

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

API 47-061-01896 County Monongalia District Clay
Quad Blacksville Pad Name Yost Field/Pool Name _____
Farm name Yost Heritage, Inc. Well Number Yost 14H
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 4388296.1 Easting 567085.0
Landing Point of Curve Northing 4388264.6 Easting 567511.0
Bottom Hole Northing 4385528.3 Easting 569494.3

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 5/28/2022
Date completion activities began 7/28/2022 Date completion activities ceased 8/20/2022
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 - 01896 Farm name Yost Heritage, Inc. Well number Yost 14H

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"	1,471'	N	54.5	NA	Y, 5 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,661'	N	40	NA	Y, 22 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	19,791'	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					CTS	48
Surface	Class A + 2%	1255	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	3615	14.5	1.16	4,185	2,260	48
Tubing							

Drillers TD (ft) 19,804' Loggers TD (ft) 19,774'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 7,607'

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 _____

Yost 10H
Perforation Report

Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
1	7/28/2022	0	0	20,220
2	7/28/2022	40	20,181	20,042
3	7/28/2022	40	20,005	19,866
4	7/29/2022	40	19,829	19,690
5	7/29/2022	40	19,653	19,515
6	7/30/2022	40	19,477	19,339
7	7/30/2022	40	19,301	19,163
8	7/31/2022	40	19,126	18,987
9	7/31/2022	40	18,950	18,811
10	8/1/2022	40	18,774	18,635
11	8/1/2022	40	18,598	18,459
12	8/2/2022	40	18,422	18,283
13	8/2/2022	40	18,246	18,107
14	8/1/2022	40	18,070	17,931
15	8/3/2022	40	17,894	17,756
16	8/3/2022	40	17,718	17,580
17	8/4/2022	40	17,542	17,404
18	8/4/2022	40	17,367	17,228
19	8/4/2022	40	17,191	17,052
20	8/5/2022	40	17,015	16,876
21	8/5/2022	40	16,839	16,700
22	8/5/2022	40	16,663	16,524
23	8/6/2022	40	16,487	16,348
24	8/6/2022	40	16,311	16,172
25	8/6/2022	40	16,135	15,997
26	8/7/2022	40	15,959	15,821
27	8/7/2022	40	15,783	15,645
28	8/7/2022	40	15,608	15,469
29	8/8/2022	40	15,432	15,293
30	8/8/2022	40	15,256	15,117
31	8/8/2022	40	15,080	14,941
32	8/9/2022	40	14,904	14,765
33	8/9/2022	40	14,728	14,589
34	8/9/2022	40	14,552	14,413
35	8/10/2022	40	14,376	14,237
36	8/10/2022	40	14,200	14,062
37	8/10/2022	40	14,024	13,886
38	8/11/2022	40	13,849	13,710
39	8/11/2022	40	13,673	13,534
40	8/11/2022	40	13,497	13,358
41	8/12/2022	40	13,321	13,182
42	8/12/2022	40	13,145	13,006
43	8/13/2022	40	12,969	12,830
44	8/13/2022	40	12,793	12,654
45	8/13/2022	40	12,617	12,478
46	8/14/2022	40	12,441	12,303

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Stage Number	Report Date	Total Shots	Cluster 1 Top TD	Cluster 5 Bottom TD
47	8/14/2022	40	12,265	12,127
48	8/14/2022	40	12,090	11,951
49	8/15/2022	40	11,914	11,775
50	8/15/2022	40	11,738	11,599
51	8/15/2022	40	11,562	11,423
52	8/15/2022	40	11,386	11,247
53	8/16/2022	40	11,210	11,071
54	8/16/2022	40	11,034	10,895
55	8/16/2022	40	10,856	10,719
56	8/16/2022	40	10,682	10,544
57	8/17/2022	40	10,506	10,368
58	8/17/2022	40	10,331	10,192
59	8/17/2022	40	10,155	10,016
60	8/18/2022	40	9,979	9,840
61	8/18/2022	40	9,803	9,664
62	8/18/2022	40	9,627	9,488
63	8/18/2022	40	9,449	9,312
64	8/19/2022	40	9,275	9,136
65	8/18/2022	40	9,099	8,960
66	8/19/2022	40	8,923	8,785
67	8/19/2022	40	8,747	8,609

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Yost 10H Stimulation Report

Stage Number	Report Date	ISIP (psi)	Breakdown Pressure (psi)	Avg Treating Pressure (psi)	Avg Treating Rate (BPM)	Pad Volume (bbbls)	Total Clean Fluid (Bbbls)	Total Proppant Amount (lbs)	Flush Volume (bbbls)
1	7/28/2022	4,821	6,884	8,752	81	470	7,742	301,803	450
2	7/28/2022	5,725	5,979	9,630	91	68	8,213	391,144	450
3	5/8/2022	4,997	6,434	9,433	91	41	9,265	391,960	504
4	7/29/2022	5,728	6,119	9,124	92	74	8,158	390,313	432
5	7/29/2022	6,487	6,060	9,124	92	69	8,138	390,649	430
6	7/30/2022	5,310	5,472	9,004	91	41	8,059	390,060	491
7	7/30/2022	6,054	7,765	9,020	91	32	8,166	390,698	430
8	7/31/2022	5,297	7,747	9,190	91	5	8,112	392,540	472
9	7/31/2022	5,249	7,538	9,249	92	5	7,972	391,050	446
10	8/1/2022	5,543	7,243	9,134	92	28	8,012	388,819	445
11	8/1/2022	5,587	7,037	9,269	91	10	8,133	390,220	455
12	8/2/2022	5,580	7,187	9,367	91	9	8,021	391,840	447
13	8/2/2022	5,468	8,187	9,417	92	82	8,366	392,172	405
14	8/1/2022	5,548	7,141	9,345	91	7	8,063	387,740	460
15	8/3/2022	6,010	7,086	9,146	92	27	8,105	393,025	430
16	8/3/2022	6,354	6,712	9,258	92	80	8,026	392,937	400
17	8/4/2022	5,942	7,552	9,363	91	40	8,171	390,460	430
18	8/4/2022	5,743	5,549	9,184	92	42	7,958	391,932	400
19	8/4/2022	5,748	7,479	8,981	92	21	8,062	392,580	430
20	8/5/2022	5,849	7,178	9,137	92	41	8,211	391,880	419
21	8/5/2022	5,727	7,597	9,268	92	38	7,865	391,562	380
22	8/5/2022	6,277	7,618	9,210	93	49	7,892	393,420	371
23	8/6/2022	5,815	6,866	9,164	91	25	8,100	390,760	418
24	8/6/2022	5,238	7,544	9,260	92	54	7,937	391,534	375
25	8/6/2022	5,393	7,037	8,996	91	41	9,167	391,380	426
26	8/7/2022	5,210	7,083	9,010	92	13	7,993	391,840	442
27	8/7/2022	5,640	7,754	8,852	92	44	7,825	391,146	375
28	8/7/2022	5,525	6,644	8,935	92	395	8,403	391,020	415
29	8/8/2022	5,592	7,097	8,841	92	22	8,008	393,286	415
30	8/8/2022	5,624	7,587	8,789	91	14	7,982	390,590	416
31	8/8/2022	5,659	7,423	8,702	92	25	8,113	392,260	399
32	8/9/2022	5,506	7,069	8,812	92	16	7,781	391,160	403
33	8/9/2022	5,930	6,947	8,713	92	24	7,738	383,480	332
34	8/9/2022	5,612	7,474	8,905	93	37	8,765	389,600	367
35	8/10/2022	5,696	8,074	8,920	94	97	7,978	390,500	367
36	8/10/2022	6,124	9,751	8,909	92	34	7,865	392,300	340
37	8/10/2022	5,518	6,833	8,746	93	48	7,779	391,460	363
38	8/11/2022	5,685	7,148	8,720	94	19	7,821	394,720	373
39	8/11/2022	5,290	7,230	8,305	92	99	7,973	390,750	332
40	8/11/2022	5,701	7,527	8,495	94	16	7,795	391,980	368
41	8/12/2022	5,581	8,668	8,719	92	46	7,983	393,320	331
42	8/12/2022	5,711	7,808	8,760	94	21	7,916	390,680	343
43	8/13/2022	5,559	5,780	8,452	94	41	7,975	390,920	338
44	8/13/2022	6,261	7,187	8,432	92	42	7,772	390,600	326

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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)
45	8/13/2022	5,738	7,861	8,376	92	59	8,039	387,620	415
46	8/14/2022	5,468	7,755	8,440	94	11	7,883	391,820	309
47	8/14/2022	5,791	7,035	8,260	91	38	8,997	390,660	321
48	8/14/2022	5,123	7,186	8,229	92	57	7,755	390,040	350
49	8/15/2022	5,268	6,853	8,186	94	41	7,861	391,140	343
50	8/15/2022	5,313	7,475	8,143	92	38	7,706	390,210	273
51	8/15/2022	6,298	7,639	8,317	93	34	7,818	391,360	266
52	8/15/2022	5,159	7,494	8,572	92	5	7,769	389,240	316
53	8/16/2022	5,253	7,802	8,407	94	8	7,791	389,740	309
54	8/16/2022	5,556	7,443	8,291	92	33	7,702	390,360	277
55	8/16/2022	5,380	7,869	8,468	93	22	7,852	392,586	300
56	8/16/2022	5,966	7,735	8,518	94	13	8,219	390,860	295
57	8/17/2022	6,762	7,746	8,324	91	38	7,700	366,900	285
58	8/17/2022	5,480	7,439	8,094	92	55	8,035	390,009	367
59	8/17/2022	5,783	7,440	8,157	94	33	8,020	391,228	618
60	8/18/2022	5,770	7,597	8,023	94	23	7,805	390,929	362
61	8/18/2022	5,857	7,430	7,965	92	48	7,788	390,850	239
62	8/18/2022	5,426	7,496	7,850	93	52	7,947	391,040	229
63	8/18/2022	5,133	7,555	8,194	94	10	7,466	356,734	480
64	8/19/2022	6,001	7,298	7,915	94	17	7,886	391,294	206
65	8/18/2022	6,150	7,343	7,837	94	31	7,971	391,420	443
66	8/19/2022	6,245	6,718	7,801	94	207	8,225	388,740	256
67	8/19/2022	5,691	7,527	7,927	94	13	7,888	391,149	640

