

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

API 47 - 061 - 01893 County Monongalia District Clay  
Quad Blacksville Pad Name Yost Field/Pool Name \_\_\_\_\_  
Farm name Yost Heritage, Inc. Well Number Yost 4H  
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 4388303.3 Easting 567079.3  
Landing Point of Curve Northing 4387792.5 Easting 566726.7  
Bottom Hole Northing 4384778.9 Easting 568911.5

Elevation (ft) 1,492' 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 12/1/2021 Date drilling commenced 3/1/2022 Date drilling ceased 6/26/2022  
Date completion activities began 8/21/2022 Date completion activities ceased 9/7/2022  
Verbal plugging (Y/N) N Date permission granted NA Granted by \_\_\_\_\_

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

Freshwater depth(s) ft 180', 480', 1,378' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2,410' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 775', 930', 1,115' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by: \_\_\_\_\_

02/23/2024

API 47-061 - 01893 Farm name Yost Heritage, Inc. Well number Yost 4H

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"	100'	N		NA	
Surface	17-1/2"	13-3/8"	1,469'	N	54.5	NA	Y, 15 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,668'	N	40	NA	Y, 20 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	21,164'	N	20	NA	Y
Tubing							
Packer type and depth set							

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

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	4,500 PSI Grout					CTS	48
Surface	Class A + 2%	1,255	15.6	1.19	1,490	CTS	8
Coal							
Intermediate 1	Class A + 1%	890	15.6	1.18	1,053	CTS	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class A + Additives	3,890	14.5	1.16	4,506	2,083	48
Tubing							

Drillers TD (ft) 21,164' Loggers TD (ft) 21,154'

Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_

Plug back procedure \_\_\_\_\_

Kick off depth (ft) 7,416'

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 - 01893 Farm name Yost Heritage, Inc. Well number Yost 4H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Marcellus	7,990'	TVD 21,184' MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole 2067 psi DURATION OF TEST 24 hrs  
 OPEN FLOW Gas 724 mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  
 Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
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 Pro Frac  
 Address 800 Mountain View Dr 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 1/10/2024

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



**Yost 4H**  
Perforation Report

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
1	8/21/2022	0	21,146	0
2	8/21/2022	40	21,014	20,877
3	8/21/2022	40	20,840	20,702
4	8/21/2022	40	20,665	20,528
5	8/22/2022	40	20,491	20,353
6	8/22/2022	40	20,316	20,179
7	8/22/2022	40	20,142	20,004
8	8/22/2022	40	19,967	19,830
9	8/22/2022	40	19,973	19,655
10	8/23/2022	40	19,618	19,481
11	8/23/2022	40	19,444	19,306
12	8/23/2022	40	19,269	19,132
13	8/23/2022	40	19,095	18,957
14	8/23/2022	40	18,920	18,783
15	8/24/2022	40	18,746	18,608
16	8/24/2022	40	18,571	18,434
17	8/24/2022	40	18,397	18,259
18	8/24/2022	40	18,222	18,085
19	8/25/2022	40	18,048	17,910
20	8/25/2022	40	17,873	17,736
21	8/25/2022	40	17,699	17,561
22	8/25/2022	40	17,524	17,387
23	8/26/2022	40	17,350	17,212
24	8/26/2022	40	17,175	17,038
25	8/26/2022	40	17,001	16,863
26	8/26/2022	40	16,826	16,689
27	8/27/2022	40	16,652	16,514
28	8/27/2022	40	16,477	16,340
29	8/27/2022	40	16,303	16,165
30	8/27/2022	40	16,128	15,991
31	8/28/2022	40	15,954	15,816
32	8/28/2022	40	15,780	15,642
33	8/28/2022	40	15,605	15,467
34	8/29/2022	40	15,431	15,293
35	8/29/2022	40	15,256	15,118
36	8/29/2022	40	15,082	14,944
37	8/29/2022	40	14,907	14,769
38	8/29/2022	40	14,733	14,595
39	8/30/2022	40	14,558	14,420
40	8/30/2022	40	14,384	14,246
41	8/30/2022	40	14,209	14,071
42	8/30/2022	40	14,035	13,897
43	8/31/2022	40	13,860	13,723
44	8/31/2022	40	13,686	13,548
45	8/31/2022	40	13,511	13,374

02/23/2024

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
46	8/31/2022	40	13,337	13,199
47	9/1/2022	40	13,162	13,025
48	9/1/2022	40	12,988	12,850
49	9/1/2022	40	12,813	12,676
50	9/1/2022	40	12,639	12,501
51	9/2/2022	40	12,464	12,327
52	9/2/2022	40	12,290	12,152
53	9/2/2022	40	12,115	11,978
54	9/2/2022	40	11,941	11,803
55	9/3/2022	40	11,766	11,629
56	9/3/2022	40	11,592	11,454
57	9/3/2022	40	11,417	11,280
58	9/3/2022	40	11,243	11,105
59	9/4/2022	40	11,068	10,931
60	9/4/2022	40	10,894	10,756
61	9/4/2022	40	10,719	10,582
62	9/4/2022	40	10,545	10,407
63	9/5/2022	40	10,370	10,233
64	9/5/2022	40	10,196	10,058
65	9/5/2022	40	10,021	9,884
66	9/5/2022	40	9,847	9,709
67	9/5/2022	40	9,672	9,535
68	9/6/2022	40	9,498	9,360
69	9/6/2022	40	9,323	9,186
70	9/6/2022	40	9,149	9,011
71	9/6/2022	40	8,974	8,837

02/23/2024



## Yost 4H 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	8/21/2022	6,040	8,426	9,404	88	403	7,429	300,060	531
2	8/21/2022	6,119	7,056	9,298	85	103	8,477	389,960	527
3	8/21/2022	6,198	6,575	9,579	92	112	8,428	391,740	493
4	8/21/2022	5,868	6,389	9,548	93	9	8,259	393,714	511
5	8/22/2022	5,629	6,398	9,546	94	22	8,235	390,142	528
6	8/22/2022	6,015	6,443	9,585	93	38	8,265	390,740	496
7	8/22/2022	5,856	7,108	9,477	91	36	8,274	391,000	496
8	8/22/2022	6,429	7,241	9,353	92	29	8,283	390,580	486
9	8/22/2022	5,310	7,169	9,432	92	10	8,041	389,958	465
10	8/23/2022	5,463	7,228	9,499	93	60	8,159	389,494	455
11	8/23/2022	5,145	7,156	9,424	91	2	8,224	389,240	483
12	8/23/2022	5,336	6,173	9,378	92	55	8,273	391,440	480
13	8/23/2022	5,297	7,543	9,536	94	24	8,115	390,640	485
14	8/23/2022	6,037	7,341	9,485	93	44	7,857	390,883	464
15	8/24/2022	6,807	6,683	9,379	94	27	7,846	390,123	455
16	8/24/2022	9,072	6,393	9,218	94	52	8,277	391,540	470
17	8/24/2022	5,184	5,151	9,008	93	50	8,269	390,880	462
18	8/24/2022	5,496	7,605	8,883	93	57	7,727	391,300	411
19	8/25/2022	5,340	4,312	9,135	93	36	7,867	391,340	405
20	8/25/2022	5,852	5,784	9,036	92	26	8,320	389,880	445
21	8/25/2022	5,236	6,709	9,147	92	38	8,294	388,680	506
22	8/25/2022	5,793	6,552	8,989	92	36	7,598	391,720	485
23	8/26/2022	5,511	7,043	8,837	92	56	7,656	391,340	480
24	8/26/2022	5,987	5,052	8,941	90	7	8,035	391,400	422
25	8/26/2022	4,891	7,005	8,992	88	14	8,233	391,000	409
26	8/26/2022	5,799	7,322	9,093	91	40	8,007	391,300	426
27	8/27/2022	5,775	46	8,909	92	35	7,985	391,060	415
28	8/27/2022	5,526	6,512	8,888	93	28	8,169	391,618	426
29	8/27/2022	6,017	6,512	8,888	93	28	7,931	392,860	457
30	8/27/2022	6,217	7,017	8,807	92	41	7,748	391,920	458
31	8/28/2022	5,843	6,632	8,698	93	30	7,939	391,240	403
32	8/28/2022	4,842	7,714	8,963	90	24	8,357	390,640	409
33	8/28/2022	5,495	7,415	8,730	92	32	8,071	392,040	413
34	8/29/2022	5,384	6,818	8,798	92	24	8,001	390,080	419
35	8/29/2022	5,037	7,273	8,759	92	20	7,758	390,500	417
36	8/29/2022	5,378	7,119	8,878	92	12	8,175	390,120	371
37	8/29/2022	5,381	7,205	8,704	93	13	8,066	392,040	372
38	8/29/2022	5,457	7,850	8,685	92	39	7,728	391,600	370
39	8/30/2022	5,130	7,490	8,622	91	27	7,845	389,080	454
40	8/30/2022	4,760	7,323	8,701	92	52	8,147	390,680	390
41	8/30/2022	5,187	5,680	8,602	92	44	7,988	389,660	370
42	8/30/2022	5,507	7,415	8,625	93	48	7,839	391,480	366
43	8/31/2022	6,034	7,094	8,648	93	30	7,759	390,200	364
44	8/31/2022	4,966	6,084	8,635	93	7	8,229	391,400	483

