



Project: COLORADO NORTHERN ZONE - 83

Site: HOUSTON 9-8HZ PAD

Well: HOUSTON 33C-8HZ

Wellbore: OH

Design: PLAN #1 PRELIMINARY



WELL DETAILS: HOUSTON 33C-8HZ

GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1330041.60	3165603.21	40.2378420	-104.9068110

SECTION DETAILS

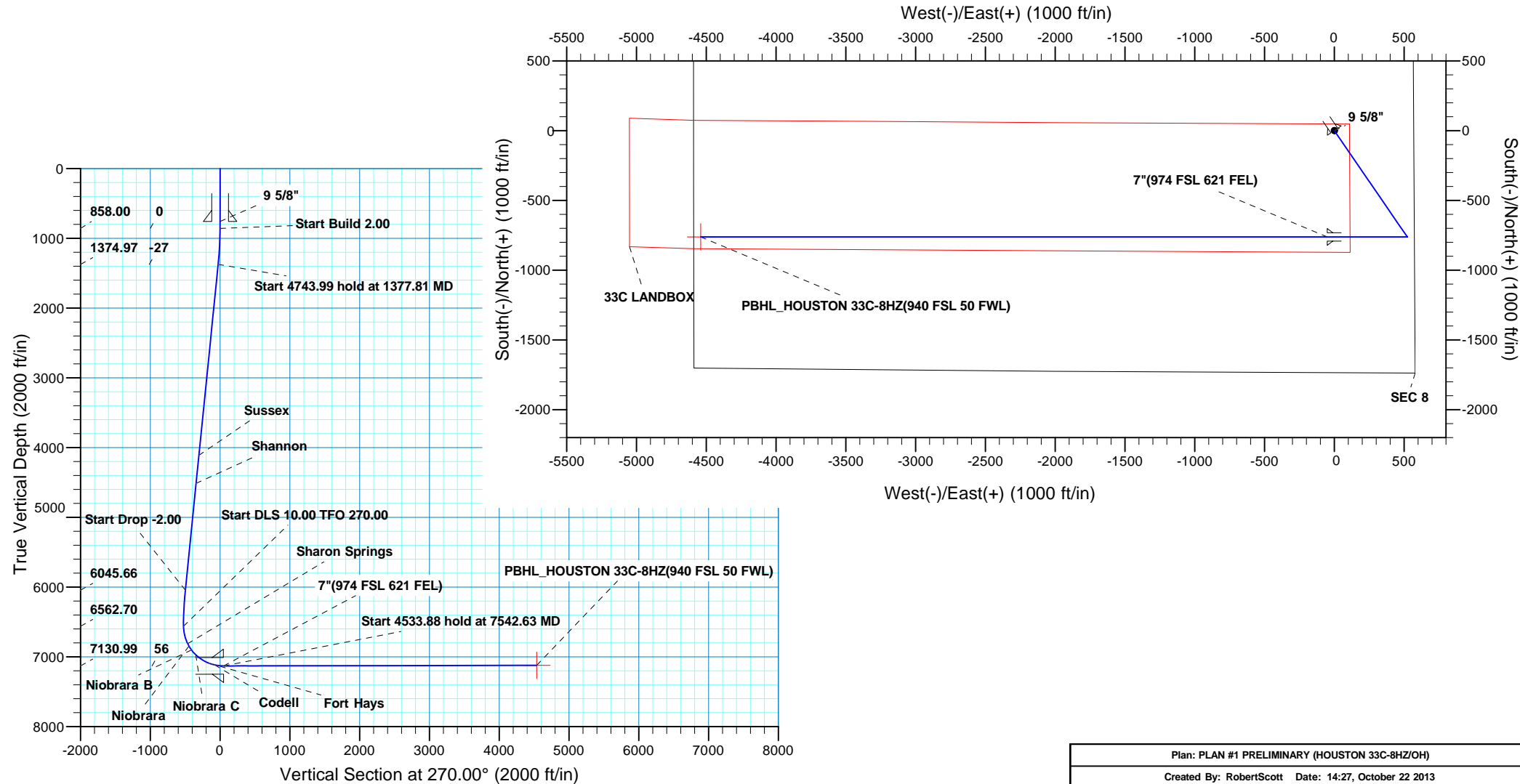
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
858.00	0.00	0.00	858.00	0.00	0.00	0.00	0.00	0.00	
1362.29	10.09	145.52	1359.69	-36.49	25.06	2.00	145.52	-25.06	
6132.67	10.09	145.52	6056.35	-725.17	497.94	0.00	0.00	-497.94	
6636.96	0.00	0.00	6558.04	-761.66	523.00	2.00	180.00	-523.00	
7537.98	90.10	270.00	7131.00	-761.66	-50.98	10.00	270.00	50.98	
12026.85	90.10	270.00	7123.00	-761.66	-4539.84	0.00	0.004539.84		PBHL_HOUSTON 33C-8HZ(940 FSL 50 FWL)

