

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

API 47-061-01725 County Monongalia District Clay
Quad Blacksville Pad Name Jenkins Field/Pool Name _____
Farm name Lois A. Jenkins Irrevocable Trust Well Number Jenkins 10H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia Street 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 4395832.9 Easting 573764.9
Landing Point of Curve Northing 4395917.3 Easting 574047.5
Bottom Hole Northing 4393232.3 Easting 575681.5

Elevation (ft) 1,128' 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 05/18/2017 Date drilling commenced 07/22/2017 Date drilling ceased 03/10/2018
Date completion activities began 06/02/2018 Date completion activities ceased 06/19/2018
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

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Freshwater depth(s) ft 1034' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2182' Void(s) encountered (Y/N) depths N WV Department of
Coal depth(s) ft 710' Cavern(s) encountered (Y/N) depths N Environmental Protection
Is coal being mined in area (Y/N) N

Reviewed

Reviewed by:
MJK 5/28/2019

WR-35
Rev. 8/23/13

API 47- 061 - 01725 Farm name Lois A. Jenkins Irrevocable Trust Well number Jenkins 10H

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"	40'	N	94.71	N/A	Grouted In
Surface	17-1/2"	13-3/8"	1,091'	N	54.5	N/A	Y, 35 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,243'	N	40	N/A	Y, 22 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18,886'	N	20	N/A	N, est. 1,400
Tubing	N/A	2-7/8"	N/A	N	6.5	N/A	
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	-	-	-	-	-	-
Surface	Class A	843	15.2	1.27	1071	CTS	8
Coal							
Intermediate 1	Class A	701	15.2	1.27	890	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	3,516	14.5	1.19	4,170	1,400	48
Tubing							

Drillers TD (ft) 18,886' Loggers TD (ft) 18,856'

Deepest formation penetrated Marcellus Plug back to (ft) 6190'

Plug back procedure _____

Kick off depth (ft) 6190'

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 _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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Lithology/Formation	Top Depth In FT Name TVD	Bottom Depth In FT TVD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
sand/shale	0	310	sand/shale
Sand	310	350	gray sand
coal	350	355	coal - (Washington)
shale	355	374	gray shale
coal	374	377	coal
shale	377	475	red and gray shale
shale	475	590	gray sandstone and shale interbedded
coal	590	598	coal - (Waynesburg)
sand/shale	598	710	brown sand/shale
coal	710	718	coal - (Pittsburgh)
sand/shale	718	1100	brown sand/shale
sand/shale	1100	1200	sand/shale interbedded
red shale	1200	1650	red rock - clay rich
sand/shale	1650	1880	brown sand/shale
Big Lime	1880	1935	limestone
Siltstone	1935	2000	siltstone
Big Injun	2000	2030	sandstone
sandstone/siltstone	2030	2700	interbedded sandstone and siltstone
red rock	2700	2950	clay rich red shale
sandstone/siltstone	2950	3852	interbedded sandstone and siltstone
sandstone	3852	3925	sandstone
siltstone/shale	3925	6100	interbedded brown siltstone and shale
shale	6100	6225	gray shale
silt/shale	6225	7190	mixed brown siltstone and brown/gray shale
Middlesex	7202	7425	light gray shale
Burkett	7425	7629	gray shale
Geneseo	7629	7686	black shale
Tully	7686	7744	limestone
Mahantango	7744	7860	gray shale
Marcellus	7860	7976	Black shale

