

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

API 47-061-01909 County Monongalia District Clay
Quad Blacksville Pad Name Bunner Field/Pool Name _____
Farm name Patricia A. Bunner Well Number 7H
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 4390599.0 Easting 567099.6
Landing Point of Curve Northing 4390531.6 Easting 566475.1
Bottom Hole Northing 4394637.8 Easting 563646.5

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 12/27/2022
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 - 01909 Farm name Patricia A. Bunner Well number 7H

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"	1,293'	N	54.5	NA	Y, 42 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,535'	N	40	NA	Y, 15 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	25,085	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	4,835	14.5	1.13	5,446	1,878	48
Tubing							

Drillers TD (ft) 25,060' Loggers TD (ft) 25,030'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 7,384'

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 - 01909 Farm name Patricia A. Bunner Well number 7H

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 - 01909 Farm name Patricia A. Bunner Well number 7H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>8,113'</u> TVD	<u>25,060'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3362 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 3831 mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
See attached	0		0		

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  Title Regulatory Manager Date 1/25/2024

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

Bunner 7H 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	2/23/2023	5,817		9,788	85	295	7,117	299,900	562
2	2/24/2023	5,146	6,174	9,474	85	128	10,738	500,446	564
3	2/24/2023	5,337	6,027	9,888	89	449	11,497	501,270	558
4	2/25/2023	5,797	6,271	9,747	85	39	10,462	501,941	547
5	2/25/2023	5,954	7,950	9,874	81	17	10,448	497,100	541
6	2/26/2023	5,983	7,084	9,867	84	15	10,189	500,009	535
7	2/26/2023	5,628	7,964	9,708	79	25	10,738	500,920	526
8	2/27/2023	5,829	7,529	9,851	86	77	10,208	499,929	525
9	2/27/2023	5,474	6,952	9,742	87	42	10,593	501,240	525
10	2/28/2023	5,771	7,539	9,739	86	25	10,204	501,246	524
11	2/28/2023	6,631	7,772	9,509	88	38	11,915	500,240	509
12	3/1/2023	5,889	7,279	9,797	87	67	10,190	501,027	507
13	3/1/2023	5,991	7,145	9,695	85	35	11,255	500,120	500
14	3/2/2023	5,669	7,331	9,650	86	50	10,338	499,136	492
15	3/2/2023	5,766	7,089	9,832	89	70	10,676	499,440	485
16	3/3/2023	6,137	7,529	9,816	86	33	10,302	499,354	492
17	3/3/2023	5,412	7,009	9,822	88	92	10,831	499,580	470
18	3/4/2023	5,824	7,559	9,638	90	31	10,143	496,271	487
19	3/4/2023	5,452	8,148	9,984	87	51	10,597	500,060	468
20	3/5/2023	5,464	7,661	9,724	88	34	10,901	500,871	474
21	3/5/2023	5,455	6,979	9,800	89	73	10,763	499,920	468
22	3/6/2023	6,227	7,622	9,715	86	24	11,606	499,377	472
23	3/7/2023	5,760	7,383	9,650	87	79	11,741	501,900	465
24	3/7/2023	5,562	7,263	9,663	90	49	12,385	499,920	487
25	3/8/2023	6,309	7,245	9,613	88	35	10,442	502,870	460
26	3/8/2023	5,565	7,544	9,681	91	107	10,659	500,340	422
27	3/9/2023	6,772	7,484	9,383	90	135	10,800	501,660	452
28	3/10/2023	5,577	7,942	95	90	49	10,926	499,940	448
29	3/10/2023	5,465	7,834	9,641	90	37	10,448	501,980	439
30	3/11/2023	6,004	6,319	9,367	90	58	10,620	499,800	428
31	3/11/2023	6,242	8,885	9,714	88	32	10,483	501,960	431
32	3/11/2023	5,662	8,262	9,766	91	34	10,544	500,600	408
33	3/12/2023	5,439	750	9,526	90	37	10,505	501,040	420
34	3/12/2023	5,719	7,832	9,488	89	25	10,804	500,160	421
35	3/13/2023	5,677	8,309	9,604	89	19	10,530	500,660	413
36	3/13/2023	6,154	6,172	9,507	93	40	11,334	499,900	366
37	3/14/2023	5,719	8,789	9,633	90	30	10,544	498,735	403
38	3/14/2023	5,968	7,811	9,359	90	46	10,562	500,268	401
39	3/15/2023	5,723	8,314	9,311	91	58	10,871	500,933	397
40	3/15/2023	6,188	8,083	9,444	91	38	10,662	500,220	390
41	3/16/2023	6,692	8,035	9,317	89	45	10,293	502,578	400
42	3/16/2023	6,228	9,533	9,584	89	34	10,587	501,060	379
43	3/16/2023	5,819	8,010	9,306	90	52	10,003	501,114	361
44	3/17/2023	6,039	7,466	9,237	92	102	10,541	502,840	370
45	3/17/2023	5,550	8,614	9,182	92	74	8,030	499,359	376

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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	3/18/2023	5,783	6,516	8,832	85	60	10,038	508,690	361
47	3/18/2023	5,857	7,750	9,099	91	68	10,325	501,840	355
48	3/19/2023	5,464	7,669	9,249	92	17	9,891	499,876	338
49	3/19/2023	5,987	7,718	9,065	92	66	10,205	499,820	344
50	3/19/2023	6,579	7,467	9,171	93	84	10,193	498,617	360
51	3/20/2023	5,941	7,622	9,115	89	52	10,169	500,480	336
52	3/20/2023	5,949	7,912	9,280	93	70	10,252	502,125	347
53	3/21/2023	5,605	7,572	9,041	92	103	10,512	500,260	327
54	3/21/2023	5,681	7,137	8,813	91	60	10,037	499,672	306
55	3/22/2023	6,443	7,591	8,730	92	53	9,889	500,257	704
56	3/22/2023	6,193	7,218	8,736	93	75	10,247	500,040	300
57	3/23/2023	6,131	7,416	8,987	93	45	10,391	501,544	620
58	3/23/2023	6,387	6,536	8,891	93	89	10,246	499,400	310
59	3/23/2023	6,184	8,077	8,962	92	36	10,735	498,049	298
60	3/24/2023	6,250	8,105	9,099	92	70	9,883	499,880	284
61	3/24/2023	5,722	8,119	9,034	92	100	10,537	500,296	237
62	3/25/2023	5,524	8,125	9,025	92	70	10,312	500,980	293
63	3/25/2023	5,729	8,490	8,951	92	83	10,391	499,509	235
64	3/26/2023	5,645	7,617	8,982	94	35	10,377	500,080	308
65	3/26/2023	5,666	8,835	8,890	92	66	9,917	500,080	278
66	3/27/2023	5,888	8,059	8,877	92	41	10,446	501,970	273
67	3/27/2023	5,935	8,832	8,801	92	44	10,045	500,120	258
68	3/27/2023	5,836	8,053	8,727	91	45	10,211	498,900	252
69	3/27/2023	5,490	7,751	8,681	92	50	9,996	502,713	241
70	3/27/2023	5,663	7,997	8,886	92	38	10,014	498,751	252
71	3/28/2023	6,221	7,301	8,847	92	44	10,492	500,782	241
72	3/28/2023	5,300	7,816	8,504	91	64	10,014	951,340	271
73	3/28/2023	5,664	7,906	8,584	92	43	9,871	501,480	227
74	3/28/2023	5,502	7,774	8,704	92	52	10,166	500,700	235
75	3/29/2023	5,974	7,639	8,561	93	63	9,949	501,710	227
76	3/29/2023	5,631	8,089	8,428	90	45	10,058	503,300	217
77	3/29/2023	6,087	7,907	8,469	92	58	9,928	501,720	217
78	3/29/2023	5,703	7,512	8,265	93	66	10,361	500,299	269
79	3/29/2023	5,622	7,815	8,211	93	33	9,860	501,380	218
80	3/29/2023	6,355	7,523	8,303	94	36	10,124	499,717	204
81	3/30/2023	5,679	8,089	8,386	94	47	10,363	505,837	380

02/23/2024

Bunner 7H
Perforation Report

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
1	2/23/2023	40		24,929
2	2/24/2023	40	24,885	24,725
3	2/24/2023	40	24,683	24,524
4	2/25/2023	40	24,481	24,322
5	2/25/2023	40	24,280	24,121
6	2/26/2023	40	24,078	23,919
7	2/26/2023	40	23,877	23,718
8	2/27/2023	40	23,675	23,516
9	2/27/2023	40	23,474	23,314
10	2/28/2023	40	23,272	23,113
11	2/28/2023	40	23,071	22,911
12	3/1/2023	40	22,869	22,710
13	3/1/2023	40	22,667	22,508
14	3/2/2023	40	22,466	22,307
15	3/2/2023	40	22,264	22,105
16	3/3/2023	40	22,063	21,903
17	3/3/2023	40	21,861	21,702
18	3/4/2023	40	21,660	21,500
19	3/4/2023	40	21,458	21,299
20	3/5/2023	40	21,257	21,097
21	3/5/2023	40	21,055	20,896
22	3/6/2023	40	20,853	20,694
23	3/7/2023	40	20,652	20,493
24	3/7/2023	40	20,450	20,291
25	3/8/2023	40	20,249	20,089
26	3/8/2023	40	20,047	19,888
27	3/9/2023	40	19,846	19,686
28	3/10/2023	40	19,644	19,485
29	3/10/2023	40	19,442	19,283
30	3/11/2023	40	19,241	19,082
31	3/11/2023	40	19,039	18,880
32	3/11/2023	40	18,838	18,679
33	3/12/2023	40	18,636	18,477
34	3/12/2023	40	18,435	18,275
35	3/13/2023	40	18,233	18,074
36	3/13/2023	40	18,032	17,872
37	3/14/2023	40	17,830	17,671
38	3/14/2023	40	17,628	17,469
39	3/15/2023	40	17,427	17,268
40	3/15/2023	40	17,225	17,066
41	3/16/2023	40	17,024	16,864
42	3/16/2023	40	16,822	16,663
43	3/16/2023	40	16,621	16,461
44	3/17/2023	40	16,419	16,260
45	3/17/2023	40	16,218	16,058
46	3/18/2023	40	16,016	15,857
47	3/18/2023	40	15,814	15,655

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Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
48	3/19/2023	40	15,613	15,454
49	3/19/2023	40	15,411	15,252
50	3/19/2023	40	15,210	15,050
51	3/20/2023	40	15,008	14,849
52	3/20/2023	40	14,807	14,647
53	3/21/2023	40	14,605	14,446
54	3/21/2023	40	14,403	14,244
55	3/22/2023	40	14,202	14,043
56	3/22/2023	40	14,000	13,841
57	3/23/2023	40	13,799	13,640
58	3/23/2023	40	13,597	13,438
59	3/23/2023	40	13,396	13,236
60	3/24/2023	40	13,194	13,035
61	3/24/2023	40	12,993	12,833
62	3/25/2023	40	12,791	12,632
63	3/25/2023	40	12,589	12,430
64	3/26/2023	40	12,388	12,229
65	3/26/2023	40	12,186	12,027
66	3/27/2023	40	11,985	11,825
67	3/27/2023	40	11,783	11,624
68	3/27/2023	40	11,582	11,422
69	3/27/2023	40	11,380	11,221
70	3/27/2023	40	11,179	11,019
71	3/28/2023	40	10,977	10,818
72	3/28/2023	40	10,775	10,616
73	3/28/2023	40	10,574	10,415
74	3/28/2023	40	10,372	10,213
75	3/29/2023	40	10,171	10,011
76	3/29/2023	40	9,969	9,810
77	3/29/2023	40	9,768	9,608
78	3/29/2023	40	9,566	9,407
79	3/29/2023	40	9,364	9,205
80	3/29/2023	40	9,163	9,004
81	3/30/2023	40	8,961	8,802