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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	1114	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:	4-May-22	Serv. Supervisor:	David Deyarmin
Cust. Rep.:		Ticket #:	BPA-2205-0006	Serv. Center:	Black Lick - 1571
Well Name:	Yost 10H	API Well #:	47-061-01895	County:	Monongalia State: WV
Well Type:		Rig:	Patterson 277	Type of Job:	CM-INTER. CASING

Materials Furnished by Nextier

Plugs	Casing Hardware	Physical Slurry Properties								
		Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)	
SPARE RUBBER TOP	CEMENT HEAD,BOWLS AND PUMPING CAP									
6% Gel Spacer	+20.0 PPB NEX-020		8.7		4.62	33.66	25.00	-		
15.6 lb/gal Cement	100% NCM-910 +1.0% NAC-110	885	15.6	30%	1.19	5.24	187.23	1,051.29	110	
Fresh Water Displacement			8.33			-	200.23	-		
0										

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA							
12.375 in. O.H. 1,460 to 2,630 ft		9.625 in. 36#, (0 to 2,630 ft)		SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)	
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	9.625 36#	BTC	2657	8.921	3520	2020
50.0 °F		77.0 °F									

PREVIOUS CASING DATA		PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
13.375 in. 54.5# (0 to 1,460 ft)		TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
						2657	2612		

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						
AIR		202 bbl	H2O	8.3 ppg	987	1147	90	7	61.0 °F	1500

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	1,550.00	Y		1.00	0	Yes		No	15.00	No	

Comments/Additional Details:

David Deyarmin Service Supervisor	4-May-22 Date
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Cement Job Log



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

Customer: NORTHEAST NATURAL ENERGY LLC	Date: 14-May-22	Serv. Supervisor: Drew Forsythe
Cust. Rep.: Josh	Ticket #: BPA-2205-0018	Serv. Center: Black Lick - 1571
Well Name: Yost 10H	API Well #: 47-061-01895	County: Monongalia State: WV
Well Type:	Rig: Patterson 277	Type of Job: CM-PROD. CASING

Materials Furnished by NexTier									
Plugs	Casing Hardware	Physical Slurry Properties							
Top and Bottom Plugs	5.5" 10K Double Plug Container w/ Bultress Crossover	Sacks of Cement	Fluid Density (lb/gal)	Excess	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Fluid Volume (cuft)	Mix Water (bbls)
Supplied by Customer									
13.5 lb/gal PureScrub Spacer w/Surfactant	+7.0 PPB NFP-703+5.0 PPB NSU-888	105	13.5		5.65	26.46	80.00	593.41	66
14.5 lb/gal Cement	50 % NCM-910+50 % NPZ-010 +0.2 % NFP-703+0.15 % NAS-504+0.2 % NRT-213+0.2 % NFL-549+0.1 % NTC-405	3725	14.5		1.16	4.90	768.04	4,312.54	435
Sugar Water Displacement	+5.0 PPB NRT-215					-	20.00	-	
Fresh Water Displacement						-	431.41	-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	
						-		-	

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA								
8.75 in. O.H. 2,630 to 7,405 ft 8.5 in. O.H. 7,405 to 20,358 ft				5.5 in. 20#, (0 to 20,358 ft)		SIZE WEIGHT	THRD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
Ambient Tmp.	Bulk Tmp.	Slurry 1 Tmp.	Slurry 2 Tmp.	Slurry 3 Tmp.	Slurry 4 Tmp.	5.5" 20#	BTC	20328'		4.778	12360	12080
65.0 °F		77.0 °F										

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
							20324.8			

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	12.5 ppg	451.2 bbl	H2O	8.3 ppg	2527		6100		7	72.0 °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	3,500.00	Y	-	-	2,039	Yes	4,850.00	No	1.00	No	37

Comments/Additional Details:

<i>Drew Forsythe</i>		<i>14-May-22</i>	
Service Supervisor		Date	

02/23/2024

NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot 10
 Well: Yost 10H
 Wellbore: Yost 10H PWB

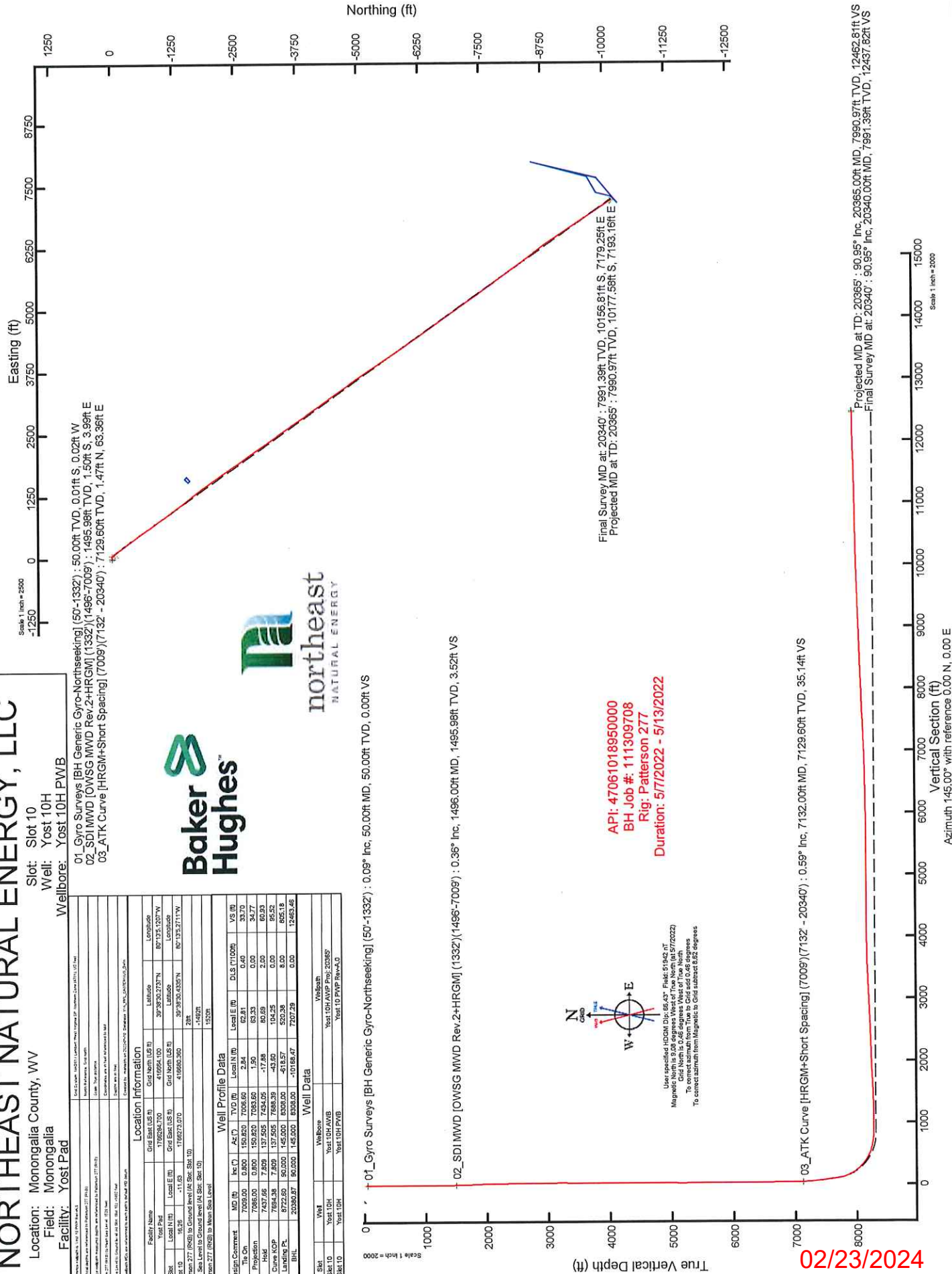
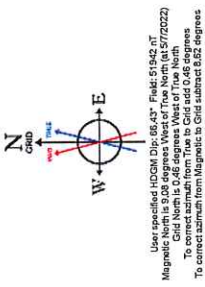
Location Information	
Facility Name	Yost Pad
Grid East (US ft)	419594.100
Grid North (US ft)	419690.300
Local E (ft)	-11.63
Local N (ft)	119723.070
Wellbore	Yost 10H PWB
Well ID	Yost 10H
Well ID (API)	20385
Well ID (PWB)	Yost 10H PWB
Well ID (Wellbore)	Yost 10H PWB
Well ID (Well)	Yost 10H
Well ID (Wellhead)	Yost 10H PWB
Well ID (Wellfoot)	Yost 10H PWB
Well ID (Wellhead)	Yost 10H PWB
Well ID (Wellfoot)	Yost 10H PWB

