

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-061-01906 County Monongalia District Clay  
Quad Blacksville Pad Name Bunner Field/Pool Name \_\_\_\_\_  
Farm name Patricia A. Bunner Well Number 1H  
Operator (as registered with the OOG) Northeast Natural Energy LLC  
Address 707 Virginia St. E., Suite 1200 City Charleston State WV Zip 25301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4390598.9 Easting 567105.7  
Landing Point of Curve Northing 4390558.7 Easting 566823.9  
Bottom Hole Northing 4394918.1 Easting 563820.0

Elevation (ft) 1,277' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
Synthetic Based Mud - Horizontal Section: BIO-BASE 365, CALCIUM CHLORIDE POWDER, G-SEAL PLUS, HRP, LIME, M-I WATE (BARITE),  
M-I-X II MEDIUM, MEGADRIL P SYSTEM, MEGADRIL P SYSTEM RENTAL, MEGAMUL, SAFE-CARB 250, VERSATHIN HF, VERSAWET, VG-PLUS, VINSEAL MEDIUM, WALNUT NUT PLUG MEDIUM

Date permit issued 9/19/2022 Date drilling commenced 10/11/2022 Date drilling ceased 12/11/2022  
Date completion activities began 2/13/2023 Date completion activities ceased 3/30/2023  
Verbal plugging (Y/N) NA Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 1,150' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1,359' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 865' Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) \_\_\_\_\_

Reviewed by:

02/23/2024

API 47-061 - 01906 Farm name Patricia A. Bunner Well number 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	30"	24"		N		NA	
Surface	17-1/2"	13-3/8"	1,294	N	54.5	NA	Y, 43 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,533	N	40	NA	Y, 5 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	25,936	N	20	NA	Y
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	4,500 PSI Grout						48
Surface	Class A + 2%	1,145	15.6	1.14	1,300	CTS	8
Coal							
Intermediate 1	Class A + 1%	895	15.6	1.13	1,009	CTS	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class A + Additives	4,980	14.5	1.13	5,611	2,067	48
Tubing							

Drillers TD (ft) 25,970' Loggers TD (ft) 25,940'  
 Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 7,245'

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

Surface: Bow spring centralizers every 3rd joint or approximately 120'  
 Intermediate: Bow spring centralizers every 3rd joint or approximately 120'  
 Production: Rigid body centralizers placed at a minimum of every other joint (~80') from TD to surface

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_





## Bunner 1H Stimulation Report

Stage Number	Report Date	ISIP (psi)	Breakdown Pressure (psi)	Avg Treating Pressure (psi)	Avg Treating Rate (BPM)	Pad Volume (bbls)	Total Clean Fluid (Bbls)	Total Proppant Amount (lbs)	Flush Volume (bbls)
1	2/15/2023	5,118	6,533	8,986	77	227	1,373	299,420	585
2	2/15/2023	5,643	5,770	9,390	92	96	8,627	390,040	563
3	2/15/2023	5,891	6,479	9,072	78	39	8,469	392,900	575
4	2/16/2023	5,229	5,755	9,415	83	57	8,588	390,860	571
5	2/16/2023	5,734	6,870	9,602	87	87	8,831	390,940	562
6	2/17/2023	5,636	7,346	9,606	85	67	8,541	389,960	562
7	2/17/2023	5,885	7,399	9,704	84	45	8,740	389,900	548
8	2/18/2023	6,085	6,103	9,695	84	44	8,570	389,940	545
9	2/18/2023	6,063	7,091	9,806	85	46	8,517	391,760	557
10	2/19/2023	6,409	7,405	9,799	85	113	8,506	390,280	538
11	2/19/2023	6,517	7,255	9,747	87	64	8,590	390,840	540
12	2/19/2023	5,895	5,959	9,394	86	83	8,513	390,430	533
13	2/20/2023	5,657	5,964	9,485	88	51	8,518	390,060	532
14	2/20/2023	5,681	6,962	9,543	86	38	8,523	391,690	539
15	2/21/2023	6,020	6,119	8,919	76	135	8,855	389,338	539
16	2/21/2023	5,497	7,760	9,646	88	53	8,465	391,540	524
17	2/22/2023	5,738	7,769	9,585	86	26	8,423	393,440	527
18	2/22/2023	5,476	7,544	9,670	88	74	8,038	390,538	514
19	2/23/2023	5,863	8,053	9,725	89	97	8,489	390,588	513
20	2/23/2023	5,399	7,629	9,733	88	51	8,248	390,555	506
21	2/23/2023	6,375	6,789	8,810	73	68	8,621	390,900	504
22	2/24/2023	6,152	8,038	9,913	93	76	8,370	391,430	500
23	2/24/2023	6,424	7,125	9,791	83	71	8,571	391,700	500
24	2/25/2023	5,973	7,478	9,858	85	74	8,426	389,846	486
25	2/25/2023	7,143	7,743	9,795	82	37	8,208	390,820	488
26	2/26/2023	6,441	7,528	9,707	87	22	8,035	387,870	487
27	2/26/2023	6,134	7,639	9,629	83	43	8,284	391,180	476
28	2/27/2023	6,038	7,572	9,762	86	62	8,106	388,463	475
29	2/27/2023	6,035	8,358	9,634	88	88	8,541	391,580	478
30	2/28/2023	6,388	7,752	9,757	87	70	7,995	391,641	470
31	2/28/2023	6,215	7,550	9,732	88	40	9,380	389,400	474
32	3/1/2023	6,326	7,998	9,865	89	92	8,021	390,297	448
33	3/1/2023	6,272	7,612	9,843	89	94	8,325	390,000	449
34	3/2/2023	5,913	7,774	9,760	87	52	8,056	391,750	444
35	3/2/2023	5,752	8,320	9,634	88	69	8,395	390,600	434
36	3/3/2023	5,632	8,569	9,878	86	46	8,017	391,418	442
37	3/3/2023	5,474	8,596	9,796	85	106	8,435	390,300	449
38	3/4/2023	5,721	8,337	9,754	86	63	8,419	390,165	426
39	3/4/2023	5,798	7,939	9,796	89	50	8,313	390,260	423
40	3/5/2023	5,905	7,228	9,496	89	75	8,385	389,767	423
41	3/5/2023	5,921	7,757	9,575	89	54	8,370	390,100	414
42	3/6/2023	6,195	8,067	9,464	91	29	8,504	393,223	420
43	3/7/2023	5,557	7,629	9,545	89	89	8,405	390,060	404
44	3/7/2023	6,050	8,903	9,524	90	110	8,393	391,270	426
45	3/8/2023	6,330	8,727	9,629	89	37	8,330	391,800	412

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46	3/8/2023	5,602	8,041	9,327	88	36	8,334	390,740	412
47	3/9/2023	5,467	8,312	9,225	87	62	8,435	391,390	408
48	3/9/2023	5,727	8,364	9,464	89	41	8,542	390,520	393
49	3/10/2023	6,029	8,149	9,416	87	23	8,242	392,260	402
50	3/10/2023	5,725	7,585	9,345	91	61	8,325	390,440	390
51	3/11/2023	6,388	7,883	9,348	86	64	8,388	392,870	390
52	3/11/2023	3,471	7,425	9,389	89	35	8,439	390,200	389
53	3/12/2023	5,576	7,965	9,258	88	27	8,229	400,780	379
54	3/12/2023	5,894	7,851	9,217	88	31	8,257	390,320	376
55	3/12/2023	5,900	8,128	9,427	91	38	8,800	390,440	379
56	3/13/2023	6,373	8,009	9,198	88	41	8,229	391,040	370
57	3/14/2023	6,362	5,541	9,143	90	66	8,327	390,720	384
58	3/14/2023	6,170	7,745	9,137	89	38	8,066	391,060	364
59	3/15/2023	6,190	7,855	9,257	90	26	8,179	389,769	355
60	3/15/2023	6,304	6,321	8,791	85	28	8,097	395,360	350
61	3/15/2023	6,149	7,685	9,038	92	50	7,946	390,092	342
62	3/16/2023	6,108	8,664	8,987	89	38	8,238	390,560	345
63	3/16/2023	6,056	8,160	8,950	91	69	7,946	390,815	339
64	3/17/2023	6,684	7,775	9,092	91	40	8,202	390,540	331
65	3/17/2023	6,191	7,170	8,963	92	122	8,290	390,508	343
66	3/18/2023	6,226	6,492	8,412	84	39	7,918	391,253	322
67	3/18/2023	6,163	7,564	8,846	91	81	8,480	392,420	324
68	3/18/2023	6,261	7,957	8,791	90	55	8,009	389,751	329
69	3/19/2023	6,147	7,408	8,777	92	100	8,259	393,270	316
70	3/19/2023	6,272	7,761	8,954	91	58	7,863	389,658	307
71	3/20/2023	6,104	7,613	9,017	90	65	8,585	391,120	311
72	3/20/2023	6,407	8,064	9,080	91	42	7,745	390,039	383
73	3/20/2023	6,104	7,613	9,017	90	65	8,585	391,120	311
74	3/21/2023	6,749	6,812	8,392	86	67	8,132	390,320	382
75	3/22/2023	6,087	7,465	8,732	94	37	7,593	390,478	380
76	3/22/2023	5,798	6,946	8,636	89	111	8,125	390,580	289
77	3/22/2023	5,648	8,095	8,896	90	53	8,231	389,436	668
78	3/23/2023	5,616	7,974	9,106	92	3,457	7,937	390,160	273
79	3/23/2023	6,100	7,712	8,998	92	47	8,147	387,849	580
80	3/24/2023	6,239	7,582	9,094	92	84	8,049	390,620	279
81	3/24/2023	6,449	7,880	9,027	92	143	7,980	390,422	581
82	3/25/2023	6,272	7,733	8,893	91	82	8,405	390,239	265
83	3/25/2023	5,716	7,551	9,003	92	68	7,793	391,060	277
84	3/26/2023	6,214	7,945	8,825	92	27	8,391	391,161	248
85	3/26/2023	5,811	8,383	9,162	93	75	7,547	389,960	255
86	3/26/2023	6,413	7,948	8,762	90	32	8,155	391,304	252
87	3/27/2023	5,959	8,719	8,978	90	57	8,148	393,978	234
88	3/27/2023	5,886	8,067	9,004	91	53	8,043	390,880	238
89	3/27/2023	6,094	7,797	8,972	92	51	8,136	391,480	225
90	3/27/2023	6,101	7,606	8,852	90	41	7,773	393,633	246
91	3/28/2023	6,278	7,881	8,839	90	32	8,147	388,947	248
92	3/28/2023	6,029	7,310	8,324	90	115	8,121	391,490	239
93	3/28/2023	5,980	7,484	8,387	92	58	7,977	392,540	227

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Stage Number	Report Date	ISIP (psi)	Breakdown Pressure (psi)	Avg Treating Pressure (psi)	Avg Treating Rate (BPM)	Pad Volume (bbbls)	Total Clean Fluid (Bbls)	Total Proppant Amount (lbs)	Flush Volume (bbbls)
94	3/28/2023	5,964	7,619	8,312	91	58	7,740	390,330	220
95	3/26/2023	6,549	7,369	8,365	91	62	7,835	390,040	218
96	3/29/2023	6,359	7,034	8,361	93	64	7,850	390,380	214
97	3/29/2023	5,789	7,457	8,524	94	74	7,895	389,960	230
98	3/29/2023	5,945	7,600	8,252	91	21	8,011	391,220	261
99	3/29/2023	6,407	7,274	8,350	93	11	7,883	391,790	201
100	3/29/2023	6,350	7,285	8,364	91	12	8,052	391,840	197
101	3/30/2023	6,169	8,248	8,465	91	14	8,080	396,257	193

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**Bunner 1H**  
Perforation Report

