



SECTION DETAILS

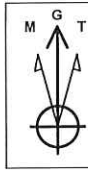
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	12800.00	0.00	0.00	12600.00	0.00	0.00	0.00	0.00	0.00	KOP; Begin 2.00° Build
3	12896.50	5.93	145.00	12895.97	-12.56	8.79	2.00	145.00	15.33	Hold 5.93° Tangent
4	15011.85	5.93	145.00	15000.00	-191.58	134.14	0.00	0.00	233.87	PBHL - 15011.85' MD

DESIGN TARGET DETAILS

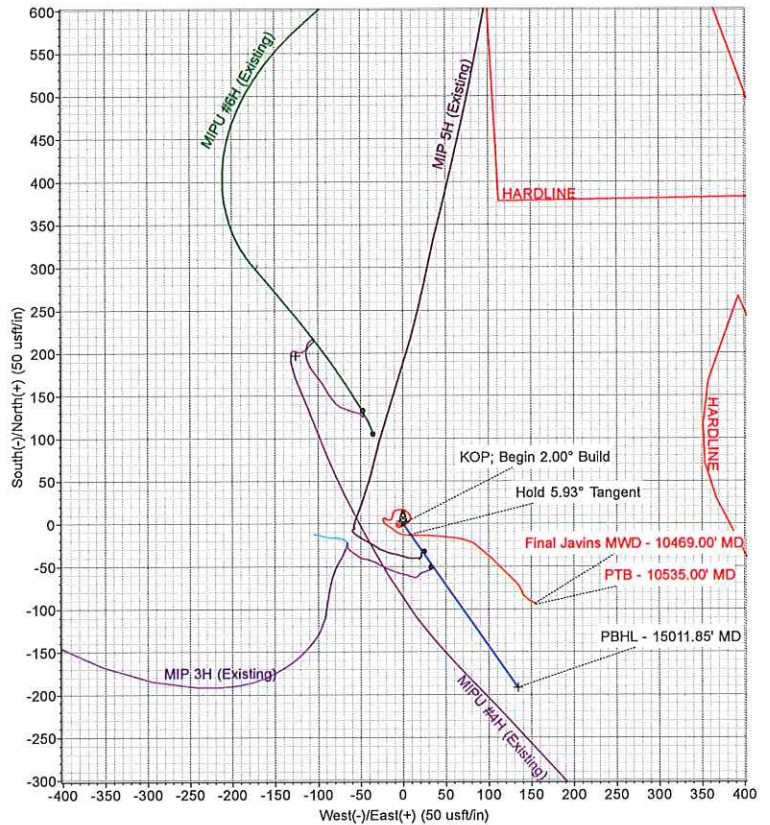
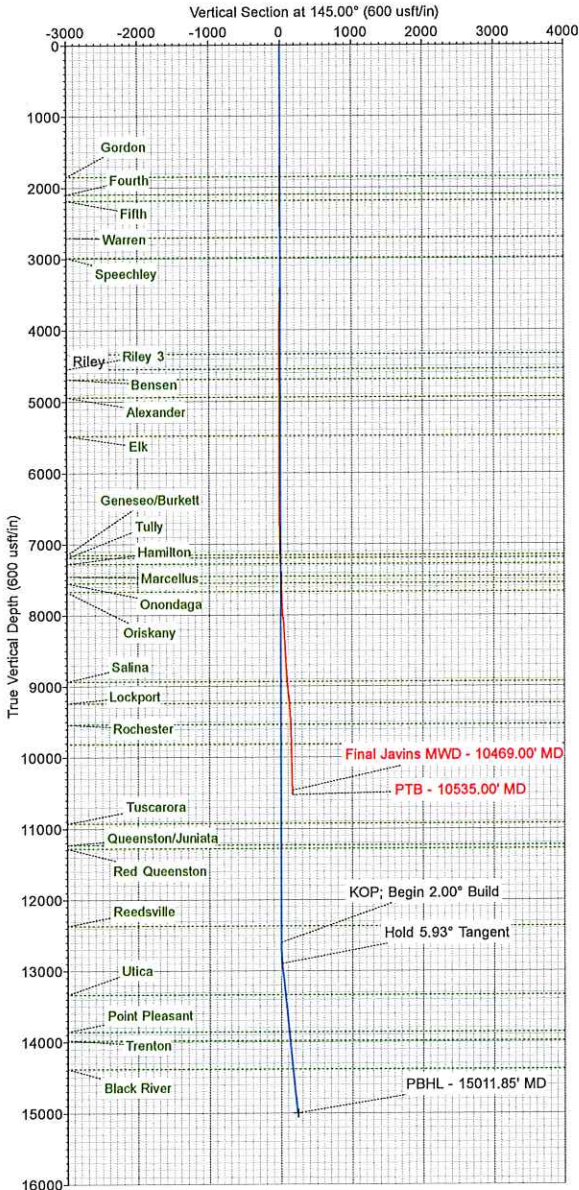
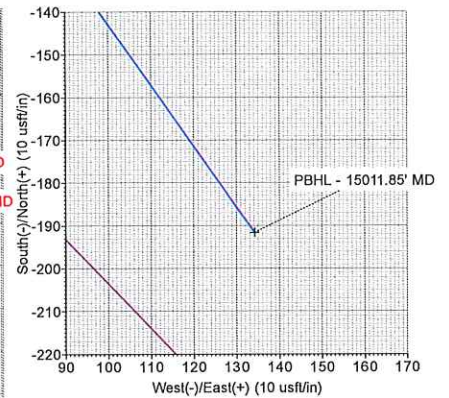
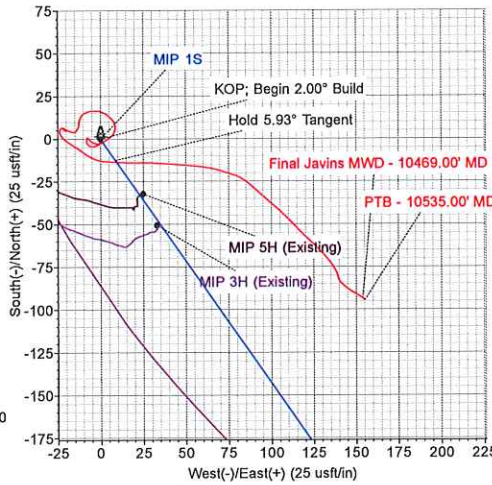
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape
PBHL v3 - MIP 1S	15000.00	-191.58	134.14	401515.62	1834446.23	39.601398	-79.975761	Point

