



HILCORP ENERGY COMPANY
ALLISON UNIT COM #138H (PILOT)
SAN JUAN BASIN NM / CO
6134' GL + 15' KB



WELL DETAILS: Allison Unit Com #138H

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude
0.00	0.00	1127387.720	6134.00	2421227.380	36° 59' 58.740 N	107° 28' 54.901 W

SECTION DETAILS

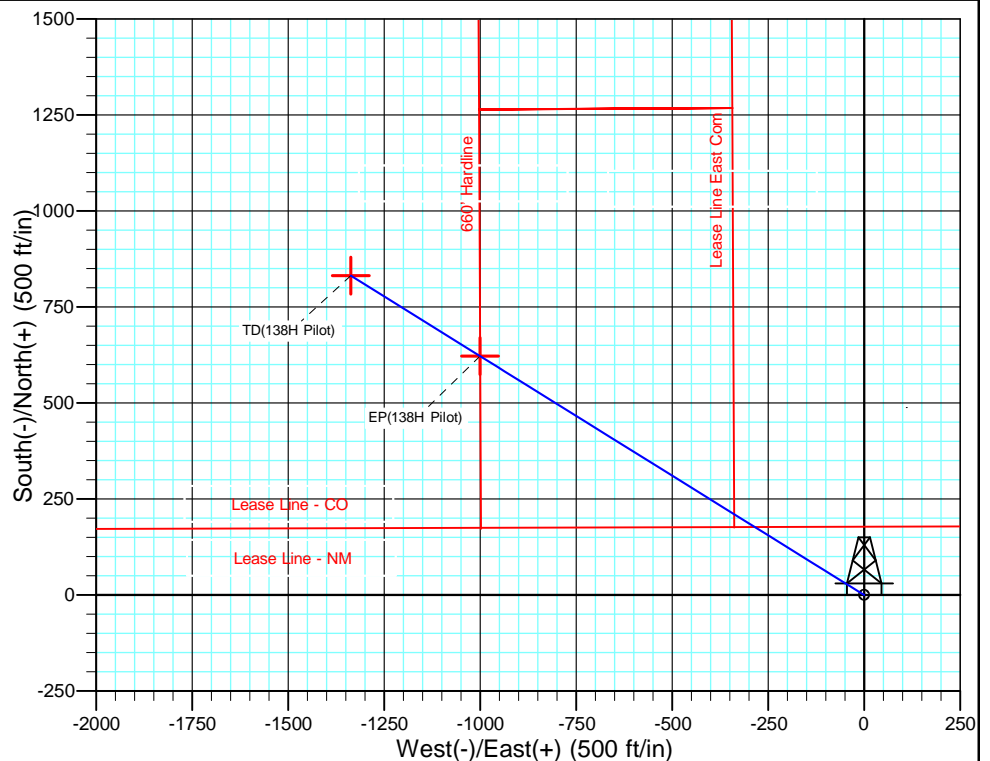
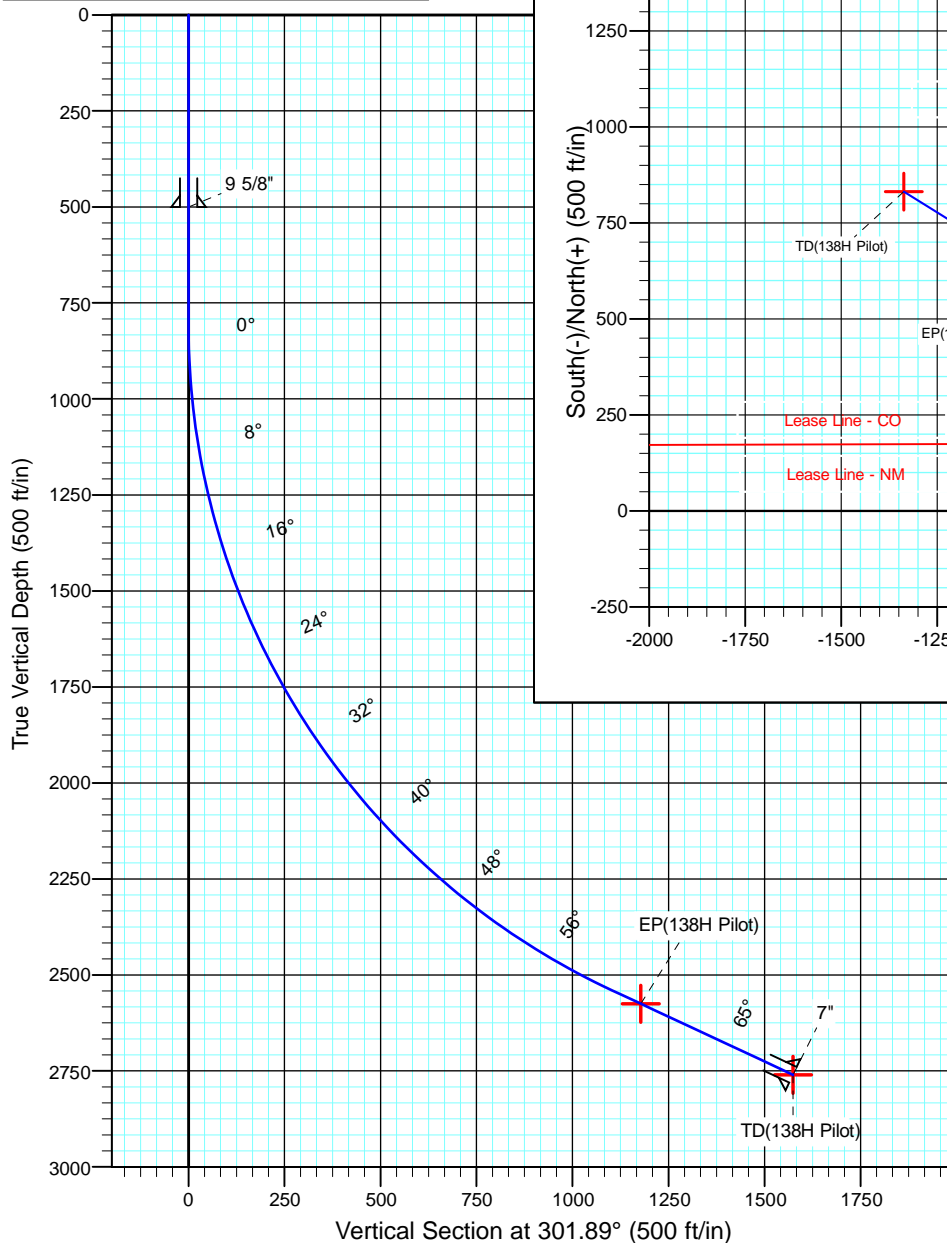
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	809.10	0.00	0.00	809.10	0.00	0.00	0.00	0.00	0.00	
3	2975.77	65.00	301.89	2540.02	582.50	-936.31	3.00	301.89	1102.72	
4	3058.53	65.00	301.89	2575.00	622.12	-1000.00	0.00	0.00	1177.73	EP(138H Pilot)
5	3496.28	65.00	301.89	2760.00	831.69	-1336.87	0.00	0.00	1574.46	TD(138H Pilot)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
EP(138H Pilot)	2575.00	622.12	-1000.00	1128009.840	2420227.380	37° 0' 4.680 N	107° 29' 7.388 W	Point
TD(138H Pilot)	2760.00	831.69	-1336.87	1128219.408	2419890.513	37° 0' 6.681 N	107° 29' 11.595 W	Point