02/23/2024

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)
45	8/31/2022	4,843	6,541	8,719	94	2	7,918	388,420	355
46	8/31/2022	5,416	6,566	8,580	92	24	7,631	388,480	303
47	9/1/2022	5,715	6,901	8,430	93	31	8,099	391,100	289
48	9/1/2022	5,143	7,372	8,409	92	37	7,751	389,160	348
49	9/1/2022	5,657	6,946	8,342	94	18	7,840	390,680	302
50	9/1/2022	5,746	7,227	8,370	94	23	8,015	395,300	334
51	9/2/2022	5,260	7,387	8,351	93	9	7,830	392,400	285
52	9/2/2022	5,251	7,425	8,347	93	8	7,766	382,720	331
53	9/2/2022	5,115	7,513	8,561	93	30	7,874	391,800	311
54	9/2/2022	6,625	6,937	8,196	93	38	8,747	389,920	268
55	9/3/2022	5,537	7,567	8,290	91	29	7,965	391,820	259
56	9/3/2022	5,253	7,378	8,066	93	13	7,599	392,140	308
57	9/3/2022	6,085	7,476	8,211	93	51	7,999	390,880	297
58	9/3/2022	6,056	7,290	8,355	93	11	8,079	391,470	295
59	9/4/2022	5,534	6,990	8,219	93	47	8,027	391,620	293
60	9/4/2022	5,948	7,619	8,290	91	55	9,098	389,380	292
61	9/4/2022	5,973	7,138	8,309	93	35	7,994	390,120	293
62	9/4/2022	6,119	7,177	8,013	94	19	7,985	391,200	286
63	9/5/2022	5,939	7,361	8,069	93	18	8,309	390,700	283
64	9/5/2022	5,822	7,005	8,077	93	24	7,975	378,600	284
65	9/5/2022	6,140	7,113	7,889	94	4	7,903	389,680	272
66	9/5/2022	5,779	6,757	7,986	92	8	7,982	390,103	269
67	9/5/2022	6,492	7,316	7,726	94	92	8,075	388,860	272
68	9/6/2022	6,784	7,274	7,814	94	13	7,837	390,940	257
69	9/6/2022	5,372	7,469	7,903	94	5	7,711	389,860	254
70	9/6/2022	5,828	7,487	7,845	94	4	7,764	395,700	241
71	9/6/2022	5,672	8,285	8,120	94	30	7,891	392,980	259

02/23/2024



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)
Shale/Sand	0	120	Shale/Sand
Shale/sand/silt	120	390	Shale/sand/silt with water @ 180'
sand/shale	390	510	sand/shale with water @ 480'
sandstone/siltstone	510	775	sandstone/siltstone
coal	775	780	coal
sandstone/limestone	780	930	sandstone/limestone
coal	930	940	coal
sandstone/limestone	940	1020	sandstone/limestone
Limestone	1020	1050	Limestone
Limestone/siltstone	1050	1110	Limestone/siltstone
coal	1110	1115	coal
Limestone	1115	1140	Limestone
Limestone/sandstone/shale	1140	1260	Limestone/sandstone/shale
red shale/siltstone	1260	1440	red shale/siltstone with water @ 1378'
sandstone/siltstone	1440	1680	sandstone/siltstone
sandstone/siltstone/lime	1680	2310	sandstone/siltstone/lime
Big Lime	2310	2400	Big Lime
Big Injun	2400	2580	Big Injun
siltstone	2580	2620	siltstone
Gantz	2620	2680	Gantz
siltstone	2680	3050	siltstone
Sandstone	3050	3180	Sandstone
Upper Devonian undifferentiated	3180	6000	Upper Devonian undifferentiated
siltstone/shale/gray shale	6000	6450	siltstone/shale/gray shale
Devonian silt/sand/shale	6450	7550	Devonian silt/sand/shale
Middlesex	7550	7770	Middlesex
Burkett	7770	7960	Burkett
Geneseo	7960	8011	Geneseo
Tully	8011	8062	Tully
Hamilton	8062	8176	Hamilton
Marcellus	8176	TD	Marcellus











Cement Job Log



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

Customer:	NORTHEAST NATURAL ENERGY LLC	Date:	26-Jun-22	Serv. Supervisor:	Anthony Barbara
Cust. Rep.:		Ticket #:	BPA-2206-0035	Serv. Center:	Black Lick - 1571
Well Name:	Yost 4H	API Well #:	47-061-01893	County:	Monongalia
Well Type:		Rig:	Patterson 277	State:	WV
				Type of Job:	CM-PROD. CASING

Materials Furnished by NoxTier

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-910+50 % NPZ-010 +0.2 % NFP-703+0.15 % NAA-504+0.35 % NRT-213+0.2 % NFL-549+0.1 % NTC-405	3890	14.5		1.16	4.89	802.57	4,506.42	453
Sugar Water Displacement	+5.0 PPB NRT-215					-	20.00	-	
Fresh Water Displacement						-	450.04	-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA										
8.75 in. O.H. 2,630 to 7,648 ft 8.5 in. O.H. 7,648 to 21,198 ft				5.5 in. 20#, (0 to 21,198 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.									
68.0 °F		71.4 °F				5.5" 20#	BTC	21164	P-110	4.778	12640	11080		

PREVIOUS CASING DATA		PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
9.625 in. 36# (0 to 2,630 ft)		TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
						21164	21161		

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)					
OBM	12.5 ppg	470 bbl	H2O	8.3 ppg	2428	14217	3500	<200	7	63.2 °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 Recirculation	Rathole Length (ft)
Yes	3,500.00	Y			2,083	Yes	4,800.00	No		No	45

Comments/Additional Details:  
Had Issue with Compressor Trailer blowing fuses when trying to start it. Able to get started and ran through job, but needs to be fixed. Water in electric box. Also had to change out casing bowl for crossover to head because it was leaking and could not get to stop.

		<i>Anthony Barbara</i> Service Supervisor		26-Jun-22 Date	
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### REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

### 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	6/27/2022 at 5:01:50 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	52.29	-38.86	1766245.84	416716.39	39°38'30.7874"N	80°13'5.6228"W
Facility Reference Pt			1766284.70	416664.10	39°38'30.2737"N	80°13'5.1207"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	1520.00ft
Horizontal Reference Pt	Slot	Patterson 277 (RKB) to Mean Sea Level	1520.00ft
Vertical Reference Pt	Patterson 277 (RKB)	Patterson 277 (RKB) to Ground Level at Slot (Slot 04)	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	145.00°