01_Gyro Surveys [BH Generic Gyro-Northseeking] (50°-1332') : 50.00ft TVD, 0.01ft S, 0.02ft W
 02_SDI MWD [OWSG MWD Rev.2+HRGM] (1332') (1496-7009') : 1496.98ft TVD, 1.50ft S, 3.98ft E
 03_ATK Curve [HRGM+Short Spacing] (7009')(7132 - 20340') : 7129.60ft TVD, 1.47ft N, 63.36ft E



01_Gyro Surveys [BH Generic Gyro-Northseeking] (50°-1332') : 0.09° Inc, 50.00ft MD, 50.00ft TVD, 0.00ft VS
 02_SDI MWD [OWSG MWD Rev.2+HRGM] (1332') (1496-7009') : 0.36° Inc, 1496.00ft MD, 1496.98ft TVD, 3.52ft VS

API: 47061018950000
 BH Job #: 111309708
 Rig: Patterson 277
 Duration: 5/7/2022 - 5/13/2022



4/20/2024

Final Survey MD at: 20340' : 7991.39ft TVD, 10156.81ft S, 7179.25ft E
 Projected MD at: 20365' : 7990.97ft TVD, 10177.56ft S, 7193.16ft E
 Projected MD at TD: 20365' : 90.95° Inc, 20365.00ft MD, 7990.97ft TVD, 12462.81ft VS
 Final Survey MD at: 20340' : 90.95° Inc, 20340.00ft MD, 7991.39ft TVD, 12437.82ft VS

Vertical Section (ft)
 Azimuth 145.00° with reference 0.00 N, 0.00 E

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

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	5/30/2022 at 4:15:02 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	16.26	-11.63	1766273.07	416680.36	39°38'30.4335"N	80°13'5.2711"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 10)	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 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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	248.200	0.00	0.00	0.00	0.00	1766273.07	416680.36	39°38'30.4335"N	80°13'5.2711"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	248.200	28.00	0.00	0.00	0.00	1766273.07	416680.36	39°38'30.4335"N	80°13'5.2711"W	0.00	0.000	0.00	0.00	0.00
50.00	0.090	248.200	50.00	0.00	-0.01	-0.02	1766273.05	416680.35	39°38'30.4334"N	80°13'5.2713"W	0.02	248.200	0.41	0.41	0.00
100.00	0.420	57.700	100.00	0.00	0.08	0.10	1766273.17	416680.44	39°38'30.4343"N	80°13'5.2698"W	0.13	53.085	1.02	0.66	339.00
150.00	0.290	51.900	150.00	0.00	0.25	0.36	1766273.43	416680.61	39°38'30.4360"N	80°13'5.2665"W	0.44	54.674	0.27	-0.26	-11.60
200.00	0.390	59.300	200.00	0.00	0.42	0.60	1766273.67	416680.78	39°38'30.4377"N	80°13'5.2634"W	0.73	55.268	0.22	0.20	14.80
250.00	0.430	145.200	250.00	0.20	0.35	0.86	1766273.93	416680.71	39°38'30.4370"N	80°13'5.2602"W	0.93	67.726	1.12	0.08	171.80
300.00	0.260	164.300	300.00	0.50	0.09	0.99	1766274.06	416680.45	39°38'30.4344"N	80°13'5.2584"W	1.00	84.974	0.41	-0.34	38.20
350.00	0.150	191.100	350.00	0.65	-0.09	1.01	1766274.08	416680.27	39°38'30.4327"N	80°13'5.2581"W	1.02	94.858	0.29	-0.22	53.60
400.00	0.110	336.500	400.00	0.65	-0.11	0.98	1766274.05	416680.25	39°38'30.4325"N	80°13'5.2585"W	0.99	96.185	0.50	-0.08	290.80
450.00	0.410	34.300	450.00	0.54	0.09	1.06	1766274.13	416680.45	39°38'30.4344"N	80°13'5.2575"W	1.07	85.393	0.73	0.60	115.60
500.00	0.470	107.800	499.99	0.64	0.17	1.36	1766274.43	416680.53	39°38'30.4353"N	80°13'5.2537"W	1.37	82.837	1.06	0.12	147.00
550.00	0.210	159.000	549.99	0.89	0.02	1.59	1766274.66	416680.38	39°38'30.4338"N	80°13'5.2508"W	1.59	89.190	0.75	-0.52	102.40
600.00	0.060	126.300	599.99	1.01	-0.08	1.64	1766274.71	416680.28	39°38'30.4329"N	80°13'5.2501"W	1.64	92.744	0.33	-0.30	-65.40
650.00	0.100	172.200	649.99	1.07	-0.14	1.67	1766274.74	416680.22	39°38'30.4323"N	80°13'5.2497"W	1.67	94.710	0.14	0.08	91.80
700.00	0.080	324.900	699.99	1.07	-0.15	1.65	1766274.72	416680.21	39°38'30.4321"N	80°13'5.2499"W	1.66	95.254	0.35	-0.04	305.40
750.00	0.110	331.800	749.99	0.99	-0.08	1.61	1766274.68	416680.28	39°38'30.4328"N	80°13'5.2505"W	1.61	92.885	0.06	0.06	13.80
800.00	0.060	219.300	799.99	0.95	-0.06	1.57	1766274.64	416680.30	39°38'30.4330"N	80°13'5.2510"W	1.57	92.155	0.29	-0.10	-225.00
850.00	0.060	57.100	849.99	0.96	-0.07	1.58	1766274.65	416680.29	39°38'30.4330"N	80°13'5.2509"W	1.58	92.367	0.24	0.00	-324.40
900.00	0.280	136.200	899.99	1.08	-0.14	1.68	1766274.75	416680.22	39°38'30.4323"N	80°13'5.2495"W	1.69	94.726	0.55	0.44	158.20
950.00	0.310	87.600	949.99	1.27	-0.22	1.90	1766274.97	416680.14	39°38'30.4315"N	80°13'5.2467"W	1.92	96.644	0.49	0.06	-97.20
1000.00	0.240	125.100	999.99	1.44	-0.28	2.12	1766275.19	416680.08	39°38'30.4309"N	80°13'5.2439"W	2.14	97.411	0.38	-0.14	75.00
1050.00	0.140	205.000	1049.99	1.57	-0.39	2.18	1766275.25	416679.97	39°38'30.4298"N	80°13'5.2431"W	2.22	100.173	0.51	-0.20	159.80
1100.00	0.100	91.700	1099.99	1.63	-0.45	2.20	1766275.27	416679.91	39°38'30.4292"N	80°13'5.2429"W	2.25	101.515	0.40	-0.08	-226.60
1150.00	0.100	146.900	1149.99	1.70	-0.49	2.27	1766275.34	416679.87	39°38'30.4289"N	80°13'5.2420"W	2.32	102.098	0.19	0.00	110.40
1200.00	0.340	111.100	1199.99	1.87	-0.58	2.43	1766275.50	416679.78	39°38'30.4280"N	80°13'5.2399"W	2.50	103.336	0.53	0.48	-71.60
1250.00	0.350	104.800	1249.99	2.11	-0.67	2.72	1766275.79	416679.69	39°38'30.4271"N	80°13'5.2363"W	2.80	103.826	0.08	0.02	-12.60
1300.00	0.300	108.500	1299.99	2.33	-0.75	2.99	1766276.06	416679.61	39°38'30.4263"N	80°13'5.2328"W	3.08	104.073	0.11	-0.10	7.40
1350.00	0.460	107.400	1331.99	2.50	-0.81	3.19	1766276.26	416679.55	39°38'30.4257"N	80°13'5.2302"W	3.29	104.315	0.50	0.50	-3.44
1400.00	0.360	160.010	1495.98	3.52	-1.50	3.99	1766277.06	416678.86	39°38'30.4190"N	80°13'5.2198"W	4.27	110.520	0.23	-0.06	32.08