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
1	2/15/2023	40		25,830
2	2/15/2023	40	25,791	25,653
3	2/15/2023	40	25,616	25,478
4	2/16/2023	40	25,441	25,303
5	2/16/2023	40	25,266	25,128
6	2/17/2023	40	25,091	24,953
7	2/17/2023	40	24,916	24,778
8	2/18/2023	40	24,916	24,778
9	2/18/2023	40	24,566	24,428
10	2/19/2023	40	24,391	24,253
11	2/19/2023	40	24,216	24,078
12	2/19/2023	40	24,041	23,903
13	2/20/2023	40	23,866	23,728
14	2/20/2023	40	23,691	23,553
15	2/21/2023	40	23,516	23,378
16	2/21/2023	40	23,341	23,203
17	2/22/2023	40	23,166	23,028
18	2/22/2023	40	22,991	22,853
19	2/23/2023	40	22,816	22,678
20	2/23/2023	40	22,641	22,503
21	2/23/2023	40	22,466	22,328
22	2/24/2023	40	22,291	22,153
23	2/24/2023	40	22,116	21,978
24	2/25/2023	40	21,941	21,803
25	2/25/2023	40	21,766	21,628
26	2/26/2023	40	21,591	21,453
27	2/26/2023	40	21,416	21,278
28	2/27/2023	40	21,241	21,103
29	2/27/2023	40	21,066	20,928
30	2/28/2023	40	20,891	20,753
31	2/28/2023	40	20,716	20,578
32	3/1/2023	40	20,541	20,403
33	3/1/2023	40	20,366	20,228
34	3/2/2023	40	20,191	20,053
35	3/2/2023	40	20,016	19,878
36	3/3/2023	40	19,841	19,703
37	3/3/2023	40	19,666	19,528
38	3/4/2023	40	19,491	19,353
39	3/4/2023	40	19,316	19,178
40	3/5/2023	40	19,141	19,003
41	3/5/2023	40	18,966	18,828
42	3/6/2023	40	18,791	18,653
43	3/7/2023	40	18,616	18,478
44	3/7/2023	40	18,441	18,302
45	3/8/2023	40	18,266	18,128
46	3/8/2023	40	18,091	17,953
47	3/9/2023	40	17,916	17,779

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Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
48	3/9/2023	40	17,741	17,603
49	3/10/2023	40	17,566	17,428
50	3/10/2023	40	17,391	17,253
51	3/11/2023	40	17,216	17,078
52	3/11/2023	40	17,041	16,903
53	3/12/2023	40	16,866	16,728
54	3/12/2023	40	16,691	16,553
55	3/12/2023	40	16,516	16,378
56	3/13/2023	40	16,341	16,203
57	3/14/2023	40	16,166	16,028
58	3/14/2023	40	15,991	15,853
59	3/15/2023	40	15,816	15,678
60	3/15/2023	40	15,641	15,503
61	3/15/2023	40	15,466	15,327
62	3/16/2023	40	15,290	15,152
63	3/16/2023	40	15,115	14,977
64	3/17/2023	40	14,940	14,802
65	3/17/2023	40	14,765	14,627
66	3/18/2023	40	14,590	14,452
67	3/18/2023	40	14,415	14,277
68	3/18/2023	40	14,240	14,102
69	3/19/2023	40	14,065	13,927
70	3/19/2023	40	13,890	13,752
71	3/20/2023	40	13,715	13,577
72	3/20/2023	40	13,540	13,402
73	3/20/2023	40	13,365	13,227
74	3/21/2023	40	13,190	13,052
75	3/22/2023	40	13,015	12,877
76	3/22/2023	40	12,840	12,702
77	3/22/2023	40	12,665	12,527
78	3/23/2023	40	12,490	12,352
79	3/23/2023	40	12,315	12,177
80	3/24/2023	40	12,140	12,002
81	3/24/2023	40	11,965	11,827
82	3/25/2023	40	11,790	11,652
83	3/25/2023	40	11,615	11,477
84	3/26/2023	40	11,440	11,302
85	3/26/2023	40	11,265	11,127
86	3/26/2023	40	11,090	10,952
87	3/27/2023	40	10,915	10,777
88	3/27/2023	40	10,740	10,602
89	3/27/2023	40	10,565	10,427
90	3/27/2023	40	10,390	10,252
91	3/28/2023	40	10,215	10,077
92	3/28/2023	40	10,040	9,902
93	3/28/2023	40	9,865	9,727
94	3/28/2023	40	9,690	9,552
95	3/26/2023	40	9,515	9,377
96	3/29/2023	40	9,340	9,202

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Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
97	3/29/2023	40	9,165	9,027
98	3/29/2023	40	8,990	8,852
99	3/29/2023	40	8,815	8,677
100	3/29/2023	40	8,640	8,502
101	3/30/2023	40	8,465	8,327

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**Bunner Completion Lithology**

Lithology/Formation	Top Depth in FT TVD	Bottom Depth in FT TVD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
Sand/silt	0	280	Sand/silt
silt/shale	280	520	silt/shale
sandstone	520	590	sandstone
coal	530	533	coal
coal	580	584	coal
sandstone	590	680	sandstone
siltstone/sandstone	680	715	siltstone/sandstone
sandstone/siltstone	715	767	sandstone/siltstone
sandstone/limestone	767	800	sandstone/limestone
Limestone/sandstone/shale	800	865	Limestone/sandstone/shale
Pittsburgh coal	865	873	Pittsburgh coal
Limestone/siltstone	873	910	Limestone/siltstone
Limestone	910	950	Limestone
sandstone/siltstone	950	974	sandstone/siltstone
coal	974	978	coal
sandstone/siltstone	978	1000	sandstone/siltstone
Limestone	1000	1040	Limestone
Limestone/siltstone	1040	1063	Limestone/siltstone
coal	1063	1066	coal
Limestone/siltstone	1066	1090	Limestone/siltstone
Maxon	1090	1110	Maxon
Limestone/siltstone	1110	1220	Limestone/siltstone
Red Rock/siltstone/limestone	1220	1440	Red Rock/siltstone/limestone
Limestone/siltstone	1440	1610	Limestone/siltstone
sandstone/siltstone	1610	2080	sandstone/siltstone
Little Lime	2080	2140	Little Lime
Big Lime	2140	2250	Big Lime
siltstone/sandstone	2250	2320	siltstone/sandstone
Big Injun	2320	2410	Big Injun
Gantz	2410	2420	Gantz
Sand/shale	2420	5560	Sand/shale
gray shale/siltstone	5560	7705	gray shale/siltstone
Middlesex	7395	7646	Middlesex
Burkett	7646	7819	Burkett
Geneseo	7819	7870	Geneseo
Tully	7870	7923	Tully
Hamilton	7923	8026	Hamilton
Marcellus	8026	TD	Marcellus

# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'  
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02/23/2024

REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect@ 6.0
North Reference	Grid	User	Manajohj
Scale	0.999941	Report Generated	12/12/2022 at 2:04:26 PM
Convergence at slot	0.46° West	Database	WA_MPL_EASTERNU Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1766458.50	424248.37	39°39'45.2443"N	80°13'3.6735"W
Facility Reference Pt			1766458.50	424248.37	39°39'45.2443"N	80°13'3.6735"W
Field Reference Pt			1777685.71	440640.65	39°42'28.1140"N	80°10'41.6900"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 277 (RKB) to Facility Vertical Datum	1305.00ft
Horizontal Reference Pt	Slot	Patterson 277 (RKB) to Mean Sea Level	1305.00ft
Vertical Reference Pt	Patterson 277 (RKB)	Patterson 277 (RKB) to Ground Level at Slot (Slot 1H)	28.00ft
MD Reference Pt	Patterson 277 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	326.37°



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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02/23/2024

## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## WELLPATH DATA (286 stations) † = interpolated, ‡ = extrapolated station

MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist (ft)	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	205.310	0.00	0.00	0.00	0.00	1766458.50	424248.37	39°39'45.2443"N	80°13'3.6735"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	205.310	28.00	0.00	0.00	0.00	1766458.50	424248.37	39°39'45.2443"N	80°13'3.6735"W	0.00	0.000	0.00	0.00	0.00
50.00	0.040	205.310	50.00	0.00	-0.01	0.00	1766458.50	424248.36	39°39'45.2443"N	80°13'3.6736"W	0.01	205.310	0.18	0.18	0.00
100.00	0.180	238.370	100.00	-0.01	-0.06	-0.08	1766458.42	424248.31	39°39'45.2437"N	80°13'3.6745"W	0.10	230.533	0.30	0.28	66.12
150.00	0.220	210.880	150.00	-0.05	-0.19	-0.19	1766458.31	424248.18	39°39'45.2425"N	80°13'3.6760"W	0.27	225.943	0.21	0.08	-54.98
200.00	0.280	214.560	200.00	-0.14	-0.37	-0.31	1766458.19	424248.00	39°39'45.2407"N	80°13'3.6775"W	0.48	220.132	0.12	0.12	7.36
250.00	0.240	222.860	250.00	-0.21	-0.55	-0.45	1766458.05	424247.82	39°39'45.2389"N	80°13'3.6793"W	0.71	219.578	0.11	-0.08	16.60
300.00	0.210	91.300	300.00	-0.28	-0.63	-0.43	1766458.07	424247.74	39°39'45.2381"N	80°13'3.6790"W	0.76	214.610	0.82	-0.06	-263.12
350.00	0.220	105.030	350.00	-0.41	-0.65	-0.25	1766458.25	424247.72	39°39'45.2379"N	80°13'3.6766"W	0.70	200.790	0.10	0.02	27.46
400.00	0.230	232.560	400.00	-0.49	-0.74	-0.24	1766458.26	424247.63	39°39'45.2370"N	80°13'3.6764"W	0.78	197.638	0.81	0.02	255.06
450.00	0.200	119.530	450.00	-0.57	-0.84	-0.24	1766458.26	424247.53	39°39'45.2360"N	80°13'3.6765"W	0.88	195.812	0.72	-0.06	-226.06
500.00	0.340	178.490	500.00	-0.77	-1.03	-0.16	1766458.34	424247.34	39°39'45.2341"N	80°13'3.6754"W	1.05	188.738	0.58	0.28	117.92
550.00	0.260	215.650	550.00	-0.94	-1.28	-0.22	1766458.28	424247.09	39°39'45.2317"N	80°13'3.6762"W	1.29	189.842	0.41	-0.16	74.32
600.00	0.200	217.840	600.00	-1.01	-1.44	-0.34	1766458.16	424246.93	39°39'45.2301"N	80°13'3.6777"W	1.48	193.351	0.12	-0.12	4.38
650.00	0.270	142.480	650.00	-1.15	-1.60	-0.32	1766458.18	424246.77	39°39'45.2285"N	80°13'3.6775"W	1.63	191.411	0.59	0.14	-150.72
700.00	0.310	147.690	700.00	-1.41	-1.81	-0.18	1766458.32	424246.56	39°39'45.2265"N	80°13'3.6756"W	1.82	185.648	0.10	0.08	10.42
750.00	0.200	112.960	749.99	-1.61	-1.95	-0.03	1766458.47	424246.42	39°39'45.2250"N	80°13'3.6737"W	1.96	180.762	0.37	-0.22	-69.46
800.00	0.240	131.000	799.99	-1.79	-2.06	0.13	1766458.63	424246.31	39°39'45.2240"N	80°13'3.6716"W	2.06	176.291	0.16	0.08	36.08
850.00	0.260	167.180	849.99	-1.99	-2.24	0.24	1766458.74	424246.13	39°39'45.2222"N	80°13'3.6703"W	2.25	173.938	0.31	0.04	72.36
900.00	0.240	199.520	899.99	-2.16	-2.45	0.23	1766458.73	424245.92	39°39'45.2202"N	80°13'3.6704"W	2.46	174.681	0.28	-0.04	64.68
950.00	0.360	227.090	949.99	-2.25	-2.65	0.08	1766458.58	424245.72	39°39'45.2181"N	80°13'3.6723"W	2.65	178.321	0.37	0.24	55.14
1000.00	0.450	179.440	999.99	-2.44	-2.96	-0.04	1766458.46	424245.41	39°39'45.2151"N	80°13'3.6737"W	2.96	180.686	0.67	0.18	-95.30
1050.00	0.240	119.270	1049.99	-2.70	-3.20	0.06	1766458.56	424245.17	39°39'45.2127"N	80°13'3.6725"W	3.20	178.965	0.78	-0.42	-120.34
1100.00	0.110	315.110	1099.99	-2.74	-3.22	0.12	1766458.62	424245.15	39°39'45.2125"N	80°13'3.6717"W	3.22	177.949	0.69	-0.26	-328.32
1150.00	0.130	353.140	1149.99	-2.65	-3.13	0.07	1766458.57	424245.24	39°39'45.2134"N	80°13'3.6722"W	3.13	178.633	0.16	0.04	76.06
1343.00	0.870	46.070	1342.98	-2.19	-1.90	1.10	1766459.60	424246.47	39°39'45.2257"N	80°13'3.6592"W	2.19	149.790	0.41	0.38	27.42
1405.00	0.900	26.150	1404.98	-1.86	-1.13	1.66	1766460.16	424247.24	39°39'45.2333"N	80°13'3.6522"W	2.01	124.335	0.50	0.05	-32.13
1500.00	1.860	355.860	1499.95	-0.14	1.08	1.87	1766460.37	424249.45	39°39'45.2551"N	80°13'3.6497"W	2.16	60.162	1.24	1.01	-31.88
1565.00	2.800	351.770	1594.87	3.30	4.91	1.43	1766459.93	424253.28	39°39'45.2930"N	80°13'3.6557"W	5.11	16.254	1.00	0.99	-4.31
1690.00	2.230	341.020	1689.78	7.18	8.95	0.50	1766459.00	424257.32	39°39'45.3329"N	80°13'3.6681"W	8.97	3.184	0.78	-0.60	-11.32



