

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 28 2018

RECEIVED

WPX Energy

Eddy County, New Mexico (NAD 83)

Frontier 32-23-26 State Pad

Frontier 32-23-26 State 431H

API: 30-015-45274

Wellbore #1

Plan: Plan #3

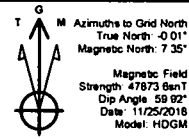
Standard Planning Report

28 November, 2018

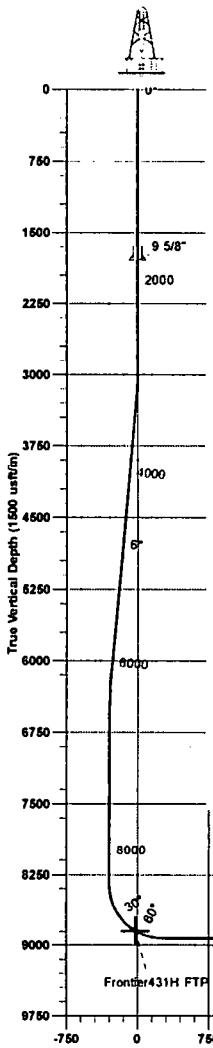


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Frontier 32-23-26 State 431H
Eddy County, New Mexico (NAD 83)
Northing: 456164.70
Easting: 549203.30
Plan #3



GL 3437 + RKB 26 = @ 3483 00ust (HP 265)



WELL DETAILS					
Frontier 32-23-26 State 431H					
Ground Level: 3437.00					
+N/-S	+E/-W	North	East	Latitude	Longitude
0.00	0.00	456164.70	549203.30	32.254070	-104.307888

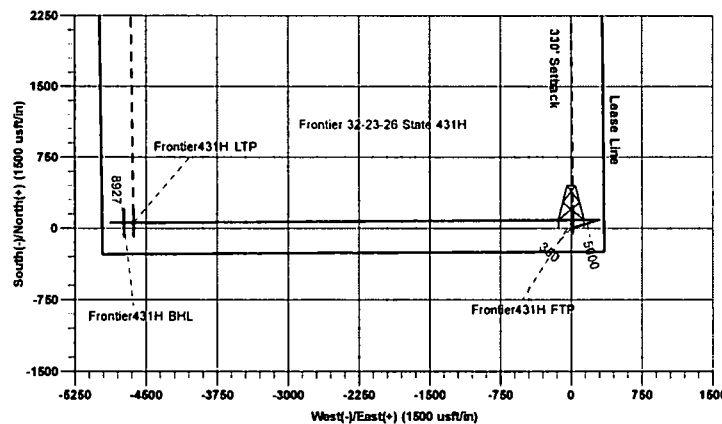
SECTION DETAILS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace
350.00	0.21	220.98	350.00	-0.47	-0.25	0.00	0.00
424.00	0.21	220.98	424.00	-0.67	-0.43	0.00	0.00
445.00	0.00	0.00	445.00	-0.70	-0.46	1.00	180.00
3000.00	0.00	0.00	3000.00	-0.70	-0.46	0.00	0.00
3276.71	5.53	73.16	3276.71	3.17	12.32	2.00	73.16
6237.95	5.53	73.16	6237.95	65.88	285.67	0.00	0.00
6514.68	0.00	0.00	6500.00	89.75	298.45	2.00	180.00
8368.70	0.00	0.00	8354.04	89.75	298.45	0.00	0.00
9258.70	90.00	269.63	8927.00	88.08	-274.50	10.00	269.63
13726.10	90.00	269.63	8927.00	57.50	-4731.80	0.00	0.00

SITE DETAILS:		PROJECT DETAILS:	
Frontier 32-23-26 State 431H		Eddy County, New Mexico (NAD 83)	
Site Centre Northing: 456164.70 Easting: 549203.30		Geodetic System: US State Plane 1983 Datum: North American Datum 1983 Ellipsoid: GRS 1980 Zone: New Mexico Eastern Zone System Datum: Mean Sea Level	
Positional Uncertainty: 0.00 Convergence: 0.01 Local North: Grid			