Project: Monongalia County, WV (NAD83 - GRID)
 Site: MIP Pad
 Well: MIP 1S
 Wellbore: Wellbore #1
 Design: Design #3

MIP 1S



Azimuths to Grid North
 True North: 0.30°
 Magnetic North: -9.00°
 Magnetic Field
 Strength: 51318.6snT
 Dip Angle: 66.20°
 Date: 5/15/2023
 Model: IGRF2015





Northeast Natural Energy

Monongalia County, WV (NAD83 - GRID)

MIP Pad

MIP 1S

Wellbore #1

Design: Surveys

Standard Survey Report

22 June, 2023



02/23/2024



Javins Corporation

Survey Report



Company:	Northeast Natural Energy	Local Co-ordinate Reference:	Well MIP 1S
Project:	Monongalia County, WV (NAD83 - GRID)	TVD Reference:	WELL @ 1083.00usft (Patterson 277)
Site:	MIP Pad	MD Reference:	WELL @ 1083.00usft (Patterson 277)
Well:	MIP 1S	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Project	Monongalia County, WV (NAD83 - GRID), Western Monongalia County, Marcellus and Utica Production Horizontal Wells		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	MIP Pad		
Site Position:		Northing:	401,711.51 usft
From:	Map	Easting:	1,834,320.81 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	39.601934
		Longitude:	-79.976210
		Grid Convergence:	-0.30 °

Well	MIP 1S			
Well Position	+N/-S	0.00 usft	Northing:	401,707.20 usft
	+E/-W	0.00 usft	Easting:	1,834,312.09 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft
			Latitude:	39.601922
			Longitude:	-79.976241
			Ground Level:	1,058.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/15/2023	-9.31	66.20	51,319

Design	Surveys			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	
		Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	145.00

Survey Program	Date 6/22/2023			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
50.00	1,750.00	Gyro (Customer Provided) (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s
1,990.00	10,535.00	Javins MWD (Wellbore #1)	MWD	OWSG MWD - Standard