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Stimulation Information Per Stage - Jenkins 10H									
Stage Number	Report Date	Avg Treating Rate (BPM)	Avg Treating Pressure (psi)	Breakdown Pressure (psi)	ISIP (psi)	Total Proppant Amount (lbs)	Flush Volume (bbls)	Total Clean Fluid (Bbls)	Amount Water (bbls)
1	6/3/2018	82	8,669	10,205	6,147	294,320	416	6,769	7,185
2	6/4/2018	80	9,379	7,568	5,410	350,180	412	7,513	7,925
3	6/4/2018	79	9,353	7,406	5,425	354,820	408	7,522	7,930
4	6/5/2018	81	9,474	7,185	6,045	333,980	404	7,256	7,660
5	6/5/2018	80	9,195	7,242	5,708	351,120	400	7,890	8,290
6	6/5/2018	80	9,417	7,288	5,707	289,700	399	6,914	7,313
7	6/6/2018	79	9,123	6,825	5,644	349,540	391	10,399	10,790
8	6/6/2018	80	9,060	6,535	5,647	350,380	390	7,046	7,436
9	6/6/2018	80	9,238	6,553	5,946	349,440	383	7,721	8,104
10	6/7/2018	80	9,223	6,593	5,788	351,610	381	7,656	8,037
11	6/7/2018	80	9,220	6,604	5,622	349,480	381	7,307	7,688
12	6/7/2018	80	9,314	6,791	5,601	348,900	371	7,716	8,087
13	6/8/2018	81	9,016	6,951	5,635	350,380	363	7,384	7,747
14	6/8/2018	82	9,222	6,310	5,753	350,980	359	7,918	8,277
15	6/8/2018	80	9,378	6,375	5,847	348,700	355	7,222	7,577
16	6/8/2018	80	9,541	7,289	5,995	355,880	401	7,450	7,851
17	6/9/2018	82	9,626	7,067	6,027	351,520	348	7,500	7,848
18	6/9/2018	80	9,147	6,424	5,254	349,640	345	7,643	7,988
19	6/9/2018	81	9,487	6,991	5,731	349,960	117	7,158	7,275
20	6/10/2018	79	9,346	7,163	5,781	350,620	332	7,475	7,807
21	6/10/2018	78	9,263	7,490	5,431	351,740	328	7,767	8,095
22	6/10/2018	80	9,336	7,141	6,026	350,260	325	7,103	7,428
23	6/11/2018	80	9,461	6,872	5,468	350,200	320	7,467	7,787
24	6/11/2018	80	9,430	8,015	5,774	350,500	315	7,287	7,602
25	6/11/2018	79	9,110	7,291	5,364	349,940	310	7,519	7,829
26	6/11/2018	80	9,355	7,634	6,153	351,380	307	7,275	7,582
27	6/12/2018	80	9,443	7,632	5,469	348,280	301	7,139	7,440
28	6/12/2018	81	9,328	7,639	5,943	348,940	296	7,283	7,579
29	6/12/2018	80	9,178	7,447	6,205	350,840	457	7,667	8,124
30	6/13/2018	80	9,332	7,668	5,608	349,540	292	7,398	7,690
31	6/13/2018	79	9,245	8,136	5,975	356,040	284	7,450	7,734
32	6/13/2018	79	9,029	8,001	6,158	351,100	282	7,544	7,826
33	6/13/2018	82	8,830	7,584	5,560	349,560	277	7,487	7,764
34	6/13/2018	61	8,282	7,800	6,197	352,540	274	7,512	7,786
35	6/14/2018	81	9,563	7,909	6,226	348,380	267	7,019	7,286
36	6/14/2018	80	8,912	8,087	6,182	350,380	265	7,595	7,860
37	6/14/2018	82	8,307	7,810	6,247	370,160	256	7,746	8,002
38	6/14/2018	79	8,454	7,661	6,368	351,340	252	7,418	7,670
39	6/15/2018	80	9,380	7,413	5,812	350,880	248	7,347	7,595
40	6/15/2018	81	8,655	7,353	5,907	350,380	244	7,266	7,510
41	6/15/2018	79	8,836	7,688	5,484	350,420	236	7,457	7,693
42	6/16/2018	80	8,557	7,401	6,084	351,080	241	7,017	7,258
43	6/16/2018	82	8,694	6,674	6,077	353,180	230	7,507	7,737
44	6/16/2018	77	8,801	7,619	6,154	354,080	222	8,058	8,280
45	6/17/2018	81	8,316	7,480	6,147	368,540	225	7,108	7,333
46	6/17/2018	81	8,161	7,557	6,141	350,480	222	7,301	7,523
47	6/17/2018	83	8,018	7,873	6,117	350,260	213	7,416	7,629
48	6/17/2017	83	8,537	7,722	6,003	350,340	206	7,514	7,700
49	6/18/2018	79	8,366	7,243	6,023	350,500	204	7,776	7,980
50	6/18/2018	80	8,185	7,660	6,011	351,920	202	7,719	7,921
51	6/19/2018	82	7,952	7,813	6,001	356,600	192	7,126	7,318
52	6/19/2018	80	8,271	6,950	5,852	350,570	193	7,614	7,807