DESIGN TARGET DETAILS			
Name	TVD	+N/-S	+E/-W
Frontier431H FTR846.00	88.80	19.30	
Frontier431H BHL	8927.00	57.50	-4731.80
Frontier431H LTP	8927.00	58.20	-4631.80

CASING DETAILS			
TVD	MD	Size	
1791.00	1791.00	9-5/8	

FORMATION TOP DETAILS	
TVD/Path	Formation
428.00	Salado
822.00	Castile
1771.00	Well Canyon (Base of Salt)
2639.00	Cherry Canyon
3533.00	Brushy Canyon
5255.00	Bone Spring
5537.00	Avaton
6119.00	1st Bone Spring Sand
6344.00	2nd Bone Spring Lime
6451.00	2nd Bone Spring Sand
6710.00	3rd Bone Spring Lime
8252.00	3rd Bone Spring Sand
8630.00	Wolfcamp Top
8652.00	WC_X
8714.00	WC_Y
8883.00	Wolfcamp A
8905.00	Top Target
8927.00	Landing Point



Vertical Section at 269.63bearing (1500 usf/in)

Scientific Drilling, Intl

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well Frontier 32-23-26 State 431H
Company:	WPX Energy	TVD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Project:	Eddy County, New Mexico (NAD 83)	MD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Site:	Frontier 32-23-26 State Pad	North Reference:	Grid
Well:	Frontier 32-23-26 State 431H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Frontier 32-23-26 State Pad		
Site Position:		Northing:	456,164.70 usft
From:	Map	Easting:	549,203.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.254070
		Longitude:	-104.307889
		Grid Convergence:	0.01 °

Well	Frontier 32-23-26 State 431H		
Well Position	+N/-S	0.00 usft	Northing: 456,164.70 usft
	+E/-W	0.00 usft	Easting: 549,203.30 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32.254070
		Longitude:	-104.307889
		Ground Level:	3,437.00 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	11/25/2018	7.37
		Dip Angle (°)	59.92
		Field Strength (nT)	47,874

Design	Plan #3		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 350.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (bearing)
			269.63

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
350.00	0.21	220.96	350.00	-0.47	-0.25	0.00	0.00	0.00	0.00	
424.00	0.21	220.96	424.00	-0.67	-0.43	0.00	0.00	0.00	0.00	
445.00	0.00	0.00	445.00	-0.70	-0.46	1.00	-1.00	0.00	180.00	
3,000.00	0.00	0.00	3,000.00	-0.70	-0.46	0.00	0.00	0.00	0.00	
3,276.71	5.53	73.16	3,276.28	3.17	12.32	2.00	2.00	0.00	73.16	
6,237.95	5.53	73.16	6,223.72	85.88	285.67	0.00	0.00	0.00	0.00	
6,514.66	0.00	0.00	6,500.00	89.75	298.45	2.00	-2.00	0.00	180.00	
8,368.70	0.00	0.00	8,354.04	89.75	298.45	0.00	0.00	0.00	0.00	
9,268.70	90.00	269.63	8,927.00	86.08	-274.50	10.00	10.00	-10.04	269.63	
13,726.10	90.00	269.63	8,927.00	57.50	-4,731.80	0.00	0.00	0.00	0.00	Frontier431H BHL

Scientific Drilling, Intl

Planning Report

Database: Midland District
 Company: WPX Energy
 Project: Eddy County, New Mexico (NAD 83)
 Site: Frontier 32-23-26 State Pad
 Well: Frontier 32-23-26 State 431H
 Wellbore: Wellbore #1
 Design: Plan #3

