



GMT Exploration Company, LLC

Elbert County, CO (NAD 83)

Irwin-Taylor Pad

IRWIN 6-65 23-11 1HN

Wellbore #1

Plan: Design #1

Standard Planning Report

24 May, 2019



Project: Elbert County, CO (NAD 83)
 Site: Irwin-Taylor Pad
 Well: IRWIN 6-65 23-11 1HN
 Wellbore: Wellbore #1
 Design: Design #1

GMT Exploration Company, LLC

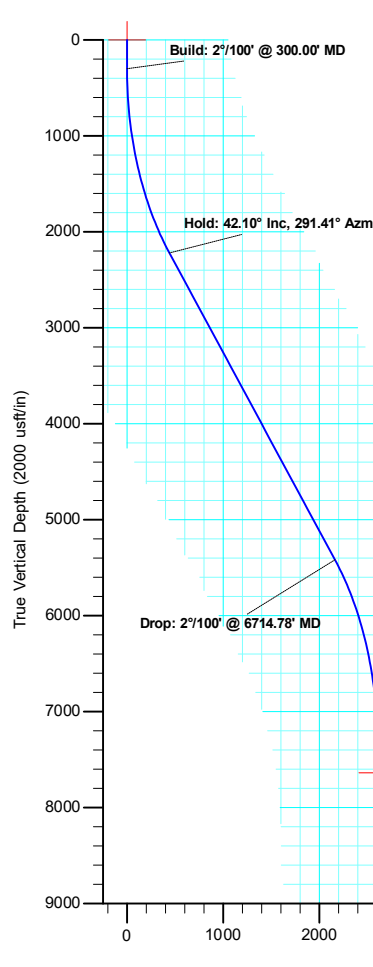
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone
 System Datum: Mean Sea Level

WELL DETAILS: IRWIN 6-65 23-11 1HN

+N/-S	+E/-W	Northing	Ground Level: Easting	6222.00 Latitude	Longitude
-1477.44	2020.76	1611774.07	3246526.90	39.509842	-104.626227

SECTION DETAILS

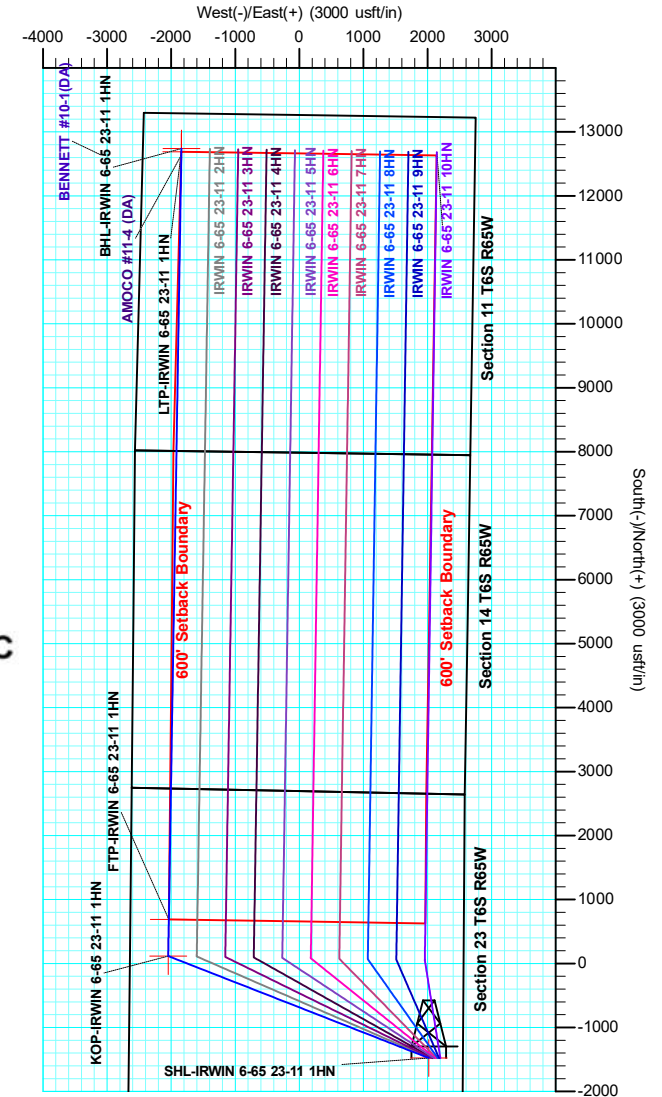
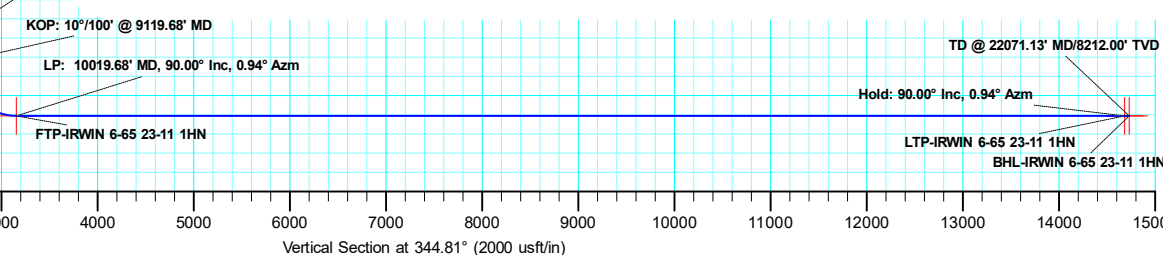
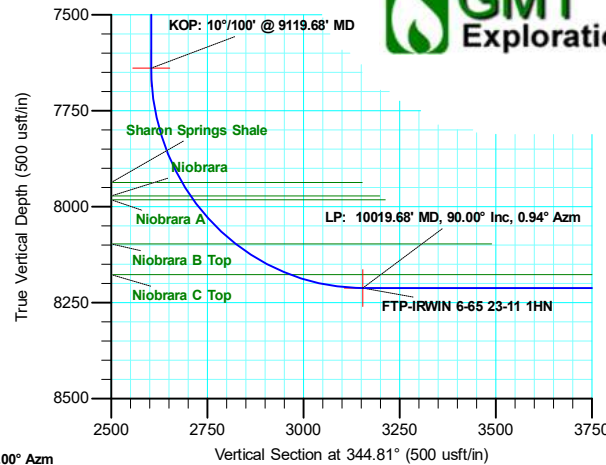
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.00	0.00	0.00	0.00	-1477.44	2020.76	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-1477.44	2020.76	0.00	0.00	0.00	
2404.90	42.10	291.41	2220.56	-1207.66	1332.64	2.00	291.41	440.68	
6714.78	42.10	291.41	5418.49	-153.04	-1357.36	0.00	0.00	2163.36	
8819.68	0.00	0.00	7339.04	116.74	-2045.48	2.00	180.00	2604.03	
9119.68	0.00	0.00	7639.04	116.74	-2045.48	0.00	0.00	2604.03	
10019.68	90.00	0.93	8212.00	689.62	-2036.14	10.00	0.00	3154.45	FTP-IRWIN 6-65 23-11 1HN
22021.13	90.00	0.93	8212.00	12689.47	-1840.50	0.00	0.00	14683.69	LTP-IRWIN 6-65 23-11 1HN
22071.13	90.00	0.93	8212.00	12739.47	-1839.68	0.00	0.00	14731.72	BHL-IRWIN 6-65 23-11 1HN