CASING DETAILS

TVD	MD	Name	Size
758.00	758.00	9 5/8"	9.625
7131.00	7537.98	7"	7.000

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	Inc
708.00	708.00	Fox Hills Base	0.00
4112.00	4157.80	Sussex	10.09
4515.00	4567.13	Shannon	10.09
6813.00	6901.18	Sharon Springs	26.42
6847.00	6939.83	Niobrara	30.29
6902.00	7005.89	Niobrara B	36.89
6972.00	7099.57	Niobrara C	46.26
7093.00	7327.12	Fort Hays	69.02
7117.00	7410.05	Codell	77.31





Scientific Drilling

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**HOUSTON 9-8HZ PAD**

**HOUSTON 33C-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 33C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 33C-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 33C-8HZ, 1735 FSL 569 FEL			
<b>Well Position</b>	<b>+N/-S</b>	-15.68 ft	<b>Northing:</b>	1,330,041.60 usft
	<b>+E/-W</b>	25.68 ft	<b>Easting:</b>	3,165,603.21 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	
858.00	0.00	0.00	858.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,362.29	10.09	145.52	1,359.69	-36.49	25.06	2.00	2.00	0.00	145.52	
6,132.67	10.09	145.52	6,056.35	-725.17	497.94	0.00	0.00	0.00	0.00	
6,636.96	0.00	0.00	6,558.04	-761.66	523.00	2.00	-2.00	0.00	180.00	
7,537.98	90.10	270.00	7,131.00	-761.66	-50.98	10.00	10.00	-9.99	270.00	
12,026.85	90.10	270.00	7,123.00	-761.66	-4,539.84	0.00	0.00	0.00	0.00	PBHL_HOUSTON 33

