

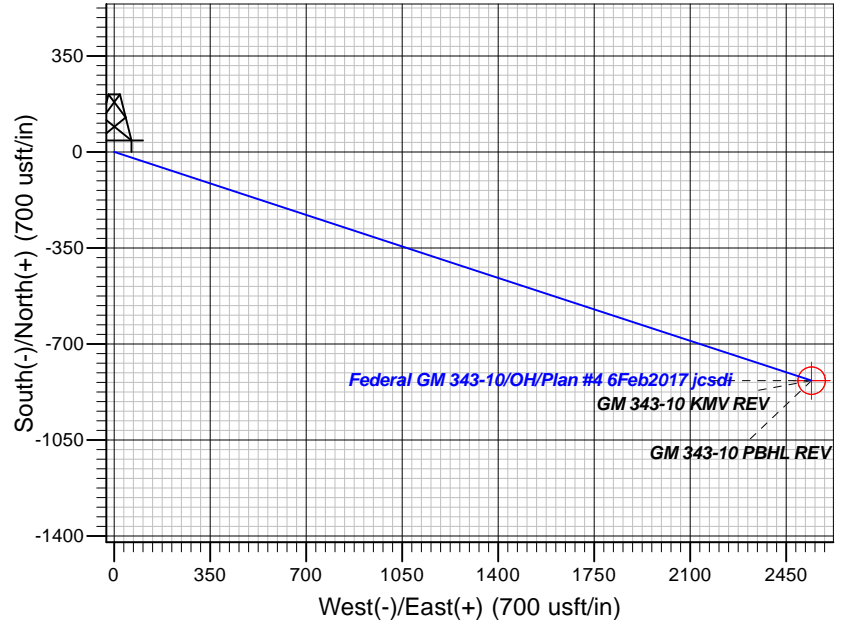
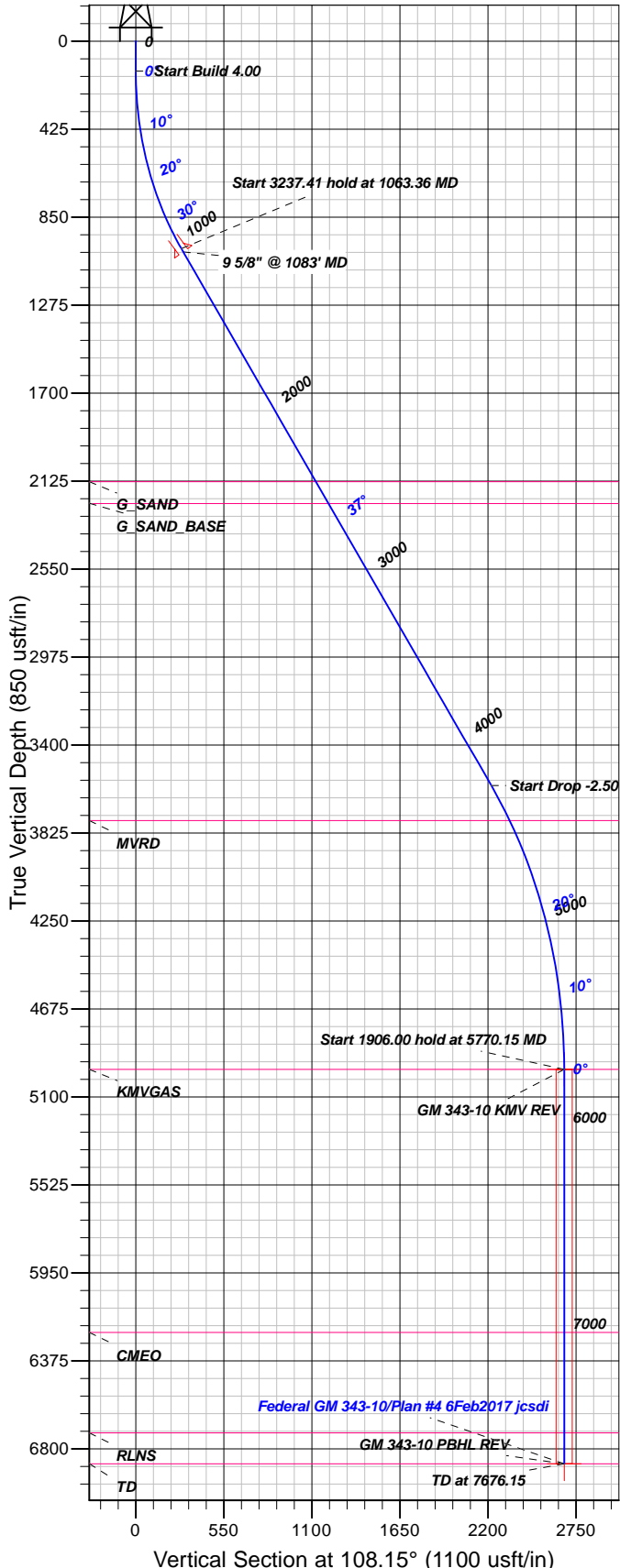
Well Details: Federal GM 343-10