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Perforation Record - Jenkins 10H				
Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	6/3/2018	18,729	0	40
2	6/4/2018	18,524	18,684	40
3	6/4/2018	18,322	18,482	40
4	6/5/2018	18,120	18,280	40
5	6/5/2018	17,919	18,078	40
6	6/5/2018	17,717	17,876	40
7	6/6/2018	17,515	17,674	40
8	6/6/2018	17,313	17,473	40
9	6/6/2018	17,111	17,271	40
10	6/7/2018	16,909	17,069	40
11	6/7/2018	16,708	16,867	40
12	6/7/2018	16,506	16,665	40
13	6/8/2018	16,304	16,463	40
14	6/8/2018	16,102	16,262	40
15	6/8/2018	15,900	16,060	40
16	6/8/2018	15,698	15,858	40
17	6/9/2018	15,497	15,656	40
18	6/9/2018	15,295	15,454	40
19	6/9/2018	15,093	15,252	40
20	6/10/2018	14,891	15,050	40
21	6/10/2018	14,689	14,849	40
22	6/10/2018	14,487	14,647	40
23	6/11/2018	14,285	14,445	40
24	6/11/2018	14,084	14,243	40
25	6/11/2018	13,882	14,041	40
26	6/11/2018	13,680	13,839	40
27	6/12/2018	13,478	13,638	40
28	6/12/2018	13,276	13,436	40
29	6/12/2018	13,074	13,234	40
30	6/13/2018	12,873	13,032	40
31	6/13/2018	12,671	12,830	40
32	6/13/2018	12,469	12,628	40
33	6/13/2018	12,267	12,426	40
34	6/13/2018	12,065	12,225	40
35	6/14/2018	11,863	12,023	40
36	6/14/2018	11,661	11,821	40
37	6/14/2018	11,460	11,619	40
38	6/14/2018	11,258	11,417	40
39	6/15/2018	11,056	11,215	40
40	6/15/2018	10,854	11,014	40
41	6/15/2018	10,652	10,812	40
42	6/16/2018	10,450	10,610	40
43	6/16/2018	10,249	10,408	40
44	6/16/2018	10,047	10,206	40
45	6/17/2018	9,845	10,004	40
46	6/17/2018	9,643	9,803	40
47	6/17/2018	9,441	9,601	40
48	6/17/2017	9,239	9,399	40
49	6/18/2018	9,038	9,197	40
50	6/18/2018	8,836	8,995	40
51	6/19/2018	8,634	8,793	40
52	6/19/2018	8,432	8,591	40

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Perforation Record - Jenkins 10H				
Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	6/3/2018	18,729	0	40
2	6/4/2018	18,524	18,684	40
3	6/4/2018	18,322	18,482	40
4	6/5/2018	18,120	18,280	40
5	6/5/2018	17,919	18,078	40
6	6/5/2018	17,717	17,876	40
7	6/6/2018	17,515	17,674	40
8	6/6/2018	17,313	17,473	40
9	6/6/2018	17,111	17,271	40
10	6/7/2018	16,909	17,069	40
11	6/7/2018	16,708	16,867	40
12	6/7/2018	16,506	16,665	40
13	6/8/2018	16,304	16,463	40
14	6/8/2018	16,102	16,262	40
15	6/8/2018	15,900	16,060	40
16	6/8/2018	15,698	15,858	40
17	6/9/2018	15,497	15,656	40
18	6/9/2018	15,295	15,454	40
19	6/9/2018	15,093	15,252	40
20	6/10/2018	14,891	15,050	40
21	6/10/2018	14,689	14,849	40
22	6/10/2018	14,487	14,647	40
23	6/11/2018	14,285	14,445	40
24	6/11/2018	14,084	14,243	40
25	6/11/2018	13,882	14,041	40
26	6/11/2018	13,680	13,839	40
27	6/12/2018	13,478	13,638	40
28	6/12/2018	13,276	13,436	40
29	6/12/2018	13,074	13,234	40
30	6/13/2018	12,873	13,032	40
31	6/13/2018	12,671	12,830	40
32	6/13/2018	12,469	12,628	40
33	6/13/2018	12,267	12,426	40
34	6/13/2018	12,065	12,225	40
35	6/14/2018	11,863	12,023	40
36	6/14/2018	11,661	11,821	40
37	6/14/2018	11,460	11,619	40
38	6/14/2018	11,258	11,417	40
39	6/15/2018	11,056	11,215	40
40	6/15/2018	10,854	11,014	40
41	6/15/2018	10,652	10,812	40
42	6/16/2018	10,450	10,610	40
43	6/16/2018	10,249	10,408	40
44	6/16/2018	10,047	10,206	40
45	6/17/2018	9,845	10,004	40
46	6/17/2018	9,643	9,803	40
47	6/17/2018	9,441	9,601	40
48	6/17/2017	9,239	9,399	40
49	6/18/2018	9,038	9,197	40
50	6/18/2018	8,836	8,995	40
51	6/19/2018	8,634	8,793	40
52	6/19/2018	8,432	8,591	40

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API Permit #: 47-061-01725

Customer: Northeast Natural Energy

Lease and Well Name: Jenkins #10-H

A.F.E #: 100362-602



Job Type: 13 3/8 Surface

Cement Operator: Harry Braddee

Date Cemented: 7/22/2017

Drilling Contractor: Highlands # 14

Cement Slurry Information									
No. of Sacks	Cement Blend Composition			Yield (ft ³ /sk)	Mix Water (gal/sk)	Density (lb/gal)	(bbl) Mix Water	(ft ³) Of Slurry	(bbl) Of Slurry
843	Type 1 + 2% CaCl ₂			1.27	5.76	15.2	116	1071	191
Totals							116	1071	191

