

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

API 47 - 061 - 01907 County Monongalia District Clay
Quad Blacksville Pad Name Bunner Field/Pool Name _____
Farm name Patricia A. Bunner Well Number 3H
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 4390599.1 Easting 567112.0
Landing Point of Curve Northing 4390682.0 Easting 567113.7
Bottom Hole Northing 4395070.0 Easting 564089.2

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 1/9/2023
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 - 01907 Farm name Patricia A. Bunner Well number 3H

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"	1,273'	N	54.5	NA	Y, 41 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,533	N	40	NA	Y, 20 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	26,046	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 ³ /sks)	Volume (ft ³)	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	5,000	14.5	1.13	5,632	2,067	48
Tubing							

Drillers TD (ft) 26,076' Loggers TD (ft) 26,046'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 7,208'

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 _____

API 47- 061 - 01907 Farm name Patricia A. Bunner Well number 3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	See attached				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	See	Attached						

Please insert additional pages as applicable.

API 47- 061 - 01907 Farm name Patricia A. Bunner Well number 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>8,139'</u> TVD	<u>26,076'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3613 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 3254 mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
<u>See attached</u>	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

Drilling Contractor Patterson UTI
Address 4000 Town Center Blvd, Suite 240 City Canonsburg State PA Zip 15317

Logging Company Baker Hughes
Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

Cementing Company NextTier
Address 4000 Town Center Blvd City Canonsburg State PA Zip 15317

Stimulating Company ProFrac
Address 800 Mountain View Drive City Smithfield State PA Zip 15478

Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
Signature Hollie Medley Title Regulatory Manager Date 1/25/2024

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Bunner 3H 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	5,297	6,698	9,829	88	147	10,048	453,860	580
2	2/15/2023	5,124	5,564	9,258	81	28	9,950	454,940	578
3	2/15/2023	5,790	5,592	9,230	80	15	9,861	454,490	567
4	2/16/2023	5,613	5,766	9,306	83	12	9,802	455,120	556
5	2/16/2023	5,995	6,572	9,679	87	78	9,824	453,450	561
6	2/17/2023	6,002	6,925	9,702	88	37	9,919	455,180	551
7	2/17/2023	6,606	6,670	9,798	87	76	10,031	458,440	544
8	2/18/2023	6,568	6,949	9,678	86	85	9,776	456,440	538
9	2/18/2023	5,537	6,085	9,732	89	47	9,807	455,300	557
10	2/18/2023	5,466	7,055	9,615	88	183	10,123	459,020	531
11	2/19/2023	5,784	7,307	9,635	90	75	9,762	454,400	523
12	2/19/2023	5,672	5,643	9,321	90	72	9,846	457,380	359
13	2/20/2023	5,386	5,778	9,206	91	85	9,551	455,340	514
14	2/20/2023	5,745	7,514	9,553	89	40	9,409	454,960	517
15	2/21/2023	6,728	5,823	9,480	89	44	10,216	459,240	512
16	2/21/2023	6,352	7,405	9,769	89	62	9,662	454,566	506
17	2/21/2023	6,324	7,440	9,685	88	37	9,622	456,260	506
18	2/22/2023	6,269	7,150	9,741	89	69	9,392	454,506	457
19	2/22/2023	6,342	7,176	9,665	88	45	10,928	456,180	494
20	2/23/2023	6,182	7,415	9,689	89	36	9,356	456,463	488
21	2/23/2023	6,605	5,999	8,726	78	47	9,832	458,574	488
22	2/24/2023	6,708	5,487	9,558	86	56	9,734	455,524	480
23	2/24/2023	5,925	7,756	9,595	89	45	9,076	455,151	476
24	2/25/2023	6,730	7,455	9,853	87	41	9,825	456,727	475
25	2/25/2023	6,594	7,084	9,821	89	110	9,202	455,721	471
26	2/26/2023	6,724	7,780	9,741	89	26	9,775	456,530	465
27	2/26/2023	5,606	7,873	9,716	88	49	9,330	455,937	457
28	2/26/2023	6,591	7,507	9,785	88	85	9,795	456,080	315
29	2/27/2023	6,428	7,752	9,580	89	80	9,368	455,943	414
30	2/27/2023	6,550	7,611	9,692	90	28	9,500	456,560	267
31	2/28/2023	6,273	7,689	9,467	89	57	9,249	454,277	447
32	2/28/2023	5,845	5,068	9,446	90	69	9,642	455,160	386
33	3/1/2023	5,664	7,219	9,645	91	75	9,066	455,005	385
34	3/1/2023	5,300	7,335	9,487	90	27	9,667	455,020	404
35	3/2/2023	5,958	6,326	9,165	89	26	9,378	455,177	404
36	3/3/2023	6,253	6,536	9,359	91	64	9,654	454,960	418
37	3/3/2023	6,586	6,116	9,360	91	75	9,146	453,009	406
38	3/3/2023	6,158	7,338	9,720	91	87	9,672	454,880	417
39	3/4/2023	6,352	6,821	9,485	89	45	9,612	454,680	403
40	3/5/2023	6,162	7,561	9,322	90	18	9,593	457,527	406
41	3/5/2023	5,963	6,874	9,597	91	86	9,700	454,940	369
42	3/6/2023	6,701	7,064	9,248	90	29	9,783	455,343	386
43	3/6/2023	6,073	7,357	9,416	90	80	10,112	455,100	388
44	3/7/2023	6,882	6,321	9,352	91	36	10,103	452,740	389
45	3/8/2023	6,280	6,672	9,269	91	43	9,973	455,080	384

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)
46	3/8/2023	6,882	7,043	9,125	89	37	9,456	457,040	378
47	3/9/2023	6,147	6,063	9,075	93	75	10,936	455,170	377
48	3/9/2023	6,709	6,783	8,921	89	84	9,645	456,740	387
49	3/10/2023	6,823	7,413	9,067	91	20	9,598	457,160	366
50	3/10/2023	6,141	7,171	8,955	91	34	9,767	455,080	355
51	3/11/2023	6,885	6,331	9,040	92	71	9,694	457,500	353
52	3/11/2023	6,425	7,127	8,976	92	35	7,701	456,540	356
53	3/12/2023	6,170	6,521	8,876	91	42	9,667	455,660	343
54	3/12/2023	6,564	6,792	8,904	91	36	9,550	456,180	340
55	3/13/2023	6,171	6,250	8,815	92	16	9,602	455,160	398
56	3/13/2023	6,926	6,477	8,803	88	29	9,463	462,180	335
57	3/13/2023	6,242	5,378	9,021	94	68	9,745	455,120	323
58	3/14/2023	6,945	5,519	8,894	91	27	9,435	458,520	501
59	3/14/2023	6,054	7,139	8,961	92	41	9,964	454,629	382
60	3/15/2023	6,974	7,171	8,899	92	39	9,737	455,580	313
61	3/15/2023	6,002	8,037	9,034	92	99	9,154	454,889	308
62	3/16/2023	6,158	7,468	8,986	92	38	9,409	454,000	236
63	3/16/2023	6,142	8,010	8,959	92	30	8,848	456,378	300
64	3/17/2023	6,275	6,757	8,486	92	34	9,008	455,296	295
65	3/17/2023	6,764	5,895	8,346	88	49	9,645	454,520	290
66	3/18/2023	6,570	6,594	8,464	91	51	9,266	456,219	274
67	3/18/2023	6,527	5,966	8,443	93	52	9,567	456,060	282
68	3/18/2023	5,976	6,270	8,557	92	61	9,098	456,288	281
69	3/19/2023	6,730	6,549	8,193	84	24	9,354	454,940	272
70	3/19/2023	6,490	7,145	8,810	92	62	9,061	456,678	214
71	3/20/2023	6,538	6,188	8,618	92	39	8,983	456,959	252
72	3/20/2023	6,566	6,886	8,415	87	74	9,084	454,760	257
73	3/21/2023	6,335	6,780	8,410	92	36	9,149	454,400	255
74	3/21/2023	5,773	6,704	8,577	92	68	9,616	455,180	243
75	3/21/2023	6,100	7,812	8,486	92	36	8,863	454,691	240
76	3/22/2023	6,380	6,092	8,536	93	95	9,464	454,900	251
77	3/22/2023	5,896	6,750	8,575	93	37	9,274	454,975	236
78	3/23/2023	6,266	6,241	8,563	93	841	9,937	454,960	228
79	3/23/2023	6,162	8,384	8,457	93	73	9,405	455,297	237
80	3/24/2023	6,163	7,977	8,371	93	51	9,472	456,250	187
81	3/24/2023	6,619	7,210	8,393	94	69	9,051	454,880	213
82	3/25/2023	6,590	7,426	8,319	93	38	9,538	455,353	218
83	3/25/2023	6,048	7,664	8,503	94	55	9,090	455,380	206
84	3/26/2023	6,679	7,051	8,516	93	44	9,663	454,288	208
85	3/26/2023	5,871	7,314	8,174	94	80	8,874	455,240	198
86	3/26/2023	6,557	7,893	8,126	94	32	9,481	457,971	189

02/23/2024

Bunner 3H
Perforation Report

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
1	2/15/2023	40	25,788	25,622
2	2/15/2023	40	25,591	25,431
3	2/15/2023	40	25,389	25,230
4	2/16/2023	40	25,188	25,028
5	2/16/2023	40	24,986	24,827
6	2/17/2023	40	24,785	24,625
7	2/17/2023	40	24,583	24,424
8	2/18/2023	40	24,381	24,222
9	2/18/2023	40	24,180	24,021
10	2/18/2023	40	23,978	23,819
11	2/19/2023	40	23,777	23,618
12	2/19/2023	40	23,575	23,416
13	2/20/2023	40	23,374	23,215
14	2/20/2023	40	23,172	23,013
15	2/21/2023	40	22,971	22,811
16	2/21/2023	40	22,769	22,610
17	2/21/2023	40	22,568	22,408
18	2/22/2023	40	22,366	22,207
19	2/22/2023	40	22,165	22,005
20	2/23/2023	40	21,963	21,804
21	2/23/2023	40	21,761	21,602
22	2/24/2023	40	21,560	21,401
23	2/24/2023	40	21,358	21,199
24	2/25/2023	40	21,157	20,998
25	2/25/2023	40	20,955	20,796
26	2/26/2023	40	20,754	20,594
27	2/26/2023	40	20,552	20,393
28	2/26/2023	40	20,351	20,191
29	2/27/2023	40	20,149	19,990
30	2/27/2023	40	19,948	19,788
31	2/28/2023	40	19,746	19,587
32	2/28/2023	40	19,544	19,385
33	3/1/2023	40	19,343	19,184
34	3/1/2023	40	19,141	18,982
35	3/2/2023	40	18,940	18,781
36	3/3/2023	40	18,738	18,579
37	3/3/2023	40	18,537	18,378
38	3/3/2023	40	18,335	18,176
39	3/4/2023	40	18,134	17,974
40	3/5/2023	40	17,932	17,773
41	3/5/2023	40	17,731	17,571
42	3/6/2023	40	17,529	17,370
43	3/6/2023	40	17,328	17,168
44	3/7/2023	40	17,126	16,967
45	3/8/2023	40	16,924	16,765
46	3/8/2023	40	16,723	16,564
47	3/9/2023	40	16,521	16,362