Local Co-ordinate Reference: Well Frontier 32-23-26 State 431H
 TVD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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
204.00	0.05	207.53	204.00	-0.08	-0.04	0.04	0.02	0.02	0.00
267.00	0.21	202.06	267.00	-0.21	-0.10	0.10	0.25	0.25	-8.68
350.00	0.21	220.96	350.00	-0.47	-0.25	0.26	0.08	0.00	22.77
400.00	0.21	220.96	400.00	-0.60	-0.37	0.38	0.00	0.00	0.00
424.00	0.21	220.96	424.00	-0.67	-0.43	0.44	0.00	0.00	0.00
429.00	0.16	220.96	429.00	-0.68	-0.44	0.45	1.00	-1.00	0.00
Salado									
445.00	0.00	0.00	445.00	-0.70	-0.46	0.46	1.00	-1.00	0.00
500.00	0.00	0.00	500.00	-0.70	-0.46	0.46	0.00	0.00	0.00
600.00	0.00	0.00	600.00	-0.70	-0.46	0.46	0.00	0.00	0.00
700.00	0.00	0.00	700.00	-0.70	-0.46	0.46	0.00	0.00	0.00
800.00	0.00	0.00	800.00	-0.70	-0.46	0.46	0.00	0.00	0.00
822.00	0.00	0.00	822.00	-0.70	-0.46	0.46	0.00	0.00	0.00
Castile									
900.00	0.00	0.00	900.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,771.00	0.00	0.00	1,771.00	-0.70	-0.46	0.46	0.00	0.00	0.00
Bell Canyon (Base of Salt)									
1,791.00	0.00	0.00	1,791.00	-0.70	-0.46	0.46	0.00	0.00	0.00
9 5/8"									
1,800.00	0.00	0.00	1,800.00	-0.70	-0.46	0.46	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,639.00	0.00	0.00	2,639.00	-0.70	-0.46	0.46	0.00	0.00	0.00
Cherry Canyon									
2,700.00	0.00	0.00	2,700.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	-0.70	-0.46	0.46	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	-0.70	-0.46	0.46	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	-0.70	-0.46	0.46	0.00	0.00	0.00
3,100.00	2.00	73.16	3,099.98	-0.19	1.21	-1.21	2.00	2.00	0.00
3,200.00	4.00	73.16	3,199.84	1.32	6.22	-6.23	2.00	2.00	0.00
3,276.71	5.53	73.16	3,276.28	3.17	12.32	-12.34	2.00	2.00	0.00
3,300.00	5.53	73.16	3,299.46	3.82	14.47	-14.50	0.00	0.00	0.00
3,400.00	5.53	73.16	3,398.99	6.61	23.70	-23.75	0.00	0.00	0.00
3,500.00	5.53	73.16	3,498.53	9.40	32.94	-33.00	0.00	0.00	0.00
3,534.63	5.53	73.16	3,533.00	10.37	36.13	-36.20	0.00	0.00	0.00
Brushy Canyon									
3,600.00	5.53	73.16	3,598.06	12.20	42.17	-42.24	0.00	0.00	0.00
3,700.00	5.53	73.16	3,697.60	14.99	51.40	-51.49	0.00	0.00	0.00

