

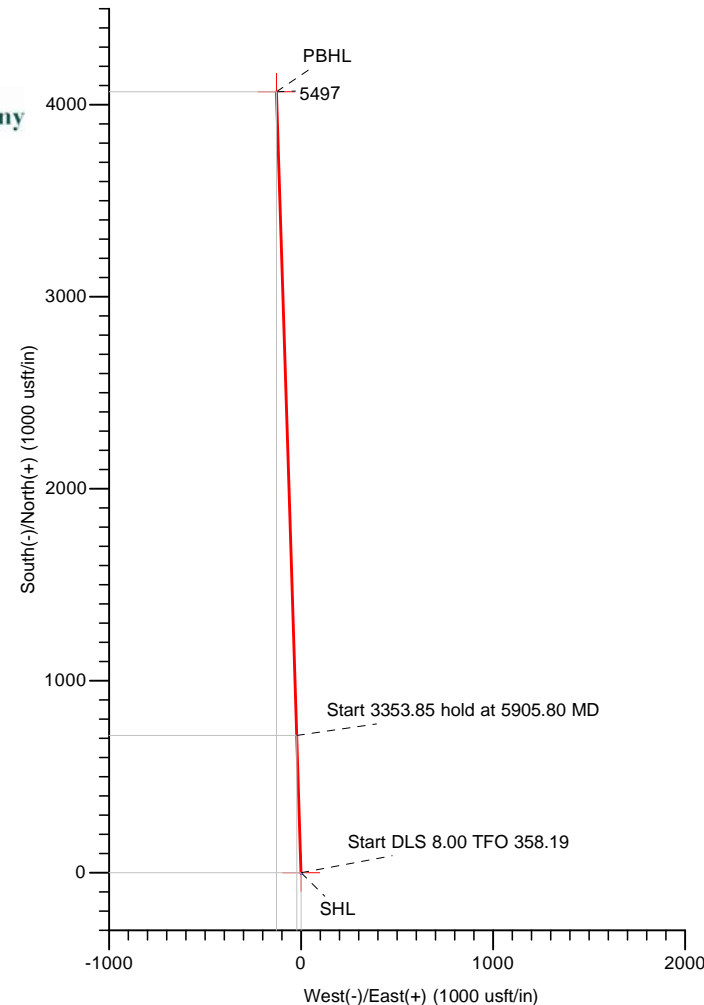
# HILCORP ENERGY COMPANY

Project: El Paso County, CO  
 Site: State of CO  
 Well: 24-33BH  
 Wellbore: OH  
 Design: Plan #4



Azimuths to True North  
 Magnetic North: 8.47°

Magnetic Field  
 Strength: 52265.0snT  
 Dip Angle: 65.76°  
 Date: 02/28/2012  
 Model: IGRF2010