02/22/2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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]
1589.00	1.220	102.310	1588.98	4.53	-1.98	5.06	1766278.13	416678.38	39°38'30.4143"N	80°13'5.2062"W	5.44	111.371	1.15	0.92	-62.04
1685.00	3.710	86.070	1684.88	6.88	-1.99	9.16	1766282.23	416678.37	39°38'30.4146"N	80°13'5.1538"W	9.37	102.233	2.67	2.59	-16.92
1783.00	5.770	83.490	1782.54	10.87	-1.21	17.22	1766290.29	416679.15	39°38'30.4229"N	80°13'5.0508"W	17.26	94.020	2.11	2.10	-2.63
1878.00	5.680	79.560	1877.07	15.10	0.18	26.59	1766299.65	416680.54	39°38'30.4374"N	80°13'4.9312"W	26.59	89.605	0.42	-0.09	-4.14
1972.00	4.900	73.270	1970.67	18.29	2.18	35.01	1766308.07	416682.54	39°38'30.4578"N	80°13'4.8238"W	35.07	86.433	1.03	-0.83	-6.69
2067.00	4.300	70.230	2065.36	20.50	4.55	42.24	1766315.31	416684.91	39°38'30.4818"N	80°13'4.7315"W	42.49	83.846	0.68	-0.63	-3.20
2162.00	3.050	66.350	2160.16	21.93	6.77	47.91	1766320.98	416687.13	39°38'30.5042"N	80°13'4.6593"W	48.39	81.953	1.34	-1.32	-4.08
2256.00	2.580	64.720	2254.05	22.78	8.68	52.11	1766325.18	416689.04	39°38'30.5234"N	80°13'4.6058"W	52.83	80.544	0.51	-0.50	-1.73
2351.00	2.660	63.960	2348.95	23.49	10.56	56.03	1766329.09	416690.92	39°38'30.5423"N	80°13'4.5560"W	57.01	79.326	0.09	0.08	-0.80
2446.00	2.050	65.940	2443.87	24.15	12.22	59.56	1766332.63	416692.58	39°38'30.5590"N	80°13'4.5110"W	60.80	78.404	0.65	-0.64	2.08
2541.00	1.010	81.770	2538.83	24.85	13.03	61.94	1766335.01	416693.39	39°38'30.5672"N	80°13'4.4806"W	63.30	78.117	1.17	-1.09	16.66
2621.00	0.620	119.590	2618.83	25.56	12.92	63.01	1766336.08	416693.28	39°38'30.5662"N	80°13'4.4669"W	64.33	78.412	0.81	-0.49	47.28
2735.00	0.650	107.190	2732.82	26.63	12.43	64.17	1766337.23	416692.78	39°38'30.5614"N	80°13'4.4521"W	65.36	79.041	0.12	0.03	-10.88
2829.00	0.670	111.330	2826.81	27.51	12.07	65.19	1766338.26	416692.43	39°38'30.5579"N	80°13'4.4390"W	66.30	79.512	0.05	0.02	4.40
2923.00	0.350	102.120	2920.81	28.17	11.81	65.98	1766339.05	416692.17	39°38'30.5554"N	80°13'4.4288"W	67.03	79.854	0.35	-0.34	-9.80
3018.00	0.980	210.480	3015.81	28.72	11.05	65.85	1766338.92	416691.41	39°38'30.5479"N	80°13'4.4304"W	66.77	80.478	1.20	0.66	114.06
3113.00	1.310	201.380	3110.79	29.66	9.34	66.05	1766338.11	416689.69	39°38'30.5309"N	80°13'4.4406"W	65.71	81.833	0.40	0.35	-9.58
3207.00	0.620	209.430	3204.77	30.48	7.89	64.40	1766337.47	416688.25	39°38'30.5166"N	80°13'4.4486"W	64.89	83.014	0.75	-0.73	8.56
3301.00	0.800	308.910	3298.77	30.07	7.86	63.64	1766336.71	416688.22	39°38'30.5162"N	80°13'4.4583"W	64.13	82.959	1.16	0.19	105.83
3395.00	0.880	316.970	3392.76	28.72	8.80	62.64	1766335.71	416689.16	39°38'30.5254"N	80°13'4.4712"W	63.26	82.003	0.15	0.09	8.57
3490.00	1.170	313.080	3487.74	27.05	10.00	61.43	1766334.50	416690.36	39°38'30.5374"N	80°13'4.4868"W	62.24	80.758	0.31	0.31	-4.09
3589.00	1.250	300.670	3586.72	25.08	11.24	59.77	1766332.83	416691.60	39°38'30.5493"N	80°13'4.5082"W	60.82	79.351	0.28	0.08	-12.54
3684.00	0.650	244.910	3681.71	24.04	11.54	58.39	1766331.45	416691.90	39°38'30.5521"N	80°13'4.5259"W	59.52	78.822	1.09	-0.63	-58.69
3779.00	0.520	206.910	3776.70	24.15	10.92	57.71	1766330.77	416691.28	39°38'30.5460"N	80°13'4.5346"W	58.73	79.280	0.42	-0.14	-40.00
3873.00	0.290	130.700	3870.70	24.58	10.39	57.69	1766330.76	416690.75	39°38'30.5407"N	80°13'4.5347"W	58.62	79.792	0.57	-0.24	-81.07
3968.00	0.050	126.620	3965.70	24.85	10.21	57.91	1766330.97	416690.57	39°38'30.5390"N	80°13'4.5319"W	58.80	80.003	0.25	-0.25	-4.29
4063.00	0.200	76.500	4060.70	24.95	10.22	58.10	1766331.17	416690.58	39°38'30.5391"N	80°13'4.5294"W	58.99	80.022	0.18	0.16	-52.76
4158.00	0.270	7.200	4155.70	24.85	10.48	58.29	1766331.36	416690.84	39°38'30.5417"N	80°13'4.5270"W	59.23	79.806	0.29	0.07	-72.95
4253.00	0.730	331.100	4250.70	24.08	11.23	58.03	1766331.09	416691.59	39°38'30.5491"N	80°13'4.5305"W	59.11	79.043	0.56	0.48	-38.00
4350.00	0.400	146.880	4347.70	23.80	11.49	57.91	1766330.98	416691.85	39°38'30.5516"N	80°13'4.5319"W	59.04	78.777	1.16	-0.34	181.22

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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]
4446.00	0.520	137.360	4443.69	24.57	10.89	58.39	1766331.46	416691.25	39°38'30.5457"N	80°13'4.5258"W	59.40	79.435	0.15	0.13	-9.92
4540.00	0.420	95.670	4537.69	25.22	10.54	59.02	1766332.09	416690.90	39°38'30.5424"N	80°13'4.5177"W	59.96	79.873	0.37	-0.11	-44.35
4635.00	0.380	38.590	4632.69	25.36	10.75	59.57	1766332.63	416691.11	39°38'30.5445"N	80°13'4.5107"W	60.53	79.766	0.40	-0.04	-60.08
4729.00	0.320	285.980	4726.69	25.06	11.07	59.51	1766332.58	416691.43	39°38'30.5476"N	80°13'4.5115"W	60.53	79.462	0.62	-0.06	-119.80
4823.00	0.300	281.050	4820.68	24.68	11.19	59.02	1766332.08	416691.55	39°38'30.5487"N	80°13'4.5178"W	60.07	79.263	0.04	-0.02	-5.24
4918.00	0.410	276.770	4915.68	24.28	11.28	58.43	1766331.50	416691.64	39°38'30.5496"N	80°13'4.5253"W	59.51	79.076	0.12	0.12	-4.51
5013.00	0.370	281.570	5010.68	23.83	11.38	57.80	1766330.86	416691.74	39°38'30.5505"N	80°13'4.5334"W	58.90	78.861	0.05	-0.04	5.05
5108.00	0.630	273.260	5105.68	23.28	11.47	56.97	1766330.04	416691.83	39°38'30.5514"N	80°13'4.5440"W	58.12	78.617	0.28	0.27	-8.75
5203.00	0.460	199.490	5200.67	23.18	11.14	56.32	1766329.39	416691.50	39°38'30.5480"N	80°13'4.5522"W	57.42	78.812	0.70	-0.18	-77.65
5302.00	0.390	84.700	5299.67	23.58	10.80	56.53	1766329.59	416691.16	39°38'30.5447"N	80°13'4.5496"W	57.55	79.186	0.72	-0.07	-115.95
5396.00	0.580	65.170	5393.67	23.82	11.03	57.28	1766330.34	416691.39	39°38'30.5470"N	80°13'4.5400"W	58.33	79.103	0.27	0.20	-20.78
5491.00	0.560	105.050	5488.66	24.26	11.11	58.16	1766331.23	416691.47	39°38'30.5479"N	80°13'4.5287"W	59.21	79.188	0.41	-0.02	41.98
5586.00	0.140	126.190	5583.66	24.73	10.92	58.70	1766331.77	416691.28	39°38'30.5460"N	80°13'4.5218"W	59.71	79.464	0.46	-0.44	22.25
5681.00	0.400	118.910	5678.66	25.14	10.69	59.09	1766332.16	416691.05	39°38'30.5438"N	80°13'4.5168"W	60.05	79.745	0.28	0.27	-7.66
5775.00	0.240	57.220	5772.66	25.44	10.64	59.54	1766332.61	416691.00	39°38'30.5433"N	80°13'4.5111"W	60.48	79.870	0.38	-0.17	-65.63
5871.00	0.050	106.040	5868.66	25.48	10.74	59.75	1766332.82	416691.09	39°38'30.5443"N	80°13'4.5084"W	60.71	79.814	0.22	-0.20	50.85
5965.00	0.070	69.560	5962.66	25.52	10.74	59.84	1766332.91	416691.10	39°38'30.5444"N	80°13'4.5072"W	60.80	79.822	0.04	0.02	-38.81
6060.00	0.110	347.080	6057.66	25.45	10.85	59.88	1766332.94	416691.21	39°38'30.5455"N	80°13'4.5068"W	60.85	79.726	0.13	0.04	-86.82
6157.00	0.170	205.530	6154.66	25.44	10.81	59.80	1766332.86	416691.17	39°38'30.5451"N	80°13'4.5078"W	60.77	79.749	0.27	0.06	-145.93
6251.00	0.690	189.690	6248.66	25.91	10.13	59.64	1766332.71	416690.49	39°38'30.5383"N	80°13'4.5097"W	60.49	80.360	0.56	0.55	-16.85
6346.00	0.870	166.440	6343.65	26.99	8.87	59.71	1766332.78	416689.22	39°38'30.5258"N	80°13'4.5087"W	60.37	81.555	0.38	0.19	-24.47
6441.00	1.010	172.250	6438.64	28.40	7.33	59.99	1766333.06	416687.69	39°38'30.5107"N	80°13'4.5049"W	60.44	83.030	0.18	0.15	6.12
6536.00	0.440	126.940	6533.63	29.49	6.29	60.40	1766333.47	416686.65	39°38'30.5004"N	80°13'4.4996"W	60.73	84.059	0.81	-0.60	-47.69
6631.00	0.200	87.300	6628.63	29.93	6.07	60.86	1766333.92	416686.43	39°38'30.4983"N	80°13'4.4938"W	61.16	84.300	0.33	-0.25	-41.73
6725.00	0.620	129.220	6722.62	30.51	5.76	61.41	1766334.48	416686.12	39°38'30.4953"N	80°13'4.4866"W	61.68	84.642	0.52	0.45	44.60
6820.00	0.740	149.020	6817.62	31.61	4.91	62.13	1766335.19	416685.27	39°38'30.4869"N	80°13'4.4730"W	62.32	85.482	0.28	0.13	20.84
6915.00	0.590	177.370	6912.61	32.64	3.89	62.47	1766335.53	416684.25	39°38'30.4769"N	80°13'4.4730"W	62.59	86.432	0.38	-0.16	29.84
7010.00	0.800	150.820	7006.60	33.70	2.84	62.81	1766335.87	416683.20	39°38'30.4665"N	80°13'4.4685"W	62.87	87.412	0.40	0.22	-28.24
7105.00	0.590	167.710	7129.60	35.14	1.47	63.36	1766336.43	416681.83	39°38'30.4530"N	80°13'4.4613"W	63.38	88.671	0.24	-0.17	13.73
7200.00	4.910	153.690	7223.47	39.56	-2.61	65.25	1766338.31	416677.15	39°38'30.4128"N	80°13'4.4367"W	65.30	92.291	4.62	4.60	-14.91