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Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
48	3/9/2023	40	16,320	16,161
49	3/10/2023	40	16,118	15,959
50	3/10/2023	40	15,917	15,758
51	3/11/2023	40	15,715	15,556
52	3/11/2023	40	15,514	15,354
53	3/12/2023	40	15,312	15,153
54	3/12/2023	40	15,111	14,951
55	3/13/2023	40	14,909	14,750
56	3/13/2023	40	14,708	14,548
57	3/13/2023	40	14,506	14,347
58	3/14/2023	40	14,304	14,145
59	3/14/2023	40	14,103	13,944
60	3/15/2023	40	13,901	13,742
61	3/15/2023	40	13,700	13,541
62	3/16/2023	40	13,498	13,339
63	3/16/2023	40	13,297	13,138
64	3/17/2023	40	13,095	12,936
65	3/17/2023	40	12,894	12,734
66	3/18/2023	40	12,692	12,533
67	3/18/2023	40	12,491	12,331
68	3/18/2023	40	12,289	12,130
69	3/19/2023	40	12,088	11,928
70	3/19/2023	40	11,886	11,727
71	3/20/2023	40	11,684	11,525
72	3/20/2023	40	11,483	11,324
73	3/21/2023	40	11,281	11,122
74	3/21/2023	40	11,080	10,921
75	3/21/2023	40	10,878	10,719
76	3/22/2023	40	10,677	10,517
77	3/22/2023	40	10,475	10,316
78	3/23/2023	40	10,274	10,114
79	3/23/2023	40	10,072	9,913
80	3/24/2023	40	9,871	9,711
81	3/24/2023	40	9,669	9,510
82	3/25/2023	40	9,467	9,308
83	3/25/2023	40	9,266	9,107
84	3/26/2023	40	9,064	8,905
85	3/26/2023	40	8,863	8,704
86	3/26/2023	40	8,661	8,502

02/23/2024

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

NORTHEAST NATURAL ENERGY, LLC

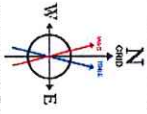
Location: Monongalia County, WV
Field: Monongalia
Facility: Bunner Pad

Slot: Slot 3H
Well: Bunner 3H
Wellbore: Bunner 3H PWB



Well Information		Location Information	
Well Name	Bunner 3H	Grid North (US B)	42628.370
Well Type	Production	Grid East (US B)	42628.370
Well Status	Active	Latitude	39.79452462N
Well Completion	Open Hole	Longitude	-80.73317795W
Well Depth	15951'	Wellbore	Bunner 3H PWB
Well Completion Date	11/18/2022	Wellbore	Bunner 3H PWB

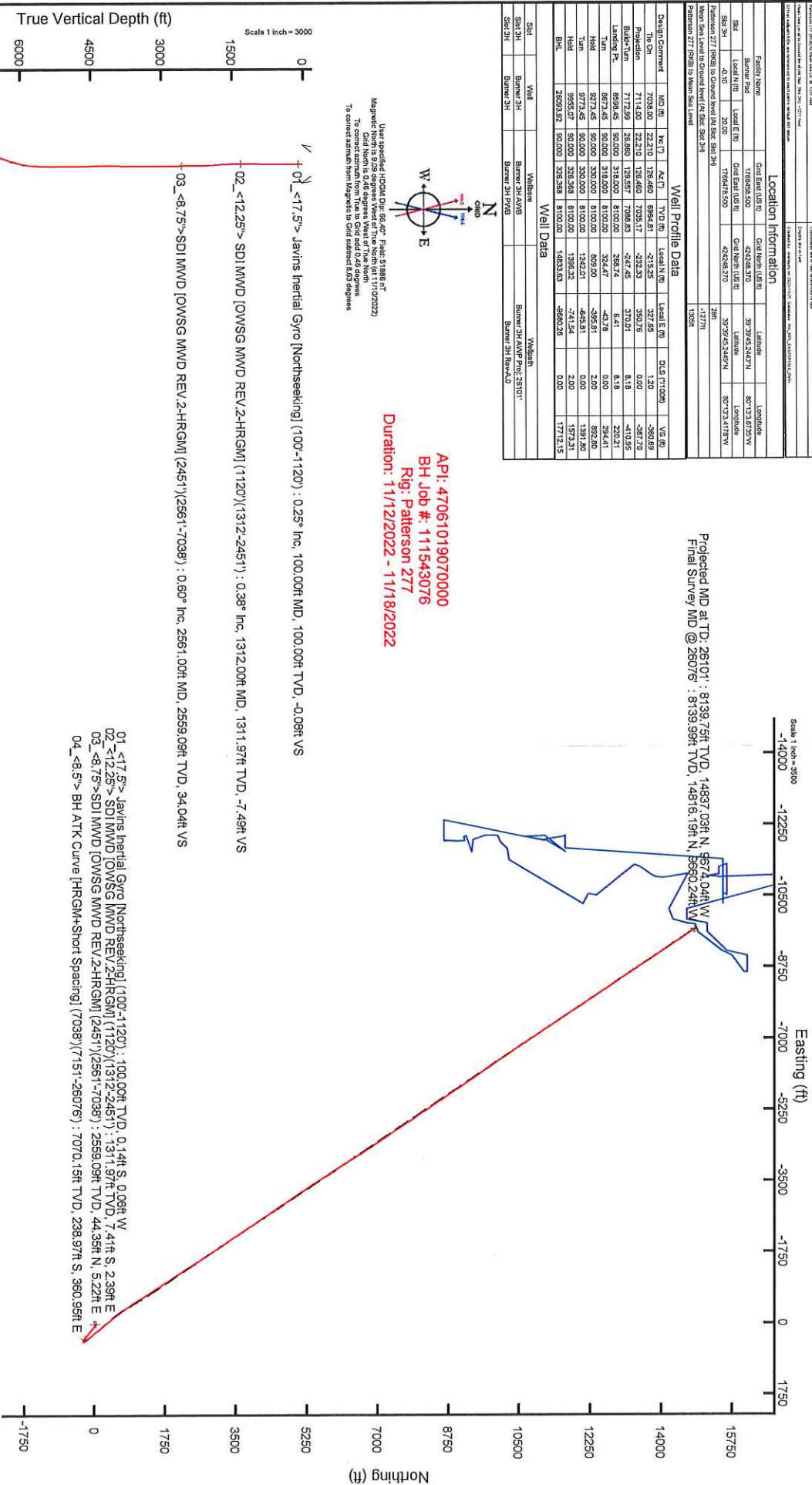
Well Profile Data			
Design Comment	MWD (ft)	Inc. (°)	AS CT
TD ON	7099.00	22.210	178.460
Production	7174.00	22.210	178.460
Buildup Len	171.29	88.000	149.000
Turn Pt	8873.45	80.000	310.000
Hold	9273.45	80.000	330.000
Ten	9773.45	80.000	330.000
Hold	9955.07	80.000	335.368
BHL	25893.92	50.000	14883.63



User specified INDIR Op: 85.40° Field: 91.886 ft
Magnetic North is 9.05 degrees West of True North
Grid North is 0.46 degrees West of True North
To convert azimuth from Magnetic to Grid subtract 8.62 degrees

API: 47061019070000
BH Job #: 111543076
Rig: Patterson 277
Duration: 11/12/2022 - 11/18/2022

Projected MD at TD: 26101' : 81.39 75ft TVD, 14837.05ft N, 9572.04ft W
Final Survey MD @ 26076' : 81.39 99ft TVD, 14816.19ft N, 9660.24ft W



Cement Job Log



NextTier Completion Solutions
3990 Rogerdale Rd., Houston, TX 77042
(713)325-6000

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	6-Nov-22	Serv. Supervisor:	Steven Long		
Cust. Rep.:	PATRICK	Ticket #:	BPA-2211-0018	Serv. Center:	Black Lick - 1571		
Well Name:	Bunner 3H	API Well #:	47-061-01907	County:	Monongalia	State:	WV
Well Type:		Rig:	PATTERSON 277	Type of Job:	CM-SURFACE CASING		

Materials Furnished by NextTier									
Plugs	Casing Hardware	Physical Slurry Properties							
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
6% Gel Spacer	+20.0 PPB NEX-020		8.7		4.62	33.66	25.00	-	
15.6 lb/gal Cement	100 % NCM-956 +1.5 % NAC-110+0.25 PPS NLM-600	1145	15.6	30%	1.14	4.79	231.66	1,300.79	131
Fresh Water Displacement			8.33			-	187.06	-	
0						-		-	
						-		-	
						-		-	
						-		-	
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						-		-	
Displacement Chemicals:									

OPEN HOLE DATA						TUBULAR DATA							
17.5 in. O.H. 128 to 1,250 ft						13.375 in. 54.5#, (0 to 1,250 ft)							
Ambient Temp.	Bulk Temp.	Slurry 1 Temp.	Slurry 2 Temp.	Slurry 3 Temp.	Slurry 4 Temp.	SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)	
63.0 °F						13.375 54.5#	BTC	1273	J-55	12.615	2730	1130	
PREVIOUS CASING DATA						PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
24 in. 97.4# (0 to 128 ft)						TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
										1273	1227		
WELL FLUID		DISPLACEMENT FLUID				DIFF PRESS	CSG LIFT	MAX PRESS		Mix H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY		(psi)	(psi)	(psi)					
H2O	8.4 ppg	189.7 bbl	P. H2O	8.4 ppg		464	366	2180		< 200	7	55.2 °F	1200
Bumped Plug	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Additional Hrs Charged (hrs)	Casing Reciprocation	Rathole Length (ft)		
Yes	600.00	Y	-	41.00	-	Yes	1,100.00	No	-	No	44		

Comments/Additional Details:

Steven Long **6-Nov-22**
 Service Supervisor Date

Cement Job Log



NexTier Completion Solutions
3990 Rogerdale Rd., Houston, TX 77042
(713)325-6000

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	9-Nov-22	Serv. Supervisor:	Drew Forsythe
Cust. Rep.:	Josh	Ticket #:	BPA-2211-0020	Serv. Center:	Black Lick - 1571
Well Name:	Bunner 3H	API Well #:	47-051-01907	County:	Monongalia
Well Type:		Rig:	Patterson 277	State:	WV
				Type of Job:	CM-INTER. CASING

Materials Furnished by Nextier									
Plugs	Casing Hardware	Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
Top plug supplied by	9.625" Single Plug Container w/ 8 Round Crossover								
Customer:									
6% Gel Spacer	+20.0 PP8 NEX-020		8.7		4.62	33.65	25.00	-	
15.6 lb/gal Cement	100% NCM-956 +0.5% NAC-110	895	15.6	30%	1.13	4.82	179.77	1,009.43	103
Fresh Water Displacement			8.33				190.18	-	
0									

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA								
12.375 in. O.H. 1,250 to 2,500 ft				9.625 in. 36#, (0 to 2,600 ft)		SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
Ambient Temp	Bulk Temp	Slurry 1 Temp	Slurry 2 Temp	Slurry 3 Temp	Slurry 4 Temp	9.625" 36#	BTC	2548	J55	8.921	3520	2020
67.0 °F		67.0 °F										

PREVIOUS CASING DATA		PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
13.375 in. 54.5# (0 to 1,250 ft)		TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
						25-14	2501.8		

WELL FLUID		DISPLACEMENT FLUID			EMF PRESS (psi)	C50 LIFT (psi)	MAX PRESS (psi)	Mix H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY							
Rec H2O	8.3 ppg	193.4 bbl	Rec H2O	8.3 ppg	945	959	2700		7	57.0 °F	800
Bumped Plug	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Additional Hrs Charged (hrs)	Casing Respiration	Rathole Length (ft)
Yes	1,300.00	Y	-	20.00	-	Yes	1,300.00	No	1.00	No	39

Comments/Additional Details:

<p><i>Drew Forsythe</i> Service Supervisor</p>	<p>9-Nov-22 Date</p>
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02/23/2024

Cement Job Log



NexTier Completion Solutions
3980 Rogerdale Rd., Houston, TX 77042
(713)325-6000

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	24-Nov-22	Serv. Supervisor:	Adam Pavelchick
Cust. Rep.:	TROY	Ticket #:	BPA-2211-0054	Serv. Center:	Black Lick - 1671
Well Name:	Bunner 3H	API Well #:	47-061-01907	County:	Monongalia
Well Type:		Rig:	PATTERSON 277	State:	WV
			Type of Job:	CM-KICK OFF PLUG	

Materials Furnished by NexTier

Plugs	Casing Hardware	Physical Slurry Properties							
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
13.5 lb/gal PureScrub Spacer	+7.0 PPB NFP-703+5.0 PPB NSU-888		13.5		5.65	26.46	50.00	-	
17.5 lb/gal Cement	100 % NCM-916 +0.2 % NFP-703+0.2 % NRT-213+0.3 % NTC-405+3. % BWOW NAC-111	330	17.5	5%	0.95	3.40	55.60	312.21	27
Spacer / Mud Displacement to Balance - To be calculated on location							199.82	-	

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA								
8.75 in. O.H. 2,500 to 6,900 ft 8.5 in. O.H. 6,900 to 12,000 ft				5 in. 19.5#, (0 to 12,000 ft)								
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
40.0 °F	40.0 °F	48.0 °F				5" 19.5#	IF	10265		4.276	36212	
PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS				
9.625 in. 36# (0 to 2,500 ft)				TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP	
								10265				
WELL FLUID			DISPLACEMENT FLUID			DIFF PRESS	CSO LIFT	MAX PRESS	Mix H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY		(psi)	(psi)	(psi)				
OBM	13.0 ppg	153 bbl	OBM	13.0 ppg				4000	<300	7	41.0 °F	1200
Bumped Plug	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Additional Hrs Charged (hrs)	Casing Reciprocation	Rathole Length (ft)	
			-	-	9,470	Yes	4,000.00	No	5.00	No		

Comments/Additional Details:
TOP OF CEMENT PLUG IS 9470'

<i>Adam Pavelchick</i> Service Supervisor	24-Nov-22 Date
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02/23/2024

Cement Job Log



NexTier Completion Solutions
3990 Rogerdale Rd., Houston, TX 77042
(713)325-6000

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	8-Jan-23	Serv. Supervisor:	Drew Forsythe
Cust. Rep.:	Josh, Shorty	Ticket #:	BPA-2301-0008	Serv. Center:	Black Lick - 1571
Well Name:	Bunner 3H	API Well #:	47-061-01907	County:	Monongalia
Well Type:		Rig:	Patterson 277	State:	WV
				Type of Job:	CM-PROD. CASING


Materials Furnished by NexTier

Plugs	Casing Hardware	Physical Slurry Properties							
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
Top and Bottom	Citadel 5.5" 10K Double Plug Latch Container.								
Supplied by Customer									
13.5 lb/gal PureScrub Spacer w/ Surfactant	+7.0 PPB NFP-703+5.0 PPB NSU-888		13.5		5.65	26.46	80.00	-	
14.5 lb/gal Cement	50 % NCM-956+50 % NPZ-010 +0.2 % NFP-703+0.2 % NAS-504+0.4 % NRT-213+0.2 % NFL-549+0.2 % NTC-405	5000	14.5		1.13	4.64	1,003.04	5,632.06	552
Sugar Water Displacement	+5.0 PPB NRT-215						20.00	-	
Fresh Water Displacement							557.04	-	

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA									
8.75 in. O.H. 2,600 to 6,900 ft 8.5 in. O.H. 6,900 to 26,023 ft				5.5 in. 20#, (0 to 26,023 ft)			SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	5.5" 20#	BTC	26046	P110	4.778			
37.0 °F		59.0 °F											
PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS					
9.625 in. 36# (0 to 2,600 ft)				TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP		
								26042.8					
WELL FLUID		DISPLACEMENT FLUID				DIFF PRESS	CSG LIFT	MAX PRESS	Mix H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOG (bbl)	
TYPE	DENSITY	VOLUME	TYPE	DENSITY	(psi)	(psi)	(psi)						
OBM	13.4#	578.2 bbl	H2O	8.3 ppg	2504		10000			55.0 °F	1600		
Bumped Plug	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Top of Cement (ft)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Casing Rotation	Additional Hrs Charged (hrs)	Casing Reciprocation	Rathole Length (ft)		
No	3,500.00		-	-		No	9,900.00	No	2.00	No	42		

Comments/Additional Details:


 Drew Forsythe
 Service Supervisor

 8-Jan-23
 Date

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/15/2023
Job End Date:	3/26/2023
State:	West Virginia
County:	Monongalia
API Number:	47-061-01907-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Bunner 3H ST
Latitude:	39.66256800
Longitude:	-80.21761600
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,059
Total Base Water Volume (gal):	34,594,434
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service 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	87.80730	None
Sand (100 Mesh Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	10.74001	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	1.17997	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.13254	None
StimSTREAM FR 9800	Chemstream	Friction Reducer	Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.05769	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01850	None
			Butene, homopolymer	9003-29-6	25.00000	0.01850	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00222	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	0.01363	None
			Citric Acid	77-92-9	10.00000	0.00195	None
			Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	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	0.00029	None
			Proprietary material	Proprietary	30.00000	0.00014	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00010	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00005	None
			Proprietary ethoxylated alcohol	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(i) 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	0.13254	
			Butene, homopolymer	9003-29-6	25.00000	0.01850	
			Non-hazardous substances	Proprietary	80.00000	0.01796	
			Non-Hazardous Substances	Proprietary	70.00000	0.01363	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00222	
			Citric Acid	77-92-9	10.00000	0.00195	
			Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00195	
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00067	
			Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00067	
			Ethanol	64-17-5	1.50000	0.00034	
			Proprietary material	Proprietary	30.00000	0.00014	
			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	

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

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	11/25/2022 at 5:09:21 PM
Convergence at slot	0.46° West	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.10	20.00	1766478.50	424248.27	39°39'45.2449"N	80°13'3.4178"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 3H)	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°

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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	203.770	0.00	0.00	0.00	0.00	1766478.50	424248.27	39°39'45.2449"N	80°13'3.4178"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	203.770	28.00	0.00	0.00	0.00	1766478.50	424248.27	39°39'45.2449"N	80°13'3.4178"W	0.00	0.000	0.00	0.00	0.00
100.00	0.250	203.770	100.00	-0.08	-0.14	-0.06	1766478.44	424248.13	39°39'45.2435"N	80°13'3.4186"W	0.16	203.770	0.35	0.35	0.00
200.00	0.320	180.970	200.00	-0.43	-0.62	-0.16	1766478.34	424247.65	39°39'45.2388"N	80°13'3.4197"W	0.64	194.064	0.13	0.07	-22.80
300.00	0.340	196.390	300.00	-0.85	-1.19	-0.24	1766478.26	424247.08	39°39'45.2332"N	80°13'3.4208"W	1.21	191.641	0.09	0.02	15.42
400.00	0.400	162.180	399.99	-1.38	-1.80	-0.22	1766478.28	424246.47	39°39'45.2271"N	80°13'3.4204"W	1.82	186.997	0.23	0.06	-34.21
500.00	0.420	166.400	499.99	-2.06	-2.49	-0.03	1766478.47	424245.78	39°39'45.2203"N	80°13'3.4179"W	2.49	180.651	0.04	0.02	4.22
600.00	0.540	163.600	599.99	-2.85	-3.30	0.19	1766478.69	424244.97	39°39'45.2123"N	80°13'3.4150"W	3.31	176.689	0.12	0.12	-2.80
700.00	0.460	154.990	699.99	-3.70	-4.12	0.49	1766478.99	424244.15	39°39'45.2043"N	80°13'3.4110"W	4.15	173.161	0.11	-0.08	-8.61
800.00	0.460	145.060	799.98	-4.50	-4.81	0.89	1766479.39	424243.46	39°39'45.1975"N	80°13'3.4058"W	4.89	169.477	0.08	0.00	-9.93
900.00	0.400	132.520	899.98	-5.24	-5.37	1.38	1766479.88	424242.90	39°39'45.1919"N	80°13'3.3996"W	5.55	165.593	0.11	-0.06	-12.54
1000.00	0.330	157.840	999.98	-6.86	-6.88	1.75	1766480.25	424242.32	39°39'45.1870"N	80°13'3.3948"W	6.13	163.450	0.17	-0.07	25.32
1100.00	0.260	153.210	1099.98	-8.37	-8.35	1.96	1766480.46	424241.99	39°39'45.1824"N	80°13'3.3921"W	6.64	162.859	0.07	-0.07	-4.63
1120.00	0.280	176.910	1119.98	-6.45	-6.44	1.98	1766480.48	424241.84	39°39'45.1815"N	80°13'3.3918"W	6.73	162.895	0.56	0.10	118.50
1312.00	0.380	143.020	1311.97	-7.49	-7.41	2.39	1766480.89	424240.86	39°39'45.1719"N	80°13'3.3865"W	7.79	162.138	0.11	0.05	-17.65
1407.00	0.870	44.520	1406.97	-7.66	-7.15	3.08	1766481.58	424241.12	39°39'45.1745"N	80°13'3.3776"W	7.79	156.668	1.05	0.52	-103.68
1502.00	2.420	25.310	1501.93	-6.48	-4.82	4.45	1766482.95	424243.45	39°39'45.1976"N	80°13'3.3604"W	6.56	137.317	1.71	1.63	-20.22
1596.00	4.000	16.100	1595.78	-3.33	0.12	6.20	1766484.70	424248.39	39°39'45.2466"N	80°13'3.3384"W	6.21	88.871	1.76	1.68	-9.80
1691.00	4.650	4.520	1690.51	1.84	7.14	7.43	1766485.93	424255.41	39°39'45.3161"N	80°13'3.3235"W	10.31	46.110	1.14	0.68	-12.19
1786.00	5.410	358.660	1785.14	8.65	15.46	7.63	1766486.13	424263.73	39°39'45.3953"N	80°13'3.3218"W	17.24	26.254	0.96	0.80	-6.17
1880.00	4.970	358.890	1878.76	15.83	23.96	7.44	1766485.94	424272.23	39°39'45.4823"N	80°13'3.3250"W	25.09	17.257	0.47	-0.47	0.24
1976.00	4.530	9.850	1974.43	22.09	31.86	8.01	1766486.51	424280.12	39°39'45.5604"N	80°13'3.3186"W	32.85	14.117	1.05	-0.46	11.42
2071.00	3.010	12.620	2069.22	26.53	37.99	9.20	1766487.10	424286.25	39°39'45.6211"N	80°13'3.3040"W	39.08	13.612	1.61	-1.60	2.92
2166.00	1.630	350.470	2164.14	29.49	41.75	9.52	1766488.02	424290.02	39°39'45.6583"N	80°13'3.3003"W	42.82	12.844	1.71	-1.45	-23.32
2261.00	0.890	323.060	2259.12	31.46	43.67	8.85	1766487.35	424291.94	39°39'45.6772"N	80°13'3.3090"W	44.56	11.458	0.98	-0.78	-28.85
2256.00	0.610	288.830	2354.11	32.60	44.43	7.93	1766486.43	424292.69	39°39'45.6846"N	80°13'3.3209"W	45.13	10.121	0.54	-0.29	-36.03
2451.00	0.940	267.650	2449.10	33.41	44.56	6.67	1766485.17	424292.83	39°39'45.6858"N	80°13'3.3370"W	45.06	8.517	0.45	0.35	-22.29
2501.00	0.600	253.120	2559.09	34.04	44.35	5.22	1766483.72	424292.62	39°39'45.6837"N	80°13'3.3555"W	44.66	6.713	0.35	-0.31	-13.21
2597.00	1.350	259.290	2655.08	34.63	44.00	3.63	1766482.13	424292.27	39°39'45.6800"N	80°13'3.3759"W	44.15	4.714	0.79	0.78	6.43
2791.00	0.170	29.650	2749.07	35.12	43.91	2.61	1766481.11	424292.18	39°39'45.6791"N	80°13'3.3889"W	43.99	3.400	1.56	-1.26	138.68