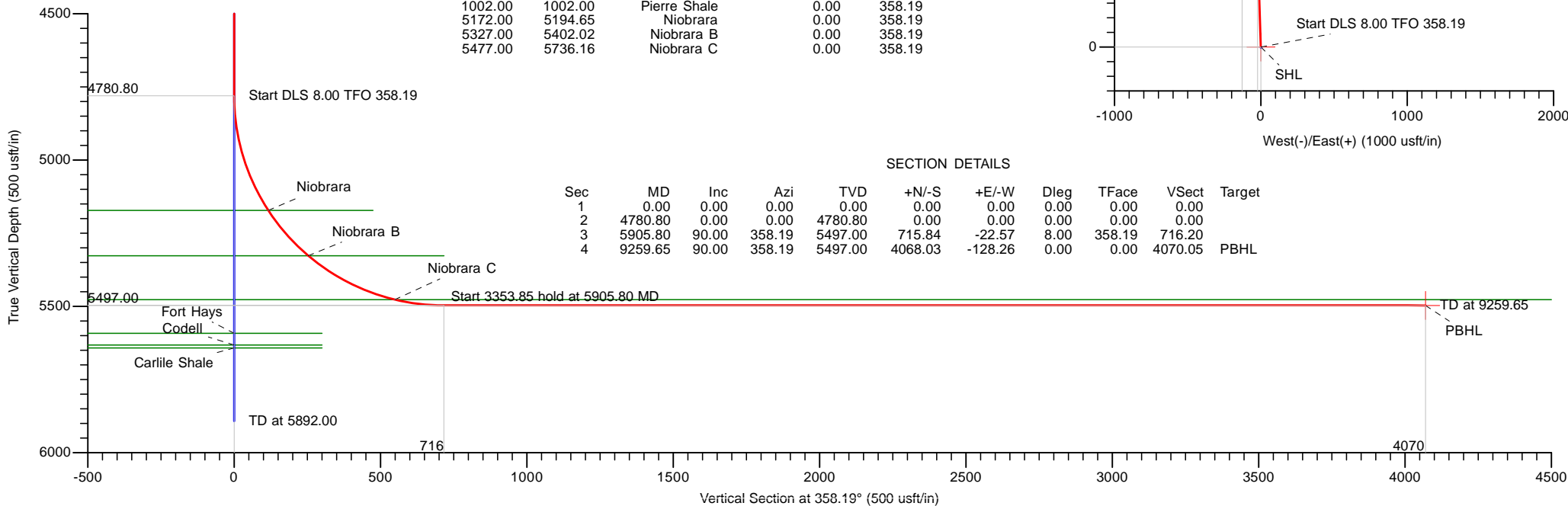


## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHL	0.00	0.00	0.00	38° 46' 56.856 N	104° 27' 11.160 W
PBHL	5497.00	4068.03	-128.26	38° 47' 37.068 N	104° 27' 12.780 W

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
452.00	452.00	Laramie	0.00	358.19
752.00	752.00	Fox Hills	0.00	358.19
1002.00	1002.00	Pierre Shale	0.00	358.19
5172.00	5194.65	Niobrara	0.00	358.19
5327.00	5402.02	Niobrara B	0.00	358.19
5477.00	5736.16	Niobrara C	0.00	358.19



## 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	4780.80	0.00	0.00	4780.80	0.00	0.00	0.00	0.00	0.00	
3	5905.80	90.00	358.19	5497.00	715.84	-22.57	8.00	358.19	716.20	
4	9259.65	90.00	358.19	5497.00	4068.03	-128.26	0.00	0.00	4070.05	PBHL



LEAM DRILLING SYSTEMS, INC.  
 2010 East Davis, Conroe, Texas 77301  
 Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #4 (24-33BH/OH)  
 State of CO  
 Created By: Justin Andoe Date: 10:53, March 06 2012  
 Approved: \_\_\_\_\_ Date: \_\_\_\_\_

## Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 24-33BH
<b>Company:</b>	HILCORP ENERGY COMPANY	<b>TVD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Project:</b>	El Paso County, CO	<b>MD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Site:</b>	State of CO	<b>North Reference:</b>	True
<b>Well:</b>	24-33BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

<b>Project</b>	El Paso County, CO		
<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 Central Zone		

Site		State of CO			
Site Position:		Northing:	1,347,387.16 usft	Latitude:	38° 46' 56.856 N
From:	Lat/Long	Easting:	3,298,423.89 usft	Longitude:	104° 27' 11.160 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.66 °

Well	24-33BH					
Well Position	+N/-S	0.00 usft	Northing:	1,347,387.16 usft	Latitude:	38° 46' 56.856 N
	+E/-W	0.00 usft	Easting:	3,298,423.89 usft	Longitude:	104° 27' 11.160 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,916.50 usft

<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>
	IGRF2010	02/28/12	8.47	65.76	52,265

<b>Design</b>	Plan #4			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	358.19

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,780.80	0.00	0.00	4,780.80	0.00	0.00	0.00	0.00	0.00	0.00	
5,905.80	90.00	358.19	5,497.00	715.84	-22.57	8.00	8.00	-0.16	358.19	
9,259.65	90.00	358.19	5,497.00	4,068.03	-128.26	0.00	0.00	0.00	0.00	PBHL

# Planning Report

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 24-33BH
<b>Company:</b>	HILCORP ENERGY COMPANY	<b>TVD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Project:</b>	El Paso County, CO	<b>MD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Site:</b>	State of CO	<b>North Reference:</b>	True
<b>Well:</b>	24-33BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>SHL</b>									
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
452.00	0.00	0.00	452.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Laramie</b>									
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
752.00	0.00	0.00	752.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</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
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,002.00	0.00	0.00	1,002.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Pierre Shale</b>									
1,100.00	0.00	0.00	1,100.00	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
1,300.00	0.00	0.00	1,300.00	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
1,500.00	0.00	0.00	1,500.00	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
1,700.00	0.00	0.00	1,700.00	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
1,900.00	0.00	0.00	1,900.00	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
2,100.00	0.00	0.00	2,100.00	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
2,300.00	0.00	0.00	2,300.00	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
2,500.00	0.00	0.00	2,500.00	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
2,700.00	0.00	0.00	2,700.00	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
2,900.00	0.00	0.00	2,900.00	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
3,100.00	0.00	0.00	3,100.00	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
3,300.00	0.00	0.00	3,300.00	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
3,500.00	0.00	0.00	3,500.00	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
3,700.00	0.00	0.00	3,700.00	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
3,900.00	0.00	0.00	3,900.00	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
4,100.00	0.00	0.00	4,100.00	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
4,300.00	0.00	0.00	4,300.00	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
4,500.00	0.00	0.00	4,500.00	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