Azimuths to True North
 Magnetic North: 7.86°

Magnetic Field
 Strength: 51710.6nT
 Dip Angle: 66.11°
 Date: 5/22/2019
 Model: IGRF2015

SHL: 1124 FSL/ 531 FEL Sec. 23
 FTP: 2045 FNL/ 600 FWL Sec. 23
 LTP: 600 FNL/ 600 FWL Sec. 11
 BHL: 550 FNL/ 600 FWL Sec. 11





Database:	Local	Local Co-ordinate Reference:	Well IRWIN 6-65 23-11 1HN
Company:	GMT Exploration Company, LLC	TVD Reference:	KB @ 6242.00usft
Project:	Elbert County, CO (NAD 83)	MD Reference:	KB @ 6242.00usft
Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Elbert County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	Irwin-Taylor Pad				
Site Position:		Northing:	1,613,232.16 usft	Latitude:	39.513898
From:	Lat/Long	Easting:	3,244,492.14 usft	Longitude:	-104.633389
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	IRWIN 6-65 23-11 1HN					
Well Position	+N/-S	-1,477.44 usft	Northing:	1,611,774.07 usft	Latitude:	39.509842
	+E/-W	2,020.76 usft	Easting:	3,246,526.90 usft	Longitude:	-104.626227
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,222.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/22/2019	7.86	66.11	51,710.56942533

Design	Design #1			
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	344.81

Plan Survey Tool Program	Date	5/24/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	22,071.13	Design #1 (Wellbore #1)	MWD	
				OWSG MWD - Standard	

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,404.90	42.10	291.41	2,220.56	269.84	-688.10	2.00	2.00	0.00	291.41	
6,714.78	42.10	291.41	5,418.49	1,324.67	-3,378.02	0.00	0.00	0.00	0.00	
8,819.68	0.00	0.00	7,339.04	1,594.51	-4,066.12	2.00	-2.00	0.00	180.00	
9,119.68	0.00	0.00	7,639.04	1,594.51	-4,066.12	0.00	0.00	0.00	0.00	
10,019.68	90.00	0.94	8,212.00	2,167.39	-4,056.73	10.00	10.00	0.00	0.00	FTP-IRWIN 6-65 23
22,021.13	90.00	0.94	8,212.00	14,167.22	-3,860.14	0.00	0.00	0.00	0.00	LTP-IRWIN 6-65 23
22,071.13	90.00	0.94	8,212.00	14,217.21	-3,859.32	0.00	0.00	0.00	0.00	BHL-IRWIN 6-65 23