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HOUSTON 33C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 33C-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
858.00	0.00	0.00	858.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
900.00	0.84	145.52	900.00	-0.25	0.17	-0.17	2.00	2.00	0.00
1,000.00	2.84	145.52	999.94	-2.90	1.99	-1.99	2.00	2.00	0.00
1,100.00	4.84	145.52	1,099.71	-8.42	5.78	-5.78	2.00	2.00	0.00
1,200.00	6.84	145.52	1,199.19	-16.81	11.54	-11.54	2.00	2.00	0.00
1,300.00	8.84	145.52	1,298.25	-28.05	19.26	-19.26	2.00	2.00	0.00
1,362.29	10.09	145.52	1,359.69	-36.49	25.06	-25.06	2.00	2.00	0.00
1,377.81	10.09	145.52	1,374.97	-38.74	26.60	-26.60	0.00	0.00	0.00
<b>Start 4743.99 hold at 1377.81 MD</b>									
1,400.00	10.09	145.52	1,396.82	-41.94	28.80	-28.80	0.00	0.00	0.00
1,500.00	10.09	145.52	1,495.27	-56.38	38.71	-38.71	0.00	0.00	0.00
1,600.00	10.09	145.52	1,593.73	-70.81	48.62	-48.62	0.00	0.00	0.00
1,700.00	10.09	145.52	1,692.18	-85.25	58.54	-58.54	0.00	0.00	0.00
1,800.00	10.09	145.52	1,790.64	-99.68	68.45	-68.45	0.00	0.00	0.00
1,900.00	10.09	145.52	1,889.09	-114.12	78.36	-78.36	0.00	0.00	0.00
2,000.00	10.09	145.52	1,987.55	-128.56	88.27	-88.27	0.00	0.00	0.00
2,100.00	10.09	145.52	2,086.00	-142.99	98.19	-98.19	0.00	0.00	0.00
2,200.00	10.09	145.52	2,184.45	-157.43	108.10	-108.10	0.00	0.00	0.00
2,300.00	10.09	145.52	2,282.91	-171.87	118.01	-118.01	0.00	0.00	0.00
2,400.00	10.09	145.52	2,381.36	-186.30	127.93	-127.93	0.00	0.00	0.00
2,500.00	10.09	145.52	2,479.82	-200.74	137.84	-137.84	0.00	0.00	0.00
2,600.00	10.09	145.52	2,578.27	-215.18	147.75	-147.75	0.00	0.00	0.00
2,700.00	10.09	145.52	2,676.73	-229.61	157.66	-157.66	0.00	0.00	0.00
2,800.00	10.09	145.52	2,775.18	-244.05	167.58	-167.58	0.00	0.00	0.00
2,900.00	10.09	145.52	2,873.64	-258.49	177.49	-177.49	0.00	0.00	0.00
3,000.00	10.09	145.52	2,972.09	-272.92	187.40	-187.40	0.00	0.00	0.00
3,100.00	10.09	145.52	3,070.55	-287.36	197.32	-197.32	0.00	0.00	0.00
3,200.00	10.09	145.52	3,169.00	-301.79	207.23	-207.23	0.00	0.00	0.00
3,300.00	10.09	145.52	3,267.46	-316.23	217.14	-217.14	0.00	0.00	0.00
3,400.00	10.09	145.52	3,365.91	-330.67	227.05	-227.05	0.00	0.00	0.00
3,500.00	10.09	145.52	3,464.37	-345.10	236.97	-236.97	0.00	0.00	0.00
3,600.00	10.09	145.52	3,562.82	-359.54	246.88	-246.88	0.00	0.00	0.00
3,700.00	10.09	145.52	3,661.27	-373.98	256.79	-256.79	0.00	0.00	0.00
3,800.00	10.09	145.52	3,759.73	-388.41	266.71	-266.71	0.00	0.00	0.00
3,900.00	10.09	145.52	3,858.18	-402.85	276.62	-276.62	0.00	0.00	0.00
4,000.00	10.09	145.52	3,956.64	-417.29	286.53	-286.53	0.00	0.00	0.00
4,100.00	10.09	145.52	4,055.09	-431.72	296.44	-296.44	0.00	0.00	0.00
4,157.80	10.09	145.52	4,112.00	-440.07	302.17	-302.17	0.00	0.00	0.00
<b>Sussex</b>									
4,200.00	10.09	145.52	4,153.55	-446.16	306.36	-306.36	0.00	0.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 33C-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)
4,300.00	10.09	145.52	4,252.00	-460.60	316.27	-316.27	0.00	0.00	0.00
4,400.00	10.09	145.52	4,350.46	-475.03	326.18	-326.18	0.00	0.00	0.00
4,500.00	10.09	145.52	4,448.91	-489.47	336.10	-336.10	0.00	0.00	0.00
4,567.13	10.09	145.52	4,515.00	-499.16	342.75	-342.75	0.00	0.00	0.00
<b>Shannon</b>									
4,600.00	10.09	145.52	4,547.37	-503.90	346.01	-346.01	0.00	0.00	0.00