# Planning Report

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<b>Project:</b>	El Paso County, CO	<b>MD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Site:</b>	State of CO	<b>North Reference:</b>	True
<b>Well:</b>	24-33BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,780.80	0.00	0.00	4,780.80	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	1.54	358.19	4,800.00	0.26	-0.01	0.26	8.00	8.00	0.00
4,850.00	5.54	358.19	4,849.89	3.34	-0.11	3.34	8.00	8.00	0.00
4,900.00	9.54	358.19	4,899.45	9.89	-0.31	9.90	8.00	8.00	0.00
4,950.00	13.54	358.19	4,948.43	19.88	-0.63	19.89	8.00	8.00	0.00
5,000.00	17.54	358.19	4,996.59	33.27	-1.05	33.28	8.00	8.00	0.00
5,050.00	21.54	358.19	5,043.71	49.97	-1.58	50.00	8.00	8.00	0.00
5,100.00	25.54	358.19	5,089.54	69.93	-2.20	69.96	8.00	8.00	0.00
5,150.00	29.54	358.19	5,133.86	93.03	-2.93	93.07	8.00	8.00	0.00
5,194.65	33.11	358.19	5,172.00	116.22	-3.66	116.28	8.00	8.00	0.00
Niobrara									
5,200.00	33.54	358.19	5,176.47	119.16	-3.76	119.22	8.00	8.00	0.00
5,250.00	37.54	358.19	5,217.15	148.20	-4.67	148.27	8.00	8.00	0.00
5,300.00	41.54	358.19	5,255.70	180.01	-5.68	180.10	8.00	8.00	0.00
5,350.00	45.54	358.19	5,291.94	214.42	-6.76	214.53	8.00	8.00	0.00
5,400.00	49.54	358.19	5,325.69	251.28	-7.92	251.41	8.00	8.00	0.00
5,402.02	49.70	358.19	5,327.00	252.82	-7.97	252.94	8.00	8.00	0.00
Niobrara B									
5,450.00	53.54	358.19	5,356.79	290.40	-9.16	290.55	8.00	8.00	0.00
5,500.00	57.54	358.19	5,385.08	331.60	-10.45	331.76	8.00	8.00	0.00
5,550.00	61.54	358.19	5,410.42	374.67	-11.81	374.85	8.00	8.00	0.00
5,600.00	65.54	358.19	5,432.70	419.40	-13.22	419.60	8.00	8.00	0.00
5,650.00	69.54	358.19	5,451.80	465.57	-14.68	465.80	8.00	8.00	0.00
5,700.00	73.54	358.19	5,467.63	512.96	-16.17	513.22	8.00	8.00	0.00
5,736.16	76.43	358.19	5,477.00	547.87	-17.27	548.14	8.00	8.00	0.00
Niobrara C									
5,750.00	77.54	358.19	5,480.12	561.34	-17.70	561.62	8.00	8.00	0.00
5,800.00	81.54	358.19	5,489.20	610.48	-19.25	610.78	8.00	8.00	0.00
5,850.00	85.54	358.19	5,494.82	660.13	-20.81	660.45	8.00	8.00	0.00
5,900.00	89.54	358.19	5,496.97	710.04	-22.39	710.40	8.00	8.00	0.00
5,905.80	90.00	358.19	5,497.00	715.84	-22.57	716.20	8.00	8.00	0.00
6,000.00	90.00	358.19	5,497.00	809.99	-25.54	810.40	0.00	0.00	0.00
6,100.00	90.00	358.19	5,497.00	909.95	-28.69	910.40	0.00	0.00	0.00
6,200.00	90.00	358.19	5,497.00	1,009.90	-31.84	1,010.40	0.00	0.00	0.00
6,300.00	90.00	358.19	5,497.00	1,109.85	-34.99	1,110.40	0.00	0.00	0.00
6,400.00	90.00	358.19	5,497.00	1,209.80	-38.14	1,210.40	0.00	0.00	0.00
6,500.00	90.00	358.19	5,497.00	1,309.75	-41.29	1,310.40	0.00	0.00	0.00
6,600.00	90.00	358.19	5,497.00	1,409.70	-44.45	1,410.40	0.00	0.00	0.00
6,700.00	90.00	358.19	5,497.00	1,509.65	-47.60	1,510.40	0.00	0.00	0.00
6,800.00	90.00	358.19	5,497.00	1,609.60	-50.75	1,610.40	0.00	0.00	0.00
6,900.00	90.00	358.19	5,497.00	1,709.55	-53.90	1,710.40	0.00	0.00	0.00
7,000.00	90.00	358.19	5,497.00	1,809.50	-57.05	1,810.40	0.00	0.00	0.00
7,100.00	90.00	358.19	5,497.00	1,909.45	-60.20	1,910.40	0.00	0.00	0.00
7,200.00	90.00	358.19	5,497.00	2,009.40	-63.35	2,010.40	0.00	0.00	0.00
7,300.00	90.00	358.19	5,497.00	2,109.35	-66.50	2,110.40	0.00	0.00	0.00
7,400.00	90.00	358.19	5,497.00	2,209.30	-69.66	2,210.40	0.00	0.00	0.00
7,500.00	90.00	358.19	5,497.00	2,309.25	-72.81	2,310.40	0.00	0.00	0.00
7,600.00	90.00	358.19	5,497.00	2,409.20	-75.96	2,410.40	0.00	0.00	0.00
7,700.00	90.00	358.19	5,497.00	2,509.15	-79.11	2,510.40	0.00	0.00	0.00
7,800.00	90.00	358.19	5,497.00	2,609.10	-82.26	2,610.40	0.00	0.00	0.00
7,900.00	90.00	358.19	5,497.00	2,709.05	-85.41	2,710.40	0.00	0.00	0.00
8,000.00	90.00	358.19	5,497.00	2,809.00	-88.56	2,810.40	0.00	0.00	0.00