Scientific Drilling, Intl

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well Frontier 32-23-26 State 431H
Company:	WPX Energy	TVD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Project:	Eddy County, New Mexico (NAD 83)	MD Reference:	GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
Site:	Frontier 32-23-26 State Pad	North Reference:	Grid
Well:	Frontier 32-23-26 State 431H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,800.00	5.53	73.16	3,797.13	17.78	60.63	-60.74	0.00	0.00	0.00
3,900.00	5.53	73.16	3,896.66	20.58	69.86	-69.99	0.00	0.00	0.00
4,000.00	5.53	73.16	3,996.20	23.37	79.09	-79.24	0.00	0.00	0.00
4,100.00	5.53	73.16	4,095.73	26.16	88.32	-88.49	0.00	0.00	0.00
4,200.00	5.53	73.16	4,195.26	28.96	97.55	-97.74	0.00	0.00	0.00
4,300.00	5.53	73.16	4,294.80	31.75	106.78	-106.98	0.00	0.00	0.00
4,400.00	5.53	73.16	4,394.33	34.54	116.01	-116.23	0.00	0.00	0.00
4,500.00	5.53	73.16	4,493.87	37.34	125.24	-125.48	0.00	0.00	0.00
4,600.00	5.53	73.16	4,593.40	40.13	134.47	-134.73	0.00	0.00	0.00
4,700.00	5.53	73.16	4,692.93	42.92	143.70	-143.98	0.00	0.00	0.00
4,800.00	5.53	73.16	4,792.47	45.72	152.94	-153.23	0.00	0.00	0.00
4,900.00	5.53	73.16	4,892.00	48.51	162.17	-162.48	0.00	0.00	0.00
5,000.00	5.53	73.16	4,991.54	51.30	171.40	-171.72	0.00	0.00	0.00
5,100.00	5.53	73.16	5,091.07	54.10	180.63	-180.97	0.00	0.00	0.00
5,200.00	5.53	73.16	5,190.60	56.89	189.86	-190.22	0.00	0.00	0.00
5,264.70	5.53	73.16	5,255.00	58.70	195.83	-196.21	0.00	0.00	0.00
Bone Spring									
5,300.00	5.53	73.16	5,290.14	59.68	199.09	-199.47	0.00	0.00	0.00
5,400.00	5.53	73.16	5,389.67	62.48	208.32	-208.72	0.00	0.00	0.00
5,500.00	5.53	73.16	5,489.21	65.27	217.55	-217.97	0.00	0.00	0.00
5,548.02	5.53	73.16	5,537.00	66.61	221.98	-222.41	0.00	0.00	0.00
Avalon									
5,600.00	5.53	73.16	5,588.74	68.06	226.78	-227.22	0.00	0.00	0.00
5,700.00	5.53	73.16	5,688.27	70.86	236.01	-236.46	0.00	0.00	0.00
5,800.00	5.53	73.16	5,787.81	73.65	245.24	-245.71	0.00	0.00	0.00
5,900.00	5.53	73.16	5,887.34	76.44	254.47	-254.96	0.00	0.00	0.00
6,000.00	5.53	73.16	5,986.87	79.24	263.70	-264.21	0.00	0.00	0.00
6,100.00	5.53	73.16	6,086.41	82.03	272.93	-273.46	0.00	0.00	0.00
6,132.74	5.53	73.16	6,119.00	82.94	275.96	-276.49	0.00	0.00	0.00
1st Bone Spring Sand									
6,200.00	5.53	73.16	6,185.94	84.82	282.17	-282.71	0.00	0.00	0.00
6,237.95	5.53	73.16	6,223.72	85.88	285.67	-286.22	0.00	0.00	0.00
6,300.00	4.29	73.16	6,285.54	87.42	290.76	-291.31	2.00	-2.00	0.00
6,358.59	3.12	73.16	6,344.00	88.52	294.38	-294.95	2.00	-2.00	0.00
2nd Bone Spring Lime									
6,400.00	2.29	73.16	6,385.37	89.09	296.25	-296.82	2.00	-2.00	0.00
6,465.66	0.98	73.16	6,451.00	89.63	298.05	-298.62	2.00	-2.00	0.00
2nd Bone Spring Sand									
6,500.00	0.29	73.16	6,485.34	89.74	298.41	-298.99	2.00	-2.00	0.00
6,514.66	0.00	0.00	6,500.00	89.75	298.45	-299.02	2.00	-2.00	0.00
6,600.00	0.00	0.00	6,585.34	89.75	298.45	-299.02	0.00	0.00	0.00
6,700.00	0.00	0.00	6,685.34	89.75	298.45	-299.02	0.00	0.00	0.00
6,724.66	0.00	0.00	6,710.00	89.75	298.45	-299.02	0.00	0.00	0.00
3rd Bone Spring Lime									
6,800.00	0.00	0.00	6,785.34	89.75	298.45	-299.02	0.00	0.00	0.00
6,900.00	0.00	0.00	6,885.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,000.00	0.00	0.00	6,985.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,100.00	0.00	0.00	7,085.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,200.00	0.00	0.00	7,185.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,300.00	0.00	0.00	7,285.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,400.00	0.00	0.00	7,385.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,500.00	0.00	0.00	7,485.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,600.00	0.00	0.00	7,585.34	89.75	298.45	-299.02	0.00	0.00	0.00