4,700.00	10.09	145.52	4,645.82	-518.34	355.92	-355.92	0.00	0.00	0.00
4,800.00	10.09	145.52	4,744.28	-532.78	365.83	-365.83	0.00	0.00	0.00
4,900.00	10.09	145.52	4,842.73	-547.21	375.75	-375.75	0.00	0.00	0.00
5,000.00	10.09	145.52	4,941.19	-561.65	385.66	-385.66	0.00	0.00	0.00
5,100.00	10.09	145.52	5,039.64	-576.09	395.57	-395.57	0.00	0.00	0.00
5,200.00	10.09	145.52	5,138.10	-590.52	405.49	-405.49	0.00	0.00	0.00
5,300.00	10.09	145.52	5,236.55	-604.96	415.40	-415.40	0.00	0.00	0.00
5,400.00	10.09	145.52	5,335.00	-619.40	425.31	-425.31	0.00	0.00	0.00
5,500.00	10.09	145.52	5,433.46	-633.83	435.22	-435.22	0.00	0.00	0.00
5,600.00	10.09	145.52	5,531.91	-648.27	445.14	-445.14	0.00	0.00	0.00
5,700.00	10.09	145.52	5,630.37	-662.70	455.05	-455.05	0.00	0.00	0.00
5,800.00	10.09	145.52	5,728.82	-677.14	464.96	-464.96	0.00	0.00	0.00
5,900.00	10.09	145.52	5,827.28	-691.58	474.88	-474.88	0.00	0.00	0.00
6,000.00	10.09	145.52	5,925.73	-706.01	484.79	-484.79	0.00	0.00	0.00
6,100.00	10.09	145.52	6,024.19	-720.45	494.70	-494.70	0.00	0.00	0.00
6,121.81	10.09	145.52	6,045.66	-723.60	496.86	-496.86	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
6,132.67	10.09	145.52	6,056.35	-725.17	497.94	-497.94	0.00	0.00	0.00
6,200.00	8.74	145.52	6,122.77	-734.24	504.17	-504.17	2.00	-2.00	0.00
6,300.00	6.74	145.52	6,221.86	-745.34	511.80	-511.80	2.00	-2.00	0.00
6,400.00	4.74	145.52	6,321.35	-753.59	517.46	-517.46	2.00	-2.00	0.00
6,500.00	2.74	145.52	6,421.13	-758.96	521.15	-521.15	2.00	-2.00	0.00
6,600.00	0.74	145.52	6,521.08	-761.47	522.87	-522.87	2.00	-2.00	0.00
6,636.96	0.00	0.00	6,558.04	-761.66	523.00	-523.00	2.00	-2.00	0.00
6,641.62	0.47	270.00	6,562.70	-761.66	522.98	-522.98	10.00	10.00	0.00
<b>Start DLS 10.00 TFO 270.00</b>									
6,700.00	6.30	270.00	6,620.96	-761.66	519.54	-519.54	10.00	10.00	0.00
6,800.00	16.30	270.00	6,718.89	-761.66	499.96	-499.96	10.00	10.00	0.00
6,900.00	26.30	270.00	6,811.94	-761.66	463.67	-463.67	10.00	10.00	0.00
6,901.18	26.42	270.00	6,813.00	-761.66	463.15	-463.15	10.00	10.00	0.00
<b>Sharon Springs</b>									
6,939.83	30.29	270.00	6,847.00	-761.66	444.80	-444.80	10.00	10.00	0.00
<b>Niobrara</b>									
7,000.00	36.30	270.00	6,897.27	-761.66	411.78	-411.78	10.00	10.00	0.00
7,005.89	36.89	270.00	6,902.00	-761.66	408.27	-408.27	10.00	10.00	0.00
<b>Niobrara B</b>									
7,099.57	46.26	270.00	6,972.00	-761.66	346.17	-346.17	10.00	10.00	0.00
<b>Niobrara C</b>									
7,100.00	46.30	270.00	6,972.30	-761.66	345.86	-345.86	10.00	10.00	0.00
7,200.00	56.30	270.00	7,034.74	-761.66	267.91	-267.91	10.00	10.00	0.00
7,300.00	66.30	270.00	7,082.69	-761.66	180.30	-180.30	10.00	10.00	0.00
7,327.12	69.02	270.00	7,093.00	-761.66	155.22	-155.22	10.00	10.00	0.00
<b>Fort Hays</b>									
7,400.00	76.30	270.00	7,114.71	-761.66	85.70	-85.70	10.00	10.00	0.00
7,410.05	77.31	270.00	7,117.00	-761.66	75.92	-75.92	10.00	10.00	0.00
<b>Codell</b>									
7,500.00	86.30	270.00	7,129.81	-761.66	-13.03	13.03	10.00	10.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 33C-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)
7,537.98	90.10	270.00	7,131.00	-761.66	-50.98	50.98	10.00	10.00	0.00
<b>7"(974 FSL 621 FEL)</b>									
7,542.63	90.10	270.00	7,130.99	-761.66	-55.63	55.63	0.00	0.00	0.00
<b>Start 4533.88 hold at 7542.63 MD</b>									
7,600.00	90.10	270.00	7,130.89	-761.66	-113.00	113.00	0.00	0.00	0.00