Wellbore Information									
	New/Used	Diameter (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Collapse/Burst Pressures (psi)		Requested TOC (ft)	Surface
Casing	New	13 3/8	54.5	0	1,090			TVD (ft)	1,090
Previous Casing	New	24		0	40			Displacement Depth (ft)	1,048
Tubing or Drillpipe								Displacement (bbl)	162.0
Open Hole		17 1/2		40	1,110				
Open Hole									

Pumping Returns		Cement Slurry Temperature Record (°F)					Fluid Information	
Spacer or Gel Sweep Return Seen At Surface	Yes	Cement	Reading 1	Reading 2	Reading 3	Average	Mix Water Temp (°F)	78
Cement Returns Seen at Surface	Yes	Blend 1	99	97	99	98	Displacement Fluid Type	Water
Amount of Cement Returns (BBL)	35	Blend 2					Displacement Fluid Temp (°F)	78
		Blend 3					Displacement Fluid Density (lb/gal)	8.3

Time	Rate (bpm)	Volume (bbl)	Pressure (psi)	Event or Stage Description
7:30				Arrive on Location
9:00				Wait on Rig to Run Casing
13:00				Spot Trucks, Rig In
14:00				Hold Safety Meeting
14:23	3	3	14	Prime Pump
14:25			500-1261	Test Ospd, Test lines
14:58	5.5	170	76	Pump processed water
15:08	5.5	50	90	Mix and Pump gel w/ Celoflake
15:09	5.5	10	103	Pump Fresh water
15:48	5.5	215	275	Mix and Pump cement @ 15.2 PPG
16:29	5.5-3	162	900	Sddp, Displace plug w/ Processed water
16:34		1/2		Plug lands, hold psi 5 min release, floats held shut in well
17:00				Wash up ,Rack out, Clean and leave site

Comments:

Hole circulated @255 bbl , circulated 35 bbl cement return to surface, Job done per co.man

Thank You for your Business

UWS Cement Operator Signature:

Harry Braddee

Customer Representative Signature:

API Permit #: 47-061-01725

Customer: Northeast Natural Energy

Lease and Well Name: Jenkins #10-H

A.F.E #: 100362-602



Job Type: 9 5/8"

Cement Operator: John Vance

Date Cemented: 7/24/2017

Drilling Contractor: Highlands #14

Cement Slurry Information									
No. of Sacks	Cement Blend Composition			Yield (ft ³ /sk)	Mix Water (gal/sk)	Density (lb/gal)	(bbl) Mix Water	(ft ³) Of Slurry	(bbl) Of Slurry
701	Type 1 + 2% CaCl ₂			1.27	5.76	15.2	96	890	159
Totals							96	890	159

Wellbore Information									
	New/Used	Diameter (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Collapse/Burst Pressure (psi)		Requested TOC (ft)	
Casing	New	9 5/8	40.0	0	2,262				
Previous Casing	New	13 3/8	48.0	0	1,091				
Tubing or Drillpipe									
Open Hole		12 1/4		1,091	2,290			Displacement Depth (ft)	2,220
Open Hole								Displacement (bbl)	168.3

Pumping Returns		Cement Slurry Temperature Record (°F)					Fluid Information	
Spacer or Gel Sweep Return Seen At Surface	Yes	Cement	Reading 1	Reading 2	Reading 3	Average	Mix Water Temp (°F)	74
Cement Returns Seen at Surface	Yes	Blend 1	96	98		97	Displacement Fluid Type	Water
Amount of Cement Returns (BBL)	22	Blend 2					Displacement Fluid Temp (°F)	74
		Blend 3					Displacement Fluid Density (lb/gal)	8.3

Time	Rate (bpm)	Volume (bbl)	Pressure (psi)	Event or Stage Description
14:00				AOL, spoke to company rep
14:15				Hold JSA, spot trucks, rack in
15:30				Hold pre job safety meeting with all hands
15:54	3	5	2750	Pressure test lines
16:01	5	181.4	38	Pump processed water to clear shoe
16:36	5	20	51	Pump fresh water to clean truck
16:40	5	50	97	Pump gel
16:50	5	10	83	Pump fresh water
16:52	5	158.5	176	Mix and pump cement
17:27				Shut down, drop plug
17:28	3.7 - 5	165	1170	Displace plug
18:05			1423	Plug lands, shut down, wait 5 min
18:10				Release pressure, floats held
18:15				Hold JSA, clean truck, rack out
19:00				Leave location

Comments:

Job completed per company rep specifications
 PH - 6 Temp - 74
 Circulation @ 242 BBL