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Actual Wellpath Report

Yost 10H AWP Proj: 20365'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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]
7321.00	5.030	138.230	7318.11	47.72	-9.36	69.83	1766342.89	416671.00	39°38'30.3465"N	80°13'4.3776"W	70.45	97.636	1.41	0.13	-16.27
7416.00	7.330	137.900	7412.55	57.87	-16.97	76.66	1766349.73	416663.40	39°38'30.2719"N	80°13'4.2894"W	78.52	102.478	2.42	2.42	-0.35
7511.00	7.810	138.790	7506.73	70.30	-26.32	84.98	1766358.04	416654.04	39°38'30.1801"N	80°13'4.1821"W	88.96	107.208	0.52	0.51	0.94
7605.00	7.810	139.050	7599.85	83.00	-35.95	93.37	1766366.44	416644.42	39°38'30.0856"N	80°13'4.0738"W	100.05	111.056	0.04	0.00	0.28
7700.00	8.150	139.490	7693.93	96.12	-45.94	101.98	1766375.04	416634.42	39°38'29.9875"N	80°13'3.9628"W	111.85	114.252	0.36	0.36	0.46
7795.00	16.210	140.560	7786.72	116.08	-61.33	114.80	1766387.86	416619.04	39°38'29.8365"N	80°13'3.7974"W	130.15	118.112	8.49	8.48	1.13
7890.00	24.650	141.100	7875.66	149.13	-87.03	135.70	1766408.76	416593.33	39°38'29.5841"N	80°13'3.5276"W	161.21	122.675	8.89	8.88	0.57
7985.00	32.860	143.560	7958.88	194.74	-123.25	163.50	1766436.56	416557.12	39°38'29.2284"N	80°13'3.1686"W	204.75	127.010	8.73	8.64	2.59
8080.00	41.150	144.020	8034.68	251.85	-169.35	197.23	1766470.28	416511.02	39°38'28.7754"N	80°13'2.7327"W	259.96	130.652	8.73	8.73	0.48
8174.00	49.560	145.460	8100.68	318.67	-223.95	235.75	1766508.80	416456.43	39°38'28.2389"N	80°13'2.2347"W	325.16	133.529	9.01	8.96	1.53
8269.00	57.760	144.120	8156.92	395.12	-286.39	279.87	1766552.92	416393.99	39°38'27.6253"N	80°13'1.6644"W	400.43	135.659	8.71	8.63	-1.41
8363.00	65.330	144.190	8201.68	477.70	-353.33	328.23	1766601.28	416327.05	39°38'26.9676"N	80°13'1.0394"W	482.26	137.109	8.05	8.05	0.07
8457.00	73.370	144.570	8234.80	565.58	-424.78	379.41	1766652.46	416255.61	39°38'26.2655"N	80°13'0.3779"W	569.55	138.229	8.56	8.55	0.40
8552.00	79.110	144.520	8257.39	657.81	-499.91	432.91	1766705.96	416180.48	39°38'25.5272"N	80°12'59.6863"W	661.30	139.108	6.04	6.04	-0.05
8647.00	85.100	144.160	8270.43	751.86	-576.33	487.75	1766760.79	416104.06	39°38'24.7763"N	80°12'58.9776"W	755.02	139.759	6.32	6.31	-0.38
8742.00	90.120	144.480	8274.39	846.74	-653.41	543.09	1766816.13	416026.99	39°38'24.0190"N	80°12'58.2623"W	849.64	140.268	5.29	5.28	0.34
8836.00	89.690	145.730	8274.55	940.74	-730.50	596.86	1766869.90	415949.90	39°38'23.2613"N	80°12'57.5671"W	943.33	140.749	1.41	-0.46	1.33
8931.00	88.280	144.570	8276.23	1035.72	-808.45	651.14	1766924.17	415871.96	39°38'22.4953"N	80°12'56.8654"W	1038.06	141.152	1.92	-1.48	-1.22
9026.00	90.710	144.820	8277.07	1130.71	-885.97	706.03	1766979.06	415794.45	39°38'21.7335"N	80°12'56.1558"W	1132.88	141.448	2.57	2.56	0.26
9121.00	91.570	144.370	8275.18	1225.69	-963.39	761.06	1767034.08	415717.03	39°38'20.9727"N	80°12'55.4446"W	1227.73	141.692	1.02	0.91	-0.47
9215.00	91.630	144.340	8272.55	1319.64	-1039.74	815.82	1767088.84	415640.68	39°38'20.2224"N	80°12'54.7369"W	1321.60	141.881	0.07	0.06	-0.03
9310.00	91.540	144.140	8269.93	1414.60	-1116.80	871.32	1767144.33	415563.62	39°38'19.4652"N	80°12'54.0197"W	1416.49	142.039	0.23	-0.09	-0.21
9404.00	92.000	143.880	8267.02	1508.54	-1192.82	926.53	1767199.54	415487.61	39°38'18.7183"N	80°12'53.3062"W	1510.39	142.162	0.56	0.49	-0.28
9498.00	92.890	143.990	8263.01	1602.44	-1268.74	981.81	1767254.82	415411.70	39°38'17.9724"N	80°12'52.5918"W	1604.26	142.265	0.95	0.95	0.12
9592.00	92.710	144.330	8258.42	1696.31	-1344.85	1036.79	1767309.79	415335.59	39°38'17.2245"N	80°12'51.8814"W	1698.10	142.370	0.41	-0.19	0.36
9687.00	93.140	144.510	8253.57	1791.19	-1422.01	1091.99	1767364.99	415258.43	39°38'16.4663"N	80°12'51.1680"W	1792.92	142.479	0.49	0.45	0.19
9782.00	91.910	143.920	8249.39	1886.08	-1499.00	1147.49	1767420.49	415181.45	39°38'15.7098"N	80°12'50.4508"W	1887.73	142.566	1.44	-1.29	-0.62
9875.00	91.940	142.100	8246.23	1979.97	-1574.04	1204.01	1767477.01	415106.42	39°38'14.9727"N	80°12'49.7207"W	1981.73	142.587	1.94	0.03	-1.94
9970.00	92.400	140.900	8242.63	2074.72	-1648.33	1263.10	1767536.10	415032.13	39°38'14.2431"N	80°12'48.9578"W	2076.64	142.537	1.35	0.48	-1.26
10064.00	91.480	141.620	8239.49	2167.47	-1720.83	1321.27	1767594.26	414959.64	39°38'13.5312"N	80°12'48.2070"W	2169.56	142.483	1.26	-0.99	0.77