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 7H
 Well: Bunner 7H
 Wellbore: Bunner 7H PWB

AP# 47061019090000
 BH Job #: 111543084
 Rig: Patterson 277
 Duration: 12/19/2022 - 12/24/2022

AP# 47061019090000
 BH Job #: 111543084
 Rig: Patterson 277
 Duration: 12/19/2022 - 12/24/2022

User specified HQCM Dip: 68.39° Fink: 6 1876 nT
 Magnetic North is 8.09 degrees West of True North (as of 12/19/2022)
 To correct azimuth from True to Grid add 0.48 degrees
 To correct azimuth from Magnetic to Grid subtract 6.63 degrees

Location Information

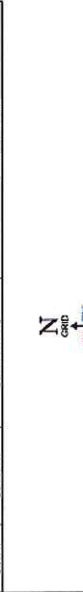
Entity Name	Grid East (US FT)	Grid North (US FT)	Latitude
Bunner Pad	1166268.500	424248.500	39°32'42.2436"N
Slot 7H	1166268.500	424248.500	39°32'42.2436"N
Wellbore	1166268.500	424248.500	39°32'42.2436"N

Well Profile Data

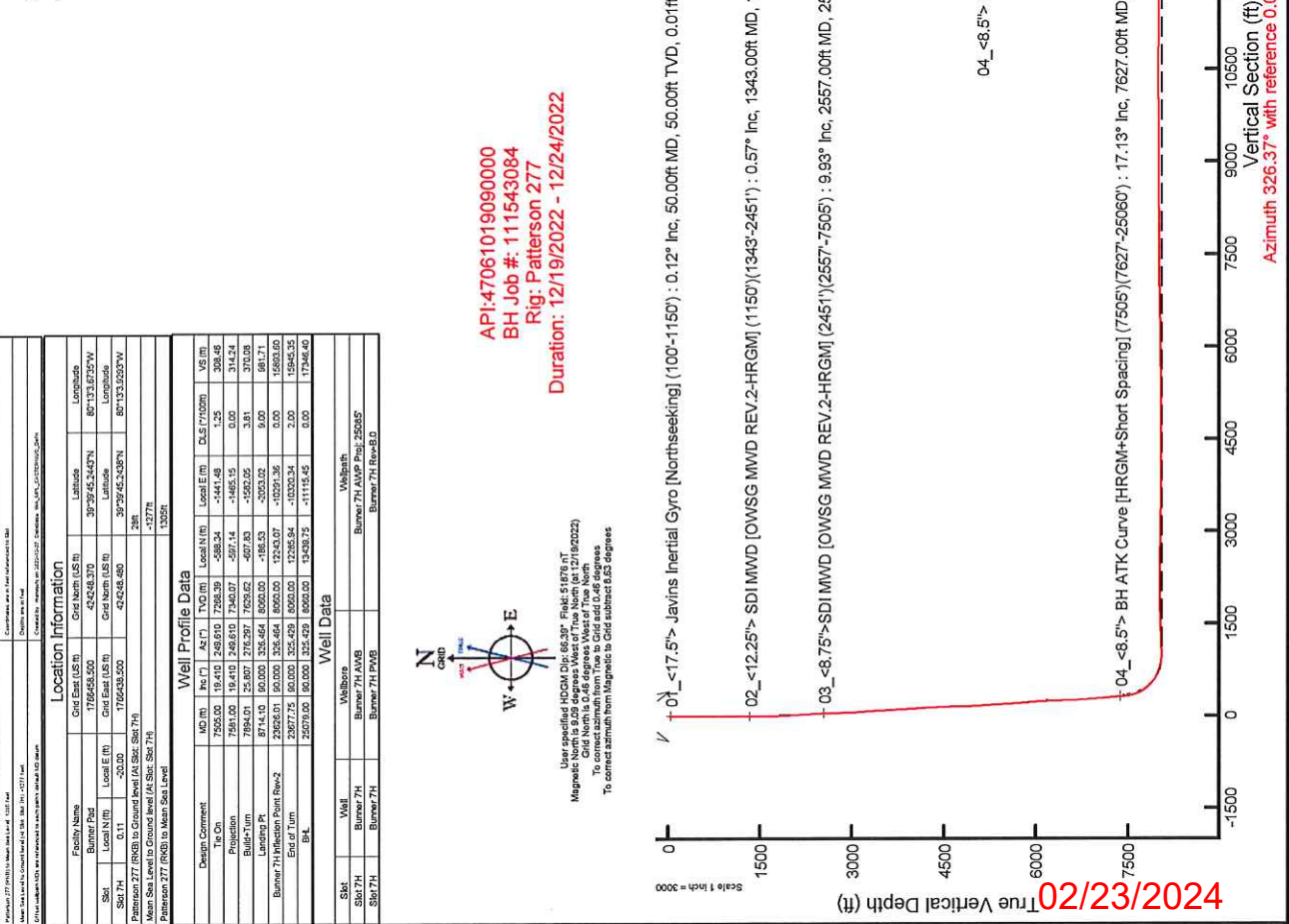
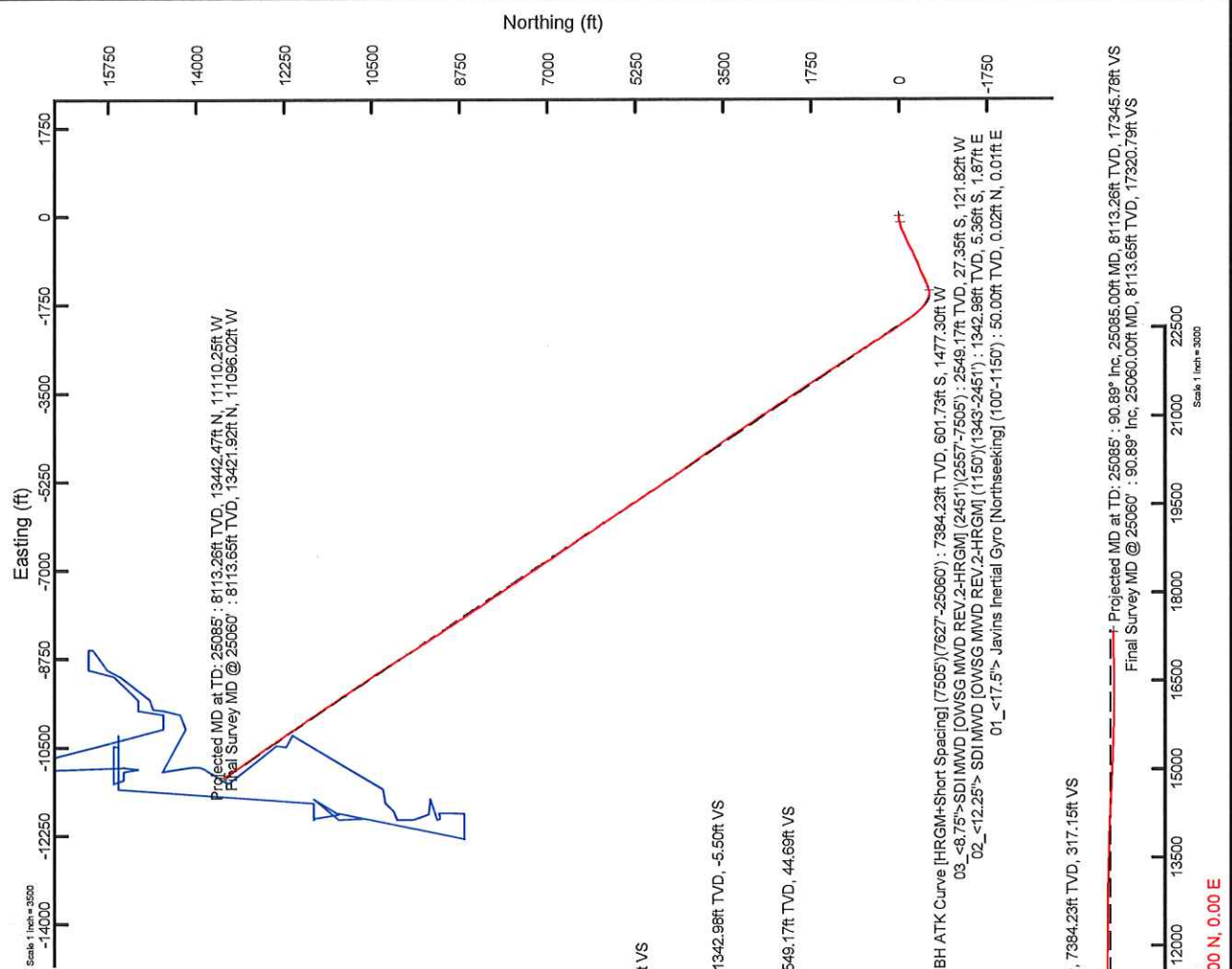
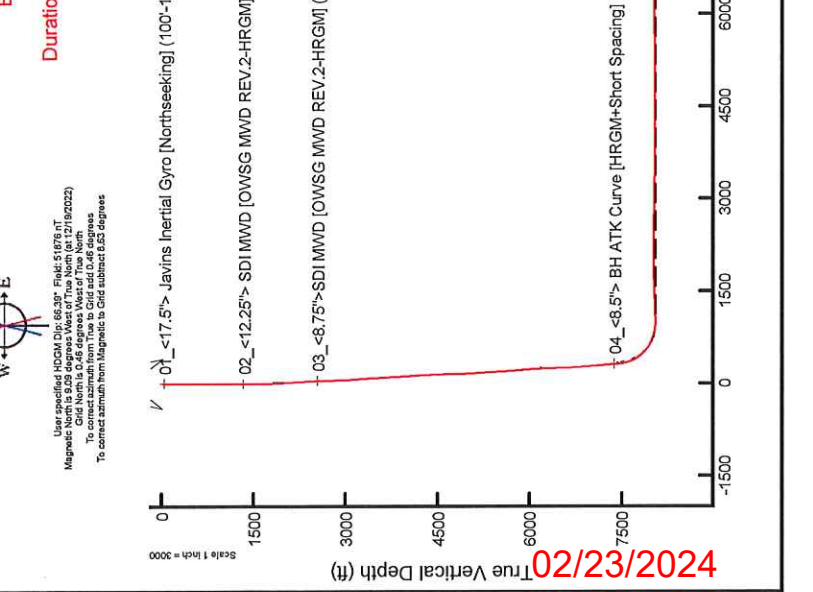
Depth Comment	MD (ft)	AC (ft)	Local N (ft)	Local E (ft)	DLE (ft/100ft)	VS (ft)
Tie On	2500.00	18.410	249.610	7298.39	-586.34	308.48
Position	1561.00	18.410	249.610	7492.07	-567.14	314.24
Build/Turn	7694.01	25.807	276.297	7629.62	-1592.05	3.91
Landmark PK	8714.10	90.000	326.464	8000.00	-186.53	-2055.02
Bunner 7H Injection Point Row 2	22062.01	90.000	326.464	8000.00	124.037	-10299.36
End of Turn	23877.75	90.000	326.429	8000.00	12386.84	15845.35
BHL	25078.00	90.000	326.429	8000.00	13439.75	-11116.45

Well Data

Well	Wellbore
Slot 7H	Bunner 7H PWB
Slot 7H	Bunner 7H AMV
Slot 7H	Bunner 7H AMV Proj 25285'
Slot 7H	Bunner 7H Row 0.0



AP# 47061019090000
 BH Job #: 111543084
 Rig: Patterson 277
 Duration: 12/19/2022 - 12/24/2022



