.35	307.58	-307.58	0.00	0.00	0.00
3,400.00	10.00	57.85	3,367.98	202.59	322.28	-322.28	0.00	0.00	0.00
3,500.00	10.00	57.85	3,466.46	211.83	336.98	-336.98	0.00	0.00	0.00
3,600.00	10.00	57.85	3,564.94	221.06	351.67	-351.67	0.00	0.00	0.00
3,700.00	10.00	57.85	3,663.42	230.30	366.37	-366.37	0.00	0.00	0.00
3,800.00	10.00	57.85	3,761.90	239.54	381.07	-381.07	0.00	0.00	0.00
3,900.00	10.00	57.85	3,860.38	248.78	395.77	-395.77	0.00	0.00	0.00
4,000.00	10.00	57.85	3,958.87	258.02	410.46	-410.46	0.00	0.00	0.00
4,100.00	10.00	57.85	4,057.35	267.26	425.16	-425.16	0.00	0.00	0.00
4,155.50	10.00	57.85	4,112.00	272.39	433.32	-433.32	0.00	0.00	0.00
<b>Sussex</b>									
4,200.00	10.00	57.85	4,155.83	276.50	439.86	-439.86	0.00	0.00	0.00
4,300.00	10.00	57.85	4,254.31	285.74	454.56	-454.56	0.00	0.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 12C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned 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)
4,400.00	10.00	57.85	4,352.79	294.98	469.26	-469.26	0.00	0.00	0.00
4,500.00	10.00	57.85	4,451.27	304.22	483.95	-483.95	0.00	0.00	0.00
4,564.71	10.00	57.85	4,515.00	310.20	493.46	-493.46	0.00	0.00	0.00
<b>Shannon</b>									
4,600.00	10.00	57.85	4,549.76	313.46	498.65	-498.65	0.00	0.00	0.00
4,700.00	10.00	57.85	4,648.24	322.70	513.35	-513.35	0.00	0.00	0.00
4,800.00	10.00	57.85	4,746.72	331.93	528.05	-528.05	0.00	0.00	0.00
4,821.26	10.00	57.85	4,767.66	333.90	531.17	-531.17	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,900.00	8.42	57.85	4,845.38	340.61	541.84	-541.84	2.00	-2.00	0.00
5,000.00	6.42	57.85	4,944.54	347.48	552.78	-552.78	2.00	-2.00	0.00
5,100.00	4.42	57.85	5,044.08	352.51	560.78	-560.78	2.00	-2.00	0.00
5,200.00	2.42	57.85	5,143.90	355.69	565.83	-565.83	2.00	-2.00	0.00
5,300.00	0.42	57.85	5,243.86	357.01	567.93	-567.93	2.00	-2.00	0.00
5,321.14	0.00	0.00	5,265.00	357.05	568.00	-568.00	2.00	-2.00	0.00
<b>Start 1302.04 hold at 5321.14 MD</b>									
5,400.00	0.00	0.00	5,343.86	357.05	568.00	-568.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,443.86	357.05	568.00	-568.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,543.86	357.05	568.00	-568.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,643.86	357.05	568.00	-568.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,743.86	357.05	568.00	-568.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,843.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,943.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,043.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,143.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,243.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,343.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,443.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,543.86	357.05	568.00	-568.00	0.00	0.00	0.00
6,623.18	0.00	0.00	6,567.04	357.05	568.00	-568.00	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 270.00</b>									
6,700.00	7.68	270.00	6,643.63	357.05	562.86	-562.86	10.00	10.00	0.00