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	0.00
100.00	0.08	151.05	100.00	-0.16	0.08	0.18	0.08	0.08	0.08	0.00
200.00	0.11	294.43	200.00	-0.20	0.06	0.20	0.18	0.03	0.03	143.38
300.00	0.10	66.22	300.00	-0.28	0.11	0.29	0.19	-0.01	0.07	131.79
400.00	0.27	168.25	400.00	-0.39	0.15	0.41	0.31	0.17	0.17	102.03
500.00	0.23	203.05	500.00	-0.87	0.23	0.85	0.15	-0.04	0.07	34.80
600.00	0.33	197.32	600.00	-1.43	0.00	1.17	0.10	0.10	0.10	-5.73
700.00	0.13	199.15	700.00	-1.85	-0.16	1.43	0.20	-0.20	0.07	1.83
800.00	0.20	188.67	799.99	-2.11	-0.26	1.58	0.08	0.07	0.07	-10.48
900.00	0.14	236.12	899.99	-2.32	-0.34	1.70	0.15	-0.06	0.07	47.45



Javins Corporation

Survey Report



Company:	Northeast Natural Energy	Local Co-ordinate Reference:	Well MIP 1S
Project:	Monongalia County, WV (NAD83 - GRID)	TVD Reference:	WELL @ 1083.00usft (Patterson 277)
Site:	MIP Pad	MD Reference:	WELL @ 1083.00usft (Patterson 277)
Well:	MIP 1S	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
1,000.00	0.14	132.91	999.99	-2.55	-0.55	1.77	0.22	0.00	-103.21
1,100.00	0.10	285.23	1,099.99	-2.61	-0.54	1.83	0.23	-0.04	152.32
1,200.00	0.23	222.47	1,199.99	-2.74	-0.76	1.81	0.20	0.13	-62.76
1,300.00	0.21	183.31	1,299.99	-2.96	-0.90	1.91	0.15	-0.02	-39.16
1,400.00	0.34	245.45	1,399.99	-3.10	-1.16	1.87	0.30	0.13	62.14
1,500.00	0.40	271.30	1,499.99	-3.17	-1.82	1.55	0.18	0.06	25.85
1,600.00	0.72	285.60	1,599.99	-2.87	-2.71	0.80	0.35	0.32	14.30
1,700.00	0.59	283.90	1,699.98	-2.53	-3.79	-0.11	0.13	-0.13	-1.70
1,800.00	0.60	294.41	1,799.97	-2.22	-4.76	-0.91	0.11	0.01	10.51
1,900.00	0.68	308.85	1,899.97	-1.63	-5.70	-1.93	0.18	0.09	14.44
2,000.00	0.79	319.69	1,999.96	-0.73	-6.62	-3.20	0.18	0.11	10.84
2,100.00	0.68	326.28	2,099.95	0.40	-7.41	-4.58	0.14	-0.11	6.58
2,200.00	0.54	198.66	2,199.95	0.40	-7.81	-4.81	1.10	-0.15	-127.62
2,300.00	1.04	193.75	2,299.93	-1.04	-8.38	-3.96	0.50	0.50	-4.91
2,400.00	1.08	146.40	2,399.92	-2.70	-7.95	-2.35	0.85	0.04	-47.35
2,500.00	0.97	127.80	2,499.90	-4.12	-6.69	-0.46	0.35	-0.11	-18.60
2,600.00	0.60	101.84	2,599.89	-4.60	-5.46	0.63	0.50	-0.37	-25.96
2,700.00	0.70	83.70	2,699.89	-4.75	-4.55	1.28	0.23	0.10	-18.14
2,800.00	1.07	70.17	2,799.87	-4.26	-2.88	1.84	0.42	0.37	-13.53
2,900.00	1.11	63.87	2,899.86	-3.56	-1.19	2.23	0.12	0.03	-6.30
3,000.00	1.26	56.93	2,999.83	-2.53	0.62	2.42	0.21	0.16	-6.95
3,100.00	1.49	57.42	3,099.81	-1.20	2.58	2.46	0.22	0.22	0.50
3,200.00	1.75	55.97	3,199.77	0.31	4.97	2.59	0.26	0.26	-1.45
3,300.00	1.44	37.73	3,299.72	2.18	7.18	2.33	0.59	-0.31	-18.24
3,400.00	1.27	17.77	3,399.70	4.24	8.20	1.23	0.50	-0.17	-19.97
3,500.00	1.52	4.85	3,499.67	6.57	8.63	-0.43	0.40	0.25	-12.91
3,600.00	1.60	334.16	3,599.63	9.21	8.22	-2.83	0.83	0.08	-30.70
3,700.00	2.22	317.32	3,699.58	11.86	6.29	-6.11	0.83	0.62	-16.83
3,800.00	2.44	303.64	3,799.49	14.49	3.18	-10.05	0.60	0.22	-13.69
3,900.00	2.52	282.63	3,899.40	16.16	-0.77	-13.68	0.91	0.08	-21.01
4,000.00	1.97	263.72	3,999.32	16.46	-4.62	-16.13	0.92	-0.55	-18.90
4,100.00	1.73	248.73	4,099.27	15.65	-7.72	-17.25	0.54	-0.24	-14.99
4,200.00	1.34	232.45	4,199.24	14.35	-10.08	-17.54	0.58	-0.39	-16.29
4,300.00	0.87	210.85	4,299.22	13.00	-11.32	-17.14	0.62	-0.47	-21.60
4,400.00	0.83	202.20	4,399.21	11.66	-11.97	-16.42	0.14	-0.04	-8.65
4,500.00	0.79	194.21	4,499.20	10.36	-12.44	-15.62	0.12	-0.04	-7.99
4,600.00	0.80	181.57	4,599.19	8.92	-12.60	-14.53	0.18	0.01	-12.64
4,700.00	0.64	185.82	4,699.18	7.68	-12.62	-13.53	0.18	-0.17	4.26
4,800.00	0.59	206.67	4,799.17	6.69	-12.90	-12.88	0.23	-0.05	20.85
4,900.00	0.63	204.62	4,899.17	5.78	-13.45	-12.45	0.05	0.04	-2.06
5,000.00	0.61	211.78	4,999.16	4.76	-13.86	-11.85	0.08	-0.02	7.16
5,100.00	0.62	245.95	5,099.16	4.07	-14.63	-11.73	0.36	0.01	34.17
5,200.00	0.80	270.98	5,199.15	3.87	-15.83	-12.25	0.36	0.18	25.03