Scientific Drilling, Intl

Planning Report

Database: Midland District
 Company: WPX Energy
 Project: Eddy County, New Mexico (NAD 83)
 Site: Frontier 32-23-26 State Pad
 Well: Frontier 32-23-26 State 431H
 Wellbore: Wellbore #1
 Design: Plan #3

Local Co-ordinate Reference: Well Frontier 32-23-26 State 431H
 TVD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,700.00	0.00	0.00	7,685.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,800.00	0.00	0.00	7,785.34	89.75	298.45	-299.02	0.00	0.00	0.00
7,900.00	0.00	0.00	7,885.34	89.75	298.45	-299.02	0.00	0.00	0.00
8,000.00	0.00	0.00	7,985.34	89.75	298.45	-299.02	0.00	0.00	0.00
8,100.00	0.00	0.00	8,085.34	89.75	298.45	-299.02	0.00	0.00	0.00
8,200.00	0.00	0.00	8,185.34	89.75	298.45	-299.02	0.00	0.00	0.00
8,266.66	0.00	0.00	8,252.00	89.75	298.45	-299.02	0.00	0.00	0.00
3rd Bone Spring Sand									
8,300.00	0.00	0.00	8,285.34	89.75	298.45	-299.02	0.00	0.00	0.00
8,368.70	0.00	0.00	8,354.04	89.75	298.45	-299.02	0.00	0.00	0.00
KOP									
8,400.00	3.13	269.63	8,385.32	89.74	297.60	-298.17	10.00	10.00	0.00
8,450.00	8.13	269.63	8,435.06	89.71	292.69	-293.27	10.00	10.00	0.00
8,500.00	13.13	269.63	8,484.19	89.65	283.47	-284.05	10.00	10.00	0.00
8,550.00	18.13	269.63	8,532.33	89.57	270.01	-270.58	10.00	10.00	0.00
8,600.00	23.13	269.63	8,579.10	89.45	252.40	-252.97	10.00	10.00	0.00
8,650.00	28.13	269.63	8,624.17	89.32	230.78	-231.35	10.00	10.00	0.00
8,656.63	28.79	269.63	8,630.00	89.30	227.62	-228.19	10.00	10.00	0.00
Wolfcamp Top									
8,682.05	31.33	269.63	8,652.00	89.21	214.88	-215.45	10.00	10.00	0.00
WC_X									
8,700.00	33.13	269.63	8,667.18	89.15	205.31	-205.88	10.00	10.00	0.00
8,750.00	38.13	269.63	8,707.81	88.97	176.19	-176.76	10.00	10.00	0.00
8,757.92	38.92	269.63	8,714.00	88.93	171.26	-171.83	10.00	10.00	0.00
WC_Y									
8,800.00	43.13	269.63	8,745.74	88.76	143.65	-144.22	10.00	10.00	0.00
8,850.00	48.13	269.63	8,780.70	88.53	107.92	-108.49	10.00	10.00	0.00
8,900.00	53.13	269.63	8,812.40	88.28	69.28	-69.84	10.00	10.00	0.00
8,950.00	58.13	269.63	8,840.62	88.02	28.02	-28.59	10.00	10.00	0.00
8,960.24	59.15	269.63	8,845.95	87.96	19.28	-19.85	10.00	10.00	0.00
Frontier431H FTP									
9,000.00	63.13	269.63	8,865.14	87.74	-15.54	14.97	10.00	10.00	0.00
9,042.70	67.40	269.63	8,883.00	87.49	-54.31	53.75	10.00	10.00	0.00
Wolfcamp A									
9,050.00	68.13	269.63	8,885.76	87.45	-61.07	60.50	10.00	10.00	0.00
9,100.00	73.13	269.63	8,902.34	87.14	-108.22	107.66	10.00	10.00	0.00
9,109.42	74.07	269.63	8,905.00	87.08	-117.26	116.70	10.00	10.00	0.00
Top Target									
9,150.00	78.13	269.63	8,914.75	86.83	-156.64	156.08	10.00	10.00	0.00
9,200.00	83.13	269.63	8,922.88	86.52	-205.96	205.39	10.00	10.00	0.00
9,250.00	88.13	269.63	8,926.69	86.20	-255.80	255.23	10.00	10.00	0.00
9,268.70	90.00	269.63	8,927.00	86.08	-274.50	273.93	10.00	10.00	0.00
Landing Point									
9,300.00	90.00	269.63	8,927.00	85.88	-305.79	305.23	0.00	0.00	0.00
9,400.00	90.00	269.63	8,927.00	85.23	-405.79	405.23	0.00	0.00	0.00
9,500.00	90.00	269.63	8,927.00	84.59	-505.79	505.23	0.00	0.00	0.00
9,600.00	90.00	269.63	8,927.00	83.95	-605.78	605.23	0.00	0.00	0.00
9,700.00	90.00	269.63	8,927.00	83.31	-705.78	705.23	0.00	0.00	0.00
9,800.00	90.00	269.63	8,927.00	82.67	-805.78	805.23	0.00	0.00	0.00
9,900.00	90.00	269.63	8,927.00	82.03	-905.78	905.23	0.00	0.00	0.00
10,000.00	90.00	269.63	8,927.00	81.39	-1,005.78	1,005.23	0.00	0.00	0.00
10,100.00	90.00	269.63	8,927.00	80.75	-1,105.77	1,105.23	0.00	0.00	0.00
10,200.00	90.00	269.63	8,927.00	80.11	-1,205.77	1,205.23	0.00	0.00	0.00