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWP
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
1785.00	1.920	313.490	1784.72	10.52	11.80	-1.26	1766457.24	424260.17	39°39'45.3608"N	80°13'3.6908"W	11.86	353.915	1.09	-0.33	-28.98
1881.00	1.060	348.640	1880.69	12.91	13.77	-2.60	1766455.90	424262.14	39°39'45.3803"N	80°13'3.7082"W	14.02	349.314	1.27	-0.90	36.61
1976.00	1.280	36.130	1975.67	14.09	15.49	-2.15	1766456.35	424263.86	39°39'45.3973"N	80°13'3.7026"W	15.64	352.111	1.01	0.23	49.99
2071.00	0.570	64.370	2070.65	14.39	16.55	-1.10	1766457.44	424264.92	39°39'45.4079"N	80°13'3.6882"W	16.59	356.216	0.87	-0.75	29.73
2166.00	0.000	351.340	2165.65	14.32	16.76	-0.67	1766457.83	424265.07	39°39'45.4099"N	80°13'3.6838"W	16.77	357.714	0.60	-0.60	0.00
2261.00	0.260	255.200	2260.65	14.39	16.70	-0.88	1766457.62	424265.07	39°39'45.4093"N	80°13'3.6864"W	16.73	356.993	0.27	0.27	0.00
2356.00	0.200	253.620	2355.65	14.51	16.60	-1.24	1766457.26	424264.97	39°39'45.4083"N	80°13'3.6911"W	16.65	355.712	0.06	-0.06	-1.66
2452.00	0.210	199.940	2451.65	14.46	16.39	-1.47	1766457.03	424264.76	39°39'45.4062"N	80°13'3.6939"W	16.45	354.890	0.19	0.01	-55.92
2658.00	0.720	158.540	2657.64	12.97	14.83	-1.12	1766457.38	424263.20	39°39'45.3908"N	80°13'3.6894"W	14.87	355.678	0.28	0.25	-20.10
2754.00	0.980	170.110	2753.63	11.63	13.46	-0.76	1766457.74	424261.83	39°39'45.3773"N	80°13'3.6846"W	13.48	356.772	0.32	0.27	12.05
2848.00	0.840	165.560	2847.62	10.24	12.00	-0.45	1766458.05	424260.37	39°39'45.3629"N	80°13'3.6805"W	12.01	357.857	0.17	-0.15	-4.85
2943.00	1.360	154.800	2942.60	8.47	10.31	0.20	1766458.70	424258.68	39°39'45.3462"N	80°13'3.6720"W	10.31	1.137	0.59	0.55	-11.32
3038.00	0.110	44.610	3037.60	7.37	9.35	0.75	1766459.25	424257.72	39°39'45.3368"N	80°13'3.6649"W	9.38	4.578	1.48	-1.32	-115.99
3133.00	0.140	316.200	3132.60	7.50	9.50	0.73	1766459.23	424257.87	39°39'45.3383"N	80°13'3.6651"W	9.53	4.409	0.18	0.03	-93.06
3228.00	0.240	347.780	3227.59	7.80	9.78	0.61	1766459.11	424258.15	39°39'45.3410"N	80°13'3.6667"W	9.80	3.570	0.15	0.11	33.24
3323.00	0.240	333.380	3322.59	8.19	10.15	0.48	1766458.98	424258.52	39°39'45.3447"N	80°13'3.6684"W	10.16	2.700	0.06	0.00	-15.16
3418.00	0.140	17.420	3417.59	8.46	10.44	0.42	1766458.92	424258.81	39°39'45.3475"N	80°13'3.6692"W	10.45	2.328	0.18	-0.11	46.36
3512.00	0.210	8.770	3511.59	8.66	10.72	0.48	1766458.98	424259.09	39°39'45.3503"N	80°13'3.6684"W	10.73	2.590	0.08	0.07	-9.20
3606.00	1.610	216.330	3605.58	8.33	9.83	-0.27	1766458.23	424258.19	39°39'45.3414"N	80°13'3.6780"W	9.83	358.419	1.91	1.49	-162.17
3702.00	3.240	218.640	3701.49	7.04	6.62	-2.76	1766455.74	424254.99	39°39'45.3096"N	80°13'3.7096"W	7.17	337.334	1.70	1.70	2.41
3797.00	3.390	225.780	3796.33	5.71	2.56	-6.45	1766452.05	424250.93	39°39'45.2692"N	80°13'3.7563"W	6.94	291.665	0.46	0.16	7.52
3891.00	4.190	215.660	3890.13	3.98	-2.17	-10.45	1766448.05	424246.20	39°39'45.2221"N	80°13'3.8066"W	10.67	258.291	1.11	0.85	-10.78
3986.00	4.540	216.660	3984.85	1.49	-8.00	-14.71	1766443.79	424240.37	39°39'45.1641"N	80°13'3.8608"W	16.75	241.461	0.38	0.37	1.05
4082.00	4.560	211.020	4080.55	-1.43	-14.32	-18.95	1766435.23	424234.05	39°39'45.1034"N	80°13'3.9143"W	23.75	228.920	0.47	0.02	-5.86
4177.00	5.120	215.620	4175.21	-4.56	-21.01	-23.36	1766435.14	424227.36	39°39'45.0349"N	80°13'3.9700"W	31.41	228.033	0.71	0.59	4.74
4272.00	6.930	216.110	4269.68	-8.05	-29.09	-29.20	1766429.30	424219.28	39°39'44.9546"N	80°13'4.0439"W	41.22	225.108	1.91	1.91	0.62
4370.00	8.520	215.040	4366.79	-12.74	-39.81	-36.85	1766421.65	424208.56	39°39'44.8480"N	80°13'4.1407"W	54.25	222.791	1.63	1.62	-1.09
4465.00	9.340	214.690	4460.64	-18.14	-51.91	-45.28	1766413.22	424196.46	39°39'44.7278"N	80°13'4.2472"W	68.88	221.097	0.87	0.86	-0.37
4560.00	10.060	212.590	4554.28	-24.34	-65.24	-54.14	1766404.37	424183.13	39°39'44.5965"N	80°13'4.3591"W	84.78	219.686	0.84	0.76	-2.21
4655.00	11.060	207.470	4647.67	-32.09	-80.32	-62.81	1766395.69	424168.06	39°39'44.4445"N	80°13'4.4684"W	101.96	218.026	1.44	1.05	-5.39



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# Actual Wellpath Report

Brunner 1H AWP Proj: 25995'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Brunner 1H
Field	Monongalia		API/Legal	
Facility	Brunner Pad		Wellbore	Brunner 1H AWB
Slot	Slot 1H			