GL 6148' & RKB 24' @ 6172.00usft (H&P 318)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600358.70	2266924.40	39.4529927	-108.0964794	A15

T M Azimuths to True North
 Magnetic North: 9.71°

Magnetic Field
 Strength: 51587.4snT
 Dip Angle: 65.58°
 Date: 9/13/2016
 Model: BGGM2016



FORMATION TOP DETAILS

TVDP	MD	Formation
2128.00	2468.72	G SAND
2233.00	2599.73	G SAND BASE
3765.00	4504.84	MVRD
4967.00	5770.15	KMVGAS
6238.00	7041.15	CMEQ
6723.00	7526.15	RLNS
6873.00	7676.15	TD

Plan: Plan #4 6Feb2017 jcsdi

11:33, February 06 2017
 Created By: Janie Collins

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone

System Datum: Mean Sea Level

CASING DETAILS

TVD	MD	Name	Size
1018.07	1083.75	9 5/8" @ 1083' MD	9.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	
3	1063.36	36.73	108.15	1001.72	-88.62	270.29	4.00	108.15	284.45	
4	4300.77	36.73	108.15	3596.24	-691.91	2110.23	0.00	0.002220.77		
5	5770.15	0.00	0.00	4967.00	-833.71	2542.70	2.50	180.00	2675.89	GM 343-10 KMV REV
6	7676.15	0.00	0.00	6873.00	-833.71	2542.70	0.00	0.00	2675.89	GM 343-10 PBHL REV

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 343-10 KMV REV 4967.00	-833.71	2542.70	1599452.67	2269442.23	39.4507034	-108.0874749	Circle (Radius: 50.00)	
- plan hits target center								
GM 343-10 PBHL REV6873.00	-833.71	2542.70	1599452.67	2269442.23	39.4507034	-108.0874749	Point	
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 343-10 - Slot A15

OH

Plan: Plan #4 6Feb2017 jcsdi

Standard Planning Report

06 February, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 343-10 - Slot A15
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 343-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 6Feb2017 jcsdi		

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	MV 5-10 Pad			
Site Position:		Northing:	1,600,344.70 usft	Latitude: 39.4529509
From: Map		Easting:	2,266,881.70 usft	Longitude: -108.0966291
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.64 °

Well	Federal GM 343-10 - Slot A15			
Well Position	+N/-S	15.21 usft	Northing:	1,600,358.70 usft
	+E/-W	42.28 usft	Easting:	2,266,924.40 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	6,148.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	9/13/2016	9.72	65.58	51,587

Design	Plan #4 6Feb2017 jcsdi			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	108.15

Plan Sections										
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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,063.36	36.73	108.15	1,001.72	-88.62	270.29	4.00	4.00	0.00	108.15	
4,300.77	36.73	108.15	3,596.24	-691.91	2,110.23	0.00	0.00	0.00	0.00	
5,770.15	0.00	0.00	4,967.00	-833.71	2,542.70	2.50	-2.50	0.00	180.00	GM 343-10 KVM REV
7,676.15	0.00	0.00	6,873.00	-833.71	2,542.70	0.00	0.00	0.00	0.00	GM 343-10 PBHL RE'

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 343-10 - Slot A15
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 343-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 6Feb2017 jcsdi		