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Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	
SHL-IRWIN 6-65 23-11 1HN										
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	
Build: 2°/100' @ 300.00' MD										
400.00	2.00	291.41	399.98	0.64	-1.62	1.04	2.00	2.00	0.00	
500.00	4.00	291.41	499.84	2.55	-6.50	4.16	2.00	2.00	0.00	
600.00	6.00	291.41	599.45	5.73	-14.61	9.36	2.00	2.00	0.00	
700.00	8.00	291.41	698.70	10.18	-25.96	16.62	2.00	2.00	0.00	
800.00	10.00	291.41	797.47	15.89	-40.52	25.95	2.00	2.00	0.00	
900.00	12.00	291.41	895.62	22.85	-58.28	37.32	2.00	2.00	0.00	
1,000.00	14.00	291.41	993.06	31.07	-79.22	50.74	2.00	2.00	0.00	
1,100.00	16.00	291.41	1,089.64	40.52	-103.32	66.17	2.00	2.00	0.00	
1,200.00	18.00	291.41	1,185.27	51.19	-130.53	83.60	2.00	2.00	0.00	
1,300.00	20.00	291.41	1,279.82	63.07	-160.84	103.01	2.00	2.00	0.00	
1,400.00	22.00	291.41	1,373.17	76.16	-194.20	124.37	2.00	2.00	0.00	
1,500.00	24.00	291.41	1,465.21	90.42	-230.58	147.67	2.00	2.00	0.00	
1,600.00	26.00	291.41	1,555.84	105.85	-269.92	172.86	2.00	2.00	0.00	
1,700.00	28.00	291.41	1,644.94	122.42	-312.18	199.93	2.00	2.00	0.00	
1,800.00	30.00	291.41	1,732.39	140.12	-357.32	228.83	2.00	2.00	0.00	
1,900.00	32.00	291.41	1,818.11	158.92	-405.26	259.54	2.00	2.00	0.00	
2,000.00	34.00	291.41	1,901.97	178.80	-455.97	292.01	2.00	2.00	0.00	
2,100.00	36.00	291.41	1,983.88	199.74	-509.36	326.21	2.00	2.00	0.00	
2,200.00	38.00	291.41	2,063.74	221.71	-565.39	362.09	2.00	2.00	0.00	
2,300.00	40.00	291.41	2,141.45	244.69	-623.97	399.61	2.00	2.00	0.00	
2,404.90	42.10	291.41	2,220.56	269.84	-688.10	440.68	2.00	2.00	0.00	
Hold: 42.10° Inc, 291.41° Azm										
2,500.00	42.10	291.41	2,291.12	293.11	-747.46	478.69	0.00	0.00	0.00	
2,600.00	42.10	291.41	2,365.32	317.59	-809.87	518.66	0.00	0.00	0.00	
2,700.00	42.10	291.41	2,439.52	342.06	-872.28	558.63	0.00	0.00	0.00	
2,800.00	42.10	291.41	2,513.72	366.54	-934.69	598.60	0.00	0.00	0.00	
2,900.00	42.10	291.41	2,587.92	391.01	-997.11	638.57	0.00	0.00	0.00	
3,000.00	42.10	291.41	2,662.12	415.48	-1,059.52	678.54	0.00	0.00	0.00	
3,100.00	42.10	291.41	2,736.32	439.96	-1,121.93	718.51	0.00	0.00	0.00	
3,200.00	42.10	291.41	2,810.52	464.43	-1,184.35	758.48	0.00	0.00	0.00	
3,300.00	42.10	291.41	2,884.72	488.91	-1,246.76	798.45	0.00	0.00	0.00	
3,400.00	42.10	291.41	2,958.92	513.38	-1,309.17	838.42	0.00	0.00	0.00	
3,500.00	42.10	291.41	3,033.12	537.86	-1,371.58	878.39	0.00	0.00	0.00	
3,600.00	42.10	291.41	3,107.32	562.33	-1,434.00	918.36	0.00	0.00	0.00	
3,700.00	42.10	291.41	3,181.52	586.81	-1,496.41	958.33	0.00	0.00	0.00	
3,800.00	42.10	291.41	3,255.72	611.28	-1,558.82	998.30	0.00	0.00	0.00	
3,900.00	42.10	291.41	3,329.92	635.76	-1,621.24	1,038.28	0.00	0.00	0.00	
4,000.00	42.10	291.41	3,404.12	660.23	-1,683.65	1,078.25	0.00	0.00	0.00	
4,100.00	42.10	291.41	3,478.32	684.71	-1,746.06	1,118.22	0.00	0.00	0.00	
4,200.00	42.10	291.41	3,552.52	709.18	-1,808.47	1,158.19	0.00	0.00	0.00	
4,300.00	42.10	291.41	3,626.72	733.66	-1,870.89	1,198.16	0.00	0.00	0.00	
4,400.00	42.10	291.41	3,700.92	758.13	-1,933.30	1,238.13	0.00	0.00	0.00	
4,500.00	42.10	291.41	3,775.12	782.61	-1,995.71	1,278.10	0.00	0.00	0.00	
4,600.00	42.10	291.41	3,849.32	807.08	-2,058.12	1,318.07	0.00	0.00	0.00	
4,700.00	42.10	291.41	3,923.52	831.56	-2,120.54	1,358.04	0.00	0.00	0.00	
4,800.00	42.10	291.41	3,997.72	856.03	-2,182.95	1,398.01	0.00	0.00	0.00	
4,900.00	42.10	291.41	4,071.92	880.51	-2,245.36	1,437.98	0.00	0.00	0.00	