## WELLPATH DATA (286 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4750.00	12.390	208.500	4740.69	-41.26	-97.36	-71.88	1766386.63	424151.02	39°39'44.2765"N	80°13'4.6826"W	121.02	216.437	1.42	1.40	1.08
4846.00	13.960	205.200	4834.16	-62.07	-116.89	-81.72	1766376.78	424131.49	39°39'44.0827"N	80°13'4.7065"W	142.62	214.959	1.81	1.64	-3.44
4940.00	14.390	208.750	4925.30	-63.35	-137.39	-92.17	1766366.34	424110.99	39°39'43.8793"N	80°13'4.8380"W	165.44	213.856	1.03	0.46	3.78
5035.00	14.860	213.120	5017.22	-73.63	-157.94	-104.50	1766354.00	424090.44	39°39'43.6752"N	80°13'4.9936"W	189.38	213.491	1.26	0.49	4.60
5129.00	14.430	214.560	5108.17	-82.74	-177.68	-117.73	1766340.78	424070.29	39°39'43.4791"N	80°13'5.1607"W	213.15	213.528	0.60	-0.46	1.53
5222.00	14.630	213.250	5203.04	-92.14	-198.09	-131.44	1766327.06	424050.70	39°39'43.2763"N	80°13'5.3340"W	237.73	213.567	0.39	0.20	-1.34
5322.00	14.400	214.180	5295.00	-101.31	-217.89	-144.66	1766313.85	424030.49	39°39'43.0796"N	80°13'5.5009"W	261.54	213.580	0.34	-0.24	0.98
5418.00	14.460	215.520	5387.98	-110.08	-237.52	-158.33	1766300.18	424010.86	39°39'42.8845"N	80°13'5.6737"W	285.46	213.687	0.35	0.06	1.40
5512.00	14.510	218.220	5478.99	-117.93	-256.33	-172.43	1766286.08	423992.06	39°39'42.6975"N	80°13'5.8521"W	308.93	213.929	0.72	0.05	2.87
5608.00	14.440	216.270	5571.94	-125.79	-275.43	-186.95	1766271.56	423972.96	39°39'42.5076"N	80°13'6.0359"W	332.89	214.168	0.51	-0.07	-2.03
5703.00	13.930	211.600	5664.05	-134.65	-294.72	-199.95	1766258.56	423953.67	39°39'42.3160"N	80°13'6.2001"W	356.15	214.155	1.32	-0.54	-4.92
5798.00	14.470	211.450	5756.14	-144.44	-314.58	-212.14	1766246.37	423933.81	39°39'42.1187"N	80°13'6.3539"W	379.43	213.994	0.57	0.57	-0.16
5893.00	15.010	214.430	5848.02	-154.04	-334.86	-225.29	1766233.23	423913.54	39°39'41.9173"N	80°13'6.5199"W	403.59	213.932	0.98	0.57	3.14
5988.00	14.900	213.370	5939.80	-163.41	-355.20	-238.96	1766219.55	423893.19	39°39'41.7151"N	80°13'6.6927"W	428.10	213.931	0.31	-0.12	-1.12
6083.00	13.790	209.330	6031.84	-173.33	-375.27	-251.23	1766207.29	423873.12	39°39'41.5158"N	80°13'6.8474"W	451.60	213.800	1.57	-1.17	-4.25
6181.00	13.860	209.500	6127.00	-183.94	-395.67	-262.73	1766195.79	423852.72	39°39'41.3133"N	80°13'6.9924"W	474.96	213.584	0.08	0.07	0.17
6276.00	14.440	212.140	6219.12	-193.95	-415.61	-274.63	1766183.88	423832.79	39°39'41.1154"N	80°13'7.1426"W	498.15	213.457	0.91	0.61	2.78
6370.00	15.220	216.430	6309.99	-202.97	-435.46	-288.19	1766170.32	423812.94	39°39'40.9181"N	80°13'7.3140"W	522.19	213.497	1.43	0.83	4.56
6465.00	15.140	216.620	6401.68	-211.41	-455.45	-303.00	1766155.52	423792.95	39°39'40.7194"N	80°13'7.5012"W	547.03	213.635	0.10	-0.08	0.20
6560.00	15.160	215.720	6493.37	-219.98	-475.49	-317.65	1766140.87	423772.91	39°39'40.5201"N	80°13'7.6885"W	571.84	213.745	0.25	0.02	-0.95
6655.00	15.090	212.170	6585.09	-229.43	-496.05	-331.49	1766127.03	423752.36	39°39'40.3159"N	80°13'7.8614"W	596.61	213.753	0.98	-0.07	-3.74
6750.00	15.260	210.600	6676.77	-239.94	-517.27	-344.44	1766114.08	423731.13	39°39'40.1051"N	80°13'8.0247"W	621.46	213.658	0.47	0.18	-1.65
6845.00	15.140	212.290	6768.45	-250.44	-538.52	-357.43	1766101.09	423709.88	39°39'39.8941"N	80°13'8.1887"W	646.34	213.573	0.48	-0.13	1.78
6940.00	14.880	213.770	6860.21	-260.19	-559.15	-370.84	1766087.15	423689.25	39°39'39.6892"N	80°13'8.3560"W	670.95	213.553	0.49	-0.27	1.56
7035.00	13.960	216.120	6952.22	-268.84	-578.85	-384.37	1766074.15	423669.86	39°39'39.4964"N	80°13'8.5291"W	694.45	213.599	1.15	-0.97	2.47
7130.00	13.890	216.140	7044.42	-276.75	-597.01	-397.85	1766060.67	423651.39	39°39'39.3129"N	80°13'8.6996"W	717.43	213.680	0.07	-0.07	0.02
7224.00	12.990	216.450	7135.85	-284.25	-614.62	-410.78	1766047.74	423633.79	39°39'39.1378"N	80°13'8.8631"W	739.26	213.757	0.96	-0.96	0.33
7245.00	12.860	216.440	7156.32	-285.85	-618.40	-413.57	1766044.95	423630.01	39°39'39.1003"N	80°13'8.8984"W	743.95	213.774	0.62	-0.62	-0.05
7340.00	13.910	228.630	7248.75	-290.99	-634.46	-428.43	1766030.10	423613.95	39°39'38.9404"N	80°13'9.0866"W	765.56	214.030	3.16	1.11	12.83
7435.00	14.640	233.860	7340.82	-293.06	-649.08	-446.69	1766011.84	423599.33	39°39'38.7944"N	80°13'9.3187"W	787.94	214.535	1.56	0.77	5.51



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NATURAL ENERGY

# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7630.00	14.640	248.890	7432.77	-290.98	-660.49	-467.59	1765990.93	423587.92	39°39'38.6800"N	80°13'9.5848"W	809.26	215.297	3.99	0.00	15.82
7625.00	16.990	276.030	7524.29	-279.50	-663.36	-492.63	1765965.90	423585.05	39°39'38.6497"N	80°13'9.9047"W	826.28	216.599	8.09	2.47	28.57
7720.00	20.300	293.580	7614.37	-256.77	-655.30	-521.57	1765936.96	423583.11	39°39'38.7770"N	80°13'10.2755"W	837.53	218.517	6.82	3.48	18.47
7814.00	26.090	304.870	7700.78	-223.78	-636.94	-553.52	1765905.02	423611.47	39°39'38.9060"N	80°13'10.6858"W	843.84	220.992	7.74	6.16	12.01
7909.00	33.570	311.170	7783.15	-178.92	-607.66	-590.49	1765888.05	423640.75	39°39'39.1924"N	80°13'11.1616"W	847.30	224.179	8.53	7.87	6.63
8004.00	40.770	316.990	7858.82	-122.88	-567.62	-631.49	1765827.05	423680.79	39°39'39.5849"N	80°13'11.6899"W	849.10	228.049	8.43	7.58	6.13
8099.00	48.750	323.270	7926.26	-66.48	-516.21	-674.09	1765784.45	423732.20	39°39'40.0896"N	80°13'12.2399"W	849.04	232.556	9.60	8.40	6.61
8193.00	56.890	324.460	7983.02	18.28	-455.75	-718.18	1765740.36	423792.65	39°39'40.6636"N	80°13'12.8099"W	850.58	237.601	8.72	8.66	1.27
8288.00	65.130	327.730	8029.03	101.29	-386.80	-764.41	1765664.14	423861.59	39°39'41.3613"N	80°13'13.4080"W	856.70	243.160	9.18	8.67	3.44
8382.00	72.490	327.690	8062.98	188.85	-312.76	-811.20	1765647.35	423935.63	39°39'42.0893"N	80°13'14.0138"W	869.40	248.916	7.83	7.83	-0.04
8477.00	79.410	327.820	8086.03	280.92	-234.86	-860.34	1765598.22	424013.52	39°39'42.8552"N	80°13'14.6501"W	891.82	254.731	7.29	7.28	0.14
8572.00	88.340	331.350	8096.16	375.12	-153.49	-908.08	1765550.48	424094.89	39°39'43.6556"N	80°13'15.2689"W	920.96	260.406	10.10	9.40	3.72
8668.00	92.860	335.290	8095.16	470.37	-67.75	-951.16	1765507.39	424160.62	39°39'44.4995"N	80°13'15.8286"W	953.57	265.926	6.25	4.71	4.10
8763.00	93.390	332.830	8089.98	564.36	17.54	-992.65	1765465.91	424265.91	39°39'45.3391"N	80°13'16.3679"W	992.81	271.012	2.65	0.56	-2.59
8858.00	93.020	331.100	8084.67	658.76	101.26	-1037.23	1765421.33	424349.62	39°39'46.1629"N	80°13'16.9465"W	1042.16	275.576	1.86	-0.39	-1.82
8953.00	91.380	327.330	8081.02	753.55	182.79	-1085.81	1765372.76	424431.15	39°39'46.9649"N	80°13'17.5760"W	1101.09	279.556	4.32	-1.73	-3.97
9047.00	91.350	327.420	8078.78	847.51	261.94	-1136.48	1765322.09	424510.29	39°39'47.7430"N	80°13'18.2320"W	1166.27	282.979	0.10	-0.03	0.10
9143.00	91.320	327.550	8076.54	943.47	342.87	-1188.06	1765270.51	424591.22	39°39'48.5387"N	80°13'18.8999"W	1236.55	286.098	0.14	-0.03	0.14
9238.00	91.510	327.130	8074.20	1038.42	422.83	-1239.32	1765219.26	424671.17	39°39'49.3248"N	80°13'19.5635"W	1309.46	288.838	0.49	0.20	-0.44
9333.00	91.290	327.380	8071.88	1133.38	502.70	-1290.69	1765167.89	424751.04	39°39'50.1101"N	80°13'20.2286"W	1385.13	291.280	0.35	-0.23	0.26
9428.00	91.350	327.490	8069.69	1228.34	582.75	-1341.81	1765116.78	424831.08	39°39'50.8971"N	80°13'20.8905"W	1462.89	293.475	0.13	0.06	0.12
9523.00	91.320	327.140	8067.47	1323.30	662.68	-1393.09	1765065.49	424911.01	39°39'51.6830"N	80°13'21.5545"W	1542.68	295.440	0.37	-0.03	-0.37
9618.00	91.260	327.170	8065.33	1418.22	742.48	-1444.61	1765013.94	424990.80	39°39'52.4675"N	80°13'22.2214"W	1624.24	297.202	0.07	-0.06	0.03
9713.00	91.600	327.800	8062.96	1513.27	822.22	-1495.65	1764962.94	425070.88	39°39'53.2548"N	80°13'22.8824"W	1706.92	298.809	0.75	0.36	0.66
9808.00	91.790	326.740	8060.15	1608.17	902.44	-1547.00	1764911.60	425150.75	39°39'54.0402"N	80°13'23.5471"W	1790.98	300.257	1.13	0.20	-1.12
9904.00	91.540	325.980	8057.36	1704.13	982.33	-1600.15	1764858.45	425230.64	39°39'54.8256"N	80°13'24.2349"W	1877.62	301.546	0.82	-0.26	-0.78
9999.00	90.860	326.670	8055.38	1799.11	1061.38	-1652.80	1764805.80	425309.68	39°39'55.6025"N	80°13'24.9164"W	1964.25	302.707	1.01	-0.72	0.72
10094.00	91.110	327.010	8053.74	1894.09	1140.90	-1704.76	1764753.85	425389.20	39°39'56.3842"N	80°13'25.5890"W	2051.30	303.792	0.44	0.26	0.36
10189.00	91.600	327.550	8051.50	1989.05	1220.80	-1756.09	1764702.51	425469.09	39°39'57.1697"N	80°13'26.2536"W	2138.74	304.806	0.77	0.52	0.57
10285.00	91.910	326.290	8048.56	2085.00	1301.20	-1808.47	1764650.14	425549.49	39°39'57.9601"N	80°13'26.9316"W	2227.93	305.735	1.35	0.32	-1.31