Scientific Drilling, Intl

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 Wellbore: Wellbore #1
 Design: Plan #3

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 MD Reference: GL 3437 + RKB 26 = @ 3463.00usft (HP 265)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.00	90.00	269.63	8,927.00	79.47	-1,305.77	1,305.23	0.00	0.00	0.00
10,400.00	90.00	269.63	8,927.00	78.82	-1,405.77	1,405.23	0.00	0.00	0.00
10,500.00	90.00	269.63	8,927.00	78.18	-1,505.77	1,505.23	0.00	0.00	0.00
10,600.00	90.00	269.63	8,927.00	77.54	-1,605.76	1,605.23	0.00	0.00	0.00
10,700.00	90.00	269.63	8,927.00	76.90	-1,705.76	1,705.23	0.00	0.00	0.00
10,800.00	90.00	269.63	8,927.00	76.26	-1,805.76	1,805.23	0.00	0.00	0.00
10,900.00	90.00	269.63	8,927.00	75.62	-1,905.76	1,905.23	0.00	0.00	0.00
11,000.00	90.00	269.63	8,927.00	74.98	-2,005.76	2,005.23	0.00	0.00	0.00
11,100.00	90.00	269.63	8,927.00	74.34	-2,105.75	2,105.23	0.00	0.00	0.00
11,200.00	90.00	269.63	8,927.00	73.70	-2,205.75	2,205.23	0.00	0.00	0.00
11,300.00	90.00	269.63	8,927.00	73.05	-2,305.75	2,305.23	0.00	0.00	0.00
11,400.00	90.00	269.63	8,927.00	72.41	-2,405.75	2,405.23	0.00	0.00	0.00
11,500.00	90.00	269.63	8,927.00	71.77	-2,505.75	2,505.23	0.00	0.00	0.00
11,600.00	90.00	269.63	8,927.00	71.13	-2,605.74	2,605.23	0.00	0.00	0.00
11,700.00	90.00	269.63	8,927.00	70.49	-2,705.74	2,705.23	0.00	0.00	0.00
11,800.00	90.00	269.63	8,927.00	69.85	-2,805.74	2,805.23	0.00	0.00	0.00
11,900.00	90.00	269.63	8,927.00	69.21	-2,905.74	2,905.23	0.00	0.00	0.00
12,000.00	90.00	269.63	8,927.00	68.57	-3,005.74	3,005.23	0.00	0.00	0.00
12,100.00	90.00	269.63	8,927.00	67.93	-3,105.73	3,105.23	0.00	0.00	0.00
12,200.00	90.00	269.63	8,927.00	67.28	-3,205.73	3,205.23	0.00	0.00	0.00
12,300.00	90.00	269.63	8,927.00	66.64	-3,305.73	3,305.23	0.00	0.00	0.00
12,400.00	90.00	269.63	8,927.00	66.00	-3,405.73	3,405.23	0.00	0.00	0.00
12,500.00	90.00	269.63	8,927.00	65.36	-3,505.72	3,505.23	0.00	0.00	0.00
12,600.00	90.00	269.63	8,927.00	64.72	-3,605.72	3,605.23	0.00	0.00	0.00
12,700.00	90.00	269.63	8,927.00	64.08	-3,705.72	3,705.23	0.00	0.00	0.00
12,800.00	90.00	269.63	8,927.00	63.44	-3,805.72	3,805.23	0.00	0.00	0.00
12,900.00	90.00	269.63	8,927.00	62.80	-3,905.72	3,905.23	0.00	0.00	0.00
13,000.00	90.00	269.63	8,927.00	62.16	-4,005.71	4,005.23	0.00	0.00	0.00
13,100.00	90.00	269.63	8,927.00	61.51	-4,105.71	4,105.23	0.00	0.00	0.00
13,200.00	90.00	269.63	8,927.00	60.87	-4,205.71	4,205.23	0.00	0.00	0.00
13,300.00	90.00	269.63	8,927.00	60.23	-4,305.71	4,305.23	0.00	0.00	0.00
13,400.00	90.00	269.63	8,927.00	59.59	-4,405.71	4,405.23	0.00	0.00	0.00
13,500.00	90.00	269.63	8,927.00	58.95	-4,505.70	4,505.23	0.00	0.00	0.00
13,600.00	90.00	269.63	8,927.00	58.31	-4,605.70	4,605.23	0.00	0.00	0.00
13,626.10	90.00	269.63	8,927.00	58.14	-4,631.80	4,631.33	0.00	0.00	0.00
Frontier431H LTP									
13,700.00	90.00	269.63	8,927.00	57.67	-4,705.70	4,705.23	0.00	0.00	0.00
13,726.10	90.00	269.63	8,927.00	57.50	-4,731.80	4,731.33	0.00	0.00	0.00
Frontier431H BHL									