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Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
5,000.00	42.10	291.41	4,146.12	904.98	-2,307.78	1,477.95	0.00	0.00	0.00
5,100.00	42.10	291.41	4,220.32	929.46	-2,370.19	1,517.92	0.00	0.00	0.00
5,200.00	42.10	291.41	4,294.52	953.93	-2,432.60	1,557.89	0.00	0.00	0.00
5,300.00	42.10	291.41	4,368.72	978.41	-2,495.01	1,597.86	0.00	0.00	0.00
5,400.00	42.10	291.41	4,442.92	1,002.88	-2,557.43	1,637.83	0.00	0.00	0.00
5,500.00	42.10	291.41	4,517.12	1,027.36	-2,619.84	1,677.80	0.00	0.00	0.00
5,600.00	42.10	291.41	4,591.32	1,051.83	-2,682.25	1,717.77	0.00	0.00	0.00
5,700.00	42.10	291.41	4,665.52	1,076.30	-2,744.67	1,757.75	0.00	0.00	0.00
5,800.00	42.10	291.41	4,739.72	1,100.78	-2,807.08	1,797.72	0.00	0.00	0.00
5,900.00	42.10	291.41	4,813.92	1,125.25	-2,869.49	1,837.69	0.00	0.00	0.00
6,000.00	42.10	291.41	4,888.12	1,149.73	-2,931.90	1,877.66	0.00	0.00	0.00
6,100.00	42.10	291.41	4,962.32	1,174.20	-2,994.32	1,917.63	0.00	0.00	0.00
6,200.00	42.10	291.41	5,036.52	1,198.68	-3,056.73	1,957.60	0.00	0.00	0.00
6,300.00	42.10	291.41	5,110.72	1,223.15	-3,119.14	1,997.57	0.00	0.00	0.00
6,400.00	42.10	291.41	5,184.92	1,247.63	-3,181.55	2,037.54	0.00	0.00	0.00
6,500.00	42.10	291.41	5,259.12	1,272.10	-3,243.97	2,077.51	0.00	0.00	0.00
6,600.00	42.10	291.41	5,333.32	1,296.58	-3,306.38	2,117.48	0.00	0.00	0.00
6,700.00	42.10	291.41	5,407.52	1,321.05	-3,368.79	2,157.45	0.00	0.00	0.00
6,714.78	42.10	291.41	5,418.49	1,324.67	-3,378.02	2,163.36	0.00	0.00	0.00
Drop: 2°/100' @ 6714.78' MD									
6,800.00	40.39	291.41	5,482.56	1,345.18	-3,430.32	2,196.86	2.00	-2.00	0.00
6,900.00	38.39	291.41	5,559.83	1,368.35	-3,489.40	2,234.69	2.00	-2.00	0.00
7,000.00	36.39	291.41	5,639.28	1,390.52	-3,545.94	2,270.90	2.00	-2.00	0.00
7,100.00	34.39	291.41	5,720.79	1,411.66	-3,599.86	2,305.43	2.00	-2.00	0.00
7,200.00	32.39	291.41	5,804.28	1,431.76	-3,651.09	2,338.24	2.00	-2.00	0.00
7,300.00	30.39	291.41	5,889.64	1,450.77	-3,699.59	2,369.30	2.00	-2.00	0.00
7,400.00	28.39	291.41	5,976.76	1,468.69	-3,745.28	2,398.56	2.00	-2.00	0.00
7,500.00	26.39	291.41	6,065.54	1,485.49	-3,788.11	2,425.99	2.00	-2.00	0.00
7,600.00	24.39	291.41	6,155.88	1,501.14	-3,828.03	2,451.56	2.00	-2.00	0.00
7,700.00	22.39	291.41	6,247.65	1,515.64	-3,864.99	2,475.23	2.00	-2.00	0.00
7,800.00	20.39	291.41	6,340.76	1,528.95	-3,898.95	2,496.98	2.00	-2.00	0.00
7,900.00	18.39	291.41	6,435.08	1,541.07	-3,929.86	2,516.77	2.00	-2.00	0.00
8,000.00	16.39	291.41	6,530.50	1,551.99	-3,957.69	2,534.59	2.00	-2.00	0.00
8,100.00	14.39	291.41	6,626.91	1,561.68	-3,982.40	2,550.42	2.00	-2.00	0.00
8,200.00	12.39	291.41	6,724.18	1,570.13	-4,003.97	2,564.23	2.00	-2.00	0.00
8,300.00	10.39	291.41	6,822.21	1,577.34	-4,022.36	2,576.01	2.00	-2.00	0.00
8,400.00	8.39	291.41	6,920.86	1,583.30	-4,037.55	2,585.74	2.00	-2.00	0.00
8,500.00	6.39	291.41	7,020.02	1,588.00	-4,049.53	2,593.41	2.00	-2.00	0.00
8,600.00	4.39	291.41	7,119.58	1,591.43	-4,058.28	2,599.02	2.00	-2.00	0.00
8,700.00	2.39	291.41	7,219.40	1,593.59	-4,063.79	2,602.54	2.00	-2.00	0.00
8,800.00	0.39	291.41	7,319.36	1,594.48	-4,066.06	2,603.99	2.00	-2.00	0.00
8,819.68	0.00	0.00	7,339.04	1,594.51	-4,066.12	2,604.03	2.00	-2.00	0.00
Hold: 0.00° Inc, 0.00° Azm									
8,900.00	0.00	0.00	7,419.36	1,594.51	-4,066.12	2,604.03	0.00	0.00	0.00
9,000.00	0.00	0.00	7,519.36	1,594.51	-4,066.12	2,604.03	0.00	0.00	0.00
9,100.00	0.00	0.00	7,619.36	1,594.51	-4,066.12	2,604.03	0.00	0.00	0.00
9,119.68	0.00	0.00	7,639.04	1,594.51	-4,066.12	2,604.03	0.00	0.00	0.00
KOP: 10°/100' @ 9119.68' MD - KOP-IRWIN 6-65 23-11 1HN									
9,150.00	3.03	0.94	7,669.35	1,595.31	-4,066.11	2,604.81	10.00	10.00	0.00
9,200.00	8.03	0.94	7,719.10	1,600.13	-4,066.03	2,609.43	10.00	10.00	0.00
9,250.00	13.03	0.94	7,768.24	1,609.26	-4,065.88	2,618.21	10.00	10.00	0.00
9,300.00	18.03	0.94	7,816.40	1,622.64	-4,065.66	2,631.07	10.00	10.00	0.00
9,350.00	23.03	0.94	7,863.21	1,640.17	-4,065.37	2,647.91	10.00	10.00	0.00