Scale 1 inch = 3000
 Scale 1 inch = 3000

Scale 1 inch = 3000

Cement Job Log



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

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	14-Dec-22	Serv. Supervisor:	Drew Forsythe		
Cust. Rep.:	Josh	Ticket #:	BPA-2212-0019	Serv. Center:	Black Lick - 1571		
Well Name:	Bunner 7H	API Well #:	47-061-01909	County:	Monongalia	State:	WV
Well Type:		Rig:	Patterson 277	Type of Job:	CM-SURFACE 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 (bbbls)	Fluid Volume (cuft)	Mix Water (bbbls)
Top Rubber Plug	13.375" Single Plug Container w/ Buttress Crossover								
Supplied by Customer									
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						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	

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)		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.	13.375" 54.5#	BTC	1293.4	J55	12.615	2730	1130
42.0 °F		66.0 °F										

PREVIOUS CASING DATA PERFORATED INTERVAL DATA CASING EQUIPMENT DEPTHS

02/23/2024

Cement Job Log



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

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	16-Dec-22	Serv. Supervisor:	Robert Given
Cust. Rep.:	JOSH /SAM	Ticket #:	BPA-2212-0021	Serv. Center:	Black Lick - 1671
Well Name:	Bunner 7H	API Well #:	47-061-01909	County:	Monongalia State: WV
Well Type:	NATURAL GAS	Rig:	PATTERSON 277	Type of Job:	CM-INTER. 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 +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						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
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						-		-	
						-		-	
						-		-	
						-		-	
						-		-	

Displacement Chemicals:

OPEN HOLE DATA						TUBULAR DATA						
12.375 in. O.H. 1,250 to 2,500 ft						9.625 in. 36#, (0 to 2,500 ft)						
Ambient Temp.		Bulk Temp.		Slurry 1 Temp.		Slurry 2 Temp.		Slurry 3 Temp.		Slurry 4 Temp.		
37.0 °F				59.0 °F								
						SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
						9.625/ 36#	STC	2535	J-55	8.921	3520	2020

PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
13.375 in. 54.6# (0 to 1,250 ft)				TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
								2532.7	2488.7	1	

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	8.3 ppg	H2O	PROCESSED	8.3 ppg		940	1253	1500	<400	7.4	53.0 °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)
Yes	1,000.00	Y	-	15.00	-	Yes	1,500.00	No	2.00	No	50

Comments/Additional Details:

Robert Given
Service Supervisor

16-Dec-22
Date

02/23/2024

Cement Job Log



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

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	27-Dec-22	Serv. Supervisor:	Robert Given
Cust. Rep.:	SHORTY/ NEAL	Ticket #:	BPA-2212-0033	Serv. Center:	Black Lick - 1571
Well Name:	Bunner 7H	API Well #:	47-061-01909	County:	Monongalia
Well Type:	NATURAL GAS	Rig:	PATTERSON 277	State:	WV
			Type of Job:	CM-PROD. 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)
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% NFI-549+0.2% NTC-405	4835	14.5		1.13	4.64	969.94	5,446.21	534
Sugar Water Displacement	+5.0 PPB NRT-215					-	20.00	-	
Fresh Water Displacement						-	537.44	-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA									
8.75 in. O.H. 2,600 to 7,600 ft 8.5 in. O.H. 7,600 to 25,139 ft				5.5 in. 20#, (0 to 25,139 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.								
20.0 °F		43.0 °F				5.5/ 20#	BTC	25085	P-110	4.778	12640	11080	

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
						25034.83		1	

WELL FLUID			DISPLACEMENT FLUID			DIFF PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)	MIX H2O Chlorides (ppm)	Mix H2O pH	Mix H2O Temp	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY								
OBM	13.7 ppg	556 bbl	H2O	8.3 ppg	2800	21074	6400	<400	7.4	30.0 °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)	
Yes	4,600.00	Y	-	-	1,878	Yes	5,200.00	No	7.00	No	50	

Comments/Additional Details:

	Robert Given Service Supervisor
	27-Dec-22 Date

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/23/2023
Job End Date:	3/30/2023
State:	West Virginia
County:	Monongalia
API Number:	47-061-01909-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Bunner 7H
Latitude:	39.66256800
Longitude:	-80.21775800
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,047
Total Base Water Volume (gal):	35,464,548
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	87.78652	None
Sand (100 Mesh Proppant)	ProFrac	Proppant					
			Silica Substrate	14808-60-7	100.00000	10.76871	None
Sand (40/70 White Proppant)	ProFrac	Proppant					
			Silica Substrate	14808-60-7	100.00000	1.20028	None
Hydrochloric Acid (7.5%)	CNR	Acidizing					
			Water	7732-18-5	85.00000	0.11397	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.04961	None
StimSTREAM FR 9800	Chemstream	Friction Reducer					
			Butene, homopolymer	9003-29-6	25.00000	0.01693	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01693	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00203	None
Clearal 268	Chemstream	Biocide					
			Non-hazardous substances	Proprietary	80.00000	0.01796	None

				Glutaraldehyde	111-30-8	20.00000	0.00449	None
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00067	None
				Quaternary Ammonium Compounds	68424-85-1	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
				2-Phosphono-1,2,4-butanetricarboxylic acid (PBTC)	37971-36-1	10.00000	0.00195	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
ProHib 100	CNR		Acid Inhibitor	2-Butoxyethanol	111-76-2	60.00000	0.00025	None
				Proprietary material	Proprietary	30.00000	0.00012	None
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00008	None
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00004	None
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00004	None
ProFE 105	CNR		Iron Control	Citric Acid	77-92-9	20.00000	0.00007	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	0.11397	
				Non-hazardous substances	Proprietary	80.00000	0.01796	
				Butene, homopolymer	9003-29-6	25.00000	0.01693	
				Non-Hazardous Substances	Proprietary	70.00000	0.01363	
				Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00203	
				Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00195	
				Citric Acid	77-92-9	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	0.00012	
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00008	
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00004	
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00004	
				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(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

02/23/2024



Actual Wellpath Report

Bunner 7H AWP Proj: 25085'
Page 1 of 13



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

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	12/27/2022 at 1:45:51 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	0.11	-20.00	1766438.50	424248.48	39°39'45.2438"N	80°13'3.9293"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 7H)	28.00ft
MID Reference Pt	Patterson 277 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	326.37°

02/23/2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

WELLPATH DATA (277 stations) † = interpolated, ‡ = extrapolated station

MID [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	20.130	0.00	0.00	0.00	0.00	1766438.50	424248.48	39°39'45.2438"N	80°13'3.9293"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	20.130	28.00	0.00	0.00	0.00	1766438.50	424248.48	39°39'45.2438"N	80°13'3.9293"W	0.00	0.000	0.00	0.00	0.00
50.00	0.120	20.130	50.00	0.01	0.02	0.01	1766438.51	424248.48	39°39'45.2441"N	80°13'3.9292"W	0.02	20.130	0.55	0.55	0.00
100.00	0.110	64.950	100.00	0.04	0.09	0.07	1766438.57	424248.57	39°39'45.2448"N	80°13'3.9284"W	0.11	37.308	0.18	-0.02	89.64
150.00	0.160	134.820	150.00	-0.04	0.06	0.16	1766438.66	424248.54	39°39'45.2445"N	80°13'3.9272"W	0.17	69.039	0.32	0.10	139.74
200.00	0.170	84.240	200.00	-0.14	0.02	0.29	1766438.79	424248.50	39°39'45.2441"N	80°13'3.9256"W	0.29	85.904	0.28	0.02	-101.16
250.00	0.150	103.550	250.00	-0.22	0.01	0.42	1766438.92	424248.49	39°39'45.2440"N	80°13'3.9239"W	0.42	88.298	0.11	-0.04	38.62
300.00	0.230	131.400	300.00	-0.37	-0.07	0.56	1766439.06	424248.41	39°39'45.2432"N	80°13'3.9221"W	0.57	97.011	0.24	0.16	55.70
350.00	0.220	185.810	350.00	-0.54	-0.23	0.63	1766439.13	424248.25	39°39'45.2416"N	80°13'3.9212"W	0.67	110.205	0.41	-0.02	108.82
400.00	0.120	238.140	400.00	-0.61	-0.35	0.57	1766439.07	424248.13	39°39'45.2404"N	80°13'3.9219"W	0.67	121.697	0.35	-0.20	104.66
450.00	0.130	175.600	450.00	-0.66	-0.44	0.53	1766439.03	424248.04	39°39'45.2396"N	80°13'3.9224"W	0.69	129.415	0.26	0.02	-125.08
500.00	0.250	168.070	500.00	-0.81	-0.60	0.56	1766439.06	424247.88	39°39'45.2379"N	80°13'3.9221"W	0.82	137.039	0.24	0.24	-15.06
550.00	0.640	169.040	550.00	-1.17	-0.98	0.64	1766439.14	424247.50	39°39'45.2342"N	80°13'3.9210"W	1.17	147.088	0.78	0.78	1.94
600.00	0.540	159.300	599.99	-1.66	-1.48	0.77	1766439.27	424247.00	39°39'45.2293"N	80°13'3.9193"W	1.67	152.398	0.28	-0.20	-19.48
650.00	0.430	180.120	649.99	-2.04	-1.89	0.86	1766439.36	424246.60	39°39'45.2253"N	80°13'3.9181"W	2.07	155.599	0.41	-0.22	41.64
700.00	0.420	179.480	699.99	-2.35	-2.26	0.86	1766439.36	424246.22	39°39'45.2216"N	80°13'3.9181"W	2.41	159.212	0.02	-0.02	-1.28
750.00	0.360	141.220	749.99	-2.66	-2.56	0.96	1766439.46	424245.92	39°39'45.2186"N	80°13'3.9168"W	2.73	159.525	0.52	-0.12	-76.52
800.00	0.490	164.230	799.99	-3.02	-2.89	1.11	1766439.61	424245.59	39°39'45.2154"N	80°13'3.9147"W	3.10	158.937	0.42	0.26	46.02
850.00	0.700	168.600	849.99	-3.51	-3.40	1.23	1766439.73	424245.09	39°39'45.2104"N	80°13'3.9132"W	3.61	160.063	0.43	0.42	8.74
900.00	0.130	249.370	899.98	-3.78	-3.71	1.24	1766439.74	424244.77	39°39'45.2072"N	80°13'3.9131"W	3.92	161.557	1.38	-1.14	161.54
950.00	0.400	171.120	949.98	-3.92	-3.91	1.21	1766439.71	424244.57	39°39'45.2053"N	80°13'3.9134"W	4.09	162.757	0.79	0.54	-156.50
1000.00	0.350	171.640	999.98	-4.22	-4.23	1.26	1766439.76	424244.25	39°39'45.2021"N	80°13'3.9127"W	4.41	163.393	0.10	-0.10	1.04
1050.00	0.240	155.220	1049.98	-4.46	-4.48	1.33	1766439.83	424244.00	39°39'45.1997"N	80°13'3.9118"W	4.67	163.479	0.28	-0.22	-32.84
1100.00	0.200	155.770	1099.98	-4.65	-4.65	1.41	1766439.91	424243.83	39°39'45.1980"N	80°13'3.9108"W	4.86	163.163	0.08	-0.08	1.10
1150.00	0.230	243.970	1149.98	-4.73	-4.77	1.35	1766439.85	424243.71	39°39'45.1968"N	80°13'3.9115"W	4.96	164.178	0.60	0.06	176.40
1200.00	0.570	115.870	1342.98	-5.50	-5.36	1.87	1766440.37	424243.12	39°39'45.1910"N	80°13'3.9048"W	5.68	160.790	0.38	0.18	-66.37
1250.00	0.570	185.850	1404.98	-6.00	-5.81	2.11	1766440.61	424242.68	39°39'45.1866"N	80°13'3.9016"W	6.18	159.982	1.05	0.00	112.87
1300.00	2.310	244.780	1498.95	-6.09	-7.08	0.35	1766438.85	424241.40	39°39'45.1739"N	80°13'3.9240"W	7.09	177.142	2.21	1.85	62.69
1350.00	4.640	247.850	1594.76	-5.03	-9.37	-4.99	1766433.51	424239.11	39°39'45.1509"N	80°13'3.9922"W	10.61	208.067	2.43	2.43	3.20
1400.00	6.830	251.050	1689.28	-2.84	-12.65	-13.90	1766424.60	424235.83	39°39'45.1177"N	80°13'4.1057"W	18.79	227.690	2.33	2.31	3.37