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
2846.00	0.670	61.200	2844.07	35.14	44.30	3.17	1766481.67	424292.57	39°39'45.6830"N	80°13'3.3818"W	44.42	4.087	0.56	0.53	33.21
2940.00	0.580	55.250	2938.06	35.10	44.84	4.04	1766482.54	424293.11	39°39'45.6884"N	80°13'3.3707"W	45.02	5.146	0.12	-0.10	-6.33
3035.00	0.670	70.300	3033.06	34.97	45.30	4.96	1766483.46	424293.57	39°39'45.6930"N	80°13'3.3590"W	45.57	6.244	0.20	0.09	15.84
3130.00	0.640	47.820	3128.05	34.92	45.84	5.87	1766484.37	424294.03	39°39'45.6985"N	80°13'3.3474"W	46.22	7.299	0.27	-0.03	-23.66
3226.00	0.780	81.250	3224.04	34.72	46.30	6.92	1766485.41	424294.57	39°39'45.7031"N	80°13'3.3341"W	46.82	8.494	0.45	0.15	34.82
3324.00	0.270	315.550	3322.04	34.67	46.57	7.41	1766485.91	424294.84	39°39'45.7058"N	80°13'3.3277"W	47.16	9.044	0.98	-0.52	-128.27
3420.00	0.450	254.680	3418.04	35.01	46.63	6.89	1766485.39	424294.90	39°39'45.7063"N	80°13'3.3344"W	47.14	8.406	0.41	0.19	-63.41
3515.00	0.630	246.020	3513.03	35.22	46.32	6.05	1766484.55	424294.59	39°39'45.7032"N	80°13'3.3451"W	46.72	7.446	0.21	0.19	-9.12
3610.00	0.860	236.810	3608.03	35.31	45.72	4.98	1766483.48	424293.99	39°39'45.6971"N	80°13'3.3588"W	45.99	6.217	0.27	0.24	-9.69
3705.00	1.150	235.970	3703.01	35.31	44.80	3.59	1766482.09	424293.06	39°39'45.6879"N	80°13'3.3764"W	44.94	4.586	0.31	0.31	-0.88
3800.00	0.500	151.250	3798.00	34.89	43.90	3.00	1766481.50	424292.17	39°39'45.6790"N	80°13'3.3839"W	44.00	3.913	1.27	-0.68	-89.18
3894.00	0.600	82.110	3892.00	34.27	43.61	3.69	1766482.19	424291.87	39°39'45.6762"N	80°13'3.3751"W	43.76	4.834	0.67	0.11	-73.55
3990.00	0.780	86.310	3987.99	33.72	43.72	4.84	1766483.34	424291.98	39°39'45.6773"N	80°13'3.3604"W	43.98	6.314	0.19	0.19	4.38
4084.00	0.300	118.310	4081.99	33.18	43.64	5.69	1766484.19	424291.91	39°39'45.6767"N	80°13'3.3494"W	44.01	7.432	0.58	-0.51	34.04
4179.00	0.720	114.140	4176.98	32.46	43.28	6.46	1766484.96	424291.55	39°39'45.6732"N	80°13'3.3396"W	43.76	8.485	0.44	0.44	-4.39
4277.00	0.310	320.800	4274.98	32.20	43.23	6.85	1766485.35	424291.50	39°39'45.6727"N	80°13'3.3346"W	43.77	9.004	1.03	-0.42	-156.47
4372.00	0.800	281.340	4369.98	32.93	43.56	6.04	1766484.54	424291.83	39°39'45.6759"N	80°13'3.3450"W	43.98	7.891	0.63	0.52	-41.54
4467.00	0.720	279.240	4464.97	33.80	43.79	4.80	1766483.30	424292.06	39°39'45.6781"N	80°13'3.3609"W	44.05	6.254	0.09	-0.08	-2.21
4562.00	0.830	287.470	4559.96	34.74	44.09	3.55	1766482.05	424292.36	39°39'45.6809"N	80°13'3.3768"W	44.23	4.607	0.16	0.12	8.66
4657.00	0.820	278.170	4654.95	35.73	44.39	2.22	1766480.72	424292.66	39°39'45.6838"N	80°13'3.3939"W	44.45	2.868	0.14	-0.01	-9.79
4751.00	0.810	285.460	4748.94	36.68	44.67	0.92	1766479.42	424292.93	39°39'45.6864"N	80°13'3.4106"W	44.68	1.177	0.11	-0.01	7.76
4847.00	0.670	310.670	4844.93	37.74	45.21	-0.16	1766478.34	424293.48	39°39'45.6917"N	80°13'3.4245"W	45.21	359.795	0.37	-0.15	26.26
4942.00	0.760	308.990	4939.93	38.87	45.97	-1.07	1766477.43	424294.24	39°39'45.6992"N	80°13'3.4362"W	45.98	358.663	0.10	0.09	-1.77
5036.00	0.850	333.370	5033.92	40.16	46.99	-1.87	1766476.63	424295.26	39°39'45.7091"N	80°13'3.4465"W	47.03	357.721	0.37	0.10	25.94
5134.00	0.170	299.330	5131.91	41.01	47.71	-2.32	1766476.18	424295.98	39°39'45.7162"N	80°13'3.4523"W	47.77	357.213	0.73	-0.69	-34.73
5229.00	0.760	188.550	5224.91	40.68	47.17	-2.53	1766475.97	424295.43	39°39'45.7109"N	80°13'3.4550"W	47.23	356.924	0.90	0.63	-119.12
5323.00	0.260	156.690	5320.91	39.99	46.34	-2.54	1766475.96	424294.60	39°39'45.7027"N	80°13'3.4550"W	46.41	356.859	0.58	-0.52	-33.19
5418.00	0.290	188.400	5415.91	39.60	45.90	-2.49	1766476.01	424294.17	39°39'45.6984"N	80°13'3.4543"W	45.97	356.891	0.16	0.03	33.38
5512.00	0.690	168.040	5509.90	38.90	45.11	-2.41	1766476.09	424293.38	39°39'45.6906"N	80°13'3.4532"W	45.18	356.941	0.46	0.43	-21.66
5607.00	3.280	136.330	5604.84	35.69	42.59	-0.41	1766478.09	424290.85	39°39'45.6658"N	80°13'3.4274"W	42.59	359.442	2.86	2.73	-33.38

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]	Buidl Rate [°/100ft]	Turn Rate [°/100ft]
5702.00	5.490	119.460	5699.56	28.96	38.38	5.42	1766483.92	424286.65	39°39'45.6247"N	80°13'3.3524"W	38.77	8.036	2.67	2.33	-17.76
5798.00	7.390	123.510	5794.95	19.17	32.72	14.57	1766493.07	424280.99	39°39'45.5694"N	80°13'3.2348"W	35.81	24.000	2.03	1.98	4.22
5982.00	10.290	127.620	5887.82	5.65	24.25	26.26	1766504.76	424272.52	39°39'45.4867"N	80°13'3.0845"W	35.75	47.275	3.16	3.09	4.37
5988.00	13.160	126.990	5981.81	-12.78	12.44	41.78	1766520.28	424260.71	39°39'45.3712"N	80°13'2.8848"W	43.60	73.419	2.99	2.99	-0.66
6082.00	15.310	126.030	6072.92	-34.51	-1.30	60.37	1766538.86	424246.97	39°39'45.2369"N	80°13'2.6457"W	60.38	91.232	2.30	2.29	-1.02
6181.00	17.240	124.550	6167.95	-60.39	-17.31	83.02	1766561.52	424230.96	39°39'45.0804"N	80°13'2.3544"W	84.81	101.776	1.99	1.95	-1.49
6276.00	19.470	127.820	6258.11	-88.48	-35.00	107.13	1766585.62	424213.27	39°39'44.9075"N	80°13'2.0444"W	112.70	108.094	2.58	2.35	3.44
6372.00	21.440	130.460	6348.06	-120.52	-56.20	133.12	1766611.61	424192.07	39°39'44.7000"N	80°13'1.7099"W	144.50	112.889	2.27	2.05	2.75
6467.00	22.040	129.970	6436.30	-154.32	-78.92	159.99	1766638.48	424169.36	39°39'44.4776"N	80°13'1.3640"W	178.40	116.256	0.66	0.63	-0.52
6562.00	21.770	129.590	6524.44	-188.28	-101.60	187.23	1766665.72	424146.68	39°39'44.2557"N	80°13'1.0134"W	213.02	118.486	0.32	-0.28	-0.40
6657.00	21.880	128.580	6612.63	-222.01	-123.86	214.64	1766693.13	424124.42	39°39'44.0378"N	80°13'0.6606"W	247.82	119.988	0.41	0.12	-1.06
6753.00	22.580	129.340	6701.49	-256.66	-146.70	242.88	1766721.36	424101.58	39°39'43.8143"N	80°13'0.2972"W	283.75	121.132	0.79	0.73	0.79
6848.00	22.470	129.710	6789.25	-291.49	-169.86	270.95	1766749.43	424078.42	39°39'43.5876"N	80°12'59.9359"W	319.79	122.084	0.19	-0.12	0.39
6943.00	22.620	129.260	6876.99	-326.35	-193.02	299.06	1766777.54	424055.26	39°39'43.3610"N	80°12'59.5741"W	355.94	122.839	0.24	0.16	-0.47
7038.00	22.210	126.460	6964.81	-360.69	-215.25	327.65	1766806.13	424033.03	39°39'43.1435"N	80°12'59.2063"W	392.03	123.303	1.20	-0.43	-2.95
7151.00	20.220	124.370	7070.15	-398.88	-238.97	360.95	1766839.43	424009.31	39°39'42.9117"N	80°12'58.7781"W	432.89	123.507	1.88	-1.76	-1.85
7246.00	20.890	123.330	7159.10	-429.69	-257.55	388.65	1766867.13	423990.74	39°39'42.7303"N	80°12'58.4220"W	466.24	123.531	0.80	0.71	-1.09
7341.00	14.880	117.930	7249.48	-456.03	-272.58	413.61	1766892.08	423975.70	39°39'42.5837"N	80°12'58.1014"W	495.35	123.386	6.56	-6.33	-5.68
7435.00	8.220	106.620	7341.53	-471.83	-280.17	430.73	1766909.20	423968.12	39°39'42.5101"N	80°12'57.8817"W	513.83	123.042	7.45	-7.09	-12.03
7530.00	3.860	22.880	7436.12	-475.29	-279.16	438.50	1766916.97	423969.13	39°39'42.5207"N	80°12'57.7825"W	519.82	122.482	9.14	-4.59	-88.15
7625.00	10.030	350.470	7530.40	-465.96	-268.04	438.37	1766916.84	423980.24	39°39'42.6305"N	80°12'57.7852"W	513.82	121.444	7.45	6.49	-34.12
7720.00	16.870	335.300	7622.77	-444.76	-247.33	431.23	1766909.70	424000.96	39°39'42.8347"N	80°12'57.8786"W	497.12	119.836	8.04	7.20	-15.97
7815.00	25.730	327.790	7711.21	-410.45	-217.29	414.44	1766892.91	424030.99	39°39'43.1302"N	80°12'58.0964"W	467.95	117.668	9.74	9.33	-7.91
7910.00	34.020	322.790	7793.53	-363.23	-178.61	387.33	1766865.80	424069.67	39°39'43.5104"N	80°12'58.4470"W	426.52	114.756	9.10	8.73	-5.26
8005.00	41.230	319.420	7868.73	-305.54	-133.60	350.84	1766829.32	424114.68	39°39'43.9523"N	80°12'58.9182"W	375.41	110.847	7.89	7.59	-3.55
8100.00	49.420	320.210	7935.46	-238.48	-82.01	307.31	1766785.79	424166.26	39°39'44.4587"N	80°12'59.4800"W	318.07	104.943	8.64	8.62	0.83
8195.00	57.320	319.540	7992.70	-162.00	-23.17	257.68	1766736.17	424225.10	39°39'45.0363"N	80°13'0.1205"W	258.72	95.138	8.25	8.23	-0.70
8290.00	64.860	321.100	8038.59	-79.36	40.81	204.66	1766683.14	424289.08	39°39'45.6644"N	80°13'0.8051"W	208.69	78.722	8.07	7.94	1.64
8385.00	72.300	318.890	8073.26	8.45	108.47	147.82	1766626.31	424356.74	39°39'46.3286"N	80°13'1.5388"W	183.35	53.727	8.12	7.83	-2.33
8480.00	80.070	319.460	8095.93	99.91	178.23	87.56	1766566.05	424426.49	39°39'47.0132"N	80°13'2.3164"W	198.58	26.163	8.20	8.18	0.60