Thank You for your Business

UWS Cement Operator Signature:

John Vance

Customer Representative Signature:

Bred Chadwick

Cementing Treatment



Start Date	3/9/2018	Well	Lois A Jenkins Irrevocable Trust 10H
End Date	3/10/2018	County	MONONGALIA
Client	NORTHEAST NATURAL ENERGY LLC	State/Province	WV
Client Field Rep	Jamie	API	47-061-01725
Service Supervisor	Delmos Graham	Formation	
Field Ticket No.		Rig	Patterson 334
District	Bridgeport, WV	Type of Job	Long String

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.84	9.63	40.00	2,243.00	2,243.00	0.00	J-55	
Open Hole	8.50			18,945.00	7,980.00	0.00		
Casing	4.78	5.50	20.00	18,920.00	7,980.00		P-110	
Open Hole	8.75			5,755.00	5,755.00			

Shoe Length (ft): 45

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	18,874.00
Bottom Plug Size	5.500	Max Tubing Pressure - Rated (psi)	
Top Plug Used?	Yes	Max Tubing Pressure - Operated (psi)	
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	12,600.00
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	6,000.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	BTC
Landing Collar Depth (ft)	18,875	Top Connection Size	5.5

CIRCULATION PRIOR TO JOB

Cementing Treatment



Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	
Circulation Time (min)	3.00	10 min SGS	
Circulation Rate (bpm)	8.00	30 min SGS	
Circulation Volume (bbls)		Flare Prior to/during the Cement Job	Yes
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	13.00	Gas Units	
Mud Density Out (ppg)			
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)	32.00	Slurry Cement Temperature (°F)	69.00
Mix Water Temperature (°F)	63.00	Flow Line Temperature (°F)	

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	IntegraGuard RHEO 10 13.5 ppg	13.5000			0.00				100.0000
Tail Slurry	Single Slurry 14.5 ppg	14.5000	1.1859	5.18	1,243.00	17,677.00	3,516	4,170.0000	742.5000
Displacement 1	Inhibited Water	8.3400			17,974.00			0.0000	20.0000
Displacement Final	Treated Water	8.3400			0.00			0.0000	398.6000

Fluid Type	Fluid Name	Component	Concentration	UOM
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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/3/2018
Job End Date:	6/19/2018
State:	West Virginia
County:	Monongalia
API Number:	47-061-01725-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Jenkins 10H
Latitude:	39.70920000
Longitude:	-80.13950000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,810
Total Base Water Volume (gal):	16,344,122
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	Company 1	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.89784	None
Sand (Proppant)	Producers Service Corp	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	11.69428	None
HC Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.05092	None
STIMLUBE HBVB	Producers Service Corp	Friction Reducer	Petroleum Distallates	64742-47-8	30.00000	0.01790	None
			Ammonium Acetate	631-61-8	10.00000	0.00597	None
SCAL16486A	Nalco-Champion	Scale Inhibitor	Amine Triphosphate	Proprietary	30.00000	0.00165	None
			Ethylene Glycol	107-21-1	30.00000	0.00165	None
BIOC11219A	Nalco-Champion	Biocide	Methanol	67-56-1	60.00000	0.00155	None
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00078	None
			Glutaraldehyde	111-30-8	10.00000	0.00026	None