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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	2.20	108.15	199.99	-0.33	1.00	1.06	4.00	4.00	0.00	
300.00	6.20	108.15	299.70	-2.61	7.96	8.38	4.00	4.00	0.00	
400.00	10.20	108.15	398.66	-7.05	21.51	22.64	4.00	4.00	0.00	
500.00	14.20	108.15	496.38	-13.64	41.59	43.77	4.00	4.00	0.00	
600.00	18.20	108.15	592.39	-22.33	68.09	71.66	4.00	4.00	0.00	
700.00	22.20	108.15	686.22	-33.08	100.90	106.18	4.00	4.00	0.00	
800.00	26.20	108.15	777.41	-45.85	139.84	147.17	4.00	4.00	0.00	
900.00	30.20	108.15	865.52	-60.57	184.74	194.41	4.00	4.00	0.00	
1,000.00	34.20	108.15	950.13	-77.17	235.36	247.69	4.00	4.00	0.00	
1,063.36	36.73	108.15	1,001.72	-88.62	270.29	284.45	4.00	4.00	0.00	
1,083.75	36.73	108.15	1,018.07	-92.42	281.88	296.65	0.00	0.00	0.00	
9 5/8" @ 1083' MD										
1,100.00	36.73	108.15	1,031.09	-95.45	291.12	306.36	0.00	0.00	0.00	
1,200.00	36.73	108.15	1,111.23	-114.09	347.95	366.17	0.00	0.00	0.00	
1,300.00	36.73	108.15	1,191.37	-132.72	404.78	425.99	0.00	0.00	0.00	
1,400.00	36.73	108.15	1,271.51	-151.36	461.62	485.80	0.00	0.00	0.00	
1,500.00	36.73	108.15	1,351.65	-169.99	518.45	545.61	0.00	0.00	0.00	
1,600.00	36.73	108.15	1,431.80	-188.63	575.28	605.42	0.00	0.00	0.00	
1,700.00	36.73	108.15	1,511.94	-207.26	632.12	665.23	0.00	0.00	0.00	
1,800.00	36.73	108.15	1,592.08	-225.90	688.95	725.04	0.00	0.00	0.00	
1,900.00	36.73	108.15	1,672.22	-244.53	745.78	784.85	0.00	0.00	0.00	
2,000.00	36.73	108.15	1,752.36	-263.17	802.62	844.66	0.00	0.00	0.00	
2,100.00	36.73	108.15	1,832.50	-281.80	859.45	904.47	0.00	0.00	0.00	
2,200.00	36.73	108.15	1,912.65	-300.43	916.28	964.28	0.00	0.00	0.00	
2,300.00	36.73	108.15	1,992.79	-319.07	973.12	1,024.09	0.00	0.00	0.00	
2,400.00	36.73	108.15	2,072.93	-337.70	1,029.95	1,083.90	0.00	0.00	0.00	
2,468.72	36.73	108.15	2,128.00	-350.51	1,069.01	1,125.00	0.00	0.00	0.00	
G_SAND										
2,500.00	36.73	108.15	2,153.07	-356.34	1,086.79	1,143.71	0.00	0.00	0.00	
2,599.73	36.73	108.15	2,233.00	-374.92	1,143.47	1,203.37	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	36.73	108.15	2,233.21	-374.97	1,143.62	1,203.52	0.00	0.00	0.00	
2,700.00	36.73	108.15	2,313.35	-393.61	1,200.45	1,263.33	0.00	0.00	0.00	
2,800.00	36.73	108.15	2,393.50	-412.24	1,257.29	1,323.15	0.00	0.00	0.00	
2,900.00	36.73	108.15	2,473.64	-430.88	1,314.12	1,382.96	0.00	0.00	0.00	
3,000.00	36.73	108.15	2,553.78	-449.51	1,370.95	1,442.77	0.00	0.00	0.00	
3,100.00	36.73	108.15	2,633.92	-468.15	1,427.79	1,502.58	0.00	0.00	0.00	
3,200.00	36.73	108.15	2,714.06	-486.78	1,484.62	1,562.39	0.00	0.00	0.00	
3,300.00	36.73	108.15	2,794.20	-505.42	1,541.45	1,622.20	0.00	0.00	0.00	
3,400.00	36.73	108.15	2,874.35	-524.05	1,598.29	1,682.01	0.00	0.00	0.00	
3,500.00	36.73	108.15	2,954.49	-542.69	1,655.12	1,741.82	0.00	0.00	0.00	
3,600.00	36.73	108.15	3,034.63	-561.32	1,711.96	1,801.63	0.00	0.00	0.00	
3,700.00	36.73	108.15	3,114.77	-579.96	1,768.79	1,861.44	0.00	0.00	0.00	
3,800.00	36.73	108.15	3,194.91	-598.59	1,825.62	1,921.25	0.00	0.00	0.00	
3,900.00	36.73	108.15	3,275.05	-617.23	1,882.46	1,981.06	0.00	0.00	0.00	
4,000.00	36.73	108.15	3,355.20	-635.86	1,939.29	2,040.87	0.00	0.00	0.00	
4,100.00	36.73	108.15	3,435.34	-654.50	1,996.12	2,100.68	0.00	0.00	0.00	
4,200.00	36.73	108.15	3,515.48	-673.13	2,052.96	2,160.49	0.00	0.00	0.00	
4,300.00	36.73	108.15	3,595.62	-691.77	2,109.79	2,220.31	0.00	0.00	0.00	