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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	81.000	0.00	0.00	0.00	0.00	1766245.84	416716.39	39°38'30.7874"N	80°13'5.6228"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	81.000	28.00	0.00	0.00	0.00	1766245.84	416716.39	39°38'30.7874"N	80°13'5.6228"W	0.00	0.000	0.00	0.00	0.00
50.00	0.570	81.000	50.00	0.05	0.02	0.11	1766245.95	416716.41	39°38'30.7876"N	80°13'5.6215"W	0.11	81.000	2.59	0.00	0.00
100.00	0.510	1.400	100.00	-0.02	0.28	0.36	1766246.20	416716.67	39°38'30.7902"N	80°13'5.6183"W	0.45	52.211	1.39	-0.12	-159.20
150.00	0.300	335.300	150.00	-0.33	0.62	0.31	1766246.15	416717.01	39°38'30.7936"N	80°13'5.6189"W	0.69	26.563	0.55	-0.42	-52.20
200.00	0.280	280.800	200.00	-0.55	0.76	0.14	1766245.98	416717.15	39°38'30.7950"N	80°13'5.6212"W	0.77	10.065	0.53	-0.04	-109.00
250.00	0.400	287.100	250.00	-0.77	0.84	-0.15	1766245.69	416717.23	39°38'30.7957"N	80°13'5.6249"W	0.85	349.719	0.25	0.24	12.60
300.00	0.420	234.800	299.99	-0.91	0.78	-0.47	1766245.37	416717.17	39°38'30.7951"N	80°13'5.6289"W	0.91	329.077	0.72	0.04	-104.60
350.00	0.490	247.200	349.99	-0.95	0.59	-0.82	1766245.03	416716.98	39°38'30.7932"N	80°13'5.6333"W	1.01	306.043	0.24	0.14	24.80
400.00	0.490	223.600	399.99	-0.96	0.36	-1.16	1766244.68	416716.75	39°38'30.7909"N	80°13'5.6377"W	1.21	287.041	0.40	0.00	-47.20
450.00	0.570	223.100	449.99	-0.86	0.02	-1.48	1766244.36	416716.41	39°38'30.7875"N	80°13'5.6417"W	1.48	270.737	0.16	0.16	-1.00
500.00	0.630	173.700	499.99	-0.57	-0.44	-1.62	1766244.22	416715.95	39°38'30.7830"N	80°13'5.6435"W	1.67	254.913	1.01	0.12	-98.80
550.00	0.790	192.400	549.98	-0.10	-1.05	-1.66	1766244.18	416715.34	39°38'30.7770"N	80°13'5.6440"W	1.96	237.800	0.56	0.32	37.40
600.00	0.790	183.500	599.98	0.41	-1.73	-1.76	1766244.08	416714.66	39°38'30.7702"N	80°13'5.6451"W	2.46	225.481	0.25	0.00	-17.80
650.00	0.740	196.800	649.97	0.88	-2.38	-1.87	1766243.97	416714.01	39°38'30.7638"N	80°13'5.6465"W	3.03	218.162	0.37	-0.10	26.60
700.00	0.730	172.200	699.97	1.36	-3.00	-1.92	1766243.92	416713.39	39°38'30.7576"N	80°13'5.6471"W	3.57	212.584	0.63	-0.02	-49.20
750.00	0.690	133.400	749.97	1.94	-3.53	-1.66	1766244.18	416712.86	39°38'30.7525"N	80°13'5.6437"W	3.90	205.181	0.95	-0.08	-77.60
800.00	0.400	97.500	799.96	2.35	-3.76	-1.27	1766244.57	416712.63	39°38'30.7502"N	80°13'5.6386"W	3.96	198.630	0.87	-0.58	-71.80
850.00	0.300	89.800	849.96	2.54	-3.78	-0.96	1766244.88	416712.61	39°38'30.7500"N	80°13'5.6348"W	3.90	194.289	0.22	-0.20	-15.40
900.00	0.200	345.600	899.96	2.54	-3.69	-0.85	1766244.99	416712.70	39°38'30.7509"N	80°13'5.6334"W	3.79	193.007	0.80	-0.20	-208.40
950.00	0.290	290.500	949.96	2.35	-3.56	-0.99	1766244.85	416712.83	39°38'30.7521"N	80°13'5.6352"W	3.70	195.572	0.48	0.18	-110.20
1000.00	0.280	338.200	999.96	2.13	-3.41	-1.16	1766244.68	416712.98	39°38'30.7637"N	80°13'5.6373"W	3.60	198.762	0.46	-0.02	95.40
1050.00	0.250	276.300	1049.95	1.94	-3.28	-1.31	1766244.53	416713.11	39°38'30.7549"N	80°13'5.6393"W	3.53	201.778	0.55	-0.06	-123.80
1100.00	0.170	349.100	1099.96	1.80	-3.20	-1.43	1766244.41	416713.19	39°38'30.7557"N	80°13'5.6408"W	3.50	204.153	0.51	-0.16	145.60
1150.00	0.310	284.100	1149.96	1.63	-3.09	-1.58	1766244.26	416713.30	39°38'30.7568"N	80°13'5.6427"W	3.47	207.056	0.57	0.28	-130.00
1200.00	0.700	226.000	1199.96	1.57	-3.27	-1.93	1766243.91	416713.12	39°38'30.7550"N	80°13'5.6472"W	3.80	210.544	1.19	0.78	-116.20
1250.00	0.760	231.400	1249.95	1.64	-3.69	-2.41	1766243.43	416712.70	39°38'30.7508"N	80°13'5.6533"W	4.41	213.138	0.18	0.12	10.80
1300.00	0.850	223.400	1299.95	1.74	-4.17	-2.92	1766242.92	416712.22	39°38'30.7460"N	80°13'5.6598"W	5.09	215.053	0.29	0.18	-16.00
1350.00	0.400	267.500	1334.95	1.72	-4.36	-3.22	1766242.62	416712.03	39°38'30.7441"N	80°13'5.6636"W	5.42	216.475	1.79	-1.29	126.00
1400.00	0.560	164.130	1496.94	2.15	-5.13	-3.58	1766242.26	416711.26	39°38'30.7364"N	80°13'5.6680"W	6.25	214.863	0.46	0.09	-63.81