Javins Corporation

Survey Report



Company:	Northeast Natural Energy	Local Co-ordinate Reference:	Well MIP 1S
Project:	Monongalia County, WV (NAD83 - GRID)	TVD Reference:	WELL @ 1083.00usft (Patterson 277)
Site:	MIP Pad	MD Reference:	WELL @ 1083.00usft (Patterson 277)
Well:	MIP 1S	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
5,300.00	1.11	289.50	5,299.14	4.18	-17.44	-13.43	0.43	0.31	18.52
5,400.00	0.93	295.85	5,399.12	4.94	-19.19	-15.05	0.21	-0.18	6.34
5,500.00	0.61	305.91	5,499.11	5.60	-20.35	-16.26	0.34	-0.31	10.06
5,600.00	0.61	299.98	5,599.10	6.18	-21.20	-17.22	0.06	0.00	-5.93
5,700.00	0.28	127.96	5,699.10	6.34	-21.55	-17.55	0.89	-0.33	-172.01
5,800.00	0.77	139.04	5,799.10	5.67	-20.88	-16.62	0.50	0.49	11.08
5,900.00	0.57	131.04	5,899.09	4.83	-20.04	-15.45	0.22	-0.20	-8.01
6,000.00	0.26	261.75	5,999.09	4.45	-19.90	-15.06	0.76	-0.31	130.72
6,100.00	0.89	305.67	6,099.08	4.90	-20.82	-15.96	0.73	0.63	43.91
6,200.00	0.80	321.03	6,199.07	5.98	-21.87	-17.44	0.25	-0.10	15.36
6,300.00	0.40	282.05	6,299.07	6.60	-22.64	-18.39	0.54	-0.39	-38.98
6,400.00	0.62	217.32	6,399.06	6.24	-23.31	-18.49	0.57	0.21	-64.73
6,500.00	0.96	192.60	6,499.05	4.92	-23.91	-17.75	0.48	0.34	-24.72
6,600.00	1.15	159.77	6,599.03	3.16	-23.81	-16.24	0.62	0.19	-32.83
6,700.00	1.40	142.24	6,699.01	1.20	-22.52	-13.90	0.46	0.25	-17.53
6,800.00	1.39	133.06	6,798.98	-0.61	-21.00	-11.54	0.22	-0.01	-9.18
6,900.00	1.65	122.37	6,898.94	-2.16	-18.86	-9.05	0.38	0.26	-10.69
7,000.00	1.70	122.85	6,998.90	-3.74	-16.30	-6.28	0.05	0.05	0.48
7,100.00	1.68	123.35	7,098.86	-5.36	-13.90	-3.58	0.02	-0.02	0.49
7,200.00	1.71	127.33	7,198.81	-7.02	-11.44	-0.81	0.12	0.03	3.99
7,300.00	1.85	126.76	7,298.77	-8.92	-9.04	2.13	0.14	0.14	-0.58
7,400.00	2.01	120.03	7,398.71	-10.79	-6.23	5.27	0.28	0.16	-6.73
7,500.00	2.23	109.50	7,498.64	-12.34	-2.90	8.45	0.45	0.22	-10.53
7,600.00	2.62	95.19	7,598.55	-13.23	1.19	11.52	0.71	0.39	-14.31
7,700.00	2.88	95.16	7,698.44	-13.61	5.99	14.58	0.26	0.26	-0.03
7,800.00	4.24	92.03	7,798.24	-13.98	12.13	18.40	1.38	1.37	-3.13
7,900.00	5.69	90.29	7,897.87	-14.13	20.78	23.50	1.45	1.45	-1.74
8,000.00	7.05	93.00	7,997.24	-14.32	31.90	30.03	1.39	1.36	2.71
8,100.00	7.51	94.36	8,096.40	-15.27	44.79	38.20	0.49	0.46	1.36