02/26/2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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]
10159.00	91.880	145.080	8236.70	2262.37	-1797.00	1377.94	1767650.93	414883.47	39°38'12.7829"N	80°12'47.4749"W	2264.50	142.519	3.66	0.42	3.64
10254.00	91.940	144.440	8233.53	2357.32	-1874.55	1432.73	1767705.71	414805.93	39°38'12.0208"N	80°12'46.7668"W	2359.37	142.609	0.68	0.06	-0.67
10348.00	91.600	144.620	8230.63	2451.27	-1951.07	1487.25	1767760.23	414729.41	39°38'11.2689"N	80°12'46.0622"W	2453.28	142.683	0.41	-0.36	0.19
10443.00	92.710	144.490	8227.06	2546.20	-2028.41	1542.30	1767815.28	414652.08	39°38'10.5089"N	80°12'45.3506"W	2548.16	142.752	1.18	1.17	-0.14
10538.00	92.710	145.450	8222.57	2641.09	-2106.11	1596.77	1767869.74	414574.38	39°38'9.7453"N	80°12'44.6466"W	2642.98	142.832	1.01	0.00	1.01
10633.00	92.620	145.500	8218.15	2735.99	-2184.29	1650.55	1767923.52	414496.20	39°38'8.9768"N	80°12'43.9512"W	2737.78	142.924	0.11	-0.09	0.05
10728.00	92.060	145.290	8214.27	2830.90	-2262.42	1704.46	1767977.43	414418.08	39°38'8.2089"N	80°12'43.2543"W	2832.62	143.006	0.63	-0.59	-0.22
10823.00	92.220	145.770	8210.72	2925.83	-2340.68	1758.19	1768031.15	414339.82	39°38'7.4397"N	80°12'42.5596"W	2927.46	143.088	0.53	0.17	0.51
10918.00	92.460	145.520	8206.84	3020.75	-2419.05	1811.76	1768084.72	414261.46	39°38'6.6694"N	80°12'41.8670"W	3022.29	143.168	0.36	0.25	-0.26
11009.00	92.460	145.350	8202.94	3111.66	-2493.92	1863.34	1768136.29	414186.60	39°38'5.9336"N	80°12'41.2001"W	3113.14	143.235	0.19	0.00	-0.19
11104.00	92.520	144.840	8198.81	3206.57	-2571.75	1917.65	1768190.60	414108.77	39°38'5.1686"N	80°12'40.4981"W	3208.00	143.290	0.54	0.06	-0.54
11198.00	91.970	144.840	8195.13	3300.50	-2648.54	1971.73	1768244.68	414031.98	39°38'4.4140"N	80°12'39.7990"W	3301.89	143.334	0.59	-0.59	0.00
11293.00	92.490	144.700	8191.43	3395.43	-2726.08	2026.49	1768299.44	413954.44	39°38'3.6519"N	80°12'39.0913"W	3396.79	143.374	0.57	0.55	-0.15
11388.00	92.770	145.160	8187.07	3490.33	-2803.75	2081.02	1768353.96	413876.78	39°38'2.8886"N	80°12'38.3865"W	3491.66	143.416	0.57	0.29	0.48
11483.00	91.420	144.690	8183.60	3585.26	-2881.45	2135.58	1768408.52	413799.09	39°38'2.1250"N	80°12'37.6814"W	3586.56	143.456	1.50	-1.42	-0.49
11578.00	90.920	145.860	8181.66	3680.24	-2959.51	2189.68	1768462.61	413721.03	39°38'1.3578"N	80°12'36.9820"W	3681.49	143.503	1.34	-0.53	1.23
11674.00	91.020	145.920	8180.03	3776.21	-3038.98	2243.51	1768516.44	413641.56	39°38'0.5766"N	80°12'36.2860"W	3777.40	143.564	0.12	0.10	0.06
11768.00	90.920	145.880	8178.44	3870.19	-3116.81	2296.20	1768569.13	413563.74	39°37'59.8116"N	80°12'35.6046"W	3871.31	143.620	0.11	-0.11	-0.04
11864.00	90.890	145.500	8176.93	3966.17	-3196.09	2350.30	1768623.23	413484.46	39°37'59.0323"N	80°12'34.9051"W	3967.23	143.670	0.40	-0.03	-0.40
11959.00	90.770	145.270	8175.55	4061.15	-3274.27	2404.26	1768677.19	413406.29	39°37'58.2639"N	80°12'34.2075"W	4062.18	143.711	0.27	-0.13	-0.24
12054.00	89.510	144.470	8175.32	4156.15	-3351.96	2458.93	1768731.86	413328.60	39°37'57.5003"N	80°12'33.5010"W	4157.16	143.737	1.57	-1.33	-0.84
12149.00	89.630	144.780	8176.03	4251.15	-3429.42	2513.93	1768786.84	413251.15	39°37'56.7391"N	80°12'32.7903"W	4252.15	143.757	0.35	0.13	0.33
12243.00	90.430	146.050	8175.98	4345.14	-3506.81	2567.28	1768840.19	413173.77	39°37'55.9785"N	80°12'32.1006"W	4346.11	143.793	1.60	0.85	1.35
12338.00	90.430	145.040	8175.27	4440.13	-3585.14	2621.03	1768893.94	413095.44	39°37'55.2086"N	80°12'31.4058"W	4441.06	143.830	1.06	0.00	-1.06
12433.00	90.340	145.250	8174.63	4535.13	-3663.09	2675.32	1768948.22	413017.49	39°37'54.4424"N	80°12'30.7040"W	4536.03	143.858	0.24	-0.09	0.22
12529.00	90.280	145.560	8174.11	4631.13	-3742.12	2729.82	1769002.73	412938.47	39°37'53.6657"N	80°12'29.9994"W	4632.00	143.890	0.33	-0.06	0.32
12624.00	90.150	145.550	8173.76	4726.12	-3820.46	2783.56	1769056.45	412860.13	39°37'52.8956"N	80°12'29.3048"W	4726.96	143.923	0.14	-0.14	-0.01
12719.00	90.180	145.180	8173.48	4821.12	-3898.63	2837.55	1769110.44	412781.97	39°37'52.1274"N	80°12'28.6068"W	4821.93	143.952	0.39	0.03	-0.39
12814.00	90.120	145.210	8173.23	4916.12	-3976.63	2891.77	1769164.67	412703.97	39°37'51.3607"N	80°12'27.9060"W	4916.90	143.976	0.07	-0.06	0.03
12909.00	89.910	144.900	8173.21	5011.12	-4054.50	2946.19	1769219.08	412626.11	39°37'50.5954"N	80°12'27.2027"W	5011.89	143.996	0.39	-0.22	-0.33

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Yost 10H
Field	Monongalia		API/Legal	
Facility	Yost Pad		Wellbore	Yost 10H AWB
Slot	Slot 10			

WELLPATH DATA (230 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]
13004.00	89.880	145.550	8173.38	5106.12	-4132.54	3000.37	1769273.26	412548.08	39°37'49.8284"N	80°12'26.5023"W	5106.86	144.019	0.68	-0.03	0.68
13099.00	89.600	144.580	8173.81	5201.11	-4210.41	3054.77	1769327.65	412470.20	39°37'49.0630"N	80°12'25.7992"W	5201.85	144.038	1.06	-0.29	-1.02
13193.00	89.480	144.720	8174.57	5295.11	-4287.08	3109.15	1769382.03	412393.54	39°37'48.3096"N	80°12'25.0964"W	5295.84	144.049	0.20	-0.13	0.15
13288.00	89.820	144.820	8175.15	5390.11	-4364.68	3163.96	1769436.83	412315.95	39°37'47.5469"N	80°12'24.3882"W	5390.83	144.062	0.37	0.36	0.11
13383.00	89.690	145.070	8175.55	5485.11	-4442.45	3218.52	1769491.39	412238.19	39°37'46.7826"N	80°12'23.6831"W	5485.82	144.077	0.30	-0.14	0.26
13478.00	91.140	145.110	8174.87	5580.10	-4520.35	3272.88	1769545.75	412160.29	39°37'46.0170"N	80°12'22.9804"W	5580.80	144.094	1.53	1.53	0.04
13573.00	90.430	145.230	8173.56	5675.09	-4598.32	3327.14	1769600.00	412082.32	39°37'45.2506"N	80°12'22.2792"W	5675.77	144.112	0.76	-0.75	0.13
13668.00	90.090	144.780	8173.13	5770.09	-4676.14	3381.62	1769654.48	412004.50	39°37'44.4858"N	80°12'21.5751"W	5770.76	144.127	0.59	-0.36	-0.47
13762.00	90.490	144.670	8172.66	5864.09	-4752.88	3435.90	1769708.76	411927.77	39°37'43.7316"N	80°12'20.8736"W	5864.75	144.136	0.44	0.43	-0.12
13857.00	90.580	144.410	8171.77	5959.08	-4830.26	3491.01	1769763.87	411850.40	39°37'42.9712"N	80°12'20.1615"W	5959.75	144.143	0.29	0.09	-0.27
13952.00	90.310	144.670	8171.03	6054.07	-4907.64	3546.12	1769818.98	411773.02	39°37'42.2108"N	80°12'19.4494"W	6054.74	144.149	0.39	-0.28	0.27
14047.00	91.050	146.410	8169.91	6149.06	-4985.96	3599.87	1769872.72	411694.71	39°37'41.4409"N	80°12'18.7547"W	6149.70	144.171	1.99	0.78	1.83
14141.00	90.920	146.090	8168.29	6243.02	-5064.10	3652.09	1769924.93	411616.57	39°37'40.6727"N	80°12'18.0795"W	6243.63	144.202	0.37	-0.14	-0.34
14236.00	91.110	146.140	8166.61	6337.99	-5142.96	3705.04	1769977.89	411537.72	39°37'39.8975"N	80°12'17.3948"W	6338.56	144.231	0.21	0.20	0.05
14331.00	91.260	146.320	8164.64	6432.95	-5221.91	3757.84	1770030.68	411458.77	39°37'39.1213"N	80°12'16.7122"W	6433.48	144.260	0.25	0.16	0.19
14426.00	91.020	146.190	8162.75	6527.90	-5300.89	3810.60	1770083.44	411379.80	39°37'38.3449"N	80°12'16.0299"W	6528.41	144.289	0.29	-0.25	-0.14
14522.00	91.110	145.830	8160.97	6623.87	-5380.47	3864.26	1770137.09	411300.22	39°37'37.5626"N	80°12'15.3362"W	6624.35	144.314	0.39	0.09	-0.37
14612.00	91.290	146.290	8159.08	6713.84	-5455.12	3914.50	1770187.33	411225.57	39°37'36.8287"N	80°12'14.6867"W	6714.29	144.337	0.55	0.20	0.51
14706.00	91.170	145.600	8157.06	6807.80	-5532.98	3967.13	1770239.95	411147.72	39°37'36.0633"N	80°12'14.0063"W	6808.23	144.360	0.74	-0.13	-0.73
14800.00	91.880	145.930	8154.56	6901.76	-5610.67	4019.99	1770292.81	411070.04	39°37'35.2997"N	80°12'13.3229"W	6902.17	144.379	0.83	0.76	0.35
14895.00	92.060	146.350	8151.30	6996.69	-5689.51	4072.89	1770345.71	410991.20	39°37'34.5246"N	80°12'12.6390"W	6997.07	144.403	0.48	0.19	0.44
14989.00	92.740	146.620	8147.36	7090.57	-5767.81	4124.75	1770397.56	410912.90	39°37'33.7548"N	80°12'11.9685"W	7090.92	144.430	0.78	0.72	0.29
15094.00	91.320	145.140	8143.64	7195.49	-5854.68	4183.60	1770456.42	410826.04	39°37'32.9009"N	80°12'11.2076"W	7195.82	144.451	1.95	-1.35	-1.41
15179.00	93.730	145.700	8139.90	7280.40	-5924.59	4231.80	1770504.61	410756.14	39°37'32.2137"N	80°12'10.5847"W	7280.72	144.463	2.91	2.84	0.66
15273.00	91.420	145.120	8135.67	7374.29	-6001.89	4285.10	1770557.91	410678.84	39°37'31.4539"N	80°12'9.8957"W	7374.60	144.475	2.53	-2.46	-0.62
15368.00	92.340	146.010	8132.56	7469.23	-6080.20	4338.79	1770611.60	410600.54	39°37'30.6842"N	80°12'9.2018"W	7469.53	144.489	1.35	0.97	0.94
15463.00	94.500	146.770	8126.89	7564.03	-6159.17	4391.28	1770664.08	410521.57	39°37'29.9078"N	80°12'8.5231"W	7564.30	144.512	2.41	2.27	0.80
15557.00	92.650	144.960	8121.03	7657.83	-6236.81	4443.92	1770716.72	410443.93	39°37'29.1445"N	80°12'7.8426"W	7658.09	144.529	2.75	-1.97	-1.93
15652.00	90.580	143.740	8118.35	7752.78	-6313.97	4499.27	1770772.06	410366.77	39°37'28.3862"N	80°12'7.1276"W	7753.04	144.527	2.53	-2.18	-1.28
15747.00	91.910	145.220	8116.29	7847.75	-6391.27	4554.45	1770827.24	410289.48	39°37'27.6266"N	80°12'6.4147"W	7848.01	144.526	2.09	1.40	1.56