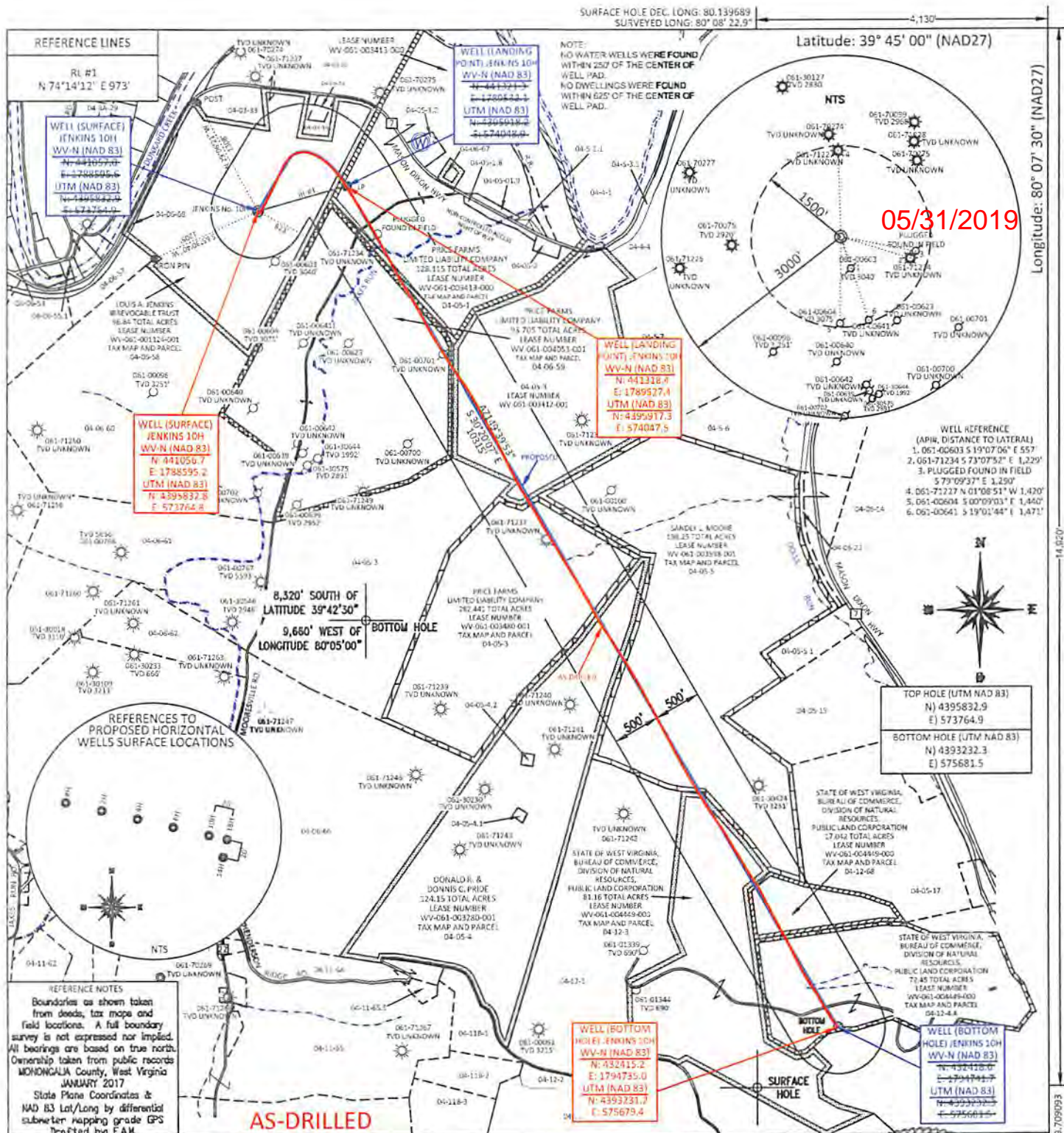
PROHIB II	Producers Service Corp	Inhibitor					
			Acetic Acid	64-19-7	90.00000	0.00057	None
			2-Ethylhexanol	104-76-7	10.00000	0.00006	None
			Methanol	67-56-1	10.00000	0.00006	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	None
			Diethanolamine	111-42-2	1.00000	0.00001	None
Ingredients 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					
			Ammonium Acetate	631-61-8	10.00000	0.00597	
			Ethylene Glycol	107-21-1	30.00000	0.00165	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00078	
			Glutaraldehyde	111-30-8	10.00000	0.00026	
			Methanol	67-56-1	10.00000	0.00006	
			2-Ethylhexanol	104-76-7	10.00000	0.00006	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	
			Diethanolamine	111-42-2	1.00000	0.00001	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



FILE #: NNE16
 DRAWING #: 2735
 SCALE: PLAT: 1" = 1500'
 TIC: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *[Signature]*
 L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WYDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304

Well Type: Oil Waste Diposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST
 OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL
 LEASE NUMBERS:

DATE: FEBRUARY 13, 2019
 OPERATOR'S WELL #: JENKINS NO. 10H
 API WELL #: 47 61
 STATE COUNTY PERMIT
 PROPOSED ELEVATION: 1,113.77'
 CURRENT ELEVATION: 1,128'
 QUADRANGLE: BLACKSVILLE
 ACREAGE: 96.84 +/-
 ACREAGE: 1099.153 +/-