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# Actual Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	AP/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWP
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10380.00	91.110	326.280	8046.05	2179.96	1380.19	-1861.18	1764597.43	425628.48	39°39'58.7366"N	80°13'27.6138"W	2317.09	306.559	0.84	-0.84	-0.01
10475.00	90.860	325.790	8044.42	2274.95	1458.97	-1914.25	1764544.37	425707.25	39°39'59.5109"N	80°13'28.3005"W	2406.85	307.313	0.58	-0.26	-0.52
10569.00	90.890	325.560	8042.98	2368.93	1536.59	-1967.25	1764491.37	425754.87	39°40'0.2137"N	80°13'28.9862"W	2496.23	307.993	0.25	0.03	-0.24
10664.00	90.650	325.190	8041.71	2463.91	1614.76	-2021.22	1764437.40	425863.03	39°40'1.0419"N	80°13'29.6845"W	2587.04	308.621	0.46	-0.25	-0.39
10759.00	90.250	326.970	8040.96	2558.90	1693.59	-2074.23	1764384.40	425941.85	39°40'1.8167"N	80°13'30.3704"W	2677.81	309.231	1.92	-0.42	-1.87
10854.00	89.350	325.380	8041.29	2653.89	1772.50	-2127.11	1764331.52	426020.76	39°40'2.5924"N	80°13'31.0548"W	2768.82	309.804	1.92	-0.95	-1.67
10949.00	90.180	326.920	8041.68	2748.89	1851.40	-2180.02	1764278.61	426099.65	39°40'3.3679"N	80°13'31.7396"W	2860.10	310.340	1.84	0.87	1.62
11043.00	89.600	327.270	8041.86	2842.88	1930.32	-2231.09	1764227.55	426178.57	39°40'4.1487"N	80°13'32.4007"W	2950.23	310.866	0.72	-0.62	0.37
11138.00	89.850	326.730	8042.32	2937.87	2009.99	-2282.83	1764175.81	426258.24	39°40'4.9289"N	80°13'33.0706"W	3041.60	311.363	0.63	0.26	-0.57
11233.00	89.010	325.700	8043.26	3032.87	2088.94	-2335.65	1764122.99	426337.18	39°40'5.7030"N	80°13'33.7542"W	3133.52	311.809	1.40	-0.88	-1.08
11328.00	89.420	326.730	8044.56	3127.85	2167.89	-2388.47	1764070.17	426416.13	39°40'6.4790"N	80°13'34.4378"W	3225.61	312.228	1.17	0.43	1.08
11425.00	90.340	326.640	8044.77	3224.85	2248.95	-2441.75	1764016.90	426497.18	39°40'7.2758"N	80°13'35.1275"W	3319.62	312.646	0.95	0.95	-0.09
11520.00	89.720	326.080	8044.72	3319.85	2328.04	-2494.38	1763964.28	426576.26	39°40'8.0532"N	80°13'35.8086"W	3411.99	313.024	0.88	-0.65	-0.59
11614.00	89.080	326.160	8045.70	3413.84	2406.07	-2546.77	1763911.88	426654.29	39°40'8.8202"N	80°13'36.4867"W	3503.60	313.373	0.69	-0.68	0.09
11709.00	89.420	326.640	8046.95	3508.84	2485.19	-2599.34	1763859.32	426733.41	39°40'9.5979"N	80°13'37.1671"W	3596.21	313.714	0.62	0.36	0.51
11802.00	88.950	326.890	8048.27	3601.82	2562.97	-2650.31	1763808.36	426811.19	39°40'10.3625"N	80°13'37.8269"W	3686.86	314.040	0.57	-0.51	0.27
11897.00	89.420	326.910	8049.62	3696.81	2642.55	-2702.18	1763756.48	426890.76	39°40'11.1447"N	80°13'38.4985"W	3779.53	314.361	0.50	0.49	0.02
11992.00	88.680	325.370	8051.20	3791.79	2721.42	-2755.10	1763703.57	426969.63	39°40'11.9200"N	80°13'39.1834"W	3872.56	314.648	1.80	-0.78	-1.62
12086.00	89.320	325.980	8052.84	3885.77	2799.04	-2808.10	1763650.57	427047.24	39°40'12.6828"N	80°13'39.8692"W	3964.85	314.907	0.94	0.68	0.65
12181.00	88.370	325.360	8054.75	3980.74	2877.47	-2861.66	1763597.01	427125.67	39°40'13.4536"N	80°13'40.5623"W	4058.20	315.158	1.19	-1.00	-0.65
12276.00	89.350	326.970	8056.64	4075.72	2956.37	-2914.55	1763544.13	427204.55	39°40'14.2290"N	80°13'41.2467"W	4151.47	315.408	1.98	1.03	1.69
12369.00	88.430	325.630	8058.44	4168.70	3033.77	-2966.14	1763492.55	427281.90	39°40'14.9894"N	80°13'41.9145"W	4242.81	315.645	1.75	-0.99	-1.44
12464.00	89.080	326.400	8060.51	4263.67	3112.42	-3019.22	1763439.46	427360.65	39°40'15.7634"N	80°13'42.6016"W	4336.27	315.871	1.06	0.68	0.81
12558.00	88.860	326.120	8062.20	4357.66	3190.63	-3071.43	1763387.26	427438.80	39°40'16.5316"N	80°13'43.2772"W	4428.74	316.091	0.38	-0.23	-0.30
12653.00	89.200	326.700	8063.80	4452.64	3269.75	-3123.98	1763334.71	427517.92	39°40'17.3093"N	80°13'43.9575"W	4522.22	316.306	0.71	0.36	0.61
12748.00	88.980	326.690	8065.31	4547.63	3349.14	-3176.13	1763282.56	427597.30	39°40'18.0897"N	80°13'44.6327"W	4615.69	316.519	0.23	-0.23	-0.01
12843.00	88.830	326.980	8067.13	4642.61	3428.65	-3228.09	1763230.60	427676.81	39°40'18.8713"N	80°13'45.3054"W	4709.16	316.726	0.34	-0.16	0.31
12938.00	89.450	327.190	8068.55	4737.59	3508.39	-3279.71	1763178.99	427756.55	39°40'19.6552"N	80°13'45.9738"W	4802.64	316.929	0.69	0.65	0.22
13032.00	89.050	326.100	8069.79	4831.58	3586.90	-3331.39	1763127.31	427835.05	39°40'20.4269"N	80°13'46.6428"W	4895.30	317.115	1.24	-0.43	-1.16
13127.00	89.050	326.250	8071.36	4926.57	3665.81	-3384.26	1763074.44	427913.95	39°40'21.2025"N	80°13'47.3272"W	4989.13	317.287	0.16	0.00	0.16



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWP
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
13222.00	88.890	325.160	8073.07	5021.54	3744.28	-3437.78	1763020.93	427992.42	39°40'21.9737"N	80°13'48.0198"W	5083.11	317.444	1.16	-0.17	-1.15
13317.00	90.220	325.290	8073.81	5116.52	3822.31	-3491.96	1762966.75	428070.44	39°40'22.7404"N	80°13'48.7208"W	5177.24	317.586	1.41	1.40	0.14
13412.00	89.720	324.980	8073.86	5211.50	3900.25	-3546.27	1762912.45	428148.39	39°40'23.5064"N	80°13'49.4234"W	5271.43	317.722	0.62	-0.53	-0.33
13505.00	89.570	325.140	8074.43	5304.47	3976.49	-3599.53	1762859.19	428224.62	39°40'24.2655"N	80°13'50.1124"W	5363.68	317.848	0.24	-0.16	0.17
13599.00	90.250	325.520	8074.58	5398.45	4053.80	-3653.00	1762805.72	428301.92	39°40'25.0152"N	80°13'50.8043"W	5456.90	317.977	0.83	0.72	0.40
13694.00	90.980	324.970	8073.56	5493.43	4131.84	-3707.16	1762751.57	428379.96	39°40'25.7822"N	80°13'51.5049"W	5551.14	318.101	0.96	0.77	-0.58
13789.00	90.800	324.190	8072.08	5588.37	4209.25	-3762.21	1762696.52	428457.37	39°40'26.5427"N	80°13'52.2170"W	5645.53	318.210	0.84	-0.19	-0.82
13884.00	90.980	324.460	8070.61	5683.30	4286.42	-3817.60	1762641.13	428534.52	39°40'27.3008"N	80°13'52.9335"W	5739.99	318.311	0.34	0.19	0.28
13979.00	91.170	324.780	8068.83	5778.24	4363.86	-3872.60	1762586.14	428611.96	39°40'28.0617"N	80°13'53.6449"W	5834.40	318.413	0.39	0.20	0.34
14074.00	91.320	325.200	8066.76	5873.19	4441.65	-3927.09	1762531.65	428689.75	39°40'28.8261"N	80°13'54.3498"W	5928.77	318.518	0.47	0.16	0.44
14169.00	91.690	325.690	8064.27	5968.14	4519.86	-3980.95	1762477.79	428767.96	39°40'29.5947"N	80°13'55.0468"W	6023.05	318.627	0.65	0.39	0.52
14264.00	91.940	325.320	8061.26	6063.08	4598.12	-4034.73	1762424.02	428846.21	39°40'30.3638"N	80°13'55.7427"W	6117.33	318.734	0.47	0.26	-0.39
14360.00	91.140	325.040	8058.68	6159.03	4676.90	-4089.52	1762369.23	428924.99	39°40'31.1380"N	80°13'56.4517"W	6212.70	318.833	0.88	-0.83	-0.29
14455.00	90.830	326.290	8057.05	6253.97	4754.39	-4144.46	1762314.29	429002.47	39°40'31.8993"N	80°13'57.1623"W	6307.20	318.921	0.85	-0.33	-0.79
14550.00	90.550	325.130	8055.90	6348.92	4831.92	-4199.34	1762259.42	429080.00	39°40'32.6611"N	80°13'57.8723"W	6401.71	319.007	0.93	-0.29	0.88
14644.00	90.180	324.590	8055.30	6442.89	4908.79	-4253.44	1762205.32	429156.86	39°40'33.4164"N	80°13'58.5722"W	6495.23	319.091	0.70	-0.39	-0.57
14739.00	90.710	326.290	8054.56	6537.87	4987.02	-4307.33	1762151.44	429235.09	39°40'34.1852"N	80°13'59.2695"W	6589.65	319.183	1.87	0.56	1.79
14834.00	91.080	326.100	8053.08	6632.85	5065.95	-4360.18	1762098.59	429314.01	39°40'34.9609"N	80°13'59.9536"W	6683.93	319.282	0.44	0.39	-0.20
14929.00	91.020	326.390	8051.34	6727.84	5144.92	-4412.95	1762045.82	429392.98	39°40'35.7371"N	80°14'00.6369"W	6778.23	319.379	0.31	-0.06	0.31
15025.00	91.020	326.010	8049.63	6823.82	5224.68	-4466.35	1761992.42	429472.73	39°40'36.5210"N	80°14'01.3281"W	6873.54	319.474	0.40	0.00	-0.40
15120.00	91.110	326.000	8047.86	6918.80	5303.43	-4519.46	1761939.32	429551.48	39°40'37.2950"N	80°14'02.0155"W	6967.92	319.563	0.10	0.09	-0.01
15215.00	89.970	324.720	8046.97	7013.78	5381.59	-4573.45	1761885.33	429629.63	39°40'38.0630"N	80°14'02.7142"W	7062.43	319.641	1.80	-1.20	-1.35
15311.00	90.310	326.210	8046.73	7109.77	5460.67	-4627.87	1761830.91	429708.70	39°40'38.8401"N	80°14'03.4185"W	7157.94	319.719	1.59	0.35	1.55
15406.00	90.660	326.280	8045.91	7204.76	5539.65	-4680.66	1761778.13	429787.88	39°40'39.6164"N	80°14'04.1018"W	7252.33	319.804	0.40	0.39	0.07
15501.00	90.490	326.250	8044.94	7299.76	5618.65	-4733.41	1761725.38	429866.68	39°40'40.3929"N	80°14'04.7848"W	7346.73	319.888	0.20	-0.20	-0.03
15595.00	91.020	326.120	8043.71	7393.75	5696.74	-4785.72	1761673.07	429944.76	39°40'41.1604"N	80°14'05.4619"W	7440.16	319.967	0.58	0.56	-0.14
15690.00	90.920	326.070	8042.10	7488.73	5775.58	-4838.71	1761620.09	430023.59	39°40'41.9352"N	80°14'06.1478"W	7534.61	320.044	0.12	-0.11	-0.05
15785.00	91.290	326.460	8040.27	7583.72	5854.56	-4891.45	1761567.34	430102.58	39°40'42.7115"N	80°14'06.8307"W	7629.04	320.121	0.57	0.39	0.41
15881.00	90.710	326.590	8038.59	7679.70	5934.63	-4944.40	1761514.41	430182.64	39°40'43.4985"N	80°14'07.5162"W	7724.43	320.201	0.62	-0.60	0.14
15975.00	90.800	326.160	8037.35	7773.69	6012.89	-4996.44	1761462.36	430260.90	39°40'44.2677"N	80°14'08.1901"W	7817.89	320.275	0.47	0.10	-0.46