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
8576.00	87.350	320.960	8106.33	193.73	250.75	27.18	1766505.67	424499.00	39°39'47.7251"N	80°13'3.0959"W	252.21	6.185	7.82	7.66	1.58
8671.00	89.540	321.610	8108.91	288.31	324.84	-32.22	1766446.29	424573.09	39°39'48.4526"N	80°13'3.8629"W	326.43	354.336	2.40	2.31	0.68
8765.00	91.450	321.190	8108.10	381.95	398.30	-90.86	1766387.65	424646.54	39°39'49.1739"N	80°13'4.6202"W	408.53	347.150	2.08	2.03	-0.45
8860.00	91.570	321.710	8105.60	476.57	472.57	-150.04	1766328.47	424720.81	39°39'49.9032"N	80°13'5.3845"W	495.81	342.385	0.56	0.13	0.55
8956.00	92.460	322.510	8102.22	572.24	548.28	-208.96	1766269.55	424796.52	39°39'50.6468"N	80°13'6.1457"W	586.75	339.137	1.25	0.93	0.83
9050.00	92.830	322.820	8097.88	665.95	622.94	-265.91	1766212.61	424871.17	39°39'51.3802"N	80°13'6.8815"W	677.32	336.884	0.51	0.39	0.33
9145.00	92.560	323.470	8093.42	760.69	698.87	-322.82	1766155.70	424947.10	39°39'52.1261"N	80°13'7.6171"W	769.83	335.207	0.74	-0.28	0.68
9241.00	91.320	324.440	8090.17	856.55	776.44	-379.28	1766099.24	425024.67	39°39'52.8882"N	80°13'8.3469"W	864.13	333.965	1.64	-1.29	1.01
9336.00	91.200	328.240	8088.08	951.51	855.48	-431.91	1766046.62	425103.70	39°39'53.6652"N	80°13'9.0280"W	958.33	333.212	4.00	-0.13	4.00
9431.00	91.750	326.180	8085.63	1046.46	936.31	-483.34	1765995.19	425183.53	39°39'54.4501"N	80°13'9.6937"W	1052.82	332.672	2.24	0.58	-2.17
9526.00	91.820	328.700	8082.67	1141.39	1015.34	-534.44	1765944.10	425263.55	39°39'55.2368"N	80°13'10.3553"W	1147.40	332.239	2.65	0.07	2.65
9622.00	91.970	329.350	8079.50	1237.23	1097.60	-583.82	1765894.72	425345.81	39°39'56.0459"N	80°13'10.9952"W	1243.21	331.991	0.69	0.16	0.68
9717.00	91.820	329.680	8076.36	1332.04	1179.42	-631.99	1765846.55	425427.62	39°39'56.8507"N	80°13'11.6195"W	1338.08	331.816	0.38	-0.16	0.35
9812.00	91.940	327.410	8073.24	1426.91	1260.42	-681.53	1765797.01	425508.61	39°39'57.6472"N	80°13'12.2613"W	1432.88	331.599	2.39	0.13	-2.39
9907.00	91.420	327.010	8070.45	1521.86	1340.24	-732.96	1765745.59	425588.43	39°39'58.4320"N	80°13'12.9271"W	1527.57	331.327	0.69	-0.55	-0.42
10005.00	92.090	327.270	8067.45	1619.80	1422.52	-786.10	1765692.44	425670.71	39°39'59.2410"N	80°13'13.6152"W	1625.28	331.074	0.73	0.68	0.27
10100.00	91.320	326.890	8064.63	1714.75	1502.23	-837.71	1765640.84	425750.41	39°40'0.0246"N	80°13'14.2832"W	1720.02	330.854	0.90	-0.81	-0.40
10196.00	90.400	326.830	8063.18	1810.74	1582.61	-890.19	1765588.37	425830.78	39°40'0.8148"N	80°13'14.9625"W	1815.79	330.643	0.96	-0.96	-0.06
10291.00	91.450	327.190	8061.65	1905.72	1662.28	-941.91	1765536.65	425910.45	39°40'1.5980"N	80°13'15.6320"W	1910.59	330.463	1.17	1.11	0.38
10386.00	90.950	328.020	8059.66	2000.68	1742.48	-992.79	1765485.77	425990.64	39°40'2.3865"N	80°13'16.2909"W	2005.46	330.327	1.02	-0.53	0.87
10481.00	89.970	327.100	8058.90	2095.65	1822.65	-1043.75	1765434.82	426070.81	39°40'3.1748"N	80°13'16.9508"W	2100.35	330.202	1.41	-1.03	-0.97
10577.00	89.910	326.730	8059.00	2191.65	1903.08	-1096.15	1765382.92	426151.24	39°40'3.9655"N	80°13'17.6292"W	2196.19	330.059	0.39	-0.06	-0.39
10673.00	89.380	326.260	8059.59	2286.64	1982.30	-1148.59	1765329.48	426230.44	39°40'4.7442"N	80°13'18.3079"W	2291.02	329.911	0.75	-0.56	-0.49
10767.00	90.620	326.840	8059.59	2381.64	2061.56	-1200.95	1765277.62	426309.70	39°40'5.5233"N	80°13'18.9856"W	2385.86	329.777	1.44	1.31	0.61
10863.00	90.650	327.580	8058.52	2477.62	2142.26	-1252.94	1765225.64	426390.40	39°40'6.3167"N	80°13'19.6587"W	2481.76	329.678	0.77	0.03	0.77
10958.00	91.200	326.160	8056.99	2572.60	2221.80	-1304.85	1765173.73	426469.93	39°40'7.0987"N	80°13'20.3307"W	2576.63	329.574	1.60	0.58	-1.49
11053.00	90.950	327.350	8055.21	2667.58	2301.24	-1356.92	1765121.66	426549.37	39°40'7.8796"N	80°13'21.0047"W	2671.50	329.474	1.28	-0.26	1.25
11149.00	90.310	328.030	8054.15	2763.55	2382.37	-1408.23	1765070.35	426630.49	39°40'8.6773"N	80°13'21.6692"W	2767.45	329.412	0.97	-0.67	0.71
11244.00	90.620	327.690	8053.38	2858.52	2462.80	-1458.77	1765019.82	426710.92	39°40'9.4682"N	80°13'22.3237"W	2862.41	329.361	0.48	0.33	-0.36
11339.00	90.340	327.350	8052.59	2953.49	2542.94	-1509.78	1764968.81	426791.06	39°40'10.2561"N	80°13'22.9843"W	2957.36	329.302	0.46	-0.29	-0.36