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Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)	
9,400.00	28.03	0.94	7,908.31	1,661.71	-4,065.02	2,668.61	10.00	10.00	0.00	
9,450.00	33.03	0.94	7,951.36	1,687.10	-4,064.60	2,693.00	10.00	10.00	0.00	
9,500.00	38.03	0.94	7,992.04	1,716.15	-4,064.13	2,720.90	10.00	10.00	0.00	
9,550.00	43.03	0.94	8,030.03	1,748.63	-4,063.60	2,752.11	10.00	10.00	0.00	
9,600.00	48.03	0.94	8,065.05	1,784.29	-4,063.01	2,786.38	10.00	10.00	0.00	
9,650.00	53.03	0.94	8,096.82	1,822.87	-4,062.38	2,823.45	10.00	10.00	0.00	
9,700.00	58.03	0.94	8,125.11	1,864.08	-4,061.70	2,863.03	10.00	10.00	0.00	
9,750.00	63.03	0.94	8,149.70	1,907.59	-4,060.99	2,904.84	10.00	10.00	0.00	
9,800.00	68.03	0.94	8,170.40	1,953.08	-4,060.25	2,948.54	10.00	10.00	0.00	
9,850.00	73.03	0.94	8,187.06	2,000.20	-4,059.47	2,993.82	10.00	10.00	0.00	
9,900.00	78.03	0.94	8,199.55	2,048.59	-4,058.68	3,040.31	10.00	10.00	0.00	
9,950.00	83.03	0.94	8,207.77	2,097.89	-4,057.87	3,087.67	10.00	10.00	0.00	
10,000.00	88.03	0.94	8,211.66	2,147.71	-4,057.06	3,135.55	10.00	10.00	0.00	
10,019.68	90.00	0.94	8,212.00	2,167.39	-4,056.73	3,154.45	10.00	10.00	0.00	
LP: 10019.68' MD, 90.00° Inc, 0.94° Azm - FTP-IRWIN 6-65 23-11 1HN										
10,100.00	90.00	0.94	8,212.00	2,247.69	-4,055.42	3,231.61	0.00	0.00	0.00	
10,200.00	90.00	0.94	8,212.00	2,347.68	-4,053.78	3,327.67	0.00	0.00	0.00	
10,300.00	90.00	0.94	8,212.00	2,447.67	-4,052.14	3,423.74	0.00	0.00	0.00	
10,400.00	90.00	0.94	8,212.00	2,547.65	-4,050.50	3,519.80	0.00	0.00	0.00	
10,500.00	90.00	0.94	8,212.00	2,647.64	-4,048.87	3,615.87	0.00	0.00	0.00	
10,600.00	90.00	0.94	8,212.00	2,747.63	-4,047.23	3,711.93	0.00	0.00	0.00	
10,700.00	90.00	0.94	8,212.00	2,847.61	-4,045.59	3,808.00	0.00	0.00	0.00	
10,800.00	90.00	0.94	8,212.00	2,947.60	-4,043.95	3,904.07	0.00	0.00	0.00	
10,900.00	90.00	0.94	8,212.00	3,047.59	-4,042.31	4,000.13	0.00	0.00	0.00	
11,000.00	90.00	0.94	8,212.00	3,147.57	-4,040.68	4,096.20	0.00	0.00	0.00	
11,100.00	90.00	0.94	8,212.00	3,247.56	-4,039.04	4,192.26	0.00	0.00	0.00	
11,200.00	90.00	0.94	8,212.00	3,347.55	-4,037.40	4,288.33	0.00	0.00	0.00	
11,300.00	90.00	0.94	8,212.00	3,447.53	-4,035.76	4,384.39	0.00	0.00	0.00	
11,400.00	90.00	0.94	8,212.00	3,547.52	-4,034.12	4,480.46	0.00	0.00	0.00	
11,500.00	90.00	0.94	8,212.00	3,647.51	-4,032.49	4,576.52	0.00	0.00	0.00	
11,600.00	90.00	0.94	8,212.00	3,747.49	-4,030.85	4,672.59	0.00	0.00	0.00	
11,700.00	90.00	0.94	8,212.00	3,847.48	-4,029.21	4,768.65	0.00	0.00	0.00	
11,800.00	90.00	0.94	8,212.00	3,947.47	-4,027.57	4,864.72	0.00	0.00	0.00	
11,900.00	90.00	0.94	8,212.00	4,047.45	-4,025.93	4,960.78	0.00	0.00	0.00	
12,000.00	90.00	0.94	8,212.00	4,147.44	-4,024.30	5,056.85	0.00	0.00	0.00	
12,100.00	90.00	0.94	8,212.00	4,247.43	-4,022.66	5,152.92	0.00	0.00	0.00	
12,200.00	90.00	0.94	8,212.00	4,347.41	-4,021.02	5,248.98	0.00	0.00	0.00	
12,300.00	90.00	0.94	8,212.00	4,447.40	-4,019.38	5,345.05	0.00	0.00	0.00	
12,400.00	90.00	0.94	8,212.00	4,547.39	-4,017.74	5,441.11	0.00	0.00	0.00	
12,500.00	90.00	0.94	8,212.00	4,647.37	-4,016.11	5,537.18	0.00	0.00	0.00	
12,600.00	90.00	0.94	8,212.00	4,747.36	-4,014.47	5,633.24	0.00	0.00	0.00	
12,700.00	90.00	0.94	8,212.00	4,847.35	-4,012.83	5,729.31	0.00	0.00	0.00	
12,800.00	90.00	0.94	8,212.00	4,947.33	-4,011.19	5,825.37	0.00	0.00	0.00	
12,900.00	90.00	0.94	8,212.00	5,047.32	-4,009.55	5,921.44	0.00	0.00	0.00	
13,000.00	90.00	0.94	8,212.00	5,147.31	-4,007.92	6,017.50	0.00	0.00	0.00	
13,100.00	90.00	0.94	8,212.00	5,247.29	-4,006.28	6,113.57	0.00	0.00	0.00	
13,200.00	90.00	0.94	8,212.00	5,347.28	-4,004.64	6,209.64	0.00	0.00	0.00	
13,300.00	90.00	0.94	8,212.00	5,447.27	-4,003.00	6,305.70	0.00	0.00	0.00	
13,400.00	90.00	0.94	8,212.00	5,547.25	-4,001.36	6,401.77	0.00	0.00	0.00	
13,500.00	90.00	0.94	8,212.00	5,647.24	-3,999.72	6,497.83	0.00	0.00	0.00	
13,600.00	90.00	0.94	8,212.00	5,747.22	-3,998.09	6,593.90	0.00	0.00	0.00	
13,700.00	90.00	0.94	8,212.00	5,847.21	-3,996.45	6,689.96	0.00	0.00	0.00	
13,800.00	90.00	0.94	8,212.00	5,947.20	-3,994.81	6,786.03	0.00	0.00	0.00	
13,900.00	90.00	0.94	8,212.00	6,047.18	-3,993.17	6,882.09	0.00	0.00	0.00	