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Yost 10H	
Field	Monongalia		API/Legal		
Facility	Yost Pad		Wellbore	Yost 10H AWB	
Slot	Slot 10				

WELLPATH DATA (230 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]
15843.00	91.850	145.330	8113.14	7943.69	-6470.13	4609.10	1770881.89	410210.62	39°37'26.8514"N	80°12'5.7084"W	7943.96	144.535	0.13	-0.06	0.11
15938.00	92.370	145.560	8109.64	8038.63	-6548.32	4662.95	1770935.73	410132.44	39°37'26.0829"N	80°12'5.0125"W	8038.88	144.548	0.60	0.55	0.24
16033.00	92.190	144.790	8105.86	8133.55	-6626.24	4717.16	1770989.94	410054.52	39°37'25.3170"N	80°12'4.3119"W	8133.80	144.553	0.83	-0.19	-0.81
16128.00	91.940	144.890	8102.44	8228.49	-6703.86	4771.83	1771044.61	409976.91	39°37'24.5541"N	80°12'3.6055"W	8228.73	144.557	0.28	-0.26	0.11
16223.00	92.030	145.010	8099.15	8323.43	-6781.58	4826.35	1771099.13	409899.19	39°37'23.7902"N	80°12'2.9010"W	8323.67	144.561	0.16	0.09	0.13
16315.00	91.690	145.270	8096.16	8415.38	-6857.03	4878.91	1771151.68	409823.75	39°37'23.0486"N	80°12'2.2218"W	8415.62	144.567	0.47	-0.37	0.28
16410.00	91.540	145.060	8093.48	8510.34	-6934.98	4933.15	1771205.92	409745.80	39°37'22.2825"N	80°12'1.5209"W	8510.58	144.574	0.27	-0.16	-0.22
16504.00	91.880	145.190	8090.68	8604.30	-7012.06	4986.88	1771259.64	409668.73	39°37'21.5248"N	80°12'0.8266"W	8604.53	144.580	0.39	0.36	0.14
16598.00	92.680	144.940	8086.94	8698.23	-7089.06	5040.66	1771313.42	409591.73	39°37'20.7680"N	80°12'0.1316"W	8698.45	144.585	0.89	0.85	-0.27
16693.00	92.030	145.330	8083.04	8793.14	-7166.94	5094.92	1771367.68	409513.85	39°37'20.0025"N	80°11'59.4305"W	8793.37	144.591	0.80	-0.68	0.41
16787.00	91.630	144.470	8080.03	8887.10	-7243.81	5148.95	1771421.70	409436.99	39°37'19.2470"N	80°11'58.7325"W	8887.32	144.595	1.01	-0.43	-0.91
16881.00	91.780	145.410	8077.24	8981.05	-7320.72	5202.92	1771475.67	409360.09	39°37'18.4911"N	80°11'58.0351"W	8981.27	144.598	1.01	0.16	1.00
16976.00	93.110	146.260	8073.18	9075.95	-7399.25	5256.22	1771528.97	409281.56	39°37'17.7191"N	80°11'57.3462"W	9076.16	144.611	1.66	1.40	0.89
17071.00	92.120	143.690	8068.85	9170.84	-7476.96	5310.68	1771583.42	409203.86	39°37'16.9554"N	80°11'56.6425"W	9171.05	144.615	2.90	-1.04	-2.71
17165.00	91.600	144.370	8065.80	9264.78	-7552.99	5365.86	1771638.60	409127.83	39°37'16.2082"N	80°11'55.9297"W	9265.00	144.609	0.91	-0.55	0.72
17259.00	91.510	144.140	8063.25	9358.74	-7629.26	5420.75	1771693.49	409051.57	39°37'15.4587"N	80°11'55.2207"W	9358.96	144.605	0.26	-0.10	-0.24
17354.00	91.600	144.240	8060.67	9453.69	-7706.27	5476.32	1771749.05	408974.56	39°37'14.7019"N	80°11'54.5030"W	9453.92	144.601	0.14	0.09	0.11
17448.00	92.120	144.100	8057.62	9547.63	-7782.44	5531.32	1771804.05	408898.40	39°37'13.9533"N	80°11'53.7926"W	9547.87	144.597	0.57	0.55	-0.15
17542.00	91.940	143.890	8054.29	9641.56	-7858.44	5586.54	1771859.27	408822.41	39°37'13.2065"N	80°11'53.0794"W	9641.81	144.591	0.29	-0.19	-0.22
17637.00	92.090	144.410	8050.95	9736.49	-7935.39	5642.14	1771914.87	408745.46	39°37'12.4503"N	80°11'52.3612"W	9736.74	144.587	0.57	0.16	0.55
17732.00	92.030	144.270	8047.53	9831.42	-8012.53	5697.49	1771970.21	408668.32	39°37'11.6922"N	80°11'51.6463"W	9831.68	144.584	0.16	-0.06	-0.15
17827.00	91.600	143.920	8044.52	9926.36	-8089.44	5753.17	1772025.89	408591.42	39°37'10.9364"N	80°11'50.9271"W	9926.63	144.580	0.58	-0.45	-0.37
17922.00	91.660	144.710	8041.82	10021.32	-8166.57	5808.57	1772081.28	408514.29	39°37'10.1784"N	80°11'50.2116"W	10021.59	144.577	0.83	0.06	0.83
18017.00	91.450	144.480	8039.24	10116.28	-8243.97	5863.58	1772136.30	408436.89	39°37'9.4177"N	80°11'49.5009"W	10116.56	144.577	0.33	-0.22	-0.24
18112.00	91.420	145.020	8036.87	10211.25	-8321.53	5918.40	1772191.10	408359.34	39°37'8.6554"N	80°11'48.7928"W	10211.52	144.579	0.57	-0.03	0.57
18207.00	91.230	143.640	8034.67	10306.21	-8398.68	5973.78	1772246.48	408282.19	39°37'7.8972"N	80°11'48.0775"W	10306.50	144.577	1.47	-0.20	-1.45
18301.00	90.860	144.100	8032.95	10400.18	-8474.59	6029.19	1772301.89	408206.29	39°37'7.1512"N	80°11'47.3618"W	10400.47	144.570	0.63	-0.39	0.49
18395.00	90.950	141.180	8031.45	10495.08	-8550.08	6086.83	1772359.52	408130.80	39°37'6.4096"N	80°11'46.6179"W	10495.40	144.553	3.07	0.09	-3.07
18489.00	91.200	142.330	8029.67	10589.91	-8624.68	6145.62	1772418.32	408056.21	39°37'5.6769"N	80°11'45.8592"W	10590.27	144.528	1.24	0.26	1.21
18583.00	90.920	142.600	8027.93	10683.80	-8699.21	6202.88	1772475.57	407981.69	39°37'4.9447"N	80°11'45.1201"W	10684.19	144.510	0.41	-0.30	0.29