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
11434.00	89.720	327.430	8052.54	3048.48	2622.97	-1560.98	1764917.61	428871.08	39°40'11.0429"N	80°13'23.6473"W	3052.31	329.242	0.66	-0.65	0.08
11530.00	89.970	328.490	8052.80	3144.44	2704.34	-1611.91	1764866.69	428952.45	39°40'11.8430"N	80°13'24.3069"W	3148.29	329.203	1.13	0.26	1.10
11625.00	89.200	326.840	8053.48	3239.41	2784.60	-1662.72	1764815.88	427032.70	39°40'12.6322"N	80°13'24.9649"W	3243.25	329.158	1.92	-0.81	-1.74
11720.00	89.420	327.030	8054.63	3334.40	2864.21	-1714.54	1764764.06	427112.31	39°40'13.4148"N	80°13'25.6359"W	3338.17	329.095	0.31	0.23	0.20
11815.00	89.350	325.990	8055.65	3429.39	2943.44	-1766.96	1764711.65	427191.53	39°40'14.1935"N	80°13'26.3143"W	3433.07	329.023	1.10	-0.07	-1.09
11910.00	89.750	326.710	8056.39	3524.39	3022.51	-1819.60	1764659.01	427270.60	39°40'14.9708"N	80°13'26.9956"W	3527.97	328.951	0.87	0.42	0.76
12006.00	90.090	326.970	8056.53	3620.38	3102.88	-1872.11	1764606.50	427350.96	39°40'15.7609"N	80°13'27.6754"W	3623.90	328.895	0.45	0.35	0.27
12101.00	89.320	325.670	8057.02	3715.38	3181.93	-1924.79	1764553.83	427430.01	39°40'16.5379"N	80°13'28.3572"W	3718.80	328.830	1.59	-0.81	-1.37
12196.00	95.090	326.100	8053.36	3810.26	3260.49	-1978.01	1764500.61	427508.56	39°40'17.3100"N	80°13'29.0459"W	3813.57	328.756	6.09	6.07	0.45
12291.00	89.940	323.110	8049.19	3905.08	3337.82	-2032.96	1764445.66	427585.89	39°40'18.0699"N	80°13'29.7566"W	3908.19	328.656	6.27	-5.42	-3.15
12387.00	88.220	325.650	8050.74	4001.00	3415.84	-2088.86	1764389.77	427663.90	39°40'18.8364"N	80°13'30.4795"W	4003.91	328.553	3.20	-1.79	2.65
12482.00	89.910	328.340	8052.29	4095.97	3495.49	-2140.59	1764338.04	427743.54	39°40'19.6194"N	80°13'31.1493"W	4098.85	328.517	3.34	1.78	2.83
12577.00	86.800	325.450	8055.01	4190.91	3575.02	-2192.44	1764286.16	427823.07	39°40'20.4013"N	80°13'31.8206"W	4193.75	328.451	4.47	-3.27	-3.04
12662.00	87.940	325.790	8058.91	4275.81	3645.09	-2240.39	1764238.25	427893.14	39°40'21.0900"N	80°13'32.4410"W	4278.56	328.424	1.40	1.34	0.40
12757.00	88.580	326.220	8061.80	4370.76	3723.82	-2293.48	1764185.16	427971.86	39°40'21.8637"N	80°13'33.1281"W	4373.43	328.371	0.81	0.67	0.45
12850.00	88.460	325.760	8064.20	4463.73	3800.88	-2345.48	1764133.16	428048.92	39°40'22.6212"N	80°13'33.8011"W	4466.32	328.322	0.51	-0.13	-0.49
12945.00	89.750	326.370	8065.68	4558.71	3879.69	-2398.51	1764080.14	428127.72	39°40'23.3958"N	80°13'34.4873"W	4561.23	328.275	1.50	1.36	0.64
13040.00	89.630	326.190	8066.20	4653.71	3958.71	-2451.25	1764027.40	428206.74	39°40'24.1724"N	80°13'35.1699"W	4656.18	328.234	0.23	-0.13	-0.19
13134.00	89.540	326.320	8066.88	4747.71	4036.87	-2503.46	1763975.19	428284.89	39°40'24.9407"N	80°13'35.8458"W	4750.12	328.195	0.17	-0.10	0.14
13229.00	89.450	326.370	8067.72	4842.71	4115.94	-2556.11	1763922.55	428363.96	39°40'25.7179"N	80°13'36.5272"W	4845.07	328.159	0.11	-0.09	0.05
13324.00	89.750	325.540	8068.38	4937.70	4194.66	-2609.29	1763869.37	428442.67	39°40'26.4916"N	80°13'37.2155"W	4939.99	328.116	0.93	0.32	-0.87
13417.00	90.000	326.110	8068.58	5030.70	4271.60	-2661.53	1763817.13	428519.61	39°40'27.2478"N	80°13'37.8916"W	5032.92	328.074	0.67	0.27	0.61
13512.00	89.780	324.470	8068.77	5125.67	4349.69	-2715.62	1763763.04	428597.69	39°40'28.0152"N	80°13'38.5914"W	5127.81	328.022	1.74	-0.23	-1.73
13606.00	90.620	326.620	8068.44	5219.66	4427.19	-2768.80	1763709.87	428675.19	39°40'28.7769"N	80°13'39.2795"W	5221.71	327.978	2.46	0.89	2.29
13701.00	89.380	326.190	8068.44	5314.66	4506.32	-2821.37	1763657.31	428754.32	39°40'29.5547"N	80°13'39.9599"W	5316.68	327.950	1.38	-1.31	-0.45
13796.00	89.170	326.090	8069.64	5409.65	4585.20	-2874.29	1763604.38	428833.19	39°40'30.3300"N	80°13'40.6450"W	5411.62	327.918	0.24	-0.22	-0.11
13891.00	90.460	326.520	8069.95	5504.64	4664.24	-2926.99	1763551.68	428912.23	39°40'31.1069"N	80°13'41.3272"W	5506.58	327.890	1.43	1.36	0.45
13986.00	90.740	325.680	8068.95	5599.64	4743.09	-2979.98	1763498.71	428991.07	39°40'31.8818"N	80°13'42.0129"W	5601.53	327.860	0.93	0.29	-0.88
14081.00	90.220	326.030	8068.16	5693.63	4820.88	-3032.74	1763445.95	429068.86	39°40'32.6464"N	80°13'42.6957"W	5695.47	327.827	0.67	-0.55	0.37
14175.00	90.550	326.650	8067.53	5788.63	4899.95	-3085.39	1763393.30	429147.92	39°40'33.4236"N	80°13'43.3773"W	5790.44	327.802	0.74	0.35	0.65



Actual Wellpath Report

Bunner 3H AWP Proj: 26101'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
14270.00	90.950	325.170	8066.28	5883.61	4978.62	-3138.63	1763340.06	429226.58	39°40'34.1967"N	80°13'44.0664"W	5885.37	327.772	1.61	0.42	-1.56
14365.00	91.420	325.340	8064.32	5978.57	5056.66	-3192.76	1763285.93	429304.62	39°40'34.9637"N	80°13'44.7667"W	5980.26	327.732	0.53	0.49	0.18
14460.00	91.720	325.860	8061.71	6073.53	5135.02	-3246.41	1763232.29	429382.97	39°40'35.7337"N	80°13'45.4610"W	6075.16	327.698	0.63	0.32	0.55
14553.00	91.760	325.480	8058.89	6166.48	5211.78	-3298.84	1763179.87	429459.73	39°40'36.4881"N	80°13'46.1395"W	6168.06	327.668	0.41	0.04	-0.41
14647.00	92.530	326.780	8055.37	6260.41	5289.77	-3351.19	1763127.52	429537.72	39°40'37.2547"N	80°13'46.8171"W	6261.96	327.645	1.61	0.82	1.38
14742.00	91.350	327.030	8052.16	6355.35	5369.31	-3403.03	1763075.68	429617.26	39°40'38.0366"N	80°13'47.4883"W	6356.90	327.634	1.27	-1.24	0.26
14837.00	91.790	327.740	8049.55	6450.30	5449.30	-3454.21	1763024.50	429697.24	39°40'38.8230"N	80°13'48.1513"W	6451.86	327.630	0.88	0.46	0.75
14932.00	90.740	327.630	8047.46	6545.25	5529.57	-3504.98	1762973.73	429777.50	39°40'39.6121"N	80°13'48.8089"W	6546.83	327.631	1.11	-1.11	-0.12
15027.00	90.220	327.310	8046.66	6640.23	5609.66	-3556.07	1762922.65	429857.59	39°40'40.3995"N	80°13'49.4706"W	6641.83	327.629	0.64	-0.55	-0.34
15122.00	90.560	327.410	8046.02	6735.21	5689.66	-3607.30	1762871.42	429937.58	39°40'41.1860"N	80°13'50.1342"W	6736.83	327.625	0.36	0.35	0.11
15217.00	90.120	327.370	8045.47	6830.19	5769.68	-3658.50	1762820.22	430017.60	39°40'41.9727"N	80°13'50.7973"W	6831.82	327.622	0.45	-0.45	-0.04
15312.00	90.680	325.320	8044.80	6925.19	5848.75	-3711.14	1762767.58	430096.66	39°40'42.7499"N	80°13'51.4788"W	6926.79	327.604	2.24	0.59	-2.16
15408.00	90.620	327.060	8043.71	7021.18	5928.51	-3764.56	1762714.17	430176.41	39°40'43.5338"N	80°13'52.1702"W	7022.75	327.585	1.81	-0.06	1.81
15503.00	91.260	328.630	8042.16	7116.13	6008.92	-3815.11	1762663.62	430256.82	39°40'44.3244"N	80°13'52.8251"W	7117.74	327.588	1.78	0.67	1.65
15598.00	89.360	326.840	8041.65	7211.09	6089.24	-3865.82	1762612.92	430337.14	39°40'45.1141"N	80°13'53.4820"W	7212.73	327.590	2.76	-2.01	-1.88
15692.00	91.020	327.860	8041.35	7305.07	6168.39	-3916.53	1762562.21	430416.28	39°40'45.8922"N	80°13'54.1389"W	7306.72	327.587	2.08	1.78	1.09
15787.00	91.480	327.640	8039.27	7400.02	6248.71	-3967.21	1762511.53	430496.60	39°40'46.6819"N	80°13'54.7954"W	7401.70	327.589	0.54	0.48	-0.23
15882.00	91.020	327.540	8037.20	7494.98	6328.89	-4018.12	1762460.63	430576.78	39°40'47.4702"N	80°13'55.4548"W	7496.68	327.589	0.50	-0.48	-0.11
15977.00	90.710	327.530	8035.77	7589.95	6409.04	-4069.10	1762409.64	430656.92	39°40'48.2581"N	80°13'56.1153"W	7591.66	327.588	0.33	-0.33	-0.01
16073.00	90.490	328.190	8034.76	7685.91	6490.32	-4120.17	1762358.58	430738.19	39°40'49.0573"N	80°13'56.7769"W	7687.66	327.592	0.72	-0.23	0.69
16168.00	90.490	328.140	8033.95	7780.86	6571.03	-4170.28	1762308.47	430818.90	39°40'49.8508"N	80°13'57.4262"W	7782.65	327.599	0.05	0.00	-0.05
16263.00	90.650	327.050	8033.00	7875.83	6651.23	-4221.19	1762257.57	430899.09	39°40'50.6393"N	80°13'58.0857"W	7877.64	327.599	1.16	0.17	-1.15
16359.00	90.920	327.030	8031.69	7971.82	6731.77	-4273.41	1762205.35	430979.63	39°40'51.4311"N	80°13'58.7620"W	7973.63	327.592	0.28	0.28	-0.02
16454.00	90.920	326.910	8030.16	8066.80	6811.41	-4325.19	1762153.58	431059.26	39°40'52.2139"N	80°13'59.4325"W	8068.61	327.585	0.13	0.00	-0.13
16549.00	90.150	325.880	8029.28	8161.79	6890.52	-4377.76	1762101.00	431138.37	39°40'52.9916"N	80°14'0.1132"W	8163.59	327.571	1.35	-0.81	-1.08
16643.00	91.020	326.600	8028.32	8255.79	6968.67	-4430.00	1762048.77	431216.51	39°40'53.7596"N	80°14'0.7895"W	8257.55	327.566	1.20	0.93	0.77
16738.00	90.620	325.580	8026.96	8350.77	7047.50	-4482.99	1761995.78	431295.34	39°40'54.5344"N	80°14'1.4755"W	8352.51	327.559	1.15	-0.42	-1.07
16833.00	90.650	325.780	8025.90	8445.76	7125.96	-4536.55	1761942.23	431373.79	39°40'55.3054"N	80°14'2.1687"W	8447.46	327.518	0.21	0.03	0.21
16929.00	90.950	326.630	8024.56	8541.75	7205.73	-4589.94	1761888.84	431453.56	39°40'56.0894"N	80°14'2.8599"W	8543.42	327.503	0.94	0.31	0.89
17023.00	89.690	326.020	8024.04	8635.75	7283.95	-4642.06	1761836.72	431531.77	39°40'56.8583"N	80°14'3.5347"W	8637.40	327.491	1.49	-1.34	-0.65