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Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 343-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 6Feb2017 jcsdi		

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)
4,300.77	36.73	108.15	3,596.24	-691.91	2,110.23	2,220.77	0.00	0.00	0.00
4,400.00	34.25	108.15	3,677.02	-709.86	2,164.97	2,278.38	2.50	-2.50	0.00
4,500.00	31.75	108.15	3,760.88	-726.83	2,216.73	2,332.84	2.50	-2.50	0.00
4,504.84	31.63	108.15	3,765.00	-727.62	2,219.14	2,335.39	2.50	-2.50	0.00
MVRD									
4,600.00	29.25	108.15	3,847.03	-742.64	2,264.95	2,383.60	2.50	-2.50	0.00
4,700.00	26.75	108.15	3,935.32	-757.27	2,309.57	2,430.55	2.50	-2.50	0.00
4,800.00	24.25	108.15	4,025.57	-770.68	2,350.48	2,473.60	2.50	-2.50	0.00
4,900.00	21.75	108.15	4,117.61	-782.86	2,387.61	2,512.68	2.50	-2.50	0.00
5,000.00	19.25	108.15	4,211.26	-793.77	2,420.89	2,547.70	2.50	-2.50	0.00
5,100.00	16.75	108.15	4,306.36	-803.40	2,450.26	2,578.61	2.50	-2.50	0.00
5,200.00	14.25	108.15	4,402.71	-811.73	2,475.65	2,605.33	2.50	-2.50	0.00
5,300.00	11.75	108.15	4,500.14	-818.74	2,497.03	2,627.83	2.50	-2.50	0.00
5,400.00	9.25	108.15	4,598.46	-824.42	2,514.35	2,646.06	2.50	-2.50	0.00
5,500.00	6.75	108.15	4,697.48	-828.75	2,527.58	2,659.98	2.50	-2.50	0.00
5,600.00	4.25	108.15	4,797.01	-831.74	2,536.70	2,669.57	2.50	-2.50	0.00
5,700.00	1.75	108.15	4,896.86	-833.37	2,541.68	2,674.81	2.50	-2.50	0.00
5,768.87	0.03	108.15	4,965.72	-833.71	2,542.70	2,675.89	2.50	-2.50	0.00
GM 343-10 KMV									
5,770.15	0.00	0.00	4,967.00	-833.71	2,542.70	2,675.89	2.50	-2.50	0.00
KMVGAS - GM 343-10 KMV REV									
5,800.00	0.00	0.00	4,996.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
5,900.00	0.00	0.00	5,096.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,000.00	0.00	0.00	5,196.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,100.00	0.00	0.00	5,296.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,200.00	0.00	0.00	5,396.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,300.00	0.00	0.00	5,496.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,400.00	0.00	0.00	5,596.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,500.00	0.00	0.00	5,696.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,600.00	0.00	0.00	5,796.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,700.00	0.00	0.00	5,896.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,800.00	0.00	0.00	5,996.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
6,900.00	0.00	0.00	6,096.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,000.00	0.00	0.00	6,196.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,041.15	0.00	0.00	6,238.00	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
CMEO									
7,100.00	0.00	0.00	6,296.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,200.00	0.00	0.00	6,396.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,300.00	0.00	0.00	6,496.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,400.00	0.00	0.00	6,596.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,500.00	0.00	0.00	6,696.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,526.15	0.00	0.00	6,723.00	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
RLNS									
7,600.00	0.00	0.00	6,796.85	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
7,676.15	0.00	0.00	6,873.00	-833.71	2,542.70	2,675.89	0.00	0.00	0.00
TD - GM 343-10 PBHL - GM 343-10 PBHL REV									

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Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 343-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 6Feb2017 jcsdi		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
GM 343-10 KMV REV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,967.00	-833.71	2,542.70	1,599,452.67	2,269,442.23	39.4507034	-108.0874749
GM 343-10 PBHL REV - plan hits target center - Point	0.00	0.00	6,873.00	-833.71	2,542.70	1,599,452.67	2,269,442.23	39.4507034	-108.0874749

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,083.75	1,018.07	9 5/8" @ 1083' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,468.72	2,128.00	G_SAND		0.00	0.00
2,599.73	2,233.00	G_SAND_BASE		0.00	0.00
4,504.84	3,765.00	MVRD		0.00	0.00
5,770.15	4,967.00	KMVGAS		0.00	0.00
7,041.15	6,238.00	CME0		0.00	0.00
7,526.15	6,723.00	RLNS		0.00	0.00
7,676.15	6,873.00	TD		0.00	0.00