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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]
1591.00	1.010	277.540	1590.94	2.02	-5.46	-4.27	1766241.57	416710.93	39°38'30.7332"N	80°13'5.6769"W	6.93	218.061	1.41	0.49	120.65
1686.00	3.640	277.230	1685.85	-0.57	-4.97	-8.10	1766237.74	416711.42	39°38'30.7377"N	80°13'5.7258"W	9.50	238.464	2.77	2.77	-0.33
1781.00	6.240	280.120	1780.49	-6.26	-3.68	-16.17	1766229.67	416712.71	39°38'30.7498"N	80°13'5.8292"W	16.58	257.176	2.75	2.74	3.04
1876.00	7.850	278.400	1874.77	-14.38	-1.83	-27.67	1766218.17	416714.56	39°38'30.7672"N	80°13'5.9764"W	27.73	266.225	1.71	1.69	-1.81
1970.00	7.470	276.210	1967.93	-22.81	-0.23	-40.10	1766205.74	416716.16	39°38'30.7820"N	80°13'6.1354"W	40.10	269.675	0.51	-0.40	-2.33
2065.00	5.820	270.430	2062.29	-29.67	0.48	-51.05	1766194.79	416716.87	39°38'30.7881"N	80°13'6.2755"W	51.06	270.535	1.87	-1.74	-6.08
2160.00	5.500	261.830	2156.83	-34.52	-0.13	-60.38	1766185.47	416716.26	39°38'30.7813"N	80°13'6.3946"W	60.38	269.873	0.95	-0.34	-9.05
2254.00	6.680	256.260	2250.30	-38.54	-2.07	-70.15	1766175.70	416714.32	39°38'30.7614"N	80°13'6.5193"W	70.18	268.308	1.40	1.26	-5.93
2349.00	6.490	260.270	2344.67	-42.83	-4.29	-80.81	1766165.04	416712.10	39°38'30.7386"N	80°13'6.6553"W	80.92	266.959	0.52	-0.20	4.22
2444.00	5.980	274.850	2439.12	-48.30	-4.78	-91.03	1766154.82	416711.61	39°38'30.7330"N	80°13'6.7860"W	91.16	266.993	1.75	-0.54	15.35
2539.00	6.790	280.670	2533.53	-55.48	-3.32	-101.48	1766144.37	416713.07	39°38'30.7466"N	80°13'6.9197"W	101.53	268.124	1.09	0.85	6.13
2634.00	8.030	277.290	2627.73	-63.97	-1.44	-113.58	1766132.27	416714.95	39°38'30.7642"N	80°13'7.0746"W	113.59	269.273	1.38	1.31	-3.56
2743.00	9.190	272.720	2735.50	-74.42	-0.06	-129.83	1766116.02	416716.33	39°38'30.7766"N	80°13'7.2824"W	129.83	269.973	1.23	1.06	-4.19
2837.00	9.000	262.610	2828.33	-82.42	-0.65	-144.62	1766101.23	416715.74	39°38'30.7696"N	80°13'7.4714"W	144.62	269.742	1.71	-0.20	-10.76
2931.00	9.160	251.400	2921.16	-87.94	-3.98	-159.00	1766086.85	416712.41	39°38'30.7355"N	80°13'7.6549"W	159.05	268.565	1.89	0.17	-11.93
3026.00	9.620	236.270	3014.90	-90.25	-10.80	-172.77	1766073.08	416705.59	39°38'30.6670"N	80°13'7.8302"W	173.11	266.421	2.64	0.48	-15.93
3121.00	10.140	230.820	3108.49	-89.81	-20.50	-185.86	1766059.99	416695.90	39°38'30.5702"N	80°13'7.9965"W	186.98	263.707	1.13	0.55	-5.74
3215.00	11.410	231.980	3200.83	-88.72	-31.45	-199.60	1766046.26	416684.94	39°38'30.4508"N	80°13'8.1710"W	202.06	261.045	1.37	1.35	1.23
3309.00	12.990	236.380	3292.71	-88.49	-43.03	-215.72	1766030.13	416673.36	39°38'30.3452"N	80°13'8.3759"W	219.97	258.720	1.95	1.68	4.68
3407.00	15.640	240.040	3387.66	-89.91	-55.73	-236.34	1766009.51	416660.67	39°38'30.2180"N	80°13'8.6382"W	242.82	256.733	2.86	2.70	3.73
3502.00	17.120	237.360	3478.80	-91.61	-69.66	-259.21	1765986.64	416646.73	39°38'30.0785"N	80°13'8.9291"W	268.41	254.957	1.75	1.56	-2.82
3597.00	18.390	236.520	3569.28	-92.59	-85.47	-283.49	1765962.37	416630.92	39°38'29.9203"N	80°13'9.2378"W	296.09	253.222	1.36	1.34	-0.88
3692.00	19.040	232.860	3659.26	-92.40	-103.10	-308.34	1765937.52	416613.30	39°38'29.7442"N	80°13'9.5537"W	325.12	251.512	1.41	0.68	-3.85
3786.00	18.280	232.780	3748.31	-91.26	-121.27	-332.30	1765913.56	416595.13	39°38'29.5627"N	80°13'9.8581"W	353.74	249.951	0.81	-0.81	-0.09
3881.00	18.230	230.690	3838.53	-89.57	-139.70	-355.66	1765890.20	416576.70	39°38'29.3787"N	80°13'10.1549"W	382.11	248.556	0.69	-0.05	-2.20
3976.00	18.040	233.080	3928.82	-87.96	-157.95	-378.92	1765866.94	416558.45	39°38'29.1965"N	80°13'10.4503"W	410.52	247.372	0.81	-0.20	2.52
4071.00	18.110	233.490	4019.13	-87.08	-175.57	-402.55	1765843.32	416540.83	39°38'29.0205"N	80°13'10.7505"W	439.17	246.436	0.15	0.07	0.43
4166.00	18.490	233.470	4109.32	-86.28	-193.32	-426.52	1765819.35	416523.08	39°38'28.8432"N	80°13'11.0551"W	468.29	245.618	0.40	0.40	-0.02
4261.00	18.570	233.660	4198.45	-85.54	-211.06	-450.55	1765795.31	416505.34	39°38'28.6660"N	80°13'11.3605"W	497.54	244.899	0.11	0.09	0.20
4359.00	18.060	233.970	4292.43	-84.89	-229.43	-475.66	1765770.21	416486.97	39°38'28.4824"N	80°13'11.6796"W	528.10	244.250	0.52	-0.52	0.31



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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]
4453.00	17.960	234.120	4381.83	-84.41	-246.49	-499.19	1765746.68	416469.91	39°38'28.3119"N	80°13'11.9786"W	556.73	243.720	0.12	-0.11	0.16
4548.00	18.260	235.450	4472.12	-84.30	-263.52	-523.31	1765722.56	416452.89	39°38'28.1418"N	80°13'12.2852"W	585.92	243.272	0.54	0.32	1.40
4642.00	17.720	233.250	4561.53	-83.98	-280.43	-546.91	1765698.97	416435.98	39°38'27.9728"N	80°13'12.5850"W	614.61	242.853	0.92	-0.57	-2.34
4736.00	16.970	232.430	4651.25	-82.93	-297.35	-569.24	1765676.63	416419.05	39°38'27.8038"N	80°13'12.8688"W	642.23	242.419	0.84	-0.80	-0.87
4831.00	16.990	229.180	4742.11	-80.90	-314.88	-590.73	1765655.14	416401.53	39°38'27.6289"N	80°13'13.1418"W	669.42	241.941	1.00	0.02	-3.42
4926.00	16.850	233.200	4833.00	-79.06	-332.20	-612.26	1765633.61	416384.21	39°38'27.4560"N	80°13'13.4152"W	696.58	241.517	1.24	-0.15	4.23
5025.00	16.810	235.240	4927.76	-78.67	-348.96	-635.51	1765610.36	416367.45	39°38'27.2885"N	80°13'13.7107"W	725.02	241.229	0.60	-0.04	2.06
5120.00	17.500	234.190	5018.54	-78.52	-365.15	-658.38	1765587.50	416351.26	39°38'27.1267"N	80°13'14.0003"W	752.86	240.987	0.80	0.73	-1.11
5215.00	17.840	232.900	5109.06	-77.79	-382.28	-681.57	1765564.31	416334.13	39°38'26.9555"N	80°13'14.2960"W	781.46	240.713	0.55	0.36	-1.36
5309.00	17.880	233.330	5198.53	-76.84	-399.59	-704.63	1765541.25	416316.83	39°38'26.7827"N	80°13'14.5890"W	810.05	240.443	0.15	0.04	0.46
5404.00	17.690	231.000	5288.99	-75.41	-417.38	-727.55	1765518.34	416299.04	39°38'26.6050"N	80°13'14.8800"W	838.77	240.158	0.78	-0.20	-2.45
5499.00	17.310	232.550	5379.59	-73.80	-435.06	-749.98	1765495.90	416281.36	39°38'26.4286"N	80°13'15.1650"W	867.04	239.882	0.63	-0.40	1.63
5594.00	17.510	236.510	5470.24	-73.57	-451.54	-773.12	1765472.76	416264.88	39°38'26.2639"N	80°13'15.4591"W	895.33	239.713	1.26	0.21	4.17
5688.00	17.590	237.120	5559.87	-74.47	-467.05	-796.85	1765449.04	416249.37	39°38'26.1087"N	80°13'15.7608"W	923.63	239.624	0.21	0.09	0.65
5787.00	18.870	237.400	5653.90	-75.69	-483.80	-822.90	1765422.99	416232.62	39°38'25.9411"N	80°13'16.0920"W	954.58	239.548	1.30	1.29	0.28
5881.00	19.500	233.780	5742.68	-75.99	-501.26	-848.36	1765397.53	416215.16	39°38'25.7665"N	80°13'16.4157"W	985.38	239.423	1.43	0.67	-3.85
5976.00	18.930	231.970	5832.39	-74.84	-520.12	-873.29	1765372.60	416198.30	39°38'25.5781"N	80°13'16.7325"W	1016.45	239.222	0.87	-0.60	-1.91
6070.00	18.510	234.730	5921.41	-73.96	-538.13	-897.48	1765348.41	416181.09	39°38'25.3982"N	80°13'17.0399"W	1046.45	239.053	1.04	-0.45	2.94
6165.00	18.410	236.160	6011.44	-74.20	-555.33	-922.46	1765323.44	416164.44	39°38'25.2263"N	80°13'17.3573"W	1076.72	238.952	0.53	0.22	1.51
6260.00	18.190	238.430	6101.50	-75.04	-571.99	-947.70	1765298.19	416144.44	39°38'25.0597"N	80°13'17.6783"W	1106.94	238.887	0.44	-0.33	0.91
6354.00	18.180	238.430	6190.75	-76.44	-587.75	-972.66	1765273.24	416128.68	39°38'24.9019"N	80°13'17.9957"W	1136.45	238.857	0.53	-0.23	1.50
6449.00	18.180	237.460	6281.00	-77.96	-603.48	-997.78	1765248.12	416112.95	39°38'24.7444"N	80°13'18.3152"W	1166.09	238.834	0.32	-0.01	-1.02
6544.00	18.480	235.930	6371.18	-78.84	-619.89	-1022.75	1765223.15	416096.54	39°38'24.5803"N	80°13'18.6327"W	1195.94	238.780	0.60	0.32	-1.61
6642.00	18.390	231.410	6464.16	-78.13	-638.23	-1047.70	1765198.20	416078.20	39°38'24.3970"N	80°13'18.9497"W	1226.79	238.651	1.46	-0.09	-4.61
6737.00	17.330	231.180	6554.58	-76.25	-656.45	-1070.44	1765175.47	416059.98	39°38'24.2152"N	80°13'19.2385"W	1255.69	238.481	1.12	-1.12	-0.24
6832.00	17.480	232.790	6645.23	-74.75	-673.95	-1092.82	1765153.08	416042.48	39°38'24.0405"N	80°13'19.5228"W	1283.93	238.338	0.53	0.16	1.69
6926.00	17.470	229.720	6734.89	-72.91	-691.61	-1114.83	1765131.08	416024.83	39°38'23.8642"N	80°13'19.8023"W	1311.93	238.186	0.98	-0.01	-3.27
7021.00	17.450	231.800	6825.52	-70.80	-709.63	-1136.91	1765109.00	416006.80	39°38'23.6843"N	80°13'20.0826"W	1340.20	238.028	0.66	-0.02	2.19
7115.00	17.090	234.060	6915.28	-69.79	-726.46	-1159.16	1765086.75	415989.98	39°38'23.5163"N	80°13'20.3654"W	1367.99	237.924	0.81	-0.38	2.40
7209.00	16.790	233.250	7006.16	-69.14	-742.86	-1181.46	1765064.45	415973.57	39°38'23.3524"N	80°13'20.6487"W	1395.60	237.840	0.40	-0.32	-0.85