6,800.00	17.68	270.00	6,741.07	357.05	540.93	-540.93	10.00	10.00	0.00
6,890.76	26.76	270.00	6,825.00	357.05	506.64	-506.64	10.00	10.00	0.00
<b>Sharon Springs</b>									
6,900.00	27.68	270.00	6,833.22	357.05	502.42	-502.42	10.00	10.00	0.00
6,936.53	31.33	270.00	6,865.00	357.05	484.43	-484.43	10.00	10.00	0.00
<b>Niobrara</b>									
6,985.88	36.27	270.00	6,906.00	357.05	456.98	-456.98	10.00	10.00	0.00
<b>Niobrara B</b>									
7,000.00	37.68	270.00	6,917.28	357.05	448.49	-448.49	10.00	10.00	0.00
7,078.60	45.54	270.00	6,976.00	357.05	396.33	-396.33	10.00	10.00	0.00
<b>Niobrara C</b>									
7,100.00	47.68	270.00	6,990.70	357.05	380.78	-380.78	10.00	10.00	0.00
7,200.00	57.68	270.00	7,051.24	357.05	301.35	-301.35	10.00	10.00	0.00
7,300.00	67.68	270.00	7,097.08	357.05	212.62	-212.62	10.00	10.00	0.00
7,360.29	73.71	270.00	7,117.00	357.05	155.74	-155.74	10.00	10.00	0.00
<b>Fort Hays</b>									
7,400.00	77.68	270.00	7,126.81	357.05	117.27	-117.27	10.00	10.00	0.00
7,455.45	83.23	270.00	7,136.00	357.05	62.61	-62.61	10.00	10.00	0.00
<b>Codell</b>									
7,500.00	87.68	270.00	7,139.53	357.05	18.21	-18.21	10.00	10.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 12C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned 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)	
7,523.18	90.00	270.00	7,140.00	357.05	-4.96	4.96	10.00	10.00	0.00	
Start 4484.98 hold at 7523.18 MD - 7"(2123 FSL 618 FEL)										
7,600.00	90.00	270.00	7,140.00	357.05	-81.78	81.78	0.00	0.00	0.00	
7,700.00	90.00	270.00	7,140.00	357.05	-181.78	181.78	0.00	0.00	0.00	
7,800.00	90.00	270.00	7,140.00	357.05	-281.78	281.78	0.00	0.00	0.00	
7,900.00	90.00	270.00	7,140.00	357.05	-381.78	381.78	0.00	0.00	0.00	
8,000.00	90.00	270.00	7,140.00	357.05	-481.78	481.78	0.00	0.00	0.00	
8,100.00	90.00	270.00	7,140.00	357.05	-581.78	581.78	0.00	0.00	0.00	
8,200.00	90.00	270.00	7,140.00	357.05	-681.78	681.78	0.00	0.00	0.00	
8,300.00	90.00	270.00	7,140.00	357.05	-781.78	781.78	0.00	0.00	0.00	
8,400.00	90.00	270.00	7,140.00	357.05	-881.78	881.78	0.00	0.00	0.00	
8,500.00	90.00	270.00	7,140.00	357.05	-981.78	981.78	0.00	0.00	0.00	
8,600.00	90.00	270.00	7,140.00	357.05	-1,081.78	1,081.78	0.00	0.00	0.00	
8,700.00	90.00	270.00	7,140.00	357.05	-1,181.78	1,181.78	0.00	0.00	0.00	
8,800.00	90.00	270.00	7,140.00	357.05	-1,281.78	1,281.78	0.00	0.00	0.00	
8,900.00	90.00	270.00	7,140.00	357.05	-1,381.78	1,381.78	0.00	0.00	0.00	
9,000.00	90.00	270.00	7,140.00	357.05	-1,481.78	1,481.78	0.00	0.00	0.00	
9,100.00	90.00	270.00	7,140.00	357.05	-1,581.78	1,581.78	0.00	0.00	0.00	
9,200.00	90.00	270.00	7,140.00	357.05	-1,681.78	1,681.78	0.00	0.00	0.00	
9,300.00	90.00	270.00	7,140.00	357.05	-1,781.78	1,781.78	0.00	0.00	0.00	
9,400.00	90.00	270.00	7,140.00	357.05	-1,881.78	1,881.78	0.00	0.00	0.00	
9,500.00	90.00	270.00	7,140.00	357.05	-1,981.78	1,981.78	0.00	0.00	0.00	
9,600.00	90.00	270.00	7,140.00	357.05	-2,081.78	2,081.78	0.00	0.00	0.00	
9,700.00	90.00	270.00	7,140.00	357.05	-2,181.78	2,181.78	0.00	0.00	0.00	