Database:	Local	Local Co-ordinate Reference:	Well IRWIN6-65 23-11 1HN
Company:	GMT Exploration Company, LLC	TVD Reference:	KB @ 6242.00usft
Project:	Elbert County, CO (NAD 83)	MD Reference:	KB @ 6242.00usft
Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
14,000.00	90.00	0.94	8,212.00	6,147.17	-3,991.53	6,978.16	0.00	0.00	0.00
14,100.00	90.00	0.94	8,212.00	6,247.16	-3,989.90	7,074.22	0.00	0.00	0.00
14,200.00	90.00	0.94	8,212.00	6,347.14	-3,988.26	7,170.29	0.00	0.00	0.00
14,300.00	90.00	0.94	8,212.00	6,447.13	-3,986.62	7,266.35	0.00	0.00	0.00
14,400.00	90.00	0.94	8,212.00	6,547.12	-3,984.98	7,362.42	0.00	0.00	0.00
14,500.00	90.00	0.94	8,212.00	6,647.10	-3,983.34	7,458.49	0.00	0.00	0.00
14,600.00	90.00	0.94	8,212.00	6,747.09	-3,981.71	7,554.55	0.00	0.00	0.00
14,700.00	90.00	0.94	8,212.00	6,847.08	-3,980.07	7,650.62	0.00	0.00	0.00
14,800.00	90.00	0.94	8,212.00	6,947.06	-3,978.43	7,746.68	0.00	0.00	0.00
14,900.00	90.00	0.94	8,212.00	7,047.05	-3,976.79	7,842.75	0.00	0.00	0.00
15,000.00	90.00	0.94	8,212.00	7,147.04	-3,975.15	7,938.81	0.00	0.00	0.00
15,100.00	90.00	0.94	8,212.00	7,247.02	-3,973.52	8,034.88	0.00	0.00	0.00
15,200.00	90.00	0.94	8,212.00	7,347.01	-3,971.88	8,130.94	0.00	0.00	0.00
15,300.00	90.00	0.94	8,212.00	7,447.00	-3,970.24	8,227.01	0.00	0.00	0.00
15,400.00	90.00	0.94	8,212.00	7,546.98	-3,968.60	8,323.07	0.00	0.00	0.00
15,500.00	90.00	0.94	8,212.00	7,646.97	-3,966.96	8,419.14	0.00	0.00	0.00
15,600.00	90.00	0.94	8,212.00	7,746.96	-3,965.33	8,515.21	0.00	0.00	0.00
15,700.00	90.00	0.94	8,212.00	7,846.94	-3,963.69	8,611.27	0.00	0.00	0.00
15,800.00	90.00	0.94	8,212.00	7,946.93	-3,962.05	8,707.34	0.00	0.00	0.00
15,900.00	90.00	0.94	8,212.00	8,046.92	-3,960.41	8,803.40	0.00	0.00	0.00
16,000.00	90.00	0.94	8,212.00	8,146.90	-3,958.77	8,899.47	0.00	0.00	0.00
16,100.00	90.00	0.94	8,212.00	8,246.89	-3,957.14	8,995.53	0.00	0.00	0.00
16,200.00	90.00	0.94	8,212.00	8,346.88	-3,955.50	9,091.60	0.00	0.00	0.00
16,300.00	90.00	0.94	8,212.00	8,446.86	-3,953.86	9,187.66	0.00	0.00	0.00
16,400.00	90.00	0.94	8,212.00	8,546.85	-3,952.22	9,283.73	0.00	0.00	0.00
16,500.00	90.00	0.94	8,212.00	8,646.84	-3,950.58	9,379.79	0.00	0.00	0.00
16,600.00	90.00	0.94	8,212.00	8,746.82	-3,948.94	9,475.86	0.00	0.00	0.00
16,700.00	90.00	0.94	8,212.00	8,846.81	-3,947.31	9,571.93	0.00	0.00	0.00
16,800.00	90.00	0.94	8,212.00	8,946.80	-3,945.67	9,667.99	0.00	0.00	0.00
16,900.00	90.00	0.94	8,212.00	9,046.78	-3,944.03	9,764.06	0.00	0.00	0.00
17,000.00	90.00	0.94	8,212.00	9,146.77	-3,942.39	9,860.12	0.00	0.00	0.00
17,100.00	90.00	0.94	8,212.00	9,246.76	-3,940.75	9,956.19	0.00	0.00	0.00
17,200.00	90.00	0.94	8,212.00	9,346.74	-3,939.12	10,052.25	0.00	0.00	0.00
17,300.00	90.00	0.94	8,212.00	9,446.73	-3,937.48	10,148.32	0.00	0.00	0.00
17,400.00	90.00	0.94	8,212.00	9,546.72	-3,935.84	10,244.38	0.00	0.00	0.00
17,500.00	90.00	0.94	8,212.00	9,646.70	-3,934.20	10,340.45	0.00	0.00	0.00
17,600.00	90.00	0.94	8,212.00	9,746.69	-3,932.56	10,436.51	0.00	0.00	0.00
17,700.00	90.00	0.94	8,212.00	9,846.67	-3,930.93	10,532.58	0.00	0.00	0.00
17,800.00	90.00	0.94	8,212.00	9,946.66	-3,929.29	10,628.64	0.00	0.00	0.00
17,900.00	90.00	0.94	8,212.00	10,046.65	-3,927.65	10,724.71	0.00	0.00	0.00
18,000.00	90.00	0.94	8,212.00	10,146.63	-3,926.01	10,820.78	0.00	0.00	0.00
18,100.00	90.00	0.94	8,212.00	10,246.62	-3,924.37	10,916.84	0.00	0.00	0.00
18,200.00	90.00	0.94	8,212.00	10,346.61	-3,922.74	11,012.91	0.00	0.00	0.00
18,300.00	90.00	0.94	8,212.00	10,446.59	-3,921.10	11,108.97	0.00	0.00	0.00
18,400.00	90.00	0.94	8,212.00	10,546.58	-3,919.46	11,205.04	0.00	0.00	0.00
18,500.00	90.00	0.94	8,212.00	10,646.57	-3,917.82	11,301.10	0.00	0.00	0.00
18,600.00	90.00	0.94	8,212.00	10,746.55	-3,916.18	11,397.17	0.00	0.00	0.00
18,700.00	90.00	0.94	8,212.00	10,846.54	-3,914.55	11,493.23	0.00	0.00	0.00
18,800.00	90.00	0.94	8,212.00	10,946.53	-3,912.91	11,589.30	0.00	0.00	0.00
18,900.00	90.00	0.94	8,212.00	11,046.51	-3,911.27	11,685.36	0.00	0.00	0.00
19,000.00	90.00	0.94	8,212.00	11,146.50	-3,909.63	11,781.43	0.00	0.00	0.00
19,100.00	90.00	0.94	8,212.00	11,246.49	-3,907.99	11,877.50	0.00	0.00	0.00
19,200.00	90.00	0.94	8,212.00	11,346.47	-3,906.36	11,973.56	0.00	0.00	0.00
19,300.00	90.00	0.94	8,212.00	11,446.46	-3,904.72	12,069.63	0.00	0.00	0.00