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
17118.00	90.770	326.560	8023.66	8730.74	7362.97	-4694.78	1761784.00	431610.79	39°40'57.6350"N	80°14'4.2173"W	8732.37	327.478	1.27	1.14	0.57
17213.00	90.250	327.150	8022.81	8825.74	7442.51	-4746.72	1761782.07	431690.33	39°40'58.4168"N	80°14'4.8900"W	8827.36	327.471	0.83	-0.55	0.62
17309.00	89.510	326.940	8023.81	8921.73	7523.07	-4798.94	1761679.85	431770.88	39°40'59.2086"N	80°14'5.5663"W	8923.36	327.466	0.80	-0.77	-0.22
17404.00	90.800	327.290	8022.76	9016.72	7602.84	-4850.52	1761628.27	431850.65	39°40'59.9929"N	80°14'6.2344"W	9018.36	327.463	1.41	1.36	0.37
17498.00	89.350	326.040	8022.63	9110.71	7681.37	-4902.18	1761576.62	431929.17	39°41'0.7648"N	80°14'6.9033"W	9112.34	327.454	2.04	-1.54	-1.33
17594.00	89.750	326.180	8023.39	9206.71	7761.06	-4955.70	1761523.10	432008.86	39°41'1.5480"N	80°14'7.5962"W	9208.31	327.440	0.44	0.42	0.15
17689.00	89.690	326.120	8023.85	9301.71	7839.96	-5008.62	1761470.18	432087.75	39°41'2.3234"N	80°14'8.2813"W	9303.29	327.427	0.09	-0.06	-0.06
17784.00	89.510	325.630	8024.51	9396.70	7918.60	-5061.91	1761416.89	432166.38	39°41'3.0962"N	80°14'8.9712"W	9398.25	327.411	0.55	-0.19	-0.52
17879.00	89.940	326.340	8024.97	9491.70	7997.34	-5115.06	1761363.75	432245.12	39°41'3.8701"N	80°14'9.6592"W	9493.22	327.397	0.87	0.45	0.75
17974.00	89.820	326.330	8025.17	9586.70	8076.41	-5167.72	1761311.10	432324.18	39°41'4.6472"N	80°14'10.3410"W	9588.20	327.387	0.13	-0.13	-0.01
18069.00	89.600	326.490	8025.65	9681.69	8155.54	-5220.28	1761258.56	432403.31	39°41'5.4250"N	80°14'11.0216"W	9683.19	327.377	0.29	-0.23	0.17
18164.00	90.090	325.860	8025.91	9776.69	8234.46	-5273.16	1761205.66	432482.23	39°41'6.2007"N	80°14'11.7063"W	9778.17	327.365	0.84	0.52	-0.66
18259.00	89.880	325.720	8025.93	9871.69	8313.03	-5326.57	1761152.25	432560.79	39°41'6.9727"N	80°14'12.3977"W	9873.13	327.350	0.27	-0.22	-0.15
18354.00	89.910	326.060	8026.11	9966.68	8391.68	-5379.84	1761098.98	432639.44	39°41'7.7457"N	80°14'13.0873"W	9968.10	327.336	0.36	0.03	0.36
18449.00	90.120	326.360	8026.08	10061.68	8470.63	-5432.68	1761046.15	432718.39	39°41'8.5217"N	80°14'13.7714"W	10063.08	327.326	0.39	0.22	0.32
18544.00	89.820	326.270	8026.13	10156.68	8549.68	-5485.37	1760993.47	432797.43	39°41'9.2986"N	80°14'14.4536"W	10158.07	327.316	0.33	-0.32	-0.09
18638.00	89.380	326.000	8026.79	10250.68	8627.73	-5537.75	1760941.09	432875.48	39°41'10.0657"N	80°14'15.1318"W	10252.05	327.305	0.55	-0.47	-0.29
18734.00	90.090	326.340	8027.23	10346.68	8707.48	-5591.19	1760887.65	432955.22	39°41'10.8495"N	80°14'15.8238"W	10348.03	327.295	0.82	0.74	0.35
18829.00	89.450	325.560	8027.61	10441.67	8786.19	-5644.38	1760834.46	433033.92	39°41'11.6230"N	80°14'16.5124"W	10443.00	327.283	1.06	-0.67	-0.82
18924.00	90.310	326.270	8027.81	10536.67	8864.87	-5697.62	1760781.23	433112.60	39°41'12.3962"N	80°14'17.2017"W	10537.97	327.270	1.17	0.91	0.75
19019.00	90.000	326.040	8027.55	10631.67	8943.77	-5750.53	1760728.32	433191.49	39°41'13.1717"N	80°14'17.8867"W	10632.95	327.260	0.41	-0.33	-0.24
19115.00	90.370	326.380	8027.24	10727.67	9023.55	-5803.92	1760676.93	433271.27	39°41'13.9558"N	80°14'18.5780"W	10728.93	327.251	0.52	0.39	0.35
19210.00	90.000	326.170	8026.94	10822.66	9102.56	-5856.67	1760622.19	433350.28	39°41'14.7324"N	80°14'19.2610"W	10823.92	327.242	0.45	-0.39	-0.22
19305.00	90.180	326.530	8026.79	10917.66	9181.65	-5909.31	1760569.55	433429.36	39°41'15.5096"N	80°14'19.9426"W	10918.91	327.235	0.42	0.19	0.38
19401.00	90.430	326.590	8026.28	11013.66	9261.75	-5962.21	1760516.65	433509.46	39°41'16.2970"N	80°14'20.6277"W	11014.90	327.229	0.27	0.26	0.06
19495.00	89.970	325.940	8025.95	11107.66	9339.92	-6014.41	1760464.46	433587.62	39°41'17.0652"N	80°14'21.3037"W	11108.89	327.221	0.85	-0.49	-0.69
19589.00	90.030	326.020	8025.95	11201.66	9417.84	-6067.00	1760411.87	433665.53	39°41'17.8309"N	80°14'21.9846"W	11202.86	327.210	0.11	0.06	0.09
19685.00	90.030	326.120	8025.90	11297.66	9497.49	-6120.59	1760358.29	433745.18	39°41'18.6137"N	80°14'22.6784"W	11298.84	327.201	0.10	0.00	0.10
19779.00	89.750	326.300	8026.08	11391.66	9575.61	-6172.87	1760306.01	433823.30	39°41'19.3815"N	80°14'23.3553"W	11392.83	327.192	0.35	-0.30	0.19
19875.00	89.940	325.780	8026.34	11487.65	9655.23	-6226.49	1760252.39	433902.91	39°41'20.1640"N	80°14'24.0497"W	11488.81	327.183	0.58	0.20	-0.54

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
19971.00	90.150	326.410	8026.26	11583.66	9734.91	-6280.04	1760198.84	433982.59	39°41'20.9471"N	80°14'24.7431"W	11584.79	327.174	0.69	0.22	0.66
20066.00	90.060	325.900	8026.09	11678.65	9813.81	-6332.95	1760145.93	434061.48	39°41'21.7225"N	80°14'25.4282"W	11679.78	327.165	0.55	-0.09	-0.54
20162.00	88.710	326.320	8027.12	11774.64	9893.50	-6386.48	1760092.41	434141.16	39°41'22.5056"N	80°14'26.1212"W	11775.75	327.157	1.47	-1.41	0.44
20257.00	88.680	325.870	8029.28	11869.62	9972.32	-6439.42	1760039.44	434219.98	39°41'23.2803"N	80°14'26.8072"W	11870.71	327.148	0.37	-0.03	-0.47
20352.00	89.910	325.920	8030.45	11964.60	10050.98	-6492.72	1759986.18	434298.63	39°41'24.0533"N	80°14'27.4968"W	11965.68	327.138	1.30	1.29	0.05
20448.00	89.350	326.120	8031.07	12060.60	10130.58	-6546.37	1759932.53	434378.23	39°41'24.8356"N	80°14'28.1915"W	12061.66	327.129	0.62	-0.58	0.21
20543.00	89.420	325.980	8032.09	12155.59	10209.38	-6599.42	1759879.48	434457.03	39°41'25.6100"N	80°14'28.8785"W	12156.64	327.121	0.16	0.07	-0.15
20638.00	89.750	325.850	8032.78	12250.39	10288.06	-6652.66	1759826.24	434535.70	39°41'26.3832"N	80°14'29.5678"W	12251.61	327.112	0.37	0.35	-0.14
20734.00	89.570	325.820	8033.35	12346.58	10367.49	-6706.57	1759772.34	434615.13	39°41'27.1638"N	80°14'30.2658"W	12347.59	327.102	0.19	-0.19	-0.03
20829.00	89.970	326.360	8033.73	12441.58	10446.33	-6759.57	1759719.34	434693.96	39°41'27.9386"N	80°14'30.9521"W	12442.57	327.094	0.71	0.42	0.57
20924.00	90.000	326.460	8033.76	12536.58	10525.47	-6812.13	1759666.79	434773.09	39°41'28.7164"N	80°14'31.6327"W	12537.57	327.089	0.11	0.03	0.11
21017.00	89.690	326.310	8034.01	12629.58	10602.91	-6863.62	1759615.30	434850.54	39°41'29.4776"N	80°14'32.2995"W	12630.56	327.084	0.37	-0.33	-0.16
21112.00	89.540	326.030	8034.65	12724.58	10681.83	-6916.50	1759562.42	434929.45	39°41'30.2531"N	80°14'32.9844"W	12725.54	327.077	0.33	-0.16	-0.29
21207.00	89.910	326.490	8035.10	12819.57	10760.83	-6969.27	1759509.66	435008.44	39°41'31.0295"N	80°14'33.6677"W	12820.53	327.071	0.62	0.39	0.48
21302.00	89.880	326.110	8035.28	12914.57	10839.86	-7021.98	1759456.95	435087.47	39°41'31.8062"N	80°14'34.3503"W	12915.52	327.065	0.40	0.30	-0.40
21396.00	89.720	326.330	8035.60	13008.57	10917.99	-7074.24	1759404.69	435165.59	39°41'32.5741"N	80°14'35.0271"W	13009.51	327.059	0.29	-0.17	0.23
21491.00	89.690	326.260	8036.09	13103.57	10997.02	-7126.96	1759351.98	435244.62	39°41'33.3508"N	80°14'35.7099"W	13104.50	327.053	0.08	-0.03	-0.07
21586.00	89.820	326.120	8036.50	13198.57	11075.95	-7179.82	1759299.12	435323.55	39°41'34.1265"N	80°14'36.3944"W	13199.49	327.047	0.20	0.14	-0.15
21682.00	90.000	326.630	8036.65	13294.57	11155.89	-7232.98	1759245.96	435403.48	39°41'34.9122"N	80°14'37.0829"W	13295.49	327.042	0.56	0.19	0.53
21777.00	89.380	326.470	8037.16	13389.57	11235.15	-7285.34	1759193.60	435482.74	39°41'35.6912"N	80°14'37.7611"W	13390.48	327.039	0.67	-0.65	-0.17
21872.00	88.090	326.200	8039.26	13484.54	11314.20	-7337.99	1759140.96	435561.78	39°41'36.4681"N	80°14'38.4430"W	13485.45	327.034	1.39	-1.36	-0.28
21967.00	88.890	325.900	8041.77	13579.51	11392.98	-7391.03	1759087.92	435640.55	39°41'37.2422"N	80°14'39.1298"W	13580.40	327.027	0.90	0.84	-0.32
22063.00	88.520	326.260	8043.93	13675.48	11472.62	-7444.02	1759034.37	435720.19	39°41'38.0249"N	80°14'39.8234"W	13676.36	327.020	0.54	-0.39	0.37
22158.00	89.110	326.080	8045.90	13770.46	11551.52	-7497.46	1758981.49	435799.08	39°41'38.8003"N	80°14'40.5081"W	13771.33	327.015	0.65	0.62	-0.19
22253.00	89.110	326.580	8047.38	13865.45	11630.57	-7550.13	1758928.84	435878.13	39°41'39.5772"N	80°14'41.1902"W	13866.31	327.010	0.53	0.00	0.53
22348.00	89.200	326.380	8048.78	13960.44	11709.76	-7602.58	1758876.38	435957.32	39°41'40.3556"N	80°14'41.8696"W	13961.30	327.006	0.23	0.09	-0.21
22444.00	88.950	326.070	8050.33	14056.42	11789.55	-7655.94	1758823.02	436037.10	39°41'41.1397"N	80°14'42.5607"W	14057.28	327.001	0.41	-0.26	-0.32
22539.00	88.770	325.750	8052.22	14151.40	11868.21	-7709.18	1758769.79	436115.76	39°41'41.9127"N	80°14'43.2501"W	14152.24	326.994	0.39	-0.19	-0.34
22634.00	88.950	326.050	8054.11	14246.38	11946.86	-7762.43	1758716.54	436194.40	39°41'42.6856"N	80°14'43.9397"W	14247.20	326.986	0.37	0.19	0.32
22729.00	89.020	326.810	8055.79	14341.36	12026.00	-7814.95	1758664.02	436273.54	39°41'43.4634"N	80°14'44.6199"W	14342.18	326.983	0.80	0.07	0.80