9,800.00	90.00	270.00	7,140.00	357.05	-2,281.78	2,281.78	0.00	0.00	0.00	
9,900.00	90.00	270.00	7,140.00	357.05	-2,381.78	2,381.78	0.00	0.00	0.00	
10,000.00	90.00	270.00	7,140.00	357.05	-2,481.78	2,481.78	0.00	0.00	0.00	
10,100.00	90.00	270.00	7,140.00	357.05	-2,581.78	2,581.78	0.00	0.00	0.00	
10,200.00	90.00	270.00	7,140.00	357.05	-2,681.78	2,681.78	0.00	0.00	0.00	
10,300.00	90.00	270.00	7,140.00	357.05	-2,781.78	2,781.78	0.00	0.00	0.00	
10,400.00	90.00	270.00	7,140.00	357.05	-2,881.78	2,881.78	0.00	0.00	0.00	
10,500.00	90.00	270.00	7,140.00	357.05	-2,981.78	2,981.78	0.00	0.00	0.00	
10,600.00	90.00	270.00	7,140.00	357.05	-3,081.78	3,081.78	0.00	0.00	0.00	
10,700.00	90.00	270.00	7,140.00	357.05	-3,181.78	3,181.78	0.00	0.00	0.00	
10,800.00	90.00	270.00	7,140.00	357.05	-3,281.78	3,281.78	0.00	0.00	0.00	
10,900.00	90.00	270.00	7,140.00	357.05	-3,381.78	3,381.78	0.00	0.00	0.00	
11,000.00	90.00	270.00	7,140.00	357.05	-3,481.78	3,481.78	0.00	0.00	0.00	
11,100.00	90.00	270.00	7,140.00	357.05	-3,581.78	3,581.78	0.00	0.00	0.00	
11,200.00	90.00	270.00	7,140.00	357.05	-3,681.78	3,681.78	0.00	0.00	0.00	
11,300.00	90.00	270.00	7,140.00	357.05	-3,781.78	3,781.78	0.00	0.00	0.00	
11,400.00	90.00	270.00	7,140.00	357.05	-3,881.78	3,881.78	0.00	0.00	0.00	
11,500.00	90.00	270.00	7,140.00	357.05	-3,981.78	3,981.78	0.00	0.00	0.00	
11,600.00	90.00	270.00	7,140.00	357.05	-4,081.78	4,081.78	0.00	0.00	0.00	
11,700.00	90.00	270.00	7,140.00	357.05	-4,181.78	4,181.78	0.00	0.00	0.00	
11,800.00	90.00	270.00	7,140.00	357.05	-4,281.78	4,281.78	0.00	0.00	0.00	
11,900.00	90.00	270.00	7,140.00	357.05	-4,381.78	4,381.78	0.00	0.00	0.00	
12,000.00	90.00	270.00	7,140.00	357.05	-4,481.78	4,481.78	0.00	0.00	0.00	
12,008.15	90.00	270.00	7,140.00	357.05	-4,489.93	4,489.93	0.00	0.00	0.00	
TD at 12008.15 - PBHL_HOUSTON 12C-8HZ(2090 FSL 50 FWL)										

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HOUSTON 12C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 12C-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_HOUSTON 12C-8HZ	0.00	0.00	7,140.00	357.05	-4,489.93	1,330,399.60	3,161,059.42	40.2389070	-104.9230780
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
758.00	758.00	9 5/8"	9.625	12.250	
7,523.18	7,140.00	7"(2123 FSL 618 FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.00	708.00	Fox Hills Base				
4,155.50	4,112.00	Sussex				
4,564.71	4,515.00	Shannon				
6,890.76	6,825.00	Sharon Springs				
6,936.53	6,865.00	Niobrara				
6,985.88	6,906.00	Niobrara B				
7,078.60	6,976.00	Niobrara C				
7,360.29	7,117.00	Fort Hays				
7,455.45	7,136.00	Codell				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
958.00	958.00	0.00	0.00	Start Build 2.00
1,457.87	1,455.34	23.15	36.83	Start 3363.39 hold at 1457.87 MD
4,821.26	4,767.66	333.90	531.17	Start Drop -2.00
5,321.14	5,265.00	357.05	568.00	Start 1302.04 hold at 5321.14 MD
6,623.18	6,567.04	357.05	568.00	Start DLS 10.00 TFO 270.00
7,523.18	7,140.00	357.05	-4.96	Start 4484.98 hold at 7523.18 MD
12,008.15	7,140.00	357.05	-4,489.93	TD at 12008.15