Database:	Local	Local Co-ordinate Reference:	Well IRWIN6-65 23-11 1HN
Company:	GMT Exploration Company, LLC	TVD Reference:	KB @ 6242.00usft
Project:	Elbert County, CO (NAD 83)	MD Reference:	KB @ 6242.00usft
Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
19,400.00	90.00	0.94	8,212.00	11,546.45	-3,903.08	12,165.69	0.00	0.00	0.00
19,500.00	90.00	0.94	8,212.00	11,646.43	-3,901.44	12,261.76	0.00	0.00	0.00
19,600.00	90.00	0.94	8,212.00	11,746.42	-3,899.80	12,357.82	0.00	0.00	0.00
19,700.00	90.00	0.94	8,212.00	11,846.41	-3,898.16	12,453.89	0.00	0.00	0.00
19,800.00	90.00	0.94	8,212.00	11,946.39	-3,896.53	12,549.95	0.00	0.00	0.00
19,900.00	90.00	0.94	8,212.00	12,046.38	-3,894.89	12,646.02	0.00	0.00	0.00
20,000.00	90.00	0.94	8,212.00	12,146.37	-3,893.25	12,742.08	0.00	0.00	0.00
20,100.00	90.00	0.94	8,212.00	12,246.35	-3,891.61	12,838.15	0.00	0.00	0.00
20,200.00	90.00	0.94	8,212.00	12,346.34	-3,889.97	12,934.21	0.00	0.00	0.00
20,300.00	90.00	0.94	8,212.00	12,446.33	-3,888.34	13,030.28	0.00	0.00	0.00
20,400.00	90.00	0.94	8,212.00	12,546.31	-3,886.70	13,126.35	0.00	0.00	0.00
20,500.00	90.00	0.94	8,212.00	12,646.30	-3,885.06	13,222.41	0.00	0.00	0.00
20,600.00	90.00	0.94	8,212.00	12,746.29	-3,883.42	13,318.48	0.00	0.00	0.00
20,700.00	90.00	0.94	8,212.00	12,846.27	-3,881.78	13,414.54	0.00	0.00	0.00
20,800.00	90.00	0.94	8,212.00	12,946.26	-3,880.15	13,510.61	0.00	0.00	0.00
20,900.00	90.00	0.94	8,212.00	13,046.25	-3,878.51	13,606.67	0.00	0.00	0.00
21,000.00	90.00	0.94	8,212.00	13,146.23	-3,876.87	13,702.74	0.00	0.00	0.00
21,100.00	90.00	0.94	8,212.00	13,246.22	-3,875.23	13,798.80	0.00	0.00	0.00
21,200.00	90.00	0.94	8,212.00	13,346.21	-3,873.59	13,894.87	0.00	0.00	0.00
21,300.00	90.00	0.94	8,212.00	13,446.19	-3,871.96	13,990.93	0.00	0.00	0.00
21,400.00	90.00	0.94	8,212.00	13,546.18	-3,870.32	14,087.00	0.00	0.00	0.00
21,500.00	90.00	0.94	8,212.00	13,646.17	-3,868.68	14,183.07	0.00	0.00	0.00
21,600.00	90.00	0.94	8,212.00	13,746.15	-3,867.04	14,279.13	0.00	0.00	0.00
21,700.00	90.00	0.94	8,212.00	13,846.14	-3,865.40	14,375.20	0.00	0.00	0.00
21,800.00	90.00	0.94	8,212.00	13,946.12	-3,863.77	14,471.26	0.00	0.00	0.00
21,900.00	90.00	0.94	8,212.00	14,046.11	-3,862.13	14,567.33	0.00	0.00	0.00
22,000.00	90.00	0.94	8,212.00	14,146.10	-3,860.49	14,663.39	0.00	0.00	0.00
22,021.13	90.00	0.94	8,212.00	14,167.22	-3,860.14	14,683.69	0.00	0.00	0.00
Hold: 90.00° Inc, 0.94° Azm - LTP-IRWIN 6-65 23-11 1HN									
22,071.13	90.00	0.94	8,212.00	14,217.21	-3,859.32	14,731.72	0.00	0.00	0.00
TD @ 22071.13' MD/8212.00' TVD - BHL-IRWIN 6-65 23-11 1HN									