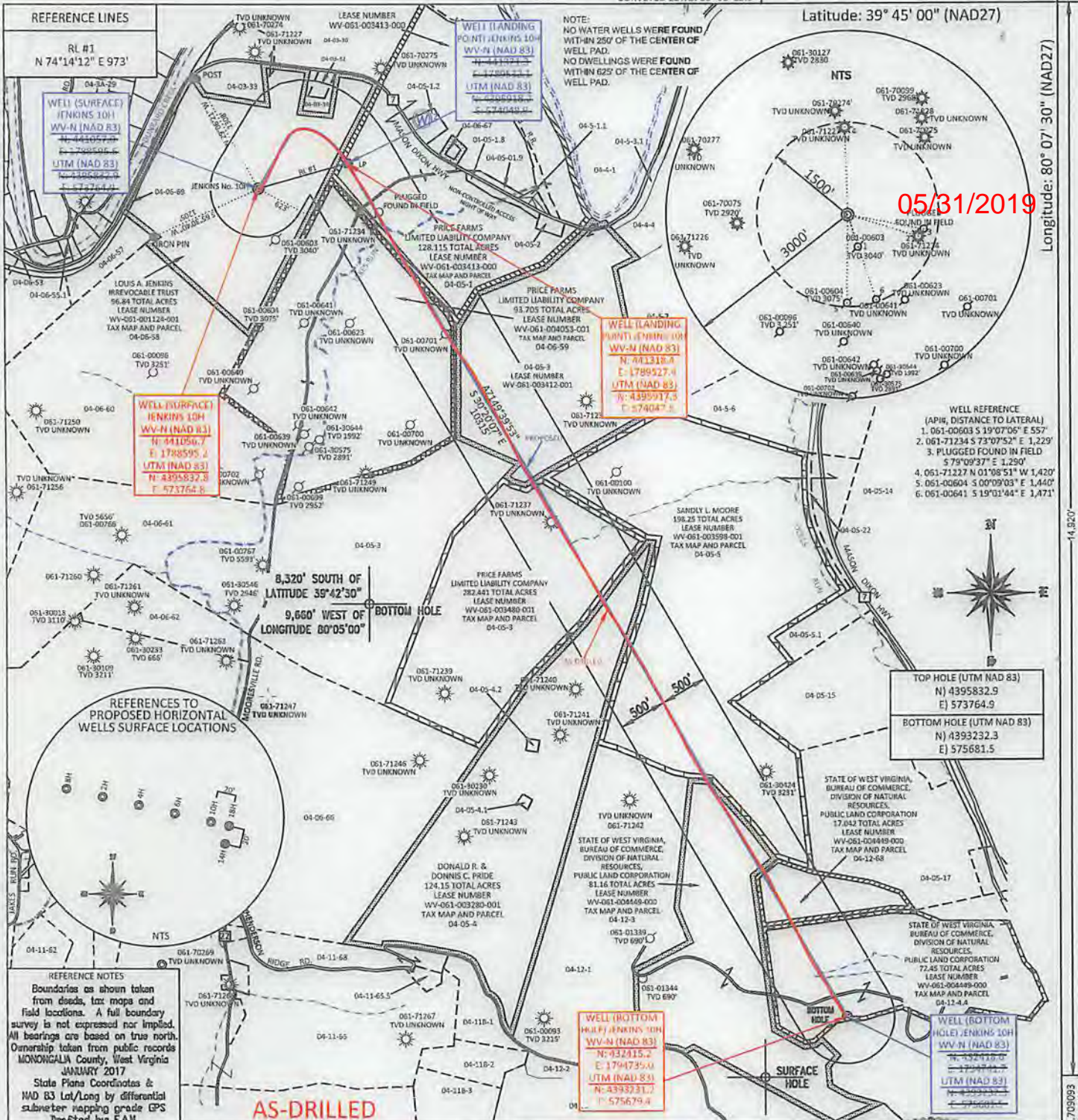
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):

TARGET FORMATION: PILOT FORMATION HELDERBURG
 ESTIMATED DEPTH: TVD: 8,200' TMD: 18,919'
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

SURFACE HOLE DEC. LONG: 80.139689
SURVEYED LONG: 80° 08' 22.9"

Latitude: 39° 45' 00" (NAD27)

Longitude: 80° 07' 30" (NAD27)



FILE #: NNE16
DRAWING #: 2735
SCALE: PLAT: 1" = 1500'
TICK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