2024

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

WELLPATH DATA (230 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]
18680.00	90.580	144.700	8026.69	10778.76	-8775.71	6259.18	1772531.87	407905.19	39°37'4.1930"N	80°11'44.3931"W	10779.17	144.502	2.24	-0.36	2.21
18775.00	90.370	146.400	8025.90	10873.75	-8854.04	6312.92	1772585.60	407826.86	39°37'3.4230"N	80°11'43.6987"W	10874.14	144.511	1.80	-0.22	1.79
18869.00	90.950	146.380	8024.82	10967.71	-8932.32	6364.95	1772637.63	407748.58	39°37'2.6533"N	80°11'43.0261"W	10968.09	144.527	0.62	0.62	-0.02
18964.00	91.600	146.400	8022.70	11062.66	-9011.42	6417.52	1772690.20	407669.49	39°37'1.8756"N	80°11'42.3465"W	11063.01	144.543	0.68	0.68	0.02
19059.00	91.080	146.440	8020.48	11157.61	-9090.54	6470.05	1772742.72	407590.37	39°37'1.0977"N	80°11'41.6675"W	11157.94	144.559	0.55	-0.55	0.04
19154.00	90.830	146.590	8018.90	11252.56	-9169.77	6522.45	1772795.13	407511.15	39°37'0.3188"N	80°11'40.9900"W	11252.87	144.576	0.31	-0.26	0.16
19250.00	90.710	146.200	8017.61	11348.52	-9249.72	6575.58	1772848.25	407431.21	39°36'59.5327"N	80°11'40.3032"W	11348.81	144.591	0.43	-0.12	-0.41
19345.00	90.520	146.070	8016.59	11443.50	-9328.59	6628.52	1772901.18	407352.34	39°36'58.7572"N	80°11'39.6190"W	11443.77	144.604	0.24	-0.20	-0.14
19438.00	90.950	146.250	8015.40	11536.47	-9405.83	6680.30	1772952.96	407275.10	39°36'57.9979"N	80°11'38.9497"W	11536.73	144.616	0.50	0.46	0.19
19532.00	92.190	146.940	8012.82	11630.40	-9484.27	6732.03	1773004.69	407196.67	39°36'57.2266"N	80°11'38.2809"W	11630.64	144.632	1.51	1.32	0.73
19627.00	92.710	146.520	8008.76	11725.27	-9563.63	6784.10	1773056.76	407117.32	39°36'56.4463"N	80°11'37.6078"W	11725.49	144.649	0.70	0.55	-0.44
19722.00	92.490	146.470	8004.45	11820.14	-9642.76	6836.49	1773109.14	407038.19	39°36'55.6683"N	80°11'36.9306"W	11820.34	144.664	0.24	-0.23	-0.05
19817.00	91.790	146.240	8000.90	11915.04	-9721.79	6889.09	1773161.73	406959.16	39°36'54.8913"N	80°11'36.2507"W	11915.23	144.678	0.78	-0.74	-0.24
19911.00	90.920	146.390	7998.68	12008.99	-9799.99	6941.20	1773213.85	406880.97	39°36'54.1225"N	80°11'35.5770"W	12009.17	144.691	0.94	-0.93	0.16
20006.00	90.830	146.200	7997.23	12103.96	-9879.01	6993.92	1773266.56	406801.96	39°36'53.3456"N	80°11'34.8957"W	12104.12	144.703	0.22	-0.09	-0.20
20101.00	91.110	146.540	7995.62	12198.91	-9958.10	7046.52	1773319.16	406722.87	39°36'52.5680"N	80°11'34.2157"W	12199.06	144.716	0.46	0.29	0.36
20197.00	90.890	146.040	7993.95	12294.87	-10037.94	7099.79	1773372.43	406643.03	39°36'51.7829"N	80°11'33.5272"W	12295.01	144.728	0.57	-0.23	-0.52
20292.00	91.140	146.390	7992.26	12389.84	-10116.89	7152.61	1773425.24	406564.09	39°36'51.0068"N	80°11'32.8445"W	12389.97	144.740	0.45	0.26	0.37
20340.00	90.950	146.190	7991.39	12437.82	-10156.81	7179.25	1773451.88	406524.17	39°36'50.6143"N	80°11'32.5002"W	12437.94	144.746	0.57	-0.40	-0.42
20365.00†	90.950	146.190	7990.97	12462.81	-10177.58	7193.16	1773465.79	406503.40	39°36'50.4101"N	80°11'32.3204"W	12462.93	144.749	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		
Field	Well	Yost 10H	
Facility	API/Legal		
Slot	Wellbore	Yost 10H AWB	

HOLE & CASING SECTIONS - Ref Wellbore: Yost 10H AWB Ref Wellpath: Yost 10H AWP Proj: 20365'

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	1488.00	1460.00	28.00	1487.98	0.00	0.00	-1.45	3.98
13.375in Casing Surface	28.00	1458.00	1430.00	28.00	1457.99	0.00	0.00	-1.29	3.89
12.25in Open Hole	1488.00	2687.00	1199.00	1487.98	2684.82	-1.45	3.98	12.61	63.66
9.625in Casing Intermediate	28.00	2657.00	2629.00	28.00	2654.82	0.00	0.00	12.74	63.36
8.75in Open Hole	2687.00	7086.00	4399.00	2684.82	7083.60	12.61	63.66	1.95	63.22
8.5in Open Hole	7086.00	20365.00	13279.00	7083.60	7990.97	1.95	63.22	-10177.58	7193.16
5.5in Casing Production	28.00	20335.00	20307.00	28.00	7991.47	0.00	0.00	-10152.66	7176.47

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC			Well	Yost 10H
Field	Monongalia			API/Legal	
Facility	Yost Pad			Wellbore	Yost 10H AWB
Slot	Slot 10				

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Yost 10H BHL Rev-4	8308.00	-10168.47	7207.29	1773479.92	406512.51	39°36'50.5011"N	80°11'32.1407"W	point
Yost 10H LP Rev-0	8308.00	-618.57	520.38	1766793.42	416061.83	39°38'24.3614"N	80°12'58.5561"W	point
Yost Hardline #3 (2.10.22)	9028.00	-10300.22	7146.35	1773418.98	406380.77	39°36'49.1944"N	80°11'32.9065"W	polygon
2D Polygon: dimensions not calculated								
Yost Hardline #4 (2.24.22)	9028.00	-10300.22	7146.35	1773418.98	406380.77	39°36'49.1944"N	80°11'32.9065"W	polygon
2D Polygon: dimensions not calculated								
Yost Hardline #5 (2.24.22)	9028.00	-1555.34	1545.35	1767818.33	415125.12	39°38'15.1843"N	80°12'45.3596"W	polygon
2D Polygon: dimensions not calculated								

WELLPATH COMPOSITION - Ref Wellbore: Yost 10H AWB Ref Wellpath: Yost 10H AWP Proj: 20365'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1332.00	BH Generic gyro - northseeking (Standard)	01_Gyro Surveys [BH Generic Gyro-Northseeking] (50'-1332')	Yost 10H AWB	5/7/2022
1332.00	7009.00	OWSG MWD rev2 + HRGM	02_SDI MWD [OWSG MWD Rev.2+HRGM] (1332')(1496'-7009')	Yost 10H AWB	5/7/2022
7009.00	20365.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	03_ATK Curve [HRGM+ Short Spacing] (7009')(7132' - 20340')	Yost 10H AWB	5/7/2022

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Yost 10H
Field	Monongalia	API/Legal	
Facility	Yost Pad	Wellbore	Yost 10H AWB
Slot	Slot 10		

COMMENTS

Wellpath general comments

API: 47061018950000
 BH Job #: 111309708
 Rig: Patterson 277
 Duration: 5/7/2022 - 5/13/2022

01_Gyro Surveys [BH Generic Gyro-Northseeking] (50'-1332')
 02_SDI MWD [OWSG MWD Rev.2+HRGM] (1332')(1496'-7009')
 03_ATK Curve [HRGM+Short Spacing] (7009')(7132' - 20340')

Final Survey MD at: 20340'
 Projected MD at TD: 20365'

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/28/2022
Job End Date:	8/19/2022
State:	West Virginia
County:	Monongalia
API Number:	47-061-01895-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Yost 10H
Latitude:	39.64179500
Longitude:	-80.21813500
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,134
Total Base Water Volume (gal):	22,572,480
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	87.59143	None
Sand (40/70 White Proppant)	ProFrac	Proppant	Silica Substrate	14808-60-7	100.00000	9.72304	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Silica Substrate	14808-60-7	100.00000	2.38893	None
Central 268	Chemstream	Biocide	Water	7732-18-5	85.00000	0.16813	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.07319	None
			Non-hazardous substances	Proprietary	80.00000	0.02115	None
			Glutaraldehyde	111-30-8	20.00000	0.00529	None
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00079	None
			Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00079	None

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StimSTREAM FR 9800	Chemstream		Friction Reducer	Ethanol	64-17-5	1.50000	0.00040	None
				alkanes, C16-20-iso-	90622-59-6	25.00000	0.01266	None
				Butene, homopolymer	9003-29-6	25.00000	0.01266	None
				Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00152	None
StimSTREAM SC 405	Chemstream		Scale Control	Non-Hazardous Substances	Proprietary	70.00000	0.01446	None
				Citric Acid	77-92-9	10.00000	0.00207	None
				2-Phosphono-1,2,4-butanetricarboxylic acid (PBTC)	37971-36-1	10.00000	0.00207	None
				Diethylenetriamine penta(methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00207	None
ProHib 100	CNR		Acid Inhibitor	2-Butoxyethanol	111-76-2	60.00000	0.00035	None
				Proprietary material	Proprietary	30.00000	0.00018	None
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00012	None
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00006	None
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00006	None
ProFE 105	CNR		Iron Control	Citric Acid	77-92-9	20.00000	0.00010	None
				Acetic Acid	64-19-7	5.00000	0.00002	None
Ingredients shown above are subject to 29 CFR 1910.1200(l) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.								
Other Chemical(s)	Listed Above		See Trade Name(s) List					
				Water	7732-18-5	85.00000	0.16813	
				Non-hazardous substances	Proprietary	80.00000	0.02115	
				Non-Hazardous Substances	Proprietary	70.00000	0.01446	
				Butene, homopolymer	9003-29-6	25.00000	0.01266	
				Citric Acid	77-92-9	10.00000	0.00207	
				Diethylenetriamine penta(methylene phosphonic acid) (DTPMP)	15827-60-8	10.00000	0.00207	
				Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00152	
				Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00079	
				Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00079	
				Ethanol	64-17-5	1.50000	0.00040	
				Proprietary material	Proprietary	30.00000	0.00018	
				Proprietary non-ionic surfactant	Proprietary	20.00000	0.00012	
				Proprietary corrosion inhibitor	Proprietary	10.00000	0.00006	
				Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00006	
				Acetic Acid	64-19-7	5.00000	0.00002	

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