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
16070.00	90.950	326.130	8035.90	7868.68	6091.78	-5049.36	1761409.45	430339.77	39°40'45.0430"N	80°14'8.8751"W	7912.38	320.345	0.16	0.16	-0.03
16165.00	91.260	325.710	8034.07	7963.66	6170.45	-5102.59	1761356.23	430418.44	39°40'45.8161"N	80°14'9.5641"W	8006.92	320.411	0.55	0.33	-0.44
16261.00	90.860	325.820	8032.29	8059.64	6249.80	-5156.58	1761302.23	430497.79	39°40'46.5960"N	80°14'10.2630"W	8102.49	320.475	0.43	-0.42	0.11
16356.00	90.740	326.830	8030.97	8154.63	6328.85	-5209.25	1761249.56	430576.83	39°40'47.3729"N	80°14'10.9449"W	8196.99	320.542	1.07	-0.13	-1.06
16450.00	90.220	325.950	8030.18	8248.62	6407.13	-5261.28	1761197.54	430655.11	39°40'48.1423"N	80°14'11.6186"W	8290.50	320.609	1.09	-0.55	-0.94
16546.00	89.690	326.730	8030.25	8344.62	6487.03	-5314.49	1761144.33	430735.01	39°40'48.9277"N	80°14'12.3075"W	8386.03	320.674	0.98	-0.55	0.81
16641.00	89.940	326.790	8030.56	8439.62	6566.49	-5366.57	1761092.26	430814.46	39°40'49.7087"N	80°14'12.9818"W	8480.50	320.742	0.27	0.26	0.06
16736.00	89.940	327.140	8030.66	8534.61	6646.13	-5418.36	1761040.47	430894.10	39°40'50.4915"N	80°14'13.6526"W	8574.94	320.811	0.37	0.00	0.37
16831.00	89.940	326.920	8030.76	8629.61	6725.83	-5470.05	1760988.78	430973.79	39°40'51.2750"N	80°14'14.3221"W	8669.39	320.879	0.23	0.00	-0.23
16926.00	89.720	326.710	8031.04	8724.60	6805.34	-5522.05	1760936.78	431053.29	39°40'52.0565"N	80°14'14.9955"W	8763.89	320.943	0.32	-0.23	-0.22
17021.00	89.850	327.080	8031.40	8819.60	6884.92	-5573.94	1760884.90	431132.87	39°40'52.8387"N	80°14'15.6675"W	8858.38	321.007	0.41	0.14	0.39
17116.00	90.340	327.470	8031.24	8914.59	6964.84	-5625.30	1760833.55	431212.78	39°40'53.6244"N	80°14'16.3328"W	8952.82	321.073	0.66	0.52	0.41
17211.00	90.180	327.320	8030.81	9009.57	7044.86	-5676.49	1760782.36	431292.80	39°40'54.4111"N	80°14'16.9959"W	9047.24	321.139	0.23	-0.17	-0.16
17306.00	90.490	327.080	8030.25	9104.56	7124.72	-5727.95	1760730.90	431372.65	39°40'55.1961"N	80°14'17.6625"W	9141.72	321.202	0.41	0.33	-0.25
17401.00	90.400	327.040	8029.52	9199.55	7204.44	-5779.60	1760679.25	431452.37	39°40'55.9797"N	80°14'18.3315"W	9236.22	321.262	0.10	-0.09	-0.04
17496.00	90.150	327.080	8029.06	9294.54	7284.17	-5831.26	1760627.60	431532.09	39°40'56.7635"N	80°14'19.0006"W	9330.74	321.321	0.27	-0.26	0.04
17590.00	89.970	326.840	8028.96	9388.53	7362.97	-5882.51	1760576.35	431610.89	39°40'57.5380"N	80°14'19.6644"W	9424.29	321.378	0.32	-0.19	-0.26
17686.00	89.720	326.870	8029.22	9484.53	7443.35	-5935.00	1760523.86	431691.26	39°40'58.3281"N	80°14'20.3442"W	9519.85	321.433	0.26	-0.26	0.03
17781.00	89.910	326.900	8029.53	9579.53	7522.92	-5986.90	1760471.97	431770.83	39°40'59.1102"N	80°14'21.0164"W	9614.43	321.486	0.20	0.20	0.03
17876.00	90.120	327.100	8029.50	9674.52	7602.59	-6038.64	1760420.23	431850.50	39°40'59.8934"N	80°14'21.6866"W	9708.99	321.540	0.31	0.22	0.21
17971.00	89.970	326.880	8029.43	9769.52	7682.26	-6090.39	1760368.48	431930.16	39°41'00.6765"N	80°14'22.3569"W	9803.57	321.593	0.28	-0.16	-0.23
18067.00	89.600	326.390	8029.79	9865.51	7762.43	-6143.19	1760315.68	432010.33	39°41'01.4645"N	80°14'23.0406"W	9899.20	321.642	0.64	-0.39	-0.51
18162.00	89.940	327.500	8030.17	9960.51	7842.05	-6195.01	1760263.87	432089.95	39°41'02.2472"N	80°14'23.7118"W	9993.79	321.692	1.22	0.36	1.17
18257.00	89.510	326.850	8030.63	10055.49	7921.88	-6246.50	1760212.38	432169.77	39°41'03.0219"N	80°14'24.3788"W	10088.36	321.744	0.82	-0.45	-0.68
18353.00	89.970	327.360	8031.06	10151.49	8002.41	-6298.64	1760160.24	432250.37	39°41'03.8243"N	80°14'25.0542"W	10183.94	321.794	0.72	0.48	0.53
18447.00	89.780	326.870	8031.27	10245.48	8081.43	-6349.68	1760109.21	432329.30	39°41'04.6002"N	80°14'25.7153"W	10277.54	321.843	0.56	-0.20	-0.52
18541.00	90.000	327.170	8031.45	10339.47	8160.28	-6400.85	1760058.05	432408.15	39°41'05.3753"N	80°14'26.3781"W	10371.16	321.890	0.40	0.23	0.32
18637.00	90.060	326.920	8031.40	10435.46	8240.83	-6453.07	1760005.83	432488.70	39°41'06.1671"N	80°14'27.0545"W	10466.78	321.937	0.27	0.06	-0.26
18731.00	90.180	326.620	8031.20	10529.46	8319.46	-6504.58	1759954.32	432567.32	39°41'06.9400"N	80°14'27.7217"W	10560.45	321.980	0.34	0.13	-0.32
18827.00	89.970	327.610	8031.07	10625.45	8400.08	-6556.70	1759902.20	432647.94	39°41'07.7324"N	80°14'28.3969"W	10656.06	322.026	1.05	-0.22	1.03



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NATURAL ENERGY

# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	AP/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWP
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18923.00	89.970	327.190	8031.13	10721.44	8480.95	-6608.42	1759850.48	432728.81	39°41'8.5274"N	80°14'29.0670"W	10751.64	322.074	0.44	0.00	-0.44
19019.00	90.150	327.480	8031.02	10817.42	8561.77	-6660.24	1759798.67	432809.62	39°41'9.3219"N	80°14'29.7383"W	10847.24	322.120	0.36	0.19	0.30
19114.00	90.520	327.560	8030.47	10912.40	8641.91	-6711.25	1759747.66	432889.75	39°41'10.1097"N	80°14'30.3992"W	10941.82	322.167	0.40	0.39	0.08
19209.00	90.280	327.080	8029.81	11007.39	8721.87	-6762.55	1759696.37	432969.71	39°41'10.8957"N	80°14'31.0638"W	11036.44	322.212	0.56	-0.25	-0.51
19304.00	90.520	327.400	8029.14	11102.37	8801.76	-6813.95	1759644.24	433049.59	39°41'11.6810"N	80°14'31.7297"W	11131.07	322.254	0.42	0.25	0.34
19400.00	90.060	327.390	8028.66	11198.35	8882.63	-6865.68	1759593.96	433130.45	39°41'12.4760"N	80°14'32.3999"W	11226.69	322.298	0.48	-0.48	-0.01
19495.00	89.690	325.440	8028.86	11293.35	8961.76	-6918.23	1759540.69	433209.59	39°41'13.2537"N	80°14'33.0804"W	11321.44	322.333	2.09	-0.39	-2.05
19590.00	89.720	325.410	8029.35	11388.34	9039.98	-6972.14	1759486.79	433287.80	39°41'14.0224"N	80°14'33.7783"W	11416.30	322.359	0.04	0.03	-0.03
19686.00	89.720	325.830	8029.82	11484.33	9119.21	-7026.35	1759432.58	433367.02	39°41'14.8009"N	80°14'34.4800"W	11512.15	322.386	0.44	0.00	0.44
19782.00	89.970	326.950	8030.08	11580.32	9199.16	-7079.49	1759379.45	433446.97	39°41'15.5867"N	80°14'35.1682"W	11607.91	322.419	1.20	0.26	-1.17
19877.00	89.540	325.620	8030.49	11675.32	9278.18	-7132.21	1759326.72	433525.98	39°41'16.3633"N	80°14'35.8510"W	11702.70	322.450	1.47	-0.45	-1.40
19973.00	89.570	325.910	8031.23	11771.31	9357.54	-7186.22	1759272.72	433605.34	39°41'17.1432"N	80°14'36.5502"W	11798.53	322.477	0.30	0.03	0.30
20069.00	89.570	326.390	8031.95	11867.31	9437.27	-7239.69	1759219.25	433685.06	39°41'17.9267"N	80°14'37.2427"W	11894.34	322.507	0.50	0.00	0.50
20163.00	89.570	326.150	8032.66	11961.31	9515.44	-7291.89	1759167.06	433763.23	39°41'18.6950"N	80°14'37.9186"W	11988.13	322.536	0.26	0.00	-0.26
20259.00	89.110	325.740	8033.77	12057.30	9594.97	-7345.64	1759113.31	433842.76	39°41'19.4765"N	80°14'38.6146"W	12083.96	322.563	0.64	-0.48	-0.43
20354.00	89.630	326.580	8034.81	12152.29	9673.88	-7398.54	1759060.41	433921.65	39°41'20.2519"N	80°14'39.2996"W	12178.76	322.591	1.04	0.55	0.88
20450.00	89.170	325.210	8035.82	12248.28	9753.36	-7452.37	1759006.59	434001.13	39°41'21.0330"N	80°14'39.9965"W	12274.60	322.617	1.51	-0.48	-1.43
20546.00	89.750	326.340	8036.72	12344.27	9832.73	-7506.36	1758952.60	434080.50	39°41'21.8130"N	80°14'40.6955"W	12370.45	322.642	1.32	0.60	1.18
20641.00	89.420	325.860	8037.41	12439.26	9911.58	-7559.34	1758899.62	434159.34	39°41'22.5879"N	80°14'41.3816"W	12465.27	322.668	0.61	-0.35	-0.51
20736.00	89.510	326.190	8038.30	12534.26	9990.36	-7612.43	1758846.54	434238.12	39°41'23.3620"N	80°14'42.0691"W	12560.11	322.693	0.36	0.09	0.35
20831.00	89.260	326.390	8039.32	12629.25	10069.38	-7666.15	1758793.82	434317.13	39°41'24.1386"N	80°14'42.7518"W	12654.92	322.720	0.34	-0.26	0.21
20926.00	89.450	326.410	8040.38	12724.24	10148.50	-7717.72	1758741.25	434396.25	39°41'24.9163"N	80°14'43.4227"W	12749.71	322.748	0.20	0.20	0.02
21022.00	89.380	326.450	8041.36	12820.24	10228.48	-7770.80	1758688.18	434476.23	39°41'25.7024"N	80°14'44.1201"W	12845.51	322.775	0.08	-0.07	0.04
21116.00	89.480	326.310	8042.30	12914.23	10306.76	-7822.84	1758636.14	434554.50	39°41'26.4716"N	80°14'44.7942"W	12939.32	322.801	0.18	0.11	-0.15
21211.00	89.660	326.430	8043.01	13009.22	10385.85	-7875.45	1758583.53	434633.09	39°41'27.2490"N	80°14'45.4756"W	13034.14	322.827	0.23	0.19	0.13
21307.00	89.170	325.410	8043.99	13105.22	10465.36	-7929.24	1758529.74	434713.59	39°41'28.0303"N	80°14'46.1721"W	13129.99	322.850	1.18	-0.51	-1.06
21402.00	89.260	325.500	8045.29	13200.20	10543.60	-7983.11	1758475.88	434791.33	39°41'28.7991"N	80°14'46.8694"W	13224.89	322.869	0.13	0.09	0.09
21497.00	89.480	326.510	8046.34	13295.19	10622.36	-8036.22	1758422.77	434870.08	39°41'29.5731"N	80°14'47.5572"W	13319.74	322.891	1.09	0.23	1.06
21592.00	88.650	325.530	8047.89	13390.18	10701.13	-8089.31	1758369.68	434948.84	39°41'30.3471"N	80°14'48.2447"W	13414.58	322.913	1.35	-0.87	-1.03
21687.00	89.050	326.030	8049.80	13485.15	10779.66	-8142.72	1758316.27	435027.38	39°41'31.1189"N	80°14'48.9363"W	13509.45	322.933	0.67	0.42	0.53