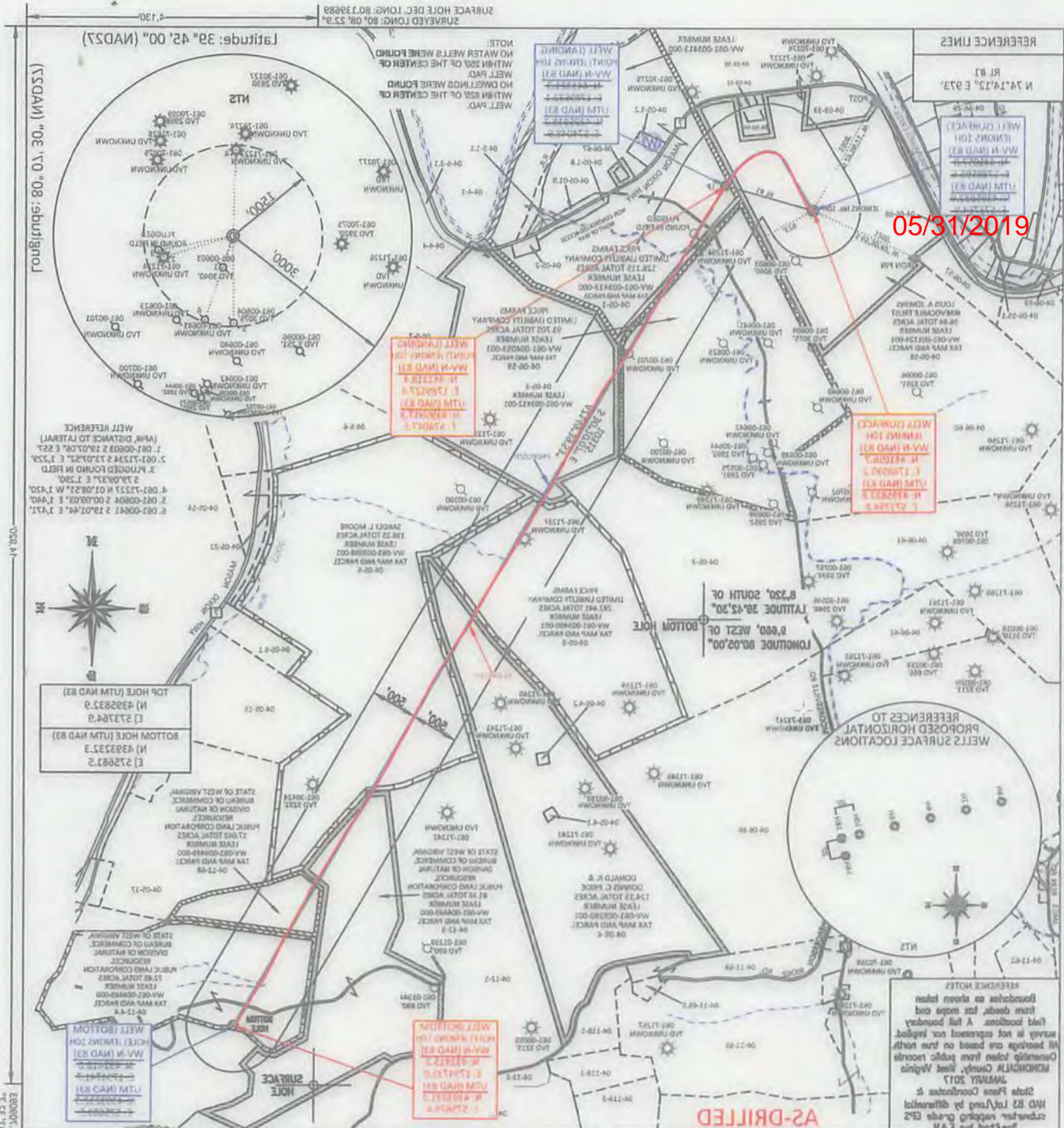
I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
Signed: [Signature]
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WYDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304
Well Type: Oil Waste Diposal Production Deep
 Gas Liquid Injection Storage Shallow
WATERSHED: DUNKARD CREEK
COUNTY/DISTRICT: MONONGALIA / CLAY
SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST
OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL
LEASE NUMBERS: _____
DATE: FEBRUARY 13, 2019
OPERATOR'S WELL #: JENKINS NO. 10H
API WELL #: 47 61 0125
STATE COUNTY PERMIT
PROPOSED ELEVATION: 1,113.77'
CURRENT ELEVATION: 1,128'
QUADRANGLE: BLACKSVILLE
ACREAGE: 96.84 +/-
ACREAGE: 1099.153 +/-
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
TARGET FORMATION: PILOT FORMATION HELDERBURG
ESTIMATED DEPTH: TVD: 8,200' TMD: 18,919'
WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
DESIGNATED AGENT: JOHN ADAMS
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
CITY: CHARLESTON STATE: WV ZIP CODE: 25301
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

SURFACE HOLE DEC. LAT: 39.750993
SURVEYED LAT: 39° 42' 32.7"

05/31/2019



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *[Signature]*
 L.L.S. #2124; Ernest J. Benchek III

FILE #:	INEL16
DRAWING #:	2735
SCALE:	PLAT: 1" = 100' MAP: 1" = 200'
MINIMUM DEGREE OF ACCURACY:	1/200
PROVEN SOURCE OF ELEVATION:	GRADE GPS
PROVEN SOURCE:	SUBMETTER MAPPING

CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 TARGET FORMATION: PILOT FORMATION HELDERBURG

CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 DESIGNATED AGENT: JOHN ADAMS
 ESTIMATED DEPTH: TVD: 8,200' TMD: 18,919'

WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 SURFACE OWNER: LOIS A. JENKINS IRREVOCABLE TRUST
 OIL