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 Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Frontier431H FTP - plan misses target center by 0.64usft at 8960.24usft MD (8845.95 TVD, 87.96 N, 19.28 E) - Point	0.00	0.00	8,846.00	88.60	19.30	456,253.30	549,222.60	32.254313	-104.307826
Frontier431H BHL - plan hits target center - Point	0.00	0.00	8,927.00	57.50	-4,731.80	456,222.20	544,471.50	32.254230	-104.323195
Frontier431H LTP - plan misses target center by 0.06usft at 13626.10usft MD (8927.00 TVD, 58.14 N, -4631.80 E) - Point	0.00	0.00	8,927.00	58.20	-4,631.80	456,222.90	544,571.50	32.254232	-104.322872

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,791.00	1,791.00	9 5/8"	9-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
429.00	429.00	Salado			
822.00	822.00	Castile			
1,771.00	1,771.00	Bell Canyon (Base of Salt)			
2,639.00	2,639.00	Cherry Canyon			
3,534.63	3,533.00	Brushy Canyon			
5,264.70	5,255.00	Bone Spring			
5,548.02	5,537.00	Avalon			
6,132.74	6,119.00	1st Bone Spring Sand			
6,358.59	6,344.00	2nd Bone Spring Lime			
6,465.66	6,451.00	2nd Bone Spring Sand			
6,724.66	6,710.00	3rd Bone Spring Lime			
8,266.66	8,252.00	3rd Bone Spring Sand			
8,656.63	8,630.00	Wolfcamp Top			
8,682.05	8,652.00	WC_X			
8,757.92	8,714.00	WC_Y			
9,042.70	8,883.00	Wolfcamp A			
9,109.42	8,905.00	Top Target			
9,268.70	8,927.00	Landing Point			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,368.70	8,354.04	89.75	298.45	KOP