7,700.00	90.10	270.00	7,130.71	-761.66	-213.00	213.00	0.00	0.00	0.00
7,800.00	90.10	270.00	7,130.53	-761.66	-313.00	313.00	0.00	0.00	0.00
7,900.00	90.10	270.00	7,130.35	-761.66	-413.00	413.00	0.00	0.00	0.00
8,000.00	90.10	270.00	7,130.17	-761.66	-513.00	513.00	0.00	0.00	0.00
8,100.00	90.10	270.00	7,130.00	-761.66	-613.00	613.00	0.00	0.00	0.00
8,200.00	90.10	270.00	7,129.82	-761.66	-713.00	713.00	0.00	0.00	0.00
8,300.00	90.10	270.00	7,129.64	-761.66	-813.00	813.00	0.00	0.00	0.00
8,400.00	90.10	270.00	7,129.46	-761.66	-913.00	913.00	0.00	0.00	0.00
8,500.00	90.10	270.00	7,129.28	-761.66	-1,013.00	1,013.00	0.00	0.00	0.00
8,600.00	90.10	270.00	7,129.11	-761.66	-1,113.00	1,113.00	0.00	0.00	0.00
8,700.00	90.10	270.00	7,128.93	-761.66	-1,213.00	1,213.00	0.00	0.00	0.00
8,800.00	90.10	270.00	7,128.75	-761.66	-1,313.00	1,313.00	0.00	0.00	0.00
8,900.00	90.10	270.00	7,128.57	-761.66	-1,413.00	1,413.00	0.00	0.00	0.00
9,000.00	90.10	270.00	7,128.39	-761.66	-1,513.00	1,513.00	0.00	0.00	0.00
9,100.00	90.10	270.00	7,128.21	-761.66	-1,613.00	1,613.00	0.00	0.00	0.00
9,200.00	90.10	270.00	7,128.04	-761.66	-1,713.00	1,713.00	0.00	0.00	0.00
9,300.00	90.10	270.00	7,127.86	-761.66	-1,813.00	1,813.00	0.00	0.00	0.00
9,400.00	90.10	270.00	7,127.68	-761.66	-1,913.00	1,913.00	0.00	0.00	0.00
9,500.00	90.10	270.00	7,127.50	-761.66	-2,013.00	2,013.00	0.00	0.00	0.00
9,600.00	90.10	270.00	7,127.32	-761.66	-2,113.00	2,113.00	0.00	0.00	0.00
9,700.00	90.10	270.00	7,127.15	-761.66	-2,213.00	2,213.00	0.00	0.00	0.00
9,800.00	90.10	270.00	7,126.97	-761.66	-2,313.00	2,313.00	0.00	0.00	0.00
9,900.00	90.10	270.00	7,126.79	-761.66	-2,413.00	2,413.00	0.00	0.00	0.00
10,000.00	90.10	270.00	7,126.61	-761.66	-2,513.00	2,513.00	0.00	0.00	0.00
10,100.00	90.10	270.00	7,126.43	-761.66	-2,613.00	2,613.00	0.00	0.00	0.00
10,200.00	90.10	270.00	7,126.25	-761.66	-2,713.00	2,713.00	0.00	0.00	0.00
10,300.00	90.10	270.00	7,126.08	-761.66	-2,813.00	2,813.00	0.00	0.00	0.00
10,400.00	90.10	270.00	7,125.90	-761.66	-2,913.00	2,913.00	0.00	0.00	0.00
10,500.00	90.10	270.00	7,125.72	-761.66	-3,013.00	3,013.00	0.00	0.00	0.00
10,600.00	90.10	270.00	7,125.54	-761.66	-3,112.99	3,112.99	0.00	0.00	0.00
10,700.00	90.10	270.00	7,125.36	-761.66	-3,212.99	3,212.99	0.00	0.00	0.00
10,800.00	90.10	270.00	7,125.19	-761.66	-3,312.99	3,312.99	0.00	0.00	0.00
10,900.00	90.10	270.00	7,125.01	-761.66	-3,412.99	3,412.99	0.00	0.00	0.00
11,000.00	90.10	270.00	7,124.83	-761.66	-3,512.99	3,512.99	0.00	0.00	0.00
11,100.00	90.10	270.00	7,124.65	-761.66	-3,612.99	3,612.99	0.00	0.00	0.00
11,200.00	90.10	270.00	7,124.47	-761.66	-3,712.99	3,712.99	0.00	0.00	0.00
11,300.00	90.10	270.00	7,124.30	-761.66	-3,812.99	3,812.99	0.00	0.00	0.00
11,400.00	90.10	270.00	7,124.12	-761.66	-3,912.99	3,912.99	0.00	0.00	0.00
11,500.00	90.10	270.00	7,123.94	-761.66	-4,012.99	4,012.99	0.00	0.00	0.00
11,600.00	90.10	270.00	7,123.76	-761.66	-4,112.99	4,112.99	0.00	0.00	0.00
11,700.00	90.10	270.00	7,123.58	-761.66	-4,212.99	4,212.99	0.00	0.00	0.00
11,800.00	90.10	270.00	7,123.40	-761.66	-4,312.99	4,312.99	0.00	0.00	0.00
11,900.00	90.10	270.00	7,123.23	-761.66	-4,412.99	4,412.99	0.00	0.00	0.00
12,000.00	90.10	270.00	7,123.05	-761.66	-4,512.99	4,512.99	0.00	0.00	0.00
12,026.85	90.10	270.00	7,123.00	-761.66	-4,539.84	4,539.84	0.00	0.00	0.00
<b>PBHL_HOUSTON 33C-8HZ(940 FSL 50 FWL)</b>									