# Actual Wellpath Report

Yost 4H AWP Proj: 21209'  
Page 5 of 10



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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]
7305.00	17.240	233.640	7097.00	-68.39	-759.42	-1203.79	1765042.12	415957.02	39°38'23.1870"N	80°13'20.9325"W	1423.32	237.754	0.49	0.47	0.41
7399.00	17.320	234.210	7186.76	-67.87	-775.86	-1226.36	1765019.56	415940.58	39°38'23.0227"N	80°13'21.2192"W	1451.18	237.680	0.20	0.09	0.61
7416.00	17.270	235.020	7202.99	-67.83	-778.78	-1230.48	1765015.44	415937.65	39°38'22.9935"N	80°13'21.2716"W	1456.22	237.670	1.45	-0.29	4.76
7511.00	18.170	230.780	7293.48	-66.75	-796.24	-1253.51	1764992.41	415920.20	39°38'22.8192"N	80°13'21.5642"W	1485.02	237.576	1.66	0.95	-4.46
7606.00	20.350	227.770	7383.16	-63.58	-816.71	-1277.22	1764968.70	415899.73	39°38'22.6150"N	80°13'21.8652"W	1516.01	237.404	2.52	2.29	-3.17
7701.00	22.500	225.800	7471.60	-58.59	-840.48	-1302.49	1764943.43	415875.96	39°38'22.3780"N	80°13'22.1857"W	1550.12	237.166	2.39	2.26	-2.07
7795.00	24.250	222.730	7557.88	-51.61	-867.21	-1328.48	1764917.44	415849.24	39°38'22.1119"N	80°13'22.5152"W	1586.48	236.864	2.27	1.86	-3.27
7890.00	26.110	218.330	7643.86	-41.47	-897.94	-1354.69	1764891.23	415818.50	39°38'21.8060"N	80°13'22.8470"W	1625.26	236.462	2.78	1.96	-4.63
7985.00	27.780	214.020	7728.55	-27.54	-932.70	-1380.04	1764865.88	415783.75	39°38'21.4606"N	80°13'23.1676"W	1665.67	235.947	2.70	1.76	-4.54
8080.00	30.870	199.200	7811.48	-5.32	-974.13	-1400.48	1764845.45	415742.32	39°38'21.0495"N	80°13'23.4245"W	1705.95	235.179	8.28	3.25	-15.60
8175.00	35.490	188.400	7891.04	29.02	-1024.49	-1412.54	1764833.39	415691.96	39°38'20.5508"N	80°13'23.5735"W	1744.95	234.047	7.88	4.86	-11.37
8269.00	40.580	179.510	7965.11	74.10	-1082.14	-1416.27	1764829.66	415634.31	39°38'19.9807"N	80°13'23.6152"W	1782.37	232.617	7.94	5.41	-9.46
8363.00	46.790	172.690	8033.09	129.71	-1146.79	-1411.64	1764834.29	415569.67	39°38'19.3422"N	80°13'23.5494"W	1818.75	230.910	8.28	6.61	-7.26
8458.00	52.400	165.220	8094.69	195.79	-1217.63	-1397.61	1764848.31	415498.83	39°38'18.6432"N	80°13'23.3628"W	1853.63	228.937	8.40	5.91	-7.86
8552.00	57.940	162.050	8148.37	268.88	-1291.60	-1375.82	1764870.11	415424.87	39°38'17.9139"N	80°13'23.0766"W	1887.09	226.808	6.51	5.89	-3.37
8647.00	65.000	156.500	8193.74	349.71	-1369.52	-1346.19	1764899.73	415346.95	39°38'17.1462"N	80°13'22.6899"W	1920.37	224.508	9.03	7.43	-5.84
8742.00	72.110	152.640	8228.46	436.83	-1449.28	-1308.19	1764937.73	415267.20	39°38'16.3611"N	80°13'22.1959"W	1952.37	222.071	8.38	7.48	-4.06
8836.00	78.660	149.570	8252.17	527.22	-1528.84	-1264.23	1764981.68	415187.64	39°38'15.5783"N	80°13'21.6259"W	1983.85	219.588	7.65	6.97	-3.27
8931.00	85.440	148.130	8265.30	621.04	-1609.31	-1215.59	1765030.33	415107.18	39°38'14.7869"N	80°13'20.9959"W	2016.81	217.065	7.29	7.14	-1.52
9025.00	90.950	146.050	8268.26	714.89	-1688.15	-1164.56	1765081.35	415028.34	39°38'14.0118"N	80°13'20.3355"W	2050.86	214.600	6.26	5.86	-2.21
9121.00	92.310	145.550	8265.53	810.84	-1767.51	-1110.62	1765135.29	414948.98	39°38'13.2318"N	80°13'19.6380"W	2087.48	212.143	1.51	1.42	-0.52
9215.00	90.710	146.250	8263.05	904.79	-1845.32	-1057.94	1765187.96	414871.18	39°38'12.4670"N	80°13'18.9666"W	2127.08	209.826	1.86	-1.70	0.74
9310.00	90.250	145.530	8262.26	999.77	-1923.98	-1004.67	1765241.23	414792.53	39°38'11.6939"N	80°13'18.2677"W	2170.49	207.573	0.90	-0.48	-0.76
9404.00	89.940	145.580	8262.10	1093.77	-2001.49	-951.50	1765294.39	414715.02	39°38'10.9321"N	80°13'17.5801"W	2216.15	205.426	0.33	-0.33	0.05
9498.00	90.430	145.600	8261.80	1187.76	-2079.04	-898.38	1765347.51	414637.47	39°38'10.1699"N	80°13'16.8932"W	2264.84	203.370	0.52	0.52	0.02
9592.00	89.380	145.600	8261.96	1281.76	-2156.60	-845.28	1765400.61	414559.92	39°38'9.4076"N	80°13'16.2065"W	2316.34	201.403	1.12	-1.12	0.00
9687.00	89.080	145.760	8263.23	1376.74	-2235.06	-791.72	1765454.17	414481.47	39°38'8.6365"N	80°13'15.5139"W	2371.14	199.506	0.36	-0.32	0.17
9782.00	88.980	145.720	8264.84	1471.72	-2313.56	-738.25	1765507.64	414402.97	39°38'7.8649"N	80°13'14.8224"W	2428.49	197.698	0.11	-0.11	-0.04
9877.00	89.450	145.930	8266.14	1566.70	-2392.15	-684.89	1765560.99	414324.38	39°38'7.0925"N	80°13'14.1323"W	2488.26	195.977	0.54	0.49	0.22
9972.00	89.420	145.630	8267.07	1660.69	-2469.87	-632.03	1765613.85	414246.67	39°38'6.3286"N	80°13'13.4487"W	2549.46	194.354	0.32	-0.03	-0.32

8/23/2024



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 stations)