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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## WELLPATH DATA (286 stations)

MD ft	Inclination °	Azimuth °	TVD ft	Vert Sect ft	North ft	East ft	Grid East US ft	Grid North US ft	Latitude	Longitude	Closure Dist ft	Closure Dir °	DLS °/100ft	Build Rate °/100ft	Turn Rate °/100ft
21782.00	88.890	325.920	8051.50	13580.13	10858.39	-8195.87	1758263.13	435106.09	39°41'31.8925"N	80°14'49.6245"W	13604.30	322.955	0.20	-0.17	-0.12
21878.00	88.980	326.360	8053.29	13676.12	10938.09	-8249.35	1758209.65	435185.79	39°41'32.6758"N	80°14'50.3171"W	13700.13	322.977	0.47	0.09	0.46
21973.00	89.170	326.760	8054.82	13771.10	11017.35	-8301.70	1758157.31	435265.05	39°41'33.4548"N	80°14'50.9951"W	13794.94	323.002	0.47	0.20	0.42
22068.00	88.980	326.090	8056.36	13866.09	11096.49	-8354.23	1758104.75	435344.18	39°41'34.2326"N	80°14'51.6755"W	13889.75	323.025	0.73	-0.20	-0.71
22164.00	88.920	326.100	8058.11	13962.07	11176.16	-8407.77	1758051.28	435423.85	39°41'35.0154"N	80°14'52.3689"W	13985.60	323.046	0.06	-0.06	0.01
22258.00	87.810	325.670	8060.80	14056.03	11253.95	-8460.47	1757998.55	435501.63	39°41'35.7799"N	80°14'53.0513"W	14079.45	323.065	1.27	-1.18	-0.46
22353.00	87.880	326.560	8064.37	14150.96	11332.76	-8513.39	1757945.63	435580.43	39°41'36.5543"N	80°14'53.7368"W	14174.25	323.085	0.94	0.07	0.94
22449.00	88.060	326.300	8067.77	14246.90	11412.69	-8566.44	1757892.58	435660.37	39°41'37.3399"N	80°14'54.4239"W	14270.02	323.108	0.33	0.19	-0.27
22544.00	88.830	326.120	8070.35	14341.86	11491.62	-8619.26	1757839.77	435739.29	39°41'38.1155"N	80°14'55.1079"W	14364.85	323.128	0.83	0.81	-0.19
22639.00	89.140	326.210	8072.03	14436.85	11570.52	-8672.15	1757786.88	435818.18	39°41'38.8909"N	80°14'55.7929"W	14459.70	323.148	0.34	0.33	0.09
22732.00	87.880	325.970	8074.45	14529.81	11647.67	-8724.01	1757735.02	435895.33	39°41'39.6491"N	80°14'56.4646"W	14552.55	323.167	1.38	-1.35	-0.26
22827.00	87.810	326.100	8078.02	14624.74	11726.41	-8777.05	1757681.99	435974.06	39°41'40.4228"N	80°14'57.1515"W	14647.36	323.186	0.16	-0.07	0.14
22922.00	87.290	325.570	8082.08	14719.65	11804.94	-8830.35	1757628.69	436052.59	39°41'41.1945"N	80°14'57.8417"W	14742.17	323.203	0.78	-0.55	-0.56
23016.00	87.570	326.470	8086.30	14813.56	11882.81	-8882.83	1757576.21	436130.45	39°41'41.9598"N	80°14'58.5214"W	14835.96	323.221	1.00	0.30	0.96
23111.00	87.230	325.880	8090.61	14908.46	11961.65	-8935.66	1757523.39	436209.29	39°41'42.7345"N	80°14'59.2056"W	14930.74	323.239	0.72	-0.36	-0.62
23206.00	87.320	325.950	8095.12	15003.35	12040.24	-8988.84	1757470.21	436287.87	39°41'43.5068"N	80°14'59.8943"W	15025.53	323.256	0.12	0.09	0.07
23302.00	87.350	325.790	8099.59	15099.24	12119.62	-9042.64	1757416.41	436367.25	39°41'44.2868"N	80°15'0.5911"W	15121.33	323.273	0.17	0.03	-0.17
23397.00	87.450	326.020	8103.90	15194.14	12198.21	-9095.84	1757363.21	436445.83	39°41'45.0591"N	80°15'1.2800"W	15216.13	323.289	0.26	0.11	0.24
23492.00	87.570	326.260	8108.02	15289.05	12277.02	-9148.72	1757310.33	436524.64	39°41'45.8336"N	80°15'1.9650"W	15310.92	323.307	0.28	0.13	0.25
23587.00	87.420	325.610	8112.18	15383.95	12355.64	-9201.89	1757257.18	436603.26	39°41'46.6062"N	80°15'2.6534"W	15405.73	323.323	0.70	-0.16	-0.68
23683.00	87.690	326.420	8116.27	15479.86	12435.17	-9255.50	1757203.57	436682.78	39°41'47.3877"N	80°15'3.3478"W	15501.54	323.340	0.89	0.28	0.84
23778.00	88.650	326.250	8119.30	15574.81	12514.20	-9308.13	1757150.94	436761.80	39°41'48.1644"N	80°15'4.0296"W	15596.36	323.358	1.03	1.01	-0.18
23873.00	88.460	326.150	8121.70	15669.78	12593.12	-9360.99	1757098.11	436840.47	39°41'48.9399"N	80°15'4.7139"W	15691.21	323.375	0.23	-0.20	-0.11
23968.00	88.310	325.910	8124.38	15764.94	12671.87	-9414.02	1757045.05	436919.42	39°41'49.7138"N	80°15'5.4011"W	15786.08	323.391	0.30	-0.16	-0.25
24063.00	88.710	326.460	8126.85	15859.71	12750.77	-9466.88	1756992.20	436998.36	39°41'50.4892"N	80°15'6.0857"W	15880.93	323.408	0.72	0.42	0.58
24159.00	88.340	325.900	8129.32	15955.68	12830.50	-9520.29	1756938.79	437078.09	39°41'51.2727"N	80°15'6.7775"W	15976.79	323.424	0.70	-0.39	-0.58
24254.00	88.580	325.800	8131.87	16050.64	12909.09	-9573.60	1756885.49	437156.67	39°41'52.0450"N	80°15'7.4679"W	16071.67	323.439	0.27	0.25	-0.11
24349.00	88.980	326.490	8133.89	16145.62	12987.97	-9626.51	1756832.58	437235.54	39°41'52.8201"N	80°15'8.1533"W	16166.54	323.455	0.84	0.42	0.73
24445.00	89.510	326.130	8135.16	16241.61	13067.84	-9679.76	1756779.33	437315.41	39°41'53.6050"N	80°15'8.8430"W	16262.41	323.471	0.67	0.55	-0.38
24540.00	88.950	325.570	8136.44	16336.59	13146.45	-9733.08	1756726.01	437394.02	39°41'54.3774"N	80°15'9.5336"W	16357.32	323.485	0.83	-0.59	-0.59



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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02/23/2024

## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## WELLPATH DATA (286 stations) † = interpolated, ‡ = extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
24635.00	88.890	326.400	8138.23	16431.57	13225.18	-9786.21	1756672.88	437472.74	39°41'55.1511"N	80°15'10.2218"W	16452.21	323.500	0.88	-0.06	0.87
24731.00	89.750	325.280	8139.37	16527.56	13304.61	-9840.11	1756618.99	437552.17	39°41'55.9316"N	80°15'10.9199"W	16548.13	323.513	1.47	0.90	-1.17
24826.00	89.600	326.540	8139.91	16622.55	13383.28	-9893.36	1756565.74	437630.83	39°41'56.7046"N	80°15'11.6095"W	16643.04	323.527	1.34	-0.16	1.33
24921.00	88.580	325.600	8141.41	16717.54	13462.09	-9946.38	1756512.73	437709.64	39°41'57.4791"N	80°15'12.2962"W	16737.93	323.541	1.46	-1.07	-0.99
25016.00	90.250	326.300	8142.38	16812.53	13540.80	-9999.57	1756459.55	437788.34	39°41'58.2825"N	80°15'12.9851"W	16832.84	323.555	1.91	1.76	-0.74
25112.00	90.090	326.130	8142.10	16908.53	13620.58	-10052.95	1756406.17	437868.12	39°41'59.0366"N	80°15'13.6766"W	16928.74	323.570	0.24	-0.17	-0.18
25207.00	89.690	325.840	8142.28	17003.52	13699.33	-10106.09	1756353.02	437946.86	39°41'59.8103"N	80°15'14.3649"W	17023.65	323.584	0.52	-0.42	-0.31
25302.00	90.620	326.310	8142.02	17098.52	13778.16	-10159.11	1756300.01	438025.68	39°42'0.5649"N	80°15'15.0517"W	17118.56	323.597	1.10	0.98	0.49
25397.00	90.860	326.320	8140.80	17193.51	13857.20	-10211.80	1756247.33	438104.72	39°42'1.3617"N	80°15'15.7342"W	17213.45	323.612	0.25	0.25	0.01
25493.00	90.710	326.200	8139.48	17289.50	13937.02	-10265.11	1756194.01	438184.54	39°42'2.1461"N	80°15'16.4249"W	17309.34	323.627	0.20	-0.16	-0.13
25588.00	90.860	326.300	8138.18	17384.49	14016.00	-10317.89	1756141.24	438263.52	39°42'2.9223"N	80°15'17.1085"W	17404.23	323.641	0.19	0.16	0.11
25684.00	90.580	325.450	8136.97	17480.48	14095.47	-10371.74	1756087.40	438342.98	39°42'3.7031"N	80°15'17.8060"W	17500.15	323.654	0.93	-0.29	-0.89
25779.00	90.770	326.050	8135.86	17575.47	14173.99	-10425.20	1756033.94	438421.49	39°42'4.4746"N	80°15'18.4984"W	17595.08	323.665	0.66	0.20	0.63
25874.00	90.800	326.340	8134.55	17670.46	14252.92	-10478.05	1755981.09	438500.42	39°42'5.2503"N	80°15'19.1831"W	17689.98	323.678	0.31	0.03	0.31
25970.00	90.920	326.300	8133.11	17766.45	14332.80	-10531.28	1755927.86	438580.29	39°42'6.0353"N	80°15'19.8727"W	17785.86	323.693	0.13	0.12	-0.04
25995.00†	90.920	326.300	8132.71	17791.45	14353.59	-10545.15	1755913.99	438601.09	39°42'6.2396"N	80°15'20.0524"W	17810.83	323.696	0.00	0.00	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: Bunner 1H AWB Ref Wellpath: Bunner 1H AWP Proj: 25995'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
17.5in Open Hole	28.00	1280.00	1252.00	28.00	1279.99	0.00	0.00	-2.47	0.53
13.375in Casing Surface	28.00	1250.00	1222.00	28.00	1249.99	0.00	0.00	-2.69	0.34
12.25in Open Hole	1280.00	2530.00	1250.00	1279.99	2529.65	-2.47	0.53	16.00	-1.48
9.625in Casing Intermediate	28.00	2500.00	2472.00	28.00	2499.65	0.00	0.00	16.18	-1.49
8.75in Open Hole	2530.00	7300.00	4770.00	2529.65	7209.88	16.00	-1.48	-627.93	-421.61
8.5in Open Hole	7300.00	25995.00	18695.00	7209.88	8132.71	-627.93	-421.61	14353.59	-10545.15
5.5in Casing Production	28.00	25965.00	25937.00	28.00	8133.19	0.00	0.00	14328.64	-10528.51