Database:	Local	Local Co-ordinate Reference:	Well IRWIN 6-65 23-11 1HN
Company:	GMT Exploration Company, LLC	TVD Reference:	KB @ 6242.00usft
Project:	Elbert County, CO (NAD 83)	MD Reference:	KB @ 6242.00usft
Site:	Irwin-Taylor Pad	North Reference:	True
Well:	IRWIN 6-65 23-11 1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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
SHL-IRWIN 6-65 23-1 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,611,774.07	3,246,526.90	39.509842	-104.626227
KOP-IRWIN 6-65 23-1 - plan hits target center - Point	0.00	0.00	7,639.04	1,594.51	-4,066.12	1,613,329.39	3,242,445.63	39.514218	-104.640639
FTP-IRWIN 6-65 23-1 - plan hits target center - Point	0.00	0.00	8,212.00	2,167.39	-4,056.73	1,613,902.34	3,242,449.51	39.515791	-104.640607
LTP-IRWIN 6-65 23-1 - plan hits target center - Point	0.00	0.00	8,212.00	14,167.22	-3,860.14	1,625,903.51	3,242,530.68	39.548736	-104.639916
BHL-IRWIN 6-65 23-1 - plan hits target center - Point	0.00	0.00	8,212.00	14,217.21	-3,859.32	1,625,953.50	3,242,531.02	39.548873	-104.639913

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
482.12	482.00	Denver			
2,460.75	2,262.00	Upper Arapahoe			
2,568.57	2,342.00	Laramie - Fox Hills			
2,689.86	2,432.00	Pierre Shale (Base of Fox Hills)			
7,003.38	5,642.00	Sussex Sandstone			
9,433.03	7,937.00	Sharon Springs Shale			
9,474.98	7,972.00	Niobrara			
9,487.36	7,982.00	Niobrara A			
9,650.30	8,097.00	Niobrara B Top			
9,818.38	8,177.00	Niobrara C Top			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Build: 2°/100' @ 300.00' MD
2,404.90	2,220.56	269.84	-688.10	Hold: 42.10° Inc, 291.41° Azm
6,714.78	5,418.49	1,324.67	-3,378.02	Drop: 2°/100' @ 6714.78' MD
8,819.68	7,339.04	1,594.51	-4,066.12	Hold: 0.00° Inc, 0.00° Azm
9,119.68	7,639.04	1,594.51	-4,066.12	KOP: 10°/100' @ 9119.68' MD
10,019.68	8,212.00	2,167.39	-4,056.73	LP: 10019.68' MD, 90.00° Inc, 0.94° Azm
22,021.13	8,212.00	14,167.22	-3,860.14	Hold: 90.00° Inc, 0.94° Azm
22,071.13	8,212.00	14,217.21	-3,859.32	TD @ 22071.13' MD/8212.00' TVD