MD	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]
10065.00	90.710	145.400	8266.96	1754.68	-2547.35	-578.81	1765667.07	414169.19	39°38'5.5671"N	80°13'12.7605"W	2612.29	192.801	1.39	1.37	-0.24
10159.00	90.580	146.160	8265.90	1848.67	-2625.08	-525.95	1765719.92	414091.47	39°38'4.8032"N	80°13'12.0769"W	2671.25	191.330	0.82	-0.14	0.81
10253.00	91.050	146.000	8264.57	1942.64	-2703.07	-473.50	1765772.37	414013.48	39°38'4.0365"N	80°13'11.3986"W	2744.23	189.936	0.53	0.50	-0.17
10347.00	91.110	144.780	8262.80	2036.62	-2780.42	-420.12	1765825.75	413936.14	39°38'3.2764"N	80°13'10.7084"W	2811.98	188.592	1.30	0.06	-1.30
10442.00	90.920	144.960	8261.11	2131.60	-2858.10	-365.46	1765880.40	413858.46	39°38'2.5130"N	80°13'10.0018"W	2881.38	187.287	0.28	-0.20	0.19
10537.00	90.550	143.930	8259.89	2226.59	-2935.39	-310.23	1765935.63	413781.18	39°38'1.7536"N	80°13'9.2879"W	2951.73	186.033	1.15	-0.39	-1.08
10631.00	90.800	145.540	8258.79	2320.58	-3012.13	-255.96	1765989.90	413704.45	39°38'0.9995"N	80°13'8.5865"W	3022.98	184.857	1.73	0.27	1.71
10724.00	90.890	144.500	8257.41	2413.57	-3088.32	-202.65	1766043.20	413628.26	39°38'0.2507"N	80°13'7.8974"W	3094.96	183.754	1.12	0.10	-1.12
10820.00	92.460	144.550	8256.11	2509.52	-3166.46	-146.96	1766098.89	413550.12	39°37'59.4829"N	80°13'7.1776"W	3169.87	182.657	1.64	1.64	0.05
10914.00	92.550	144.620	8255.50	2603.43	-3243.00	-92.54	1766153.30	413473.59	39°37'58.7308"N	80°13'6.4742"W	3244.32	181.635	0.12	0.10	0.07
11009.00	92.060	144.370	8246.68	2698.35	-3320.27	-37.41	1766208.43	413396.32	39°37'57.9715"N	80°13'5.7617"W	3320.48	180.646	0.58	-0.52	-0.26
11103.00	91.480	144.280	8243.78	2792.29	-3396.59	17.38	1766263.22	413320.01	39°37'57.2216"N	80°13'5.0536"W	3396.64	179.707	0.62	-0.62	-0.10
11198.00	91.970	144.870	8240.92	2887.25	-3473.97	72.42	1766318.26	413242.63	39°37'56.4612"N	80°13'4.3423"W	3474.72	178.806	0.81	0.52	0.62
11293.00	91.600	144.280	8237.96	2982.20	-3551.34	127.46	1766373.29	413165.26	39°37'55.7009"N	80°13'3.6309"W	3553.63	177.945	0.73	-0.39	-0.62
11388.00	92.090	144.910	8234.90	3077.15	-3628.74	182.47	1766428.30	413087.88	39°37'54.9404"N	80°13'2.9199"W	3633.32	177.121	0.84	0.52	0.66
11483.00	91.780	144.490	8231.69	3172.09	-3706.22	237.33	1766483.16	413010.39	39°37'54.1789"N	80°13'2.2108"W	3713.82	176.336	0.55	-0.33	-0.44
11578.00	92.460	144.800	8228.18	3267.02	-3783.65	292.27	1766538.09	412932.97	39°37'53.4181"N	80°13'1.5008"W	3794.92	175.583	0.79	0.72	-0.33
11674.00	92.250	144.720	8224.23	3362.94	-3861.99	347.61	1766593.43	412854.63	39°37'52.6482"N	80°13'0.7855"W	3877.61	174.857	0.23	-0.22	-0.08
11769.00	92.340	144.710	8220.43	3457.86	-3939.48	402.44	1766648.26	412777.15	39°37'51.8868"N	80°13'0.0768"W	3959.98	174.167	0.10	0.09	-0.01
11864.00	92.430	143.980	8216.47	3552.77	-4016.60	457.77	1766703.58	412700.03	39°37'51.1290"N	80°12'59.3618"W	4042.60	173.498	0.77	0.09	-0.77
11960.00	92.680	144.660	8212.19	3648.67	-4094.50	513.71	1766759.52	412622.14	39°37'50.3635"N	80°12'58.6389"W	4126.60	172.849	0.75	0.26	0.71
12055.00	92.740	144.710	8207.70	3743.56	-4171.94	568.56	1766814.37	412544.71	39°37'49.6026"N	80°12'57.9300"W	4210.50	172.239	0.08	0.06	0.05
12150.00	93.140	144.640	8202.83	3838.44	-4249.34	623.42	1766869.22	412467.31	39°37'48.8419"N	80°12'57.2210"W	4294.83	171.654	0.43	0.42	-0.07
12245.00	93.020	144.340	8197.73	3933.30	-4326.56	678.52	1766924.32	412390.09	39°37'48.0831"N	80°12'56.5089"W	4379.44	171.087	0.34	-0.13	-0.32
12340.00	93.510	144.490	8192.32	4028.14	-4403.70	733.71	1766979.51	412312.96	39°37'47.3252"N	80°12'55.7957"W	4464.40	170.541	0.54	0.52	0.16
12435.00	93.170	144.740	8186.78	4122.97	-4481.02	788.63	1767034.42	412235.65	39°37'46.5654"N	80°12'55.0859"W	4549.88	170.019	0.44	-0.36	0.26
12530.00	93.020	143.970	8181.65	4217.83	-4558.10	843.91	1767089.70	412158.57	39°37'45.8079"N	80°12'54.3716"W	4635.57	169.511	0.82	-0.16	-0.81
12625.00	93.080	144.580	8176.60	4312.69	-4635.12	899.30	1767145.09	412081.56	39°37'45.0512"N	80°12'53.6558"W	4721.55	169.020	0.64	0.06	0.64
12720.00	92.060	144.460	8172.38	4406.59	-4711.58	953.81	1767199.59	412005.09	39°37'44.2998"N	80°12'52.9515"W	4807.16	168.556	1.09	-1.09	-0.13
12815.00	91.260	145.010	8169.63	4501.54	-4789.12	1008.63	1767254.41	411927.57	39°37'43.5378"N	80°12'52.2429"W	4894.18	168.107	1.02	-0.84	0.58