CASING DETAILS

TVD	MD	Name
500	500	9 5/8"
2760	3496	7"



PROJECT DETAILS: San Juan County, NM / CO (NAD 83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Southern Zone
 System Datum: Mean Sea Level

Allison Unit Com #138H Pilot p1

Created By: Frank Scardino Date: 1/22/2018
 Checked: _____ Date: _____



Hilcorp Energy Company

San Juan County, NM / CO (NAD 83)

Allison Unit Com #138H

Allison Unit Com #138H

Pilot

Plan: Design #1

Standard Planning Report

22 January, 2018





Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		

Project	San Juan County, NM / CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site	Allison Unit Com #138H			
Site Position:		Northing:	1,127,387.720 usft	Latitude: 36° 59' 58.740 N
From: Map		Easting:	2,421,227.380 usft	Longitude: 107° 28' 54.901 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.22 °

Well	Allison Unit Com #138H			
Well Position	+N/-S	0.00 ft	Northing:	1,127,387.720 usft
	+E/-W	0.00 ft	Easting:	2,421,227.380 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	6,134.00 ft

Wellbore	Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/22/2018	9.11	63.60	50,155

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	301.89

Plan Sections										
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	
809.10	0.00	0.00	809.10	0.00	0.00	0.00	0.00	0.00	0.00	
2,975.77	65.00	301.89	2,540.02	582.50	-936.31	3.00	3.00	0.00	301.89	
3,058.53	65.00	301.89	2,575.00	622.12	-1,000.00	0.00	0.00	0.00	0.00	EP(138H Pilot)
3,496.28	65.00	301.89	2,760.00	831.69	-1,336.87	0.00	0.00	0.00	0.00	TD(138H Pilot)



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		

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)
809.10	0.00	0.00	809.10	0.00	0.00	0.00	0.00	0.00	0.00
900.00	2.73	301.89	899.97	1.14	-1.84	2.16	3.00	3.00	0.00
1,000.00	5.73	301.89	999.68	5.04	-8.09	9.53	3.00	3.00	0.00
1,100.00	8.73	301.89	1,098.88	11.68	-18.77	22.11	3.00	3.00	0.00
1,200.00	11.73	301.89	1,197.28	21.06	-33.85	39.86	3.00	3.00	0.00
1,300.00	14.73	301.89	1,294.61	33.14	-53.27	62.74	3.00	3.00	0.00
1,400.00	17.73	301.89	1,390.62	47.90	-77.00	90.68	3.00	3.00	0.00
1,500.00	20.73	301.89	1,485.03	65.30	-104.96	123.61	3.00	3.00	0.00
1,600.00	23.73	301.89	1,577.59	85.28	-137.07	161.43	3.00	3.00	0.00
1,700.00	26.73	301.89	1,668.04	107.79	-173.26	204.05	3.00	3.00	0.00
1,800.00	29.73	301.89	1,756.14	132.77	-213.41	251.34	3.00	3.00	0.00
1,900.00	32.73	301.89	1,841.64	160.15	-257.43	303.18	3.00	3.00	0.00
2,000.00	35.73	301.89	1,924.31	189.86	-305.18	359.42	3.00	3.00	0.00
2,100.00	38.73	301.89	2,003.93	221.81	-356.54	419.91	3.00	3.00	0.00
2,200.00	41.73	301.89	2,080.27	255.92	-411.37	484.48	3.00	3.00	0.00
2,300.00	44.73	301.89	2,153.13	292.10	-469.52	552.96	3.00	3.00	0.00
2,400.00	47.73	301.89	2,222.30	330.24	-530.82	625.16	3.00	3.00	0.00
2,500.00	50.73	301.89	2,287.60	370.24	-595.12	700.89	3.00	3.00	0.00
2,600.00	53.73	301.89	2,348.84	411.98	-662.23	779.92	3.00	3.00	0.00
2,700.00	56.73	301.89	2,405.87	455.37	-731.97	862.05	3.00	3.00	0.00
2,800.00	59.73	301.89	2,458.52	500.27	-804.14	947.06	3.00	3.00	0.00
2,900.00	62.73	301.89	2,506.65	546.57	-878.56	1,034.70	3.00	3.00	0.00
2,975.77	65.00	301.89	2,540.02	582.50	-936.31	1,102.72	3.00	3.00	0.00
3,000.00	65.00	301.89	2,550.26	594.10	-954.96	1,124.68	0.00	0.00	0.00
3,058.53	65.00	301.89	2,575.00	622.12	-1,000.00	1,177.73	0.00	0.00	0.00
EP(138H Pilot)									
3,100.00	65.00	301.89	2,592.53	641.97	-1,031.91	1,215.31	0.00	0.00	0.00
3,200.00	65.00	301.89	2,634.79	689.85	-1,108.87	1,305.94	0.00	0.00	0.00
3,300.00	65.00	301.89	2,677.05	737.72	-1,185.82	1,396.57	0.00	0.00	0.00
3,400.00	65.00	301.89	2,719.31	785.60	-1,262.78	1,487.20	0.00	0.00	0.00
3,496.28	65.00	301.89	2,760.00	831.69	-1,336.87	1,574.46	0.00	0.00	0.00
7" - TD(138H Pilot)									