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HOUSTON 33C-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GLI 4807 & KB 17 @ 4824.00ft (ASSUMED)
<b>Site:</b>	HOUSTON 9-8HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HOUSTON 33C-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 33C-I	0.00	0.00	7,123.00	-761.66	-4,539.84	1,329,249.59	3,161,068.58	40.2357500	-104.9230720
- 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	
7,537.98	7,131.00	7"(974 FSL 621 FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.00	708.00	Fox Hills Base				
4,157.80	4,112.00	Sussex				
4,567.13	4,515.00	Shannon				
6,901.18	6,813.00	Sharon Springs				
6,939.83	6,847.00	Niobrara				
7,005.89	6,902.00	Niobrara B				
7,099.57	6,972.00	Niobrara C				
7,327.12	7,093.00	Fort Hays				
7,410.05	7,117.00	Codell				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
858.00	858.00	0.00	0.00	Start Build 2.00
1,377.81	1,374.97	-38.74	26.60	Start 4743.99 hold at 1377.81 MD
6,121.81	6,045.66	-723.60	496.86	Start Drop -2.00
6,641.62	6,562.70	-761.66	522.98	Start DLS 10.00 TFO 270.00
7,542.63	7,130.99	-761.66	-55.63	Start 4533.88 hold at 7542.63 MD
12,076.50				TD at 12076.50