## Planning Report

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<b>Company:</b>	HILCORP ENERGY COMPANY	<b>TVD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Project:</b>	El Paso County, CO	<b>MD Reference:</b>	GL 5916.5'+KB 15.5' @ 5932.00usft
<b>Site:</b>	State of CO	<b>North Reference:</b>	True
<b>Well:</b>	24-33BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,100.00	90.00	358.19	5,497.00	2,908.95	-91.71	2,910.40	0.00	0.00	0.00	
8,200.00	90.00	358.19	5,497.00	3,008.90	-94.87	3,010.40	0.00	0.00	0.00	
8,300.00	90.00	358.19	5,497.00	3,108.85	-98.02	3,110.40	0.00	0.00	0.00	
8,400.00	90.00	358.19	5,497.00	3,208.80	-101.17	3,210.40	0.00	0.00	0.00	
8,500.00	90.00	358.19	5,497.00	3,308.75	-104.32	3,310.40	0.00	0.00	0.00	
8,600.00	90.00	358.19	5,497.00	3,408.70	-107.47	3,410.40	0.00	0.00	0.00	
8,700.00	90.00	358.19	5,497.00	3,508.65	-110.62	3,510.40	0.00	0.00	0.00	
8,800.00	90.00	358.19	5,497.00	3,608.60	-113.77	3,610.40	0.00	0.00	0.00	
8,900.00	90.00	358.19	5,497.00	3,708.55	-116.92	3,710.40	0.00	0.00	0.00	
9,000.00	90.00	358.19	5,497.00	3,808.50	-120.08	3,810.40	0.00	0.00	0.00	
9,100.00	90.00	358.19	5,497.00	3,908.46	-123.23	3,910.40	0.00	0.00	0.00	
9,200.00	90.00	358.19	5,497.00	4,008.41	-126.38	4,010.40	0.00	0.00	0.00	
9,259.65	90.00	358.19	5,497.00	4,068.03	-128.26	4,070.05	0.00	0.00	0.00	
PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
SHL	0.00	2.99	0.00	0.00	0.00	1,347,387.16	3,298,423.89	38° 46' 56.856 N	104° 27' 11.160 W	
- plan hits target center										
- Point										
PBHL	0.00	2.99	5,497.00	4,068.03	-128.26	1,351,453.44	3,298,248.76	38° 47' 37.068 N	104° 27' 12.780 W	
- plan hits target center										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
452.00	452.00	Laramie		0.00	358.19	
752.00	752.00	Fox Hills		0.00	358.19	
1,002.00	1,002.00	Pierre Shale		0.00	358.19	
5,194.65	5,172.00	Niobrara		0.00	358.19	
5,402.02	5,327.00	Niobrara B		0.00	358.19	
5,736.16	5,477.00	Niobrara C		0.00	358.19	