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
22824.00	88.950	326.360	8057.47	14436.35	12105.29	-7867.26	1758611.72	436352.82	39°41'44.2426"N	80°14'45.2975"W	14437.17	326.980	0.48	-0.07	-0.47
22920.00	89.080	326.680	8059.12	14532.33	12185.35	-7920.21	1758558.77	436432.87	39°41'45.0295"N	80°14'45.9834"W	14533.15	326.977	0.36	0.14	0.33
23014.00	89.020	326.810	8060.68	14626.32	12263.94	-7971.75	1758507.24	436511.46	39°41'45.8019"N	80°14'46.6511"W	14627.14	326.976	0.15	-0.06	0.14
23110.00	88.980	326.180	8062.36	14722.30	12343.98	-8024.73	1758454.26	436591.49	39°41'46.5885"N	80°14'47.3374"W	14723.12	326.972	0.66	-0.04	-0.66
23205.00	87.850	326.130	8064.98	14817.26	12422.85	-8077.62	1758401.37	436670.36	39°41'47.3636"N	80°14'48.0224"W	14818.07	326.967	1.19	-1.19	-0.05
23301.00	88.340	326.620	8068.18	14913.21	12502.74	-8130.75	1758348.24	436750.25	39°41'48.1488"N	80°14'48.7105"W	14914.01	326.963	0.72	0.51	0.51
23396.00	87.970	326.550	8071.23	15008.16	12582.00	-8183.04	1758295.96	436829.50	39°41'48.9278"N	80°14'49.3879"W	15008.96	326.961	0.40	-0.39	-0.07
23491.00	87.380	326.800	8075.09	15103.08	12661.31	-8235.19	1758243.81	436908.81	39°41'49.7073"N	80°14'50.0635"W	15103.88	326.959	0.67	-0.62	0.26
23586.00	87.750	326.540	8079.12	15197.99	12740.61	-8287.34	1758191.66	436988.10	39°41'50.4867"N	80°14'50.7391"W	15198.79	326.957	0.48	0.39	-0.27
23682.00	87.510	326.740	8083.09	15293.91	12820.73	-8340.09	1758138.92	437068.21	39°41'51.2741"N	80°14'51.4224"W	15294.71	326.955	0.33	-0.25	0.21
23777.00	86.860	326.330	8087.76	15388.79	12899.88	-8392.41	1758086.60	437147.36	39°41'52.0520"N	80°14'52.1001"W	15389.59	326.953	0.81	-0.68	-0.43
23872.00	86.640	325.810	8093.14	15483.64	12978.58	-8445.35	1758033.66	437226.06	39°41'52.8254"N	80°14'52.7858"W	15484.43	326.947	0.59	-0.23	-0.55
23967.00	87.880	326.620	8097.69	15578.63	13057.44	-8498.12	1757980.90	437304.92	39°41'53.6004"N	80°14'53.4692"W	15579.31	326.943	1.56	1.31	0.85
24062.00	88.000	326.300	8101.10	15673.47	13136.57	-8550.57	1757928.45	437384.04	39°41'54.3781"N	80°14'54.1487"W	15674.24	326.940	0.36	0.13	-0.34
24158.00	87.780	326.540	8104.64	15769.40	13216.50	-8603.63	1757875.39	437463.96	39°41'55.1636"N	80°14'54.8361"W	15770.17	326.937	0.34	-0.23	0.25
24255.00	87.690	326.520	8108.47	15866.33	13297.35	-8657.09	1757821.94	437544.81	39°41'55.9582"N	80°14'55.5285"W	15867.09	326.934	0.10	-0.09	-0.02
24350.00	87.110	326.630	8112.78	15961.23	13376.56	-8709.36	1757769.67	437624.01	39°41'56.7367"N	80°14'56.2058"W	15961.99	326.932	0.62	-0.61	0.12
24445.00	86.830	326.610	8117.80	16056.09	13455.77	-8761.56	1757717.48	437703.22	39°41'57.5152"N	80°14'56.8820"W	16056.86	326.930	0.30	-0.29	-0.02
24540.00	87.200	326.370	8122.75	16150.96	13534.88	-8813.94	1757665.10	437782.32	39°41'58.2926"N	80°14'57.5605"W	16151.73	326.928	0.46	0.39	-0.25
24636.00	87.200	326.710	8127.44	16246.85	13614.87	-8866.80	1757612.24	437862.31	39°41'59.0788"N	80°14'58.2453"W	16247.61	326.925	0.35	0.00	0.35
24732.00	88.650	326.610	8130.91	16342.78	13695.02	-8919.53	1757559.52	437942.45	39°41'59.8665"N	80°14'58.9284"W	16343.55	326.924	1.51	1.51	-0.10
24827.00	87.450	326.350	8134.15	16437.72	13774.17	-8971.96	1757507.09	438021.60	39°42'0.6444"N	80°14'59.6077"W	16438.49	326.921	1.29	-1.26	-0.27
24923.00	88.860	326.470	8137.24	16533.67	13854.10	-9025.04	1757454.01	438101.52	39°42'1.4299"N	80°15'0.2953"W	16534.43	326.918	1.47	1.47	0.13
25018.00	89.480	326.140	8138.61	16628.66	13933.13	-9077.74	1757401.32	438180.55	39°42'2.2066"N	80°15'0.9779"W	16629.41	326.915	0.74	0.65	-0.35
25113.00	89.820	327.270	8139.19	16723.66	14012.53	-9129.89	1757349.17	438259.95	39°42'2.9870"N	80°15'1.6636"W	16724.41	326.914	1.24	0.36	1.19
25208.00	89.080	327.540	8140.10	16818.64	14092.56	-9181.06	1757298.00	438339.97	39°42'3.7737"N	80°15'2.3168"W	16819.40	326.916	0.83	-0.78	0.28
25304.00	87.910	325.660	8142.63	16914.60	14172.68	-9233.89	1757245.18	438420.08	39°42'4.5611"N	80°15'3.0012"W	16915.36	326.915	2.31	-1.22	-1.96
25399.00	89.600	326.630	8144.69	17009.57	14251.55	-9286.79	1757192.27	438498.95	39°42'5.3361"N	80°15'3.6865"W	17010.32	326.910	2.05	1.78	1.02
25494.00	90.370	326.830	8144.72	17104.57	14330.98	-9338.91	1757140.16	438578.37	39°42'6.1168"N	80°15'4.3618"W	17105.32	326.909	0.84	0.81	0.21
25590.00	89.940	326.560	8144.46	17200.56	14411.21	-9391.62	1757087.45	438658.60	39°42'6.9053"N	80°15'5.0447"W	17201.32	326.908	0.53	-0.45	-0.28

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

WELLPATH DATA (277 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]
25685.00	90.120	326.160	8144.41	17295.56	14490.30	-9444.25	1757034.83	438737.68	39°42'7.6826"N	80°15'5.7265"W	17296.32	326.905	0.46	0.19	-0.42
25780.00	90.860	326.290	8143.59	17390.56	14569.26	-9497.06	1756982.02	438816.64	39°42'8.4585"N	80°15'6.4106"W	17391.31	326.900	0.79	0.78	0.14
25875.00	90.650	326.990	8142.34	17485.55	14648.60	-9549.30	1756929.79	438895.98	39°42'9.2383"N	80°15'7.0874"W	17486.30	326.900	0.77	-0.22	0.74
25970.00	90.650	326.070	8141.26	17580.54	14727.84	-9601.68	1756877.40	438975.21	39°42'10.0171"N	80°15'7.7661"W	17581.29	326.898	0.97	0.00	-0.97
26065.00	90.740	326.810	8140.11	17675.53	14807.00	-9654.20	1756824.89	439054.37	39°42'10.7960"N	80°15'8.4465"W	17676.28	326.896	0.78	0.09	0.78
26076.00	90.550	326.500	8139.99	17686.53	14816.19	-9660.24	1756818.85	439063.55	39°42'10.8853"N	80°15'8.5248"W	17687.28	326.895	3.31	-1.73	-2.82
26101.00#	90.550	326.500	8139.75	17711.53	14837.03	-9674.04	1756805.05	439084.40	39°42'11.0902"N	80°15'8.7036"W	17712.27	326.895	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Bunner 3H AWB Ref Wellpath: Bunner 3H AWP Proj: 26101'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start E/W [ft]	End E/W [ft]
17.5in Open Hole	28.00	1280.00	1252.00	28.00	1279.97	0.00	-7.24	0.00	2.27
13.375in Casing Surface	28.00	1250.00	1222.00	28.00	1249.97	0.00	-7.09	0.00	2.18
12.25in Open Hole	1280.00	2530.00	1250.00	1279.97	2528.09	-7.24	44.44	2.27	5.56
9.625in Casing Intermediate	28.00	2500.00	2472.00	28.00	2498.10	0.00	44.50	0.00	5.94
8.75in Open Hole	2530.00	7114.00	4584.00	2528.09	7035.50	44.44	-231.57	5.56	350.28
8.5in Open Hole	7114.00	26101.00	18987.00	7035.50	8139.75	-231.57	14837.03	350.28	-9674.04

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Bunner 3H BHL Rev-5	8100.00	14833.63	-9680.26	1756798.83	439081.00	39°42'11.0560"N	80°15'18.7828"W	point
Bunner 3H LP Rev-3	8100.00	268.74	6.41	1766484.91	424516.99	39°39'47.9013"N	80°13'3.3633"W	point
Bunner South Hardline #1 (4.1.21)	8600.00	-848.80	2903.24	1769381.56	423399.52	39°39'37.0841"N	80°12'26.2100"W	polygon
2D Polygon: dimensions not calculated								
Bunner South Hardline #1 (8.15.2022)	9003.00	8639.92	-11858.47	1754620.75	432887.66	39°41'9.6655"N	80°15'35.9803"W	polygon
2D Polygon: dimensions not calculated								

WELLPATH COMPOSITION - Ref Wellbore: Bunner 3H AWB Ref Wellpath: Bunner 3H AWP Proj: 26101'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1120.00	BH Generic gyro - northseeking (Standard)	01 <17.5"> Javins Inertial Gyro [Northseeking] (100'-1120')	Bunner 3H AWB	11/11/2022
1120.00	2451.00	OWSG MWD rev2 + HRGM	02 <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1120')(1312'-2451')	Bunner 3H AWB	11/11/2022
2451.00	7038.00	OWSG MWD rev2 + HRGM	03 <8.75"> SDI MWD [OWSG MWD REV.2-HRGM] (2451')(2561'-7038')	Bunner 3H AWB	11/11/2022
7038.00	26101.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 <8.5"> BH ATK Curve [HRGM+Short Spacing] (7038')(7151'-26076')	Bunner 3H AWB	11/11/2022



Actual Wellpath Report

Bunner 3H AWP Proj: 26101'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 3H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 3H AWB
Slot	Slot 3H		

COMMENTS

Wellpath general comments

API: 47061019070000
 BH Job #: 111543076
 Rig: Patterson 277
 Duration: 11/12/2022 - 11/18/2022

- 01_ <17.5"> Javins Inertial Gyro [Northseeking] (100'-1120')
- 02_ <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1120')(1312'-2451')
- 03_ <8.75">SDI MWD [OWSG MWD REV.2-HRGM] (2451')(2561'-7038')
- 04_ <8.5"> BH ATK Curve [HRGM+Short Spacing] (7038')(7151'-26076')

Final Survey MD @ 26076'
 Projected MD at TD: 26101'

02/23/2024