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'  
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02/23/2024

## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Bunner 1H BHL Rev-5	8090.00	14355.55	-10543.41	1755915.74	438603.05	39°42'6.2591"N	80°15'20.0303"W	point
Bunner 1H LP Rev-3	8090.00	-113.32	-920.60	1765537.96	424135.05	39°39'44.0515"N	80°13'15.4331"W	point
Bunner South Hardline #1 (4.1.21)	8600.00	-848.90	2923.24	1769381.56	423399.52	39°39'37.0841"N	80°12'26.2100"W	polygon
Bunner South Hardline #1 (8.15.2022)	9003.00	8639.82	-11838.47	1754620.75	432887.66	39°41'9.6655"N	80°15'35.9803"W	polygon
2D Polygon: dimensions not calculated								
2D Polygon: dimensions not calculated								

## WELLPATH COMPOSITION - Ref Wellbore: Bunner 1H AWB

## Ref Wellpath: Bunner 1H AWP Proj: 25995'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1150.00	BH Generic gyro - northseeking (Standard)	01 <17.5"> Javins Inertial Gyro [Northseeking] (50--1150')	Bunner 1H AWB	12/2/2022
1150.00	2452.00	OWSG MWD rev2 + HRGM	02 <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1150')(1343--2452')	Bunner 1H AWB	12/2/2022
2452.00	7224.00	OWSG MWD rev2 + HRGM	03 <8.75"> SDI MWD [OWSG MWD REV.2-HRGM] (2452')(2658--7244')	Bunner 1H AWB	12/2/2022
7224.00	25995.00	BH AutoTrak Curve/Express (2019) (HRGM, Short spacing)	04 <8.5"> BH ATK Curve [HRGM+Short Spacing] (7244')(7245--25970')	Bunner 1H AWB	12/2/2022



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# Actual Wellpath Report

Bunner 1H AWP Proj: 25995'

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02/23/2024

## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 1H
Field	Monongalia	AP/Legal	
Facility	Bunner Pad	Wellbore	Bunner 1H AWB
Slot	Slot 1H		

## COMMENTS

### Wellpath general comments

API: 4706101960000

BH Job #: 111543081

Rig: Patterson 277

Duration: 12/03/2022 - 12/09/2022

01\_ <17.5"> Javins Inertial Gyro [Northseeking] (50'-1150')

02\_ <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1150')(1343'-2452')

03\_ <8.75"> SDI MWD [OWSG MWD REV.2-HRGM] (2452')(2658'-7244')

04\_ <8.5"> BH ATK Curve [HRGM+Short Spacing] (7244')(7245'-25970')

Final Survey MD @ 25970'

Projected MD at TD: 25995'



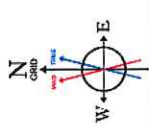
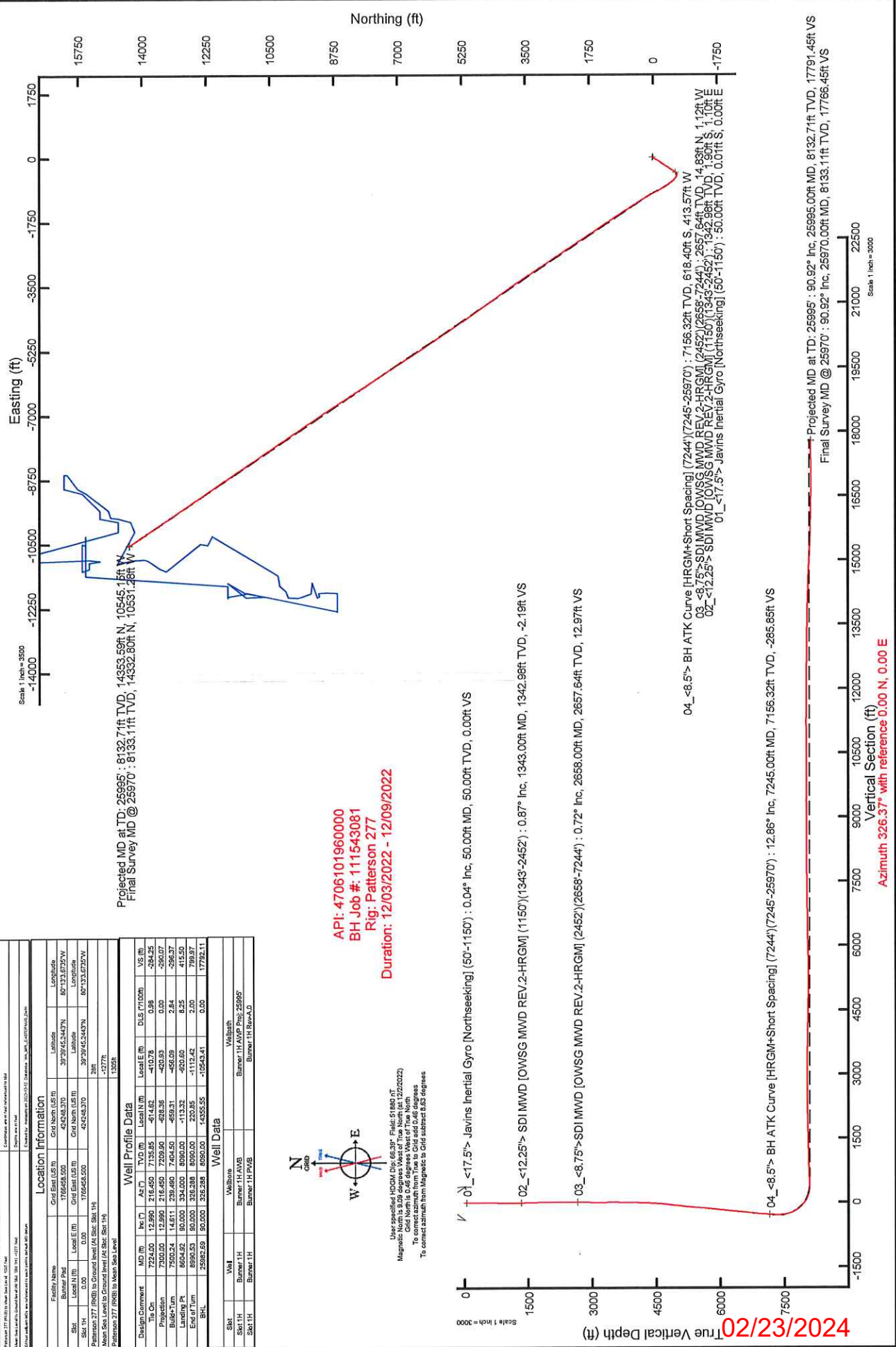
# NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV  
 Field: Monongalia  
 Facility: Bunner Pad

Slot: Slot 1H  
 Well: Bunner 1H  
 Wellbore: Bunner 1H PWB



Facility Name		Grid East (US FT)		Latitude		Longitude	
Slot 1H	0.00	176645.520	176645.520	39.29452447°N	80.7334272°W	80.7334272°W	80.7334272°W
Well	0.00	176645.520	176645.520	39.29452447°N	80.7334272°W	80.7334272°W	80.7334272°W
Mean Sea Level to Ground level (At Slot Slot 1H) Patterson 277 (RWB) to Mean Sea Level: -1377ft Patterson 277 (RWB) to Mean Sea Level: -1300ft							
Well Profile Data							
Depth (ft)	MD (ft)	Inc (ft)	ATC (ft)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
7244	7244.00	12.890	216.450	7135.85	-614.82	-410.78	-294.25
7500.24	7500.24	12.890	216.450	7029.90	-428.38	-400.03	-296.07
7604.92	7604.92	90.000	334.000	8090.00	-113.32	-920.60	415.50
8890.53	8890.53	90.000	326.288	8090.00	220.85	-1112.42	789.97
14355.55	14355.55	90.000	326.288	8090.00	14355.55	-10543.41	17792.11
Wellbore							
Slot 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H
Wellbore	Bunner 1H PWB	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H	Bunner 1H



API: 4706101960000  
 BH Job #: 111543081  
 Rig: Patterson 277  
 Duration: 12/03/2022 - 12/09/2022

24/12/2024







# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/15/2023
Job End Date:	3/30/2023
State:	West Virginia
County:	Monongalia
API Number:	47-061-01906-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Bunner 1H
Latitude:	39.66256800
Longitude:	-80.21768700
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,063
Total Base Water Volume (gal):	34,954,752
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Northeast Natural Energy	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.85139	None
Sand (100 Mesh Proppant)	ProFrac	Proppant					
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	10.64591	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Silica Substrate	14808-60-7	100.00000	1.21929	None
StimSTREAM FR 9800	Chemstream	Friction Reducer	Water	7732-18-5	85.00000	0.14464	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.06296	None
			Butene, homopolymer	9003-29-6	25.00000	0.01760	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01760	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00211	None
Clearal 268	Chemstream	Biocide					
			Non-hazardous substances	Proprietary	80.00000	0.01796	None

				Glutaraldehyde	111-30-8	20.00000	0.00449	None
				Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00067	None
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00067	None
				Ethanol	64-17-5	1.50000	0.00034	None
StimSTREAM SC 405	Chemstream	Scale Control		Non-Hazardous Substances	Proprietary	70.00000	0.01364	None
				Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00195	None
				Citric Acid	77-92-9	10.00000	0.00195	None
				2-Phosphono-1,2,4-butanetricarboxylic acid (PBTC)	37971-36-1	10.00000	0.00195	None
ProHib 100	CNR	Acid Inhibitor		2-Butoxyethanol	111-76-2	60.00000	0.00031	None
				Proprietary material	Proprietary	30.00000	0.00015	None
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00010	None
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00005	None
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00005	None
ProFE 105	CNR	Iron Control		Citric Acid	77-92-9	20.00000	0.00008	None
				Acetic Acid	64-19-7	5.00000	0.00002	None
Ingredients shown above are subject to 29 CFR 1910.1200(l) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.								
Other Chemical(s)	Listed Above	See Trade Name(s) List						
				Water	7732-18-5	85.00000	0.14464	
				Non-hazardous substances	Proprietary	80.00000	0.01796	
				Butene, homopolymer	9003-29-6	25.00000	0.01760	
				Non-Hazardous Substances	Proprietary	70.00000	0.01364	
				Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00211	
				Citric Acid	77-92-9	10.00000	0.00195	
				Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00195	
				Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00067	
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00067	
				Ethanol	64-17-5	1.50000	0.00034	
				Proprietary material	Proprietary	30.00000	0.00015	
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00010	
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00005	
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00005	
				Acetic Acid	64-19-7	5.00000	0.00002	

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water  
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.  
Ingredient information for chemicals subject to 29 CFR 1910.1200(j) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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