8,200.00	6.41	96.43	8,195.63	-16.34	57.15	46.17	1.12	-1.10	2.07
8,300.00	5.10	103.99	8,295.13	-17.98	66.97	53.14	1.51	-1.31	7.56
8,400.00	4.18	107.30	8,394.81	-20.24	74.69	59.42	0.96	-0.92	3.32
8,500.00	2.99	113.63	8,494.61	-22.36	80.61	64.55	1.25	-1.19	6.33
8,600.00	3.02	129.46	8,594.47	-25.01	84.96	69.22	0.83	0.02	15.82
8,700.00	2.82	130.52	8,694.34	-28.32	88.85	74.16	0.20	-0.20	1.06
8,800.00	3.13	132.52	8,794.21	-31.74	92.69	79.17	0.33	0.31	2.00
8,900.00	4.60	130.60	8,893.99	-36.13	97.70	85.63	1.48	1.47	-1.93
9,000.00	6.78	132.39	8,993.47	-42.78	105.27	95.43	2.19	2.18	1.80
9,100.00	7.03	135.27	9,092.71	-51.45	114.04	107.56	0.43	0.25	2.87
9,200.00	6.04	134.15	9,192.04	-59.53	122.25	118.89	1.00	-1.00	-1.12
9,300.00	4.62	135.21	9,291.60	-66.03	128.92	128.03	1.42	-1.42	1.06
9,400.00	3.36	140.16	9,391.37	-71.07	133.58	134.83	1.31	-1.26	4.95
9,500.00	2.31	147.00	9,491.24	-75.04	136.52	139.77	1.10	-1.05	6.84



Javins Corporation

Survey Report



Company:	Northeast Natural Energy	Local Co-ordinate Reference:	Well MIP 1S
Project:	Monongalia County, WV (NAD83 - GRID)	TVD Reference:	WELL @ 1083.00usft (Patterson 277)
Site:	MIP Pad	MD Reference:	WELL @ 1083.00usft (Patterson 277)
Well:	MIP 1S	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
9,600.00	1.51	151.39	9,591.19	-77.85	138.15	143.01	0.81	-0.80	4.40
9,700.00	1.14	161.29	9,691.16	-79.86	139.10	145.21	0.43	-0.37	9.89
9,800.00	1.08	165.68	9,791.15	-81.69	139.51	146.94	0.10	-0.06	4.40
9,900.00	1.21	148.64	9,891.13	-83.54	140.27	148.89	0.36	0.12	-17.04
10,000.00	1.59	134.10	9,991.10	-85.32	141.78	151.21	0.52	0.38	-14.55
10,100.00	1.83	128.36	10,091.05	-87.37	144.14	154.25	0.29	0.24	-5.74
10,200.00	1.82	122.27	10,191.00	-89.21	146.71	157.22	0.19	-0.01	-6.09
10,300.00	1.85	122.82	10,290.95	-90.87	149.45	160.16	0.03	0.02	0.54
10,400.00	1.77	118.21	10,390.90	-92.55	152.15	163.08	0.17	-0.08	-4.60
10,500.00	1.43	131.62	10,490.86	-94.07	154.42	165.63	0.50	-0.34	13.41

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,469.00	10,459.87	-93.55	153.84	Final Javins MWD - 10469.00' MD
10,535.00	10,525.85	-94.65	155.07	PTB - 10535.00' MD

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------