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Bunner 7H
Field	Monongalia		API/Legal	
Facility	Bunner Pad		Wellbore	Bunner 7H AWB
Slot	Slot 7H			

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]
1785.00	7.890	258.460	1783.50	1.05	-15.79	-25.63	1766412.87	424232.69	39°39'45.0858"N	80°13'4.2554"W	30.10	238.365	1.50	1.12	7.80
1880.00	7.390	264.660	1877.66	6.40	-17.66	-38.10	1766400.40	424230.82	39°39'45.0663"N	80°13'4.4146"W	42.00	245.130	1.01	-0.53	6.53
1975.00	6.330	272.060	1971.98	12.35	-18.04	-49.42	1766389.08	424230.44	39°39'45.0616"N	80°13'4.5593"W	52.61	249.943	1.45	-1.12	7.79
2071.00	5.700	274.030	2067.45	18.35	-17.52	-59.46	1766379.04	424230.96	39°39'45.0660"N	80°13'4.6878"W	61.99	253.586	0.69	-0.66	2.05
2165.00	6.100	267.080	2160.95	23.75	-17.44	-69.11	1766369.40	424231.04	39°39'45.0660"N	80°13'4.8111"W	71.27	256.834	0.87	-0.43	-7.39
2260.00	6.670	262.840	2255.36	28.79	-18.39	-79.62	1766358.88	424230.09	39°39'45.0558"N	80°13'4.9455"W	81.72	256.996	0.78	0.60	-4.46
2356.00	7.900	260.250	2350.59	33.94	-20.20	-91.66	1766346.85	424228.28	39°39'45.0370"N	80°13'5.0992"W	93.86	257.571	1.33	1.28	-2.70
2451.00	8.810	258.500	2444.58	39.33	-22.76	-105.22	1766333.29	424225.72	39°39'45.0106"N	80°13'5.2724"W	107.65	257.796	0.99	0.96	-1.84
2557.00	9.930	250.980	2549.17	44.69	-27.35	-121.82	1766316.69	424221.13	39°39'44.9639"N	80°13'5.4841"W	124.85	257.344	1.56	1.06	-7.09
2652.00	7.540	247.400	2643.06	47.95	-32.42	-135.32	1766303.19	424216.06	39°39'44.9128"N	80°13'5.6562"W	139.15	256.527	2.58	-2.52	-3.77
2747.00	5.490	255.450	2737.44	50.63	-35.96	-145.47	1766293.04	424212.53	39°39'44.8770"N	80°13'5.7857"W	149.85	256.116	2.36	-2.16	8.47
2841.00	5.410	250.960	2831.02	53.21	-38.53	-154.01	1766284.50	424209.95	39°39'44.8509"N	80°13'5.8946"W	158.76	255.954	0.46	-0.09	-4.78
2936.00	5.210	252.710	2925.61	55.56	-41.27	-162.36	1766276.15	424207.21	39°39'44.8231"N	80°13'6.0011"W	167.53	255.737	0.27	-0.21	1.84
3031.00	5.840	264.880	3020.17	59.08	-42.99	-171.30	1766267.21	424205.49	39°39'44.8055"N	80°13'6.1152"W	176.61	255.912	1.40	0.66	12.81
3126.00	7.540	270.660	3114.52	64.89	-43.35	-182.34	1766256.17	424205.14	39°39'44.8011"N	80°13'6.2564"W	187.43	256.628	1.92	1.79	6.08
3220.00	9.950	261.630	3207.43	71.84	-44.46	-196.55	1766241.96	424204.02	39°39'44.7889"N	80°13'6.4379"W	201.51	257.254	2.94	2.56	-9.61
3315.00	12.410	254.700	3300.62	78.55	-48.35	-214.52	1766224.00	424200.13	39°39'44.7491"N	80°13'6.6673"W	219.90	257.299	2.95	2.59	-7.29
3414.00	14.810	249.430	3396.84	84.76	-55.60	-236.63	1766201.89	424192.88	39°39'44.6757"N	80°13'6.9492"W	243.07	256.777	2.73	2.42	-5.32
3508.00	16.420	246.240	3487.37	89.75	-65.18	-260.04	1766178.48	424183.31	39°39'44.5792"N	80°13'7.2476"W	268.08	255.929	1.94	1.71	-3.39
3604.00	17.510	245.520	3579.19	94.37	-76.63	-285.60	1766152.92	424171.86	39°39'44.4640"N	80°13'7.5733"W	295.70	254.981	1.16	1.14	-0.75
3698.00	19.010	247.690	3668.45	99.62	-88.30	-312.64	1766125.88	424160.18	39°39'44.3465"N	80°13'7.9178"W	324.87	254.228	1.75	1.60	2.31
3793.00	19.370	245.670	3758.17	105.21	-100.67	-341.31	1766097.21	424147.82	39°39'44.2220"N	80°13'8.2831"W	355.84	253.567	0.79	0.79	-2.13
3887.00	18.530	243.780	3847.08	109.65	-113.69	-368.91	1766069.61	424134.80	39°39'44.0912"N	80°13'8.6347"W	386.03	252.872	1.11	-0.89	-2.01
3982.00	18.860	245.190	3937.07	113.95	-126.80	-396.39	1766042.13	424121.69	39°39'43.9594"N	80°13'8.9847"W	416.18	252.261	0.59	0.35	1.48
4077.00	20.230	248.150	4026.59	119.66	-139.36	-425.58	1766012.95	424109.13	39°39'43.8330"N	80°13'9.3566"W	447.81	251.869	1.78	1.44	3.12
4176.00	20.030	248.050	4119.55	126.59	-152.06	-457.19	1765981.34	424096.42	39°39'43.7049"N	80°13'9.7595"W	481.81	251.602	0.20	-0.20	-0.10
4270.00	19.100	245.290	4209.06	132.29	-164.64	-486.40	1765952.13	424083.85	39°39'43.5783"N	80°13'10.1318"W	513.51	251.299	1.38	-0.98	-2.91
4365.00	19.410	245.530	4298.75	137.22	-177.68	-514.89	1765923.65	424070.81	39°39'43.4472"N	80°13'10.4947"W	544.68	250.961	0.34	0.33	0.25
4462.00	19.830	247.000	4388.23	142.70	-190.51	-544.09	1765894.45	424057.98	39°39'43.3181"N	80°13'10.8667"W	576.48	250.702	0.68	0.68	1.55
4560.00	19.730	245.440	4476.69	148.14	-203.34	-573.19	1765865.34	424045.15	39°39'43.1890"N	80°13'11.2376"W	608.19	250.468	0.57	-0.11	-1.66



northeast
NATURAL ENERGY

Actual Wellpath Report

Bunner 7H AWP Proj: 25085'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Bunner 7H
Field	Monongalia		API/Legal	
Facility	Bunner Pad		Wellbore	Bunner 7H AWB
Slot	Slot 7H			

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]
4650.00	19.230	242.080	4566.25	152.23	-217.33	-601.60	1765836.93	424031.16	39°39'43.0485"N	80°13'11.5994"W	639.66	250.138	1.29	-0.53	-3.54
4745.00	18.680	239.760	4656.10	154.68	-232.32	-628.57	1765809.97	424016.18	39°39'42.8982"N	80°13'11.9427"W	670.13	249.716	0.98	-0.58	-2.44
4840.00	18.990	239.890	4746.01	156.53	-247.73	-655.09	1765783.45	424000.76	39°39'42.7438"N	80°13'12.2801"W	700.36	249.285	0.33	0.33	0.14
4935.00	19.160	241.280	4835.80	158.82	-262.98	-682.13	1765756.41	423985.52	39°39'42.5910"N	80°13'12.6244"W	731.07	248.917	0.51	0.18	1.46
5030.00	19.620	242.490	4925.41	161.85	-277.84	-709.95	1765728.60	423970.66	39°39'42.4419"N	80°13'12.9785"W	762.38	248.627	0.64	0.48	1.27
5125.00	19.110	245.880	5015.04	166.12	-291.56	-738.29	1765700.26	423956.94	39°39'42.3041"N	80°13'13.3395"W	793.77	248.450	1.30	-0.54	3.57
5224.00	18.980	247.040	5108.62	171.78	-304.46	-767.90	1765670.65	423944.04	39°39'42.1742"N	80°13'13.7168"W	826.06	248.372	0.40	-0.13	1.17
5318.00	17.970	248.320	5197.77	177.61	-315.78	-795.45	1765643.10	423932.72	39°39'42.0602"N	80°13'14.0679"W	855.84	248.348	1.16	-1.07	1.36
5413.00	17.970	248.550	5288.14	183.74	-326.56	-822.71	1765615.84	423921.94	39°39'41.9515"N	80°13'14.4154"W	885.15	248.351	0.07	0.00	0.24
5509.00	18.450	245.290	5379.33	189.22	-338.32	-850.29	1765588.26	423910.18	39°39'41.8331"N	80°13'14.7669"W	915.13	248.303	1.17	0.50	-3.40
5603.00	19.050	243.520	5468.35	193.43	-351.38	-877.54	1765561.02	423897.12	39°39'41.7019"N	80°13'15.1139"W	945.27	248.178	0.88	0.64	-1.88
5699.00	20.210	245.280	5558.77	197.95	-365.30	-906.62	1765531.93	423883.20	39°39'41.5620"N	80°13'15.4844"W	977.45	248.054	1.36	1.21	1.83
5794.00	20.690	248.550	5647.78	204.04	-378.30	-937.15	1765501.41	423870.20	39°39'41.4311"N	80°13'15.8733"W	1010.63	248.018	1.30	0.51	3.44
5889.00	19.400	248.900	5737.02	211.00	-390.12	-967.49	1765471.07	423858.39	39°39'41.3119"N	80°13'16.2601"W	1043.18	248.039	1.36	-1.36	0.37
5983.00	18.570	250.090	5825.91	217.94	-400.84	-996.13	1765442.43	423847.67	39°39'41.2037"N	80°13'16.6252"W	1073.75	248.081	0.97	-0.88	1.27
6077.00	19.710	250.640	5914.71	225.39	-411.19	-1025.16	1765413.40	423837.32	39°39'41.0991"N	80°13'16.9953"W	1104.55	248.144	1.23	1.21	0.59
6176.00	18.420	247.740	6008.28	232.59	-422.65	-1055.39	1765383.18	423825.86	39°39'40.9834"N	80°13'17.3806"W	1136.87	248.176	1.62	-1.30	-2.93
6271.00	17.920	247.090	6098.55	238.27	-434.02	-1082.74	1765355.83	423814.48	39°39'40.8689"N	80°13'17.7292"W	1166.49	248.156	0.57	-0.53	-0.68
6366.00	17.350	245.220	6189.08	243.17	-445.65	-1109.06	1765329.50	423802.86	39°39'40.7519"N	80°13'18.0646"W	1195.25	248.109	0.85	-0.60	-1.97
6461.00	15.940	243.040	6280.10	246.86	-457.50	-1133.55	1765305.02	423791.01	39°39'40.6328"N	80°13'18.3765"W	1222.40	248.021	1.62	-1.48	-2.29
6556.00	15.820	244.300	6371.47	250.17	-469.03	-1156.85	1765281.72	423779.48	39°39'40.5170"N	80°13'18.6731"W	1248.32	247.930	0.38	-0.13	1.33
6652.00	16.100	244.050	6463.77	253.75	-480.53	-1180.61	1765257.96	423767.98	39°39'40.4015"N	80°13'18.9758"W	1274.66	247.853	0.30	0.29	-0.26
6747.00	17.370	242.840	6554.75	257.11	-492.77	-1205.07	1765233.50	423755.74	39°39'40.2786"N	80°13'19.2873"W	1301.93	247.760	1.39	1.34	-1.27
6842.00	19.100	243.530	6644.97	260.64	-506.17	-1231.60	1765206.97	423742.34	39°39'40.1440"N	80°13'19.6252"W	1331.56	247.658	1.84	1.82	0.73
6937.00	20.660	246.080	6734.31	265.41	-519.89	-1260.84	1765177.74	423728.62	39°39'40.0061"N	80°13'19.9976"W	1363.82	247.592	1.88	1.64	2.68
7031.00	19.940	247.130	6822.47	271.20	-532.85	-1290.77	1765147.81	423715.66	39°39'39.8757"N	80°13'20.3789"W	1396.43	247.588	0.86	-0.77	1.12
7125.00	18.790	248.230	6912.10	277.37	-544.82	-1319.90	1765118.68	423703.70	39°39'39.7551"N	80°13'20.7502"W	1427.93	247.571	1.27	-1.21	1.16
7220.00	19.170	250.800	7001.93	284.40	-555.62	-1348.84	1765089.74	423692.89	39°39'39.6460"N	80°13'21.1191"W	1458.80	247.612	0.97	0.40	2.71
7315.00	20.840	251.310	7090.26	292.55	-566.06	-1379.26	1765059.33	423682.46	39°39'39.5405"N	80°13'21.5070"W	1490.90	247.686	1.79	1.78	0.54
7410.00	20.590	250.100	7179.12	300.88	-577.16	-1410.97	1765027.61	423671.36	39°39'39.4282"N	80°13'21.9113"W	1524.45	247.753	0.52	-0.26	-1.27

06/25/2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Bunner 7H
Field	Monongalia		API/Legal	
Facility	Bunner Pad		Wellbore	Bunner 7H AWB
Slot	Slot 7H			

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]
7505.00	19.410	249.610	7268.39	308.46	-588.34	-1441.48	1764997.11	423660.17	39°39'39.3153"N	80°13'22.3002"W	1556.92	247.797	1.25	-1.24	-0.52
7627.00	17.130	249.390	7384.23	317.15	-601.73	-1477.30	1764961.29	423646.78	39°39'39.1801"N	80°13'22.7569"W	1595.15	247.838	1.87	-1.87	-0.18
7722.00	16.450	259.820	7475.20	325.66	-609.04	-1503.64	1764934.95	423639.48	39°39'39.1058"N	80°13'23.0929"W	1622.30	247.950	3.25	-0.72	10.98
7817.00	21.670	272.730	7565.00	341.42	-610.58	-1534.44	1764904.16	423637.94	39°39'39.0881"N	80°13'23.4865"W	1651.46	248.301	7.03	5.49	13.59
7912.00	28.630	281.170	7650.97	367.90	-605.33	-1574.35	1764884.25	423643.19	39°39'39.1368"N	80°13'23.9974"W	1686.71	248.969	8.23	7.33	8.88
8007.00	33.990	294.370	7732.20	406.53	-589.93	-1620.95	1764817.65	423658.58	39°39'39.2853"N	80°13'24.5949"W	1724.97	250.001	9.14	5.64	13.89
8102.00	41.670	299.430	7807.20	457.29	-563.41	-1672.74	1764765.87	423685.10	39°39'39.5433"N	80°13'25.2597"W	1765.07	251.385	8.71	8.08	5.33
8196.00	48.660	301.500	7873.44	517.24	-529.58	-1730.11	1764708.49	423718.94	39°39'39.8731"N	80°13'25.9968"W	1809.35	252.981	7.60	7.44	2.20
8291.00	55.990	307.700	7931.49	587.04	-486.78	-1791.80	1764646.81	423761.73	39°39'40.2911"N	80°13'26.7899"W	1856.74	254.801	9.28	7.72	6.53
8384.00	63.140	315.600	7978.63	664.50	-433.44	-1851.47	1764587.14	423815.07	39°39'40.8135"N	80°13'27.5584"W	1901.53	256.824	10.61	7.69	8.49
8480.00	70.810	318.040	8016.15	751.56	-369.03	-1911.84	1764526.78	423879.47	39°39'41.4452"N	80°13'28.3369"W	1947.13	259.075	8.32	7.99	2.54
8575.00	76.980	320.140	8042.50	842.05	-300.07	-1971.56	1764467.06	423948.43	39°39'42.1219"N	80°13'29.1076"W	1994.26	261.346	6.83	6.49	2.21
8670.00	83.770	325.730	8058.38	935.46	-225.38	-2027.91	1764410.71	424023.11	39°39'42.8556"N	80°13'29.8360"W	2040.40	263.658	9.20	7.15	5.88
8766.00	92.550	327.730	8061.46	1031.31	-145.24	-2080.49	1764358.13	424103.25	39°39'43.6434"N	80°13'30.5165"W	2085.56	266.007	9.38	9.15	2.08
8861.00	91.940	323.330	8057.74	1126.20	-67.00	-2134.21	1764304.42	424181.49	39°39'44.4123"N	80°13'31.2114"W	2135.26	268.202	4.67	-0.64	-4.63
8955.00	91.970	324.730	8054.53	1220.06	9.03	-2189.39	1764249.25	424257.51	39°39'45.1593"N	80°13'31.9248"W	2189.40	270.236	1.49	0.03	1.49
9050.00	92.150	324.800	8051.12	1314.97	86.58	-2244.16	1764194.48	424335.05	39°39'45.9213"N	80°13'32.6332"W	2245.83	272.209	0.20	0.19	0.07
9145.00	92.130	327.100	8047.57	1409.89	165.23	-2297.31	1764141.33	424413.70	39°39'46.6943"N	80°13'33.3209"W	2303.24	274.114	2.42	-0.02	2.42
9240.00	92.340	327.540	8043.87	1504.80	245.13	-2348.57	1764090.08	424493.60	39°39'47.4799"N	80°13'33.9846"W	2361.32	275.959	0.51	0.22	0.46
9335.00	91.320	327.160	8040.83	1599.74	325.08	-2399.79	1764038.85	424573.54	39°39'48.2658"N	80°13'34.6478"W	2421.71	277.714	1.15	-1.07	-0.40
9431.00	91.020	327.290	8038.87	1695.71	405.78	-2451.75	1763986.90	424654.23	39°39'49.0592"N	80°13'35.3205"W	2485.10	279.398	0.34	-0.31	0.14
9525.00	90.740	326.880	8037.43	1789.69	484.68	-2502.82	1763935.83	424733.13	39°39'49.8349"N	80°13'35.9818"W	2549.32	280.960	0.53	-0.30	-0.44
9620.00	90.740	328.860	8036.20	1884.65	565.12	-2553.34	1763885.31	424813.56	39°39'50.6258"N	80°13'36.6360"W	2615.13	282.480	2.08	0.00	2.08
9716.00	90.490	327.740	8035.17	1980.58	646.79	-2603.78	1763834.88	424895.23	39°39'51.4289"N	80°13'37.2895"W	2682.91	283.950	1.20	-0.26	-1.17
9811.00	90.340	327.460	8034.48	2075.56	727.00	-2654.69	1763783.98	424975.43	39°39'52.2175"N	80°13'37.9487"W	2752.43	285.315	0.33	-0.16	-0.29
9906.00	90.250	326.890	8033.99	2170.55	806.83	-2706.18	1763732.48	425055.26	39°39'53.0023"N	80°13'38.6154"W	2823.90	286.602	0.61	-0.09	-0.60
10002.00	89.420	327.950	8034.27	2266.53	887.72	-2757.87	1763680.79	425136.15	39°39'53.7976"N	80°13'39.2848"W	2897.23	287.843	1.40	-0.86	1.10
10097.00	89.290	327.440	8035.34	2361.50	968.01	-2808.64	1763630.03	425216.43	39°39'54.5870"N	80°13'39.9422"W	2970.78	289.017	0.55	-0.14	-0.54
10192.00	89.720	327.320	8036.16	2456.48	1048.02	-2859.85	1763578.82	425296.44	39°39'55.3736"N	80°13'40.6053"W	3045.83	290.126	0.47	0.45	-0.13
10287.00	89.720	327.080	8036.62	2551.47	1127.87	-2911.31	1763527.37	425376.29	39°39'56.1686"N	80°13'41.2716"W	3122.15	291.177	0.25	0.00	-0.25



Actual Wellpath Report

Bunner 7H AWP Proj: 25085'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Bunner 7H
Field	Monongalia		API/Legal	
Facility	Bunner Pad		Wellbore	Bunner 7H AWB
Slot	Slot 7H			

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]
10383.00	89.080	327.320	8037.63	2647.45	1208.56	-2963.31	1763475.37	425456.97	39°39'56.9519"N	80°13'41.9450"W	3200.29	292.188	0.71	-0.67	0.25
10477.00	89.570	327.150	8038.74	2741.44	1287.60	-3014.18	1763424.50	425536.00	39°39'57.7289"N	80°13'42.6036"W	3277.68	293.131	0.55	0.52	-0.18
10572.00	89.510	328.370	8039.50	2836.40	1367.95	-3084.86	1763373.83	425616.35	39°39'58.5189"N	80°13'43.2600"W	3356.28	294.053	1.29	-0.06	1.28
10667.00	88.520	325.840	8041.13	2931.37	1447.70	-3116.44	1763322.25	425696.09	39°39'59.3029"N	80°13'43.9278"W	3436.28	294.917	2.86	-1.04	-2.66
10762.00	88.950	326.740	8043.23	3026.35	1526.71	-3169.15	1763269.54	425775.09	39°40'0.0794"N	80°13'44.6100"W	3517.72	295.722	1.05	0.45	0.95
10856.00	89.450	327.790	8044.54	3120.33	1605.77	-3219.98	1763218.72	425854.15	39°40'0.8567"N	80°13'45.2682"W	3598.16	296.505	1.24	0.53	1.12
10951.00	89.170	327.900	8045.69	3215.29	1686.19	-3270.53	1763168.17	425934.57	39°40'1.6474"N	80°13'45.9230"W	3679.62	297.274	0.32	-0.29	0.12
11046.00	88.430	327.390	8047.68	3310.24	1766.42	-3321.36	1763117.34	426014.80	39°40'2.4362"N	80°13'46.5813"W	3761.87	298.006	0.95	-0.78	-0.54
11141.00	88.770	326.990	8050.00	3405.20	1846.24	-3372.82	1763065.88	426094.61	39°40'3.2210"N	80°13'47.2476"W	3845.07	298.696	0.55	0.36	-0.42
11236.00	88.710	327.360	8052.09	3500.17	1926.06	-3424.31	1763014.40	426174.42	39°40'4.0056"N	80°13'47.9143"W	3928.81	299.356	0.39	-0.06	0.39
11321.00	88.990	326.070	8053.99	3595.15	2005.45	-3476.43	1762962.28	426253.81	39°40'4.7860"N	80°13'48.5891"W	4013.40	299.979	1.39	0.29	-1.36
11429.00	89.170	325.910	8055.57	3693.13	2086.68	-3531.24	1762907.48	426335.03	39°40'5.5843"N	80°13'49.2984"W	4101.69	300.580	0.25	0.18	-0.16
11524.00	90.030	326.250	8056.23	3788.13	2165.51	-3584.25	1762854.47	426413.86	39°40'6.3591"N	80°13'49.9844"W	4187.63	301.139	0.97	0.91	0.36
11619.00	89.660	326.670	8056.49	3883.13	2244.69	-3636.74	1762801.98	426493.03	39°40'7.1374"N	80°13'50.6639"W	4273.70	301.684	0.59	-0.39	0.44
11715.00	89.600	326.640	8057.11	3979.12	2324.89	-3689.51	1762749.22	426573.22	39°40'7.9257"N	80°13'51.3470"W	4360.91	302.216	0.07	-0.06	-0.03
11809.00	89.850	327.850	8057.56	4073.11	2403.94	-3740.36	1762698.36	426652.27	39°40'8.7028"N	80°13'52.0056"W	4446.26	302.729	1.31	0.27	1.29
11905.00	89.230	326.430	8058.33	4169.10	2484.57	-3792.45	1762646.28	426732.90	39°40'9.4955"N	80°13'52.6800"W	4533.85	303.230	1.61	-0.65	-1.48
12000.00	90.060	325.880	8058.92	4264.09	2563.47	-3845.36	1762593.38	426811.79	39°40'10.2710"N	80°13'53.3648"W	4621.49	303.689	1.05	0.87	-0.58
12095.00	90.220	326.130	8058.69	4359.09	2642.23	-3898.47	1762540.26	426890.55	39°40'11.0451"N	80°13'54.0523"W	4709.51	304.128	0.31	0.17	0.26
12190.00	90.490	326.690	8058.10	4454.09	2721.37	-3951.03	1762487.71	426969.68	39°40'11.8229"N	80°13'54.7326"W	4797.55	304.558	0.65	0.28	0.59
12285.00	90.860	327.190	8056.98	4549.08	2800.98	-4002.85	1762435.89	427049.29	39°40'12.6055"N	80°13'55.4036"W	4885.52	304.982	0.65	0.39	0.53
12380.00	90.220	325.970	8056.08	4644.07	2880.27	-4055.17	1762383.58	427128.57	39°40'13.3849"N	80°13'56.0809"W	4973.97	305.385	1.45	-0.67	-1.28
12474.00	89.660	326.130	8056.18	4738.07	2958.24	-4107.67	1762331.08	427206.54	39°40'14.1512"N	80°13'56.7603"W	5062.03	305.761	0.62	-0.60	0.17
12570.00	90.030	326.460	8056.44	4834.07	3038.11	-4160.94	1762277.82	427286.40	39°40'14.9362"N	80°13'57.4499"W	5152.04	306.135	0.52	0.39	0.34
12665.00	90.030	326.570	8056.39	4929.07	3117.34	-4213.35	1762225.41	427365.63	39°40'15.7150"N	80°13'58.1284"W	5241.20	306.497	0.12	0.00	0.12
12760.00	90.220	327.730	8056.18	5024.05	3197.15	-4264.88	1762173.88	427445.43	39°40'16.4995"N	80°13'58.7957"W	5330.19	306.857	1.24	0.20	1.22
12855.00	89.850	326.870	8056.13	5119.04	3277.09	-4316.20	1762122.56	427525.37	39°40'17.2854"N	80°13'59.4604"W	5419.31	307.208	0.99	-0.39	-0.91
12950.00	89.780	326.520	8056.43	5213.04	3355.65	-4367.82	1762070.95	427603.93	39°40'18.0577"N	80°14'0.1286"W	5508.02	307.534	0.38	-0.07	-0.37
13045.00	90.520	325.230	8056.18	5309.03	3435.12	-4421.67	1762017.10	427683.39	39°40'18.8387"N	80°14'0.8256"W	5599.22	307.843	1.55	0.77	-1.34
13140.00	91.450	325.520	8054.54	5404.00	3513.28	-4475.64	1761963.13	427761.55	39°40'19.6067"N	80°14'1.5240"W	5689.86	308.131	1.03	0.98	0.31

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Actual Wellpath Report

Bunner 7H AWP Proj: 25085'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Bunner 7H
Field	Monongalia		API/Legal	
Facility	Bunner Pad		Wellbore	Bunner 7H AWB
Slot	Slot 7H			

WELLPATH DATA (277 stations)

ID [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]
13235.00	91.320	325.400	8052.25	5498.96	3591.51	-4529.49	1761909.28	427839.77	39°40'20.3755"N	80°14'2.2208"W	5780.59	308.412	0.19	-0.14	-0.13
13330.00	91.200	324.910	8050.16	5593.92	3669.46	-4583.76	1761855.02	427917.72	39°40'21.1415"N	80°14'2.9229"W	5871.61	308.678	0.53	-0.13	-0.52
13426.00	90.520	325.640	8048.72	5689.89	3748.35	-4638.44	1761800.35	427996.60	39°40'21.9167"N	80°14'3.6304"W	5963.66	308.942	1.04	-0.71	0.76
13521.00	89.850	325.350	8048.41	5784.88	3826.64	-4692.25	1761746.54	428074.88	39°40'22.6860"N	80°14'4.3268"W	6054.78	309.198	0.77	-0.71	-0.31
13616.00	90.860	325.370	8047.82	5879.86	3904.80	-4746.25	1761692.54	428153.04	39°40'23.4841"N	80°14'5.0255"W	6146.08	309.445	1.06	1.06	0.02
13711.00	90.480	325.340	8046.73	5974.84	3982.95	-4800.25	1761638.54	428231.18	39°40'24.2220"N	80°14'5.7243"W	6237.49	309.684	0.42	-0.42	-0.03
13806.00	91.080	325.750	8045.45	6069.82	4061.27	-4853.99	1761584.80	428309.50	39°40'24.9917"N	80°14'6.4198"W	6328.92	309.919	0.78	0.65	0.43
13900.00	91.230	325.550	8043.56	6163.79	4138.86	-4907.02	1761531.78	428387.09	39°40'25.7542"N	80°14'7.1060"W	6419.43	310.146	0.27	0.16	-0.21
13996.00	90.710	324.890	8041.93	6259.76	4217.70	-4961.77	1761477.03	428465.92	39°40'26.5289"N	80°14'7.8145"W	6512.16	310.366	0.88	-0.54	-0.69
14090.00	90.830	325.100	8040.67	6353.72	4294.69	-5015.69	1761423.11	428542.91	39°40'27.2854"N	80°14'8.5121"W	6603.15	310.572	0.26	0.13	0.22
14185.00	91.110	324.260	8039.06	6448.67	4372.19	-5070.61	1761368.20	428620.40	39°40'28.0469"N	80°14'9.2225"W	6695.31	310.770	0.93	0.29	-0.88
14282.00	91.350	325.830	8036.98	6545.61	4451.67	-5126.17	1761312.65	428699.88	39°40'28.8279"N	80°14'9.9414"W	6789.33	310.972	1.64	0.25	1.62
14377.00	91.140	325.690	8034.91	6640.59	4530.19	-5179.61	1761259.21	428778.39	39°40'29.5995"N	80°14'10.6330"W	6881.20	311.174	0.27	-0.22	-0.15
14473.00	90.920	326.240	8033.19	6736.57	4609.73	-5233.33	1761205.49	428857.93	39°40'30.3812"N	80°14'11.3284"W	6974.05	311.375	0.62	-0.23	0.57
14568.00	91.110	326.790	8031.51	6831.55	4688.95	-5285.73	1761153.09	428937.14	39°40'31.1598"N	80°14'12.0069"W	7065.78	311.576	0.61	0.20	0.58
14663.00	90.990	326.040	8029.77	6926.54	4768.08	-5338.28	1761100.55	429016.27	39°40'31.9376"N	80°14'12.6872"W	7157.64	311.771	0.80	-0.13	-0.79
14758.00	91.230	326.270	8027.92	7021.52	4846.96	-5391.18	1761047.65	429095.15	39°40'32.7129"N	80°14'13.3720"W	7249.68	311.957	0.35	0.25	0.24
14854.00	90.620	326.270	8026.38	7117.50	4926.79	-5444.48	1760994.36	429174.97	39°40'33.4975"N	80°14'14.0620"W	7342.73	312.142	0.64	-0.64	0.00
14949.00	91.020	326.620	8025.02	7212.49	5005.95	-5496.98	1760941.85	429254.13	39°40'34.2755"N	80°14'14.7418"W	7434.81	312.323	0.56	0.42	0.37
15045.00	89.720	325.090	8024.40	7308.48	5085.40	-5550.86	1760887.98	429333.57	39°40'35.0563"N	80°14'15.4392"W	7528.17	312.494	2.09	-1.35	-1.59
15141.00	90.120	325.930	8024.53	7404.47	5164.52	-5605.22	1760833.62	429412.69	39°40'35.8338"N	80°14'16.1427"W	7621.73	312.657	0.97	0.42	0.87
15236.00	90.090	326.990	8024.36	7499.47	5243.71	-5657.71	1760781.14	429491.87	39°40'36.6121"N	80°14'16.8223"W	7714.02	312.825	1.12	-0.03	1.12
15331.00	91.080	327.390	8023.39	7594.45	5323.55	-5709.18	1760729.67	429571.70	39°40'37.3969"N	80°14'17.4890"W	7806.08	312.998	1.12	1.04	0.42
15427.00	90.150	326.300	8022.36	7690.44	5403.91	-5761.68	1760677.17	429652.06	39°40'38.1868"N	80°14'18.1689"W	7899.32	313.165	1.49	-0.97	-1.14
15522.00	90.150	327.670	8022.11	7785.43	5483.57	-5813.44	1760625.41	429731.71	39°40'38.9899"N	80°14'18.8392"W	7991.60	313.327	1.44	0.00	1.44
15618.00	90.580	326.220	8021.49	7881.42	5564.03	-5865.80	1760573.06	429812.17	39°40'39.7607"N	80°14'19.5173"W	8084.92	313.488	1.58	0.45	-1.51
15713.00	90.620	326.000	8020.50	7976.42	5642.88	-5918.77	1760520.09	429891.02	39°40'40.5357"N	80°14'20.2031"W	8177.65	313.633	0.24	0.04	-0.23
15809.00	90.030	325.730	8019.96	8072.41	5722.34	-5972.64	1760466.23	429970.47	39°40'41.3166"N	80°14'20.9004"W	8271.49	313.774	0.68	-0.61	-0.28
15905.00	90.400	326.310	8019.60	8168.41	5801.95	-6026.29	1760412.57	430050.07	39°40'42.0989"N	80°14'21.5949"W	8365.33	313.913	0.72	0.39	0.60
16000.00	90.550	326.390	8018.81	8263.41	5881.02	-6078.93	1760359.94	430129.15	39°40'42.8762"N	80°14'22.2765"W	8458.12	314.052	0.18	0.16	0.08



Actual Wellpath Report

Bunner 7H AWP Proj: 25085'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

WELLPATH DATA (277 stations)

ID [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]
16095.00	90.090	326.010	8018.28	8358.40	5959.97	-6131.78	1760307.09	430208.08	39°40'43.6520"N	80°14'22.9607"W	8551.02	314.186	0.63	-0.48	-0.40
16190.00	90.120	326.420	8018.10	8453.40	6038.92	-6184.61	1760254.27	430287.03	39°40'44.4280"N	80°14'23.6446"W	8643.96	314.317	0.43	0.03	0.43
16285.00	90.000	326.020	8018.00	8548.40	6117.89	-6237.43	1760201.45	430365.99	39°40'45.2040"N	80°14'24.3285"W	8736.93	314.446	0.44	-0.13	-0.42
16380.00	90.030	326.710	8017.98	8643.40	6196.98	-6290.05	1760148.84	430445.08	39°40'45.9814"N	80°14'25.0098"W	8829.91	314.573	0.73	0.03	0.73
16475.00	90.550	326.740	8017.50	8738.40	6276.40	-6342.17	1760096.72	430524.50	39°40'46.7621"N	80°14'25.6848"W	8922.80	314.701	0.55	0.56	0.03
16570.00	91.780	325.950	8015.57	8833.38	6355.46	-6394.81	1760044.09	430603.55	39°40'47.5391"N	80°14'26.3663"W	9015.84	314.823	1.54	1.29	-0.83
16666.00	90.680	325.960	8013.51	8929.35	6434.99	-6448.54	1759990.36	430683.08	39°40'48.3206"N	80°14'27.0619"W	9110.03	314.940	1.15	-1.15	0.01
16761.00	90.080	326.280	8012.89	9024.35	6513.86	-6501.49	1759937.40	430761.94	39°40'49.0957"N	80°14'27.7476"W	9203.25	315.054	0.73	-0.65	0.34
16856.00	90.090	326.140	8012.77	9119.35	6592.81	-6554.33	1759884.57	430840.89	39°40'49.8717"N	80°14'28.4316"W	9296.47	315.168	0.15	0.03	-0.15
16951.00	90.030	326.250	8012.67	9214.35	6671.75	-6607.18	1759831.72	430919.82	39°40'50.6475"N	80°14'29.1160"W	9389.73	315.279	0.13	-0.06	0.12
17046.00	90.280	326.350	8012.41	9309.35	6750.78	-6659.89	1759779.01	430998.85	39°40'51.4242"N	80°14'29.7985"W	9483.00	315.388	0.28	0.26	0.11
17141.00	90.120	326.430	8011.88	9404.34	6829.90	-6712.48	1759726.43	431077.96	39°40'52.2018"N	80°14'30.4794"W	9576.27	315.497	0.19	-0.17	0.08
17237.00	90.120	326.180	8011.88	9500.34	6909.77	-6765.74	1759673.18	431157.83	39°40'52.9868"N	80°14'31.1690"W	9670.58	315.603	0.26	0.00	-0.26
17332.00	90.310	326.320	8011.52	9595.34	6988.76	-6818.52	1759620.40	431236.81	39°40'53.7631"N	80°14'31.8524"W	9763.96	315.706	0.25	0.20	0.15
17427.00	90.340	326.480	8010.98	9690.34	7067.89	-6871.09	1759567.83	431315.94	39°40'54.5408"N	80°14'32.5331"W	9857.33	315.809	0.17	0.03	0.17
17522.00	90.280	326.220	8010.47	9785.34	7146.97	-6923.73	1759515.20	431395.01	39°40'55.3180"N	80°14'33.2148"W	9950.74	315.909	0.28	-0.06	-0.27
17617.00	90.430	326.490	8009.88	9880.34	7226.05	-6976.36	1759462.57	431474.09	39°40'56.0953"N	80°14'33.8963"W	10044.17	316.007	0.33	0.16	0.28
17712.00	90.370	326.710	8009.22	9975.34	7305.36	-7028.65	1759410.27	431553.39	39°40'56.8748"N	80°14'34.5735"W	10137.57	316.106	0.24	-0.06	0.23
17808.00	90.220	326.020	8008.72	10071.33	7385.29	-7081.83	1759357.10	431633.32	39°40'57.6603"N	80°14'35.2621"W	10232.05	316.202	0.74	-0.16	-0.72
17903.00	89.780	325.900	8008.72	10166.33	7464.01	-7135.01	1759303.93	431712.03	39°40'58.4339"N	80°14'35.9506"W	10325.68	316.291	0.48	-0.46	-0.13
17998.00	90.150	326.190	8008.78	10261.33	7542.81	-7188.07	1759250.87	431790.83	39°40'59.2083"N	80°14'36.6376"W	10419.32	316.379	0.49	0.39	0.31
18091.00	90.060	326.300	8008.61	10354.33	7620.13	-7239.74	1759199.20	431868.15	39°40'59.9682"N	80°14'37.3067"W	10510.96	316.466	0.15	-0.10	0.12
18186.00	90.180	326.040	8008.41	10449.33	7699.05	-7292.63	1759146.31	431947.06	39°41'0.7438"N	80°14'37.9915"W	10604.61	316.553	0.30	0.13	-0.27
18281.00	89.880	326.150	8008.36	10544.33	7777.89	-7345.62	1759093.32	432025.90	39°41'1.5186"N	80°14'38.6777"W	10698.31	316.637	0.34	-0.32	0.12
18375.00	89.630	325.830	8008.76	10638.32	7855.81	-7398.20	1759040.75	432103.81	39°41'2.2844"N	80°14'39.3584"W	10791.07	316.718	0.43	-0.27	-0.34
18470.00	90.490	327.190	8008.66	10733.32	7935.04	-7450.62	1758988.34	432183.03	39°41'3.0630"N	80°14'40.0373"W	10884.69	316.803	1.69	0.91	1.43
18565.00	89.630	326.590	8008.56	10828.31	8014.61	-7502.51	1758936.45	432262.60	39°41'3.8452"N	80°14'40.7094"W	10978.24	316.890	1.10	-0.91	-0.63
18661.00	88.620	325.800	8010.03	10924.30	8094.37	-7555.92	1758883.04	432342.36	39°41'4.6290"N	80°14'41.4010"W	11072.97	316.971	1.34	-1.05	-0.82
18756.00	89.260	326.210	8011.79	11019.28	8173.12	-7609.02	1758829.94	432421.10	39°41'5.4029"N	80°14'42.0886"W	11166.79	317.047	0.80	0.67	0.43
18851.00	89.540	326.340	8012.78	11114.28	8252.13	-7661.77	1758777.20	432500.10	39°41'6.1794"N	80°14'42.7716"W	11260.56	317.125	0.32	0.29	0.14



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

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]
18946.00	89.970	326.400	8013.19	11209.28	8331.23	-7714.38	1758724.59	432579.20	39°41'16.9568"N	80°14'43.4529"W	11354.34	317.202	0.46	0.45	0.06
19042.00	89.570	326.060	8013.57	11305.27	8411.03	-7767.74	1758671.23	432658.99	39°41'17.7410"N	80°14'44.1439"W	11449.16	317.277	0.55	-0.42	-0.35
19137.00	89.630	326.020	8014.24	11400.27	8489.82	-7820.82	1758618.17	432737.78	39°41'18.5153"N	80°14'44.8311"W	11543.05	317.349	0.08	0.06	-0.04
19232.00	89.820	326.200	8014.69	11495.27	8568.68	-7873.78	1758565.20	432816.64	39°41'19.2903"N	80°14'45.5170"W	11636.95	317.420	0.28	0.20	0.19
19327.00	89.880	326.440	8014.94	11590.27	8647.73	-7926.46	1758512.52	432895.69	39°41'10.0673"N	80°14'46.1992"W	11730.82	317.492	0.26	0.06	0.25
19422.00	89.450	327.140	8015.50	11685.26	8727.22	-7978.49	1758460.50	432975.16	39°41'10.8485"N	80°14'46.8732"W	11824.58	317.566	0.86	-0.45	0.74
19518.00	89.010	327.350	8016.79	11781.24	8807.94	-8030.43	1758408.56	433055.89	39°41'11.6420"N	80°14'47.5461"W	11919.21	317.644	0.51	-0.46	0.22
19613.00	89.230	327.300	8018.25	11876.22	8887.90	-8081.71	1758357.28	433135.84	39°41'12.4279"N	80°14'48.2105"W	12012.86	317.720	0.24	0.23	-0.05
19708.00	89.170	327.090	8019.57	11971.20	8967.74	-8133.17	1758305.82	433215.67	39°41'13.2128"N	80°14'48.8773"W	12106.56	317.794	0.23	-0.06	-0.22
19803.00	89.080	327.250	8021.02	12066.18	9047.56	-8184.67	1758254.33	433295.49	39°41'13.9973"N	80°14'49.5445"W	12200.29	317.867	0.19	-0.09	0.17
19899.00	89.050	327.070	8022.59	12162.16	9128.21	-8236.73	1758202.48	433376.13	39°41'14.7900"N	80°14'50.2189"W	12295.03	317.939	0.19	-0.03	-0.19
19994.00	89.380	326.890	8023.89	12257.14	9207.81	-8288.55	1758150.45	433455.73	39°41'15.5725"N	80°14'50.8903"W	12388.86	318.008	0.45	0.35	-0.28
20089.00	89.910	327.160	8024.48	12352.14	9287.47	-8340.32	1758098.69	433535.38	39°41'16.3554"N	80°14'51.5609"W	12482.71	318.076	0.67	0.56	0.38
20185.00	90.030	326.920	8024.53	12448.13	9368.02	-8392.55	1758046.46	433615.92	39°41'17.1471"N	80°14'52.2375"W	12577.54	318.144	0.28	0.12	-0.25
20280.00	90.030	326.900	8024.48	12543.12	9447.61	-8444.41	1757994.60	433695.51	39°41'17.9295"N	80°14'52.9094"W	12671.44	318.209	0.02	0.00	-0.02
20375.00	89.350	327.070	8025.00	12638.12	9527.27	-8496.17	1757942.84	433775.17	39°41'18.7124"N	80°14'53.5800"W	12765.34	318.274	0.74	-0.72	0.18
20470.00	89.290	326.990	8026.12	12733.10	9606.96	-8547.87	1757891.15	433854.86	39°41'19.4958"N	80°14'54.2498"W	12859.23	318.339	0.11	-0.06	-0.08
20566.00	90.120	328.650	8026.62	12829.07	9688.21	-8598.99	1757840.03	433936.10	39°41'20.2945"N	80°14'54.9124"W	12953.92	318.409	1.93	0.86	1.73
20661.00	89.230	327.450	8027.16	12924.02	9768.81	-8649.26	1757789.76	434016.70	39°41'21.0869"N	80°14'55.5640"W	13047.59	318.478	1.57	-0.94	-1.26
20756.00	89.380	327.830	8028.31	13018.99	9849.06	-8700.11	1757738.92	434096.93	39°41'21.8757"N	80°14'56.2229"W	13141.38	318.544	0.43	0.16	0.40
20852.00	89.170	327.610	8029.52	13114.96	9930.21	-8751.37	1757687.66	434178.09	39°41'22.6735"N	80°14'56.8873"W	13236.15	318.611	0.32	-0.22	-0.23
20947.00	88.830	327.090	8031.18	13209.93	10010.19	-8802.62	1757636.42	434258.06	39°41'23.4596"N	80°14'57.5513"W	13330.04	318.673	0.65	-0.36	-0.55
21043.00	88.340	327.580	8033.55	13305.89	10090.98	-8854.42	1757584.63	434338.84	39°41'24.2538"N	80°14'58.2225"W	13424.92	318.734	0.72	-0.51	0.51
21138.00	88.280	327.640	8036.35	13400.82	10171.16	-8905.28	1757533.76	434419.02	39°41'25.0420"N	80°14'58.8818"W	13518.75	318.796	0.09	-0.06	0.06
21233.00	88.680	326.820	8038.87	13495.78	10251.02	-8956.68	1757482.36	434498.87	39°41'25.8269"N	80°14'59.5478"W	13612.70	318.855	0.96	0.42	-0.86
21328.00	88.920	327.050	8040.86	13590.75	10330.61	-9008.50	1757430.55	434578.46	39°41'26.6093"N	80°15'0.2192"W	13706.74	318.911	0.35	0.25	0.24
21423.00	88.740	327.030	8042.80	13685.72	10410.31	-9060.18	1757378.87	434658.15	39°41'27.3926"N	80°15'0.8887"W	13800.77	318.967	0.19	-0.19	-0.02
21518.00	88.620	326.270	8044.99	13780.70	10489.64	-9112.39	1757326.67	434737.48	39°41'28.1723"N	80°15'1.5650"W	13894.90	319.019	0.81	-0.13	-0.80
21613.00	88.770	326.130	8047.18	13876.67	10569.39	-9165.78	1757273.28	434817.23	39°41'28.9560"N	80°15'2.2555"W	13990.13	319.068	0.21	0.16	-0.15
21708.00	88.770	325.840	8049.22	13971.65	10648.12	-9218.91	1757220.15	434895.95	39°41'29.7297"N	80°15'2.9446"W	14084.42	319.115	0.31	0.00	-0.31



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

WELLPATH DATA (277 stations)

MID [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]
21805.00	87.350	326.270	8052.47	14067.59	10727.71	-9272.49	1757166.58	434975.54	39°41'30.5118"N	80°15'3.6384"W	14179.66	319.162	1.55	-1.48	0.45
21899.00	87.750	326.590	8056.49	14161.50	10805.96	-9324.42	1757114.65	435053.78	39°41'31.2808"N	80°15'4.3110"W	14272.83	319.209	0.54	0.43	0.34
21994.00	87.350	326.400	8060.55	14256.42	10885.10	-9376.81	1757062.26	435132.92	39°41'32.0586"N	80°15'4.9897"W	14366.98	319.257	0.47	-0.42	-0.20
22089.00	87.050	326.350	8065.19	14351.30	10964.11	-9429.35	1757009.72	435211.93	39°41'32.8351"N	80°15'5.6703"W	14461.14	319.304	0.32	-0.32	-0.05
22183.00	87.050	326.460	8070.02	14445.18	11042.31	-9481.30	1756957.78	435290.12	39°41'33.6036"N	80°15'6.3431"W	14554.30	319.350	0.12	0.00	0.12
22278.00	87.480	326.510	8074.56	14540.07	11121.42	-9533.69	1756905.39	435369.23	39°41'34.3811"N	80°15'7.0218"W	14648.46	319.396	0.46	0.45	0.05
22374.00	87.720	325.830	8078.58	14635.98	11201.10	-9587.09	1756851.99	435448.90	39°41'35.1641"N	80°15'7.7135"W	14743.71	319.440	0.75	0.25	-0.71
22469.00	87.570	326.270	8082.48	14730.90	11279.84	-9640.10	1756798.99	435527.63	39°41'35.9378"N	80°15'8.4000"W	14838.00	319.482	0.49	-0.16	0.46
22565.00	87.810	326.160	8086.35	14826.82	11359.56	-9693.44	1756745.65	435607.35	39°41'36.7213"N	80°15'9.0909"W	14933.27	319.525	0.27	0.25	-0.11
22660.00	87.940	326.540	8089.87	14921.76	11438.59	-9746.05	1756693.05	435686.37	39°41'37.4979"N	80°15'9.7723"W	15027.53	319.568	0.42	0.14	0.40
22755.00	87.070	326.410	8094.01	15016.67	11517.71	-9798.46	1756640.63	435765.49	39°41'38.2754"N	80°15'10.4513"W	15121.76	319.611	0.93	-0.92	-0.14
22850.00	87.690	326.720	8098.35	15111.57	11596.91	-9850.75	1756588.35	435844.68	39°41'39.0538"N	80°15'11.1287"W	15215.96	319.654	0.73	0.65	0.33
22945.00	87.230	326.290	8102.56	15206.47	11676.05	-9903.13	1756535.98	435923.82	39°41'39.8316"N	80°15'11.8072"W	15310.20	319.697	0.66	-0.48	-0.45
23040.00	88.310	326.270	8106.26	15301.40	11755.01	-9955.82	1756483.28	436002.77	39°41'40.6075"N	80°15'12.4898"W	15404.50	319.737	1.14	1.14	-0.02
23136.00	88.240	325.970	8109.15	15397.35	11834.67	-10009.32	1756429.79	436082.43	39°41'41.3903"N	80°15'13.1826"W	15499.87	319.777	0.32	-0.07	-0.31
23231.00	88.030	326.130	8112.24	15492.30	11913.43	-10062.34	1756376.77	436161.19	39°41'42.1643"N	80°15'13.8694"W	15594.25	319.815	0.28	-0.22	0.17
23326.00	88.220	326.220	8115.35	15587.25	11992.31	-10115.20	1756323.92	436240.06	39°41'42.9394"N	80°15'14.5540"W	15688.62	319.853	0.22	0.20	0.09
23421.00	88.490	326.150	8118.08	15682.21	12071.21	-10168.04	1756271.08	436318.95	39°41'43.7148"N	80°15'15.2385"W	15783.00	319.891	0.29	0.28	-0.07
23517.00	89.260	326.010	8119.96	15778.19	12150.86	-10221.60	1756217.52	436398.59	39°41'44.4974"N	80°15'15.9322"W	15878.43	319.929	0.82	0.80	-0.15
23612.00	89.110	326.120	8121.31	15873.18	12229.67	-10274.63	1756164.49	436477.40	39°41'45.2719"N	80°15'16.6191"W	15972.88	319.965	0.20	-0.16	0.12
23707.00	89.110	326.050	8122.79	15968.17	12308.49	-10327.63	1756111.50	436556.22	39°41'46.0465"N	80°15'17.3056"W	16067.33	320.001	0.07	0.00	-0.07
23802.00	89.170	325.970	8124.21	16063.15	12387.25	-10380.74	1756058.40	436634.98	39°41'46.8204"N	80°15'17.9934"W	16161.80	320.036	0.11	0.06	-0.08
23897.00	89.200	326.320	8125.56	16158.14	12466.14	-10433.65	1756005.48	436713.86	39°41'47.5956"N	80°15'18.6788"W	16256.25	320.072	0.37	0.03	0.37
23991.00	90.090	326.130	8126.15	16252.14	12544.27	-10485.91	1755953.23	436791.98	39°41'48.3634"N	80°15'19.3557"W	16349.71	320.107	0.97	0.95	-0.20
24087.00	90.150	326.400	8125.95	16348.14	12624.11	-10539.22	1755899.92	436871.81	39°41'49.1479"N	80°15'20.0463"W	16445.16	320.143	0.29	0.06	0.28
24182.00	91.230	325.110	8124.80	16443.12	12702.63	-10592.68	1755846.47	436950.33	39°41'49.9195"N	80°15'20.7386"W	16539.70	320.175	1.77	1.14	-1.36
24277.00	91.140	324.980	8122.84	16538.08	12780.47	-10647.10	1755792.05	437028.17	39°41'50.6843"N	80°15'21.4431"W	16634.34	320.203	0.17	-0.09	-0.14
24372.00	90.980	324.470	8121.10	16632.02	12857.20	-10701.37	1755737.78	437104.90	39°41'51.4380"N	80°15'22.1458"W	16728.03	320.229	0.57	-0.17	-0.54
24468.00	90.490	325.120	8119.88	16726.98	12934.82	-10756.13	1755683.02	437182.51	39°41'52.2005"N	80°15'22.8547"W	16822.72	320.254	0.86	-0.52	0.68
24563.00	90.220	324.770	8119.29	16821.95	13012.58	-10810.70	1755628.46	437260.27	39°41'52.9645"N	80°15'23.5611"W	16917.40	320.281	0.47	-0.28	-0.37



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

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]
24657.00	90.580	325.230	8118.62	16917.92	13091.22	-10865.76	1755573.40	437338.90	39°41'53.7370"N	80°15'24.2740"W	17013.08	320.307	0.61	0.38	0.48
24752.00	90.520	324.800	8117.71	17012.89	13169.05	-10920.23	1755518.94	437416.73	39°41'54.5016"N	80°15'24.9792"W	17107.75	320.333	0.46	-0.06	-0.45
24847.00	90.740	325.120	8116.66	17107.85	13246.83	-10974.77	1755464.40	437494.50	39°41'55.2657"N	80°15'25.6853"W	17202.44	320.359	0.41	0.23	0.34
24942.00	90.920	325.380	8115.29	17202.82	13324.87	-11028.91	1755410.26	437572.54	39°41'56.0325"N	80°15'26.3864"W	17297.08	320.386	0.33	0.19	0.27
25037.00	90.680	325.300	8113.96	17297.80	13403.01	-11082.93	1755356.24	437650.67	39°41'56.8002"N	80°15'27.0859"W	17391.72	320.413	0.27	-0.25	-0.08
25060.00	90.890	325.310	8113.65	17320.79	13421.92	-11096.02	1755343.15	437669.58	39°41'56.9859"N	80°15'27.2554"W	17414.64	320.419	0.91	0.91	0.04
25085.00‡	90.890	325.310	8113.26	17345.78	13442.47	-11110.25	1755328.93	437690.13	39°41'57.1879"N	80°15'27.4396"W	17439.54	320.426	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Bunner 7H AWB Ref Wellpath: Bunner 7H AWP Proj: 25085'

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	1279.98	0.00	0.00	-5.12	1.43
13.375in Casing Surface	28.00	1250.00	1222.00	28.00	1249.98	0.00	0.00	-5.02	1.32
12.25in Open Hole	1280.00	2530.00	1250.00	1279.98	2522.56	-5.12	1.43	-25.92	-117.46
9.625in Casing Intermediate	28.00	2500.00	2472.00	28.00	2492.97	0.00	0.00	-24.54	-112.72
8.75in Open Hole	2530.00	7581.00	5051.00	2522.56	7340.37	-25.92	-117.46	-596.86	-1464.31
8.5in Open Hole	7581.00	25085.00	17504.00	7340.37	8113.26	-596.86	-1464.31	13442.47	-11110.25
5.5in Casing Production	28.00	25055.00	25027.00	28.00	8113.72	0.00	0.00	13417.81	-11093.18

02/23/2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Bunner 7H BHL Rev-6	8060.00	13439.75	-11115.45	1755323.73	437687.41	39°41'57.1606"N	80°15'27.5058"W	point
Bunner 7H Inflection Point Rev-2	8060.00	12243.07	-10291.36	1756147.77	436490.80	39°41'45.4029"N	80°15'16.8345"W	point
Bunner 7H LP Rev-4	8060.00	-186.53	-2053.02	1764385.60	424061.96	39°39'43.2375"N	80°13'30.1610"W	point
Bunner South Hardline #1 (4.1.21)	8600.00	-849.01	2943.24	1769381.56	423399.52	39°39'37.0841"N	80°12'26.2100"W	polygon
Bunner South Hardline #1 (8.15.2022)	9003.00	8639.71	-11818.47	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 7H AWB Ref Wellpath: Bunner 7H AWP Proj: 25085'

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] (100'-1150')	Bunner 7H AWB	12/19/2022
1150.00	2451.00	OWSG MWD rev2 + HRGM	02 <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1150')(1343'-2451')	Bunner 7H AWB	12/19/2022
2451.00	7505.00	OWSG MWD rev2 + HRGM	03 <8.75"> SDI MWD [OWSG MWD REV.2-HRGM] (2451')(2557'-7505')	Bunner 7H AWB	12/19/2022
7505.00	25085.00	BH AutoTrak Curve/Express (2019) (HRGM, Short spacing)	04 <8.5"> BH ATK Curve [HRGM+Short Spacing] (7505')(7627'-25060')	Bunner 7H AWB	12/19/2022



Actual Wellpath Report

Bunner 7H AWP Proj: 25085'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Bunner 7H
Field	Monongalia	API/Legal	
Facility	Bunner Pad	Wellbore	Bunner 7H AWB
Slot	Slot 7H		

COMMENTS

Wellpath general comments

API:47061019090000
BH Job #: 111543084
Rig: Patterson 277
Duration: 12/19/2022 - 12/24/2022

- 01_ <17.5"> Javins Inertial Gyro [Northseeking] (100'-1150')
- 02_ <12.25"> SDI MWD [OWSG MWD REV.2-HRGM] (1150')(1343'-2451')
- 03_ <8.75"> SDI MWD [OWSG MWD REV.2-HRGM] (2451')(2557'-7505')
- 04_ <8.5"> BH ATK Curve [HRGM+Short Spacing] (7505')(7627'-25060')

Final Survey MD @ 25060'
Projected MD at TD: 25085'

02/23/2024