03/23/2024



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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]
12909.00	90.120	144.780	8168.49	4596.54	-4866.83	1063.26	1767309.04	411849.86	39°37'42.7741"N	80°12'51.5368"W	4981.62	167.676	1.22	-1.20	-0.24
13004.00	90.120	144.320	8168.29	4691.53	-4944.22	1118.36	1767364.13	411772.47	39°37'42.0137"N	80°12'50.8248"W	5069.13	167.254	0.48	0.00	-0.48
13098.00	90.890	144.780	8167.46	4785.52	-5020.79	1172.88	1767418.64	411695.91	39°37'41.2612"N	80°12'50.1203"W	5155.96	166.851	0.95	0.82	0.49
13194.00	90.650	144.730	8166.17	4881.51	-5099.19	1228.27	1767474.03	411617.52	39°37'40.4908"N	80°12'49.4044"W	5245.03	166.457	0.26	-0.25	-0.05
13288.00	90.830	144.880	8164.95	4975.51	-5176.00	1282.44	1767528.20	411540.71	39°37'39.7360"N	80°12'48.7042"W	5332.50	166.084	0.25	0.19	0.16
13382.00	91.230	144.900	8163.26	5069.49	-5252.88	1336.50	1767582.26	411463.83	39°37'38.9804"N	80°12'48.0056"W	5420.24	165.725	0.43	0.43	0.02
13477.00	91.450	144.600	8161.04	5164.46	-5330.44	1391.31	1767637.07	411386.28	39°37'38.2182"N	80°12'47.2972"W	5509.02	165.371	0.39	0.23	-0.32
13572.00	91.570	144.660	8158.54	5259.43	-5407.88	1446.28	1767692.04	411308.84	39°37'37.4572"N	80°12'46.5868"W	5597.94	165.027	0.19	0.13	0.06
13677.00	91.880	144.390	8155.38	5364.34	-5493.35	1507.19	1767752.94	411223.28	39°37'36.6173"N	80°12'45.7997"W	5696.36	164.687	0.39	0.30	-0.26
13762.00	91.020	144.540	8153.23	5449.35	-5562.49	1556.58	1767802.32	411154.24	39°37'35.9378"N	80°12'45.1616"W	5776.18	164.367	1.03	-1.01	0.18
13857.00	91.050	144.660	8151.51	5544.33	-5639.92	1611.60	1767857.34	411076.82	39°37'35.1770"N	80°12'44.4505"W	5865.66	164.053	0.13	0.03	0.13
13951.00	89.970	144.420	8150.67	5638.32	-5716.48	1666.13	1767911.87	411000.26	39°37'34.4246"N	80°12'43.7459"W	5954.34	163.751	1.18	-1.15	-0.26
14045.00	90.030	144.310	8150.67	5732.31	-5792.88	1720.90	1767966.63	410923.87	39°37'33.6739"N	80°12'43.0383"W	6043.09	163.455	0.13	0.06	-0.12
14141.00	90.250	144.550	8150.44	5828.31	-5870.96	1776.74	1768022.47	410845.79	39°37'32.9066"N	80°12'42.3167"W	6133.92	163.163	0.34	0.23	0.25
14235.00	90.460	144.820	8149.86	5922.31	-5947.67	1831.08	1768076.81	410769.09	39°37'32.1528"N	80°12'41.6145"W	6223.15	162.888	0.36	0.22	0.29
14329.00	90.150	145.110	8149.36	6016.30	-6024.63	1885.04	1768130.76	410692.13	39°37'31.3964"N	80°12'40.9171"W	6312.65	162.626	0.45	-0.33	0.31
14424.00	90.340	145.430	8148.95	6111.30	-6102.71	1939.16	1768184.88	410614.06	39°37'30.6291"N	80°12'40.2176"W	6403.39	162.372	0.39	0.20	0.34
14518.00	90.860	145.490	8147.97	6205.29	-6180.13	1992.45	1768238.17	410536.64	39°37'29.8681"N	80°12'39.5287"W	6493.37	162.131	0.56	0.55	0.06
14612.00	91.260	145.320	8146.23	6299.27	-6257.50	2045.82	1768291.53	410459.27	39°37'29.1077"N	80°12'38.8389"W	6583.44	161.895	0.46	0.43	-0.18
14706.00	91.260	145.310	8144.16	6393.25	-6334.78	2099.30	1768345.01	410382.00	39°37'28.3481"N	80°12'38.1476"W	6673.56	161.666	0.01	0.00	-0.01
14800.00	91.290	145.360	8142.07	6487.23	-6412.07	2152.75	1768398.46	410304.71	39°37'27.5884"N	80°12'37.4567"W	6763.80	161.441	0.06	0.03	0.05
14894.00	90.980	145.700	8140.21	6581.20	-6489.55	2205.94	1768451.64	410227.24	39°37'26.8269"N	80°12'36.7692"W	6854.23	161.226	0.49	-0.33	0.36
14989.00	91.630	145.590	8138.04	6676.17	-6567.96	2259.53	1768505.24	410148.83	39°37'26.0562"N	80°12'36.0763"W	6945.76	161.016	0.69	0.68	-0.12
15084.00	91.230	145.550	8135.67	6771.14	-6646.29	2313.23	1768558.93	410070.51	39°37'25.2863"N	80°12'35.3822"W	7037.34	160.810	0.42	-0.42	-0.04
15179.00	91.510	145.740	8133.40	6866.10	-6724.70	2366.83	1768612.52	409992.11	39°37'24.5156"N	80°12'34.6894"W	7129.05	160.610	0.36	0.29	0.20
15274.00	91.170	145.470	8131.18	6961.07	-6803.06	2420.48	1768666.17	409913.74	39°37'23.7453"N	80°12'33.9959"W	7220.83	160.415	0.46	-0.36	-0.28
15369.00	91.290	145.860	8129.14	7056.04	-6881.49	2474.05	1768719.73	409835.32	39°37'22.9744"N	80°12'33.3034"W	7312.72	160.225	0.43	0.13	0.41
15463.00	91.020	146.410	8127.25	7150.01	-6959.53	2526.42	1768772.10	409757.29	39°37'22.2073"N	80°12'32.6262"W	7403.91	160.048	0.65	-0.29	0.59
15558.00	91.020	145.410	8125.56	7244.98	-7038.19	2579.65	1768825.34	409678.63	39°37'21.4340"N	80°12'31.9380"W	7496.05	159.871	1.05	0.00	-1.05
15653.00	90.950	145.160	8123.92	7339.96	-7116.27	2633.75	1768879.43	409600.56	39°37'20.6666"N	80°12'31.2388"W	7588.01	159.690	0.27	-0.07	-0.26



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## WELLPATH DATA (240 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]
15747.00	90.950	145.660	8122.36	7433.95	-7193.64	2687.10	1768932.78	409523.19	39°37'19.9067"N	80°12'30.5492"W	7679.13	159.517	0.53	0.00	0.53
15842.00	90.890	145.700	8120.84	7528.93	-7272.09	2740.66	1768986.33	409444.74	39°37'19.1350"N	80°12'29.8569"W	7771.39	159.350	0.08	-0.06	0.04
15937.00	91.260	145.670	8119.06	7623.90	-7350.54	2794.20	1769039.87	409366.30	39°37'18.3639"N	80°12'29.1647"W	7863.72	159.186	0.39	0.39	-0.03
16031.00	91.260	145.370	8116.99	7717.88	-7428.01	2847.41	1769093.07	409288.83	39°37'17.6024"N	80°12'28.4770"W	7955.07	159.026	0.32	0.00	-0.32
16126.00	91.570	145.540	8114.64	7812.85	-7506.24	2901.26	1769146.92	409210.61	39°37'16.8335"N	80°12'27.7810"W	8047.42	158.868	0.37	0.33	0.18
16221.00	91.170	145.890	8112.37	7907.81	-7584.71	2954.76	1769200.42	409132.15	39°37'16.0622"N	80°12'27.0894"W	8139.93	158.716	0.56	-0.42	0.37
16315.00	91.230	145.800	8110.40	8001.78	-7662.48	3007.52	1769253.18	409054.38	39°37'15.2977"N	80°12'26.4073"W	8231.57	158.570	0.12	0.06	-0.10
16410.00	91.110	145.620	8108.46	8096.75	-7740.95	3061.03	1769306.69	408975.91	39°37'14.5264"N	80°12'25.7156"W	8324.20	158.424	0.23	-0.13	-0.19
16504.00	90.890	145.770	8106.82	8190.73	-7818.59	3114.00	1769359.65	408898.28	39°37'13.7632"N	80°12'25.0309"W	8415.90	158.283	0.28	-0.23	0.16
16598.00	91.350	145.780	8104.99	8284.70	-7896.30	3166.86	1769412.51	408820.58	39°37'12.9994"N	80°12'24.3477"W	8507.67	158.146	0.49	0.49	0.01
16693.00	91.970	145.760	8102.23	8379.66	-7974.81	3220.28	1769465.92	408742.07	39°37'12.2277"N	80°12'23.6572"W	8600.45	158.011	0.65	0.65	-0.02
16787.00	92.650	145.280	8098.44	8473.57	-8052.23	3273.45	1769519.09	408664.65	39°37'11.4666"N	80°12'22.9699"W	8692.17	157.877	0.89	0.72	-0.51
16882.00	92.520	146.360	8094.16	8568.47	-8130.74	3326.77	1769572.40	408586.15	39°37'10.6949"N	80°12'22.2807"W	8785.00	157.748	1.14	-0.14	1.14
16977.00	93.230	146.140	8089.39	8663.32	-8209.63	3379.48	1769625.11	408507.26	39°37'9.9193"N	80°12'21.5992"W	8878.00	157.626	0.78	0.75	-0.23
17070.00	93.140	145.500	8084.23	8756.17	-8286.45	3431.64	1769677.27	408430.45	39°37'9.1642"N	80°12'20.9249"W	8968.91	157.504	0.69	-0.10	-0.69
17165.00	92.520	145.690	8079.54	8851.05	-8364.73	3485.26	1769730.88	408352.17	39°37'8.3947"N	80°12'20.2320"W	9061.77	157.380	0.68	-0.65	0.20
17260.00	91.420	144.270	8076.27	8945.99	-8442.48	3539.74	1769785.36	408274.42	39°37'7.6306"N	80°12'19.5279"W	9154.52	157.253	1.89	-1.16	-1.49
17355.00	91.570	145.480	8073.79	9040.95	-8520.16	3594.38	1769840.00	408196.76	39°37'6.8672"N	80°12'18.8219"W	9247.30	157.127	1.28	0.16	1.27
17451.00	90.950	144.580	8071.68	9136.93	-8598.80	3649.39	1769895.00	408118.11	39°37'6.0942"N	80°12'18.1111"W	9341.17	157.003	1.14	-0.65	-0.94
17546.00	91.720	144.880	8069.47	9231.90	-8676.34	3704.23	1769949.84	408040.58	39°37'5.3322"N	80°12'17.4026"W	9433.99	156.881	0.87	0.81	0.32
17641.00	91.140	144.480	8067.10	9326.87	-8753.83	3759.13	1770004.74	407963.09	39°37'4.5706"N	80°12'16.6932"W	9526.84	156.760	0.74	-0.61	-0.42
17736.00	91.170	144.580	8065.18	9421.85	-8831.19	3814.25	1770059.86	407885.74	39°37'3.8104"N	80°12'15.9812"W	9619.69	156.640	0.11	0.03	0.11
17830.00	91.660	144.920	8062.86	9515.82	-8907.93	3868.48	1770114.09	407809.01	39°37'3.0562"N	80°12'15.2805"W	9711.66	156.526	0.63	0.52	0.36
17926.00	91.600	144.430	8060.13	9611.78	-8986.22	3923.97	1770169.57	407730.72	39°37'2.2868"N	80°12'14.5636"W	9805.59	156.411	0.51	-0.06	-0.51
18020.00	91.970	144.500	8057.20	9705.73	-9062.68	3978.58	1770224.17	407654.27	39°37'1.5354"N	80°12'13.8582"W	9897.53	156.298	0.40	0.39	0.07
18114.00	92.000	144.300	8053.95	9799.67	-9139.06	4033.26	1770278.86	407577.89	39°37'0.7848"N	80°12'13.1518"W	9989.48	156.187	0.22	0.03	-0.21
18208.00	91.970	144.320	8050.69	9893.60	-9215.36	4088.07	1770333.66	407501.59	39°37'0.0350"N	80°12'12.4438"W	10081.43	156.077	0.04	-0.03	0.02
18302.00	91.850	144.040	8047.56	9987.54	-9291.54	4143.05	1770388.64	407425.42	39°36'59.2864"N	80°12'11.7336"W	10173.38	155.968	0.32	-0.13	-0.30
18396.00	91.850	144.130	8044.52	10081.48	-9367.63	4198.16	1770443.74	407349.33	39°36'58.5387"N	80°12'11.0218"W	10265.33	155.860	0.10	0.00	0.10
18491.00	92.220	144.660	8041.15	10176.41	-9444.82	4253.43	1770499.01	407272.15	39°36'57.7801"N	80°12'10.3078"W	10358.39	155.756	0.68	0.39	0.56