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									
EP(138H Pilot)	0.00	360.00	2,575.00	622.12	-1,000.00	1,128,009.840	2,420,227.380	37° 0' 4.680 N	107° 29' 7.388 W
- plan hits target center									
- Point									
TD(138H Pilot)	0.00	360.00	2,760.00	831.69	-1,336.87	1,128,219.409	2,419,890.513	37° 0' 6.681 N	107° 29' 11.595 W
- plan hits target center									
- Point									



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		

Casing Points					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
	500.00	500.00	9 5/8"	9.625	12.250
	3,496.28	2,760.00	7"	7.000	7.500



Hilcorp Energy Company

San Juan County, NM / CO (NAD 83)

Allison Unit Com #138H

Allison Unit Com #138H

Pilot

Plan: Design #1

Standard Planning Report - Geographic

22 January, 2018





Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		

Project	San Juan County, NM / CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site		Allison Unit Com #138H			
Site Position:		Northing:	1,127,387.720 usft	Latitude:	36° 59' 58.740 N
From:	Map	Easting:	2,421,227.380 usft	Longitude:	107° 28' 54.901 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.22 °

Well	Allison Unit Com #138H					
Well Position	+N/-S	0.00 ft	Northing:	1,127,387.720 usft	Latitude:	36° 59' 58.740 N
	+E/-W	0.00 ft	Easting:	2,421,227.380 usft	Longitude:	107° 28' 54.901 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	6,134.00 ft

Wellbore	Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/22/2018	9.11	63.60	50,155

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	301.89

Plan Sections										
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	
809.10	0.00	0.00	809.10	0.00	0.00	0.00	0.00	0.00	0.00	
2,975.77	65.00	301.89	2,540.02	582.50	-936.31	3.00	3.00	0.00	301.89	
3,058.53	65.00	301.89	2,575.00	622.12	-1,000.00	0.00	0.00	0.00	0.00	EP(138H Pilot)
3,496.28	65.00	301.89	2,760.00	831.69	-1,336.87	0.00	0.00	0.00	0.00	TD(138H Pilot)



Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		

Planned Survey										
Measured			Vertical			Map	Map			
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting		Latitude	Longitude
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)			
809.10	0.00	0.00	809.10	0.00	0.00	1,127,387.720	2,421,227.380		36° 59' 58.740 N	107° 28' 54.901 W
900.00	2.73	301.89	899.97	1.14	-1.84	1,127,388.863	2,421,225.544		36° 59' 58.751 N	107° 28' 54.924 W
1,000.00	5.73	301.89	999.68	5.04	-8.09	1,127,392.756	2,421,219.286		36° 59' 58.789 N	107° 28' 55.002 W
1,100.00	8.73	301.89	1,098.88	11.68	-18.77	1,127,399.400	2,421,208.606		36° 59' 58.852 N	107° 28' 55.136 W
1,200.00	11.73	301.89	1,197.28	21.06	-33.85	1,127,408.778	2,421,193.532		36° 59' 58.942 N	107° 28' 55.324 W
1,300.00	14.73	301.89	1,294.61	33.14	-53.27	1,127,420.863	2,421,174.106		36° 59' 59.057 N	107° 28' 55.566 W
1,400.00	17.73	301.89	1,390.62	47.90	-77.00	1,127,435.623	2,421,150.382		36° 59' 59.198 N	107° 28' 55.863 W
1,500.00	20.73	301.89	1,485.03	65.30	-104.96	1,127,453.016	2,421,122.423		36° 59' 59.364 N	107° 28' 56.212 W
1,600.00	23.73	301.89	1,577.59	85.28	-137.07	1,127,472.996	2,421,090.308		36° 59' 59.555 N	107° 28' 56.613 W
1,700.00	26.73	301.89	1,668.04	107.79	-173.26	1,127,495.507	2,421,054.123		36° 59' 59.770 N	107° 28' 57.065 W
1,800.00	29.73	301.89	1,756.14	132.77	-213.41	1,127,520.488	2,421,013.969		37° 0' 0.008 N	107° 28' 57.566 W
1,900.00	32.73	301.89	1,841.64	160.15	-257.43	1,127,547.870	2,420,969.954		37° 0' 0.269 N	107° 28' 58.116 W
2,000.00	35.73	301.89	1,924.31	189.86	-305.18	1,127,577.579	2,420,922.201		37° 0' 0.553 N	107° 28' 58.712 W
2,100.00	38.73	301.89	2,003.93	221.81	-356.54	1,127,609.532	2,420,870.839		37° 0' 0.858 N	107° 28' 59.353 W
2,200.00	41.73	301.89	2,080.27	255.92	-411.37	1,127,643.643	2,420,816.009		37° 0' 1.184 N	107° 29' 0.038 W
2,300.00	44.73	301.89	2,153.13	292.10	-469.52	1,127,679.817	2,420,757.862		37° 0' 1.529 N	107° 29' 0.764 W
2,400.00	47.73	301.89	2,222.30	330.24	-530.82	1,127,717.956	2,420,696.557		37° 0' 1.893 N	107° 29' 1.529 W
2,500.00	50.73	301.89	2,287.60	370.24	-595.12	1,127,757.955	2,420,632.263		37° 0' 2.275 N	107° 29' 2.332 W
2,600.00	53.73	301.89	2,348.84	411.98	-662.23	1,127,799.704	2,420,565.154		37° 0' 2.674 N	107° 29' 3.170 W
2,700.00	56.73	301.89	2,405.87	455.37	-731.97	1,127,843.090	2,420,495.416		37° 0' 3.088 N	107° 29' 4.041 W
2,800.00	59.73	301.89	2,458.52	500.27	-804.14	1,127,887.992	2,420,423.239		37° 0' 3.517 N	107° 29' 4.942 W
2,900.00	62.73	301.89	2,506.65	546.57	-878.56	1,127,934.289	2,420,348.822		37° 0' 3.959 N	107° 29' 5.872 W
2,975.77	65.00	301.89	2,540.02	582.50	-936.31	1,127,970.218	2,420,291.069		37° 0' 4.302 N	107° 29' 6.593 W
3,000.00	65.00	301.89	2,550.26	594.10	-954.96	1,127,981.819	2,420,272.423		37° 0' 4.412 N	107° 29' 6.826 W
3,058.53	65.00	301.89	2,575.00	622.12	-1,000.00	1,128,009.840	2,420,227.380		37° 0' 4.680 N	107° 29' 7.388 W
EP(138H Pilot)										
3,100.00	65.00	301.89	2,592.53	641.97	-1,031.91	1,128,029.693	2,420,195.469		37° 0' 4.870 N	107° 29' 7.787 W
3,200.00	65.00	301.89	2,634.79	689.85	-1,108.87	1,128,077.568	2,420,118.515		37° 0' 5.327 N	107° 29' 8.748 W
3,300.00	65.00	301.89	2,677.05	737.72	-1,185.82	1,128,125.442	2,420,041.561		37° 0' 5.784 N	107° 29' 9.708 W
3,400.00	65.00	301.89	2,719.31	785.60	-1,262.78	1,128,173.317	2,419,964.607		37° 0' 6.241 N	107° 29' 10.669 W
3,496.28	65.00	301.89	2,760.00	831.69	-1,336.87	1,128,219.410	2,419,890.516		37° 0' 6.681 N	107° 29' 11.595 W
7" - TD(138H Pilot)										

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										
EP(138H Pilot)	0.00	360.00	2,575.00	622.12	-1,000.00	1,128,009.840	2,420,227.380	37° 0' 4.680 N	107° 29' 7.388 W	
- plan hits target center										
- Point										
TD(138H Pilot)	0.00	360.00	2,760.00	831.69	-1,336.87	1,128,219.409	2,419,890.513	37° 0' 6.681 N	107° 29' 11.595 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
500.00	500.00	9 5/8"	9.625	12.250	
3,496.28	2,760.00	7"	7.000	7.500	



Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Allison Unit Com #138H
Company:	Hilcorp Energy Company	TVD Reference:	rig @ 6149.00ft
Project:	San Juan County, NM / CO (NAD 83)	MD Reference:	rig @ 6149.00ft
Site:	Allison Unit Com #138H	North Reference:	Grid
Well:	Allison Unit Com #138H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Design #1		