2/23/2024







**HOLE & CASING SECTIONS - Ref Wellbore: Yost 4H AWP Proj: 21209'**

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	1490.00	1462.00	28.00	1489.94	0.00	0.00	-5.07	-3.59
13.375in Casing Surface	28.00	1460.00	1432.00	28.00	1459.95	0.00	0.00	-4.83	-3.63
12.25in Open Hole	1490.00	2660.00	1170.00	1489.94	2653.47	-5.07	-3.59	-1.01	-117.25
9.625in Casing Intermediate	28.00	2630.00	2602.00	28.00	2623.77	0.00	0.00	-1.51	-113.03
8.75in Open Hole	2660.00	7476.00	4816.00	2653.47	7260.20	-1.01	-117.25	-789.51	-1245.04

**TARGETS**

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Yost 4H BHL Rev-4	8270.00	-11667.52	5817.25	1772062.73	405049.58	39°36'35.9342"N	80°11'50.1050"W	point
Yost 4H LP Rev-1	8270.00	-1659.60	-1190.38	1765055.54	415056.89	39°38'14.2919"N	80°13'20.6685"W	point
Yost Hardline #3 (1.31.21)	9028.00	-8601.44	8000.19	1774245.54	408115.48	39°37'6.4019"N	80°11'22.5146"W	polygon

2D Polygon: dimensions not calculated

**WELLPATH COMPOSITION - Ref Wellbore: Yost 4H AWP Proj: 21209'**

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1335.00	BH Generic gyro - northseeking (Standard)	01 <17.5">Gyro Surveys [BH Generic Gyro-Northseeking] (50'-1335')	Yost 4H AWB	6/18/2022
1335.00	2539.00	OWSG MWD rev2 + HRGM	02 <12.25">SDI MWD [OWSG MWD Rev.2+HRGM] (1335')(1497'-2539')	Yost 4H AWB	6/18/2022
2539.00	7399.00	OWSG MWD rev2 + HRGM	03 <8.75">SDI MWD [OWSG MWD Rev.2+HRGM] (2539')(2634'-7339')	Yost 4H AWB	6/18/2022
7399.00	21209.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 <8.5">ATK Curve [HRGM+Short Spacing] (7339')(7416' - 21184')	Yost 4H AWB	6/18/2022

02/23/2024

## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 4H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 4H AWB
Slot	Slot 04		

## COMMENTS

Wellpath general comments  
 API: 47061018930000  
 BH Job #: 111309737  
 Rig: Patterson 277  
 Duration: 6/19/2022 - 6/24/2022

- 01\_ <17.5">Gyro Surveys [BH Generic Gyro-Northseeking] (50'-1335')
- 02\_ <12.25">SDI MWD [OWSG MWD Rev.2+HRGM] (1335')(1497'-2539')
- 03\_ <8.75">SDI MWD [OWSG MWD Rev.2+HRGM] (2539')(2634'-7339')
- 04\_ <8.5">ATK Curve [HRGM+Short Spacing] (7339')(7416' - 21184')

Final Survey MD @ 21184'  
 Projected MD at TD: 21209'



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/21/2022
Job End Date:	9/6/2022
State:	West Virginia
County:	Monongalia
API Number:	47-061-01893-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Yost 4H
Latitude:	39.64189300
Longitude:	-80.21823100
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,128
Total Base Water Volume (gal):	23,933,448
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					
Sand (100 Mesh Proppant)	ProFrac	Proppant	Water	7732-18-5	100.00000	87.56359	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	9.70503	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Silica Substrate	14808-60-7	100.00000	2.41453	None
Chemstream FR 9800	Chemstream	Friction Reducer	Water	7732-18-5	85.00000	0.18114	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.07885	None
			Butene, homopolymer	9003-29-6	25.00000	0.01392	None
			alkanes, C16-20-iso-	90622-59-6	25.00000	0.01392	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00167	None
Garal 268	Chemstream	Biocide	Non-hazardous substances	Proprietary	80.00000	0.02120	None

8/21/2024

				Glutaraldehyde	111-30-8	20.00000	0.00530	None
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00079	None
				Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00079	None
				Ethanol	64-17-5	1.50000	0.00040	None
StimSTREAM SC 405	Chemstream	Scale Control						
				Non-Hazardous Substances	Proprietary	70.00000	0.01425	None
				Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00204	None
				2-Phosphono-1,2,4-butanetricarboxylic acid (PBTC)	37971-36-1	10.00000	0.00204	None
				Citric Acid	77-92-9	10.00000	0.00204	None
ProHib 100	CNR	Acid Inhibitor						
				2-Butoxyethanol	111-76-2	60.00000	0.00043	None
				Proprietary material	Proprietary	30.00000	0.00021	None
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00014	None
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00007	None
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00007	None
ProFE 105	CNR	Iron Control						
				Citric Acid	77-92-9	20.00000	0.00010	None
				Acetic Acid	64-19-7	5.00000	0.00003	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	0.18114	
				Non-hazardous substances	Proprietary	80.00000	0.02120	
				Non-Hazardous Substances	Proprietary	70.00000	0.01425	
				Butene, homopolymer	9003-29-6	25.00000	0.01392	
				Citric Acid	77-92-9	10.00000	0.00204	
				Diethylenetriamine penta (methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00204	
				Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00167	
				Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00079	
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00079	
				Ethanol	64-17-5	1.50000	0.00040	
				Proprietary material	Proprietary	30.00000	0.00021	
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00014	
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00007	
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00007	
				Acetic Acid	64-19-7	5.00000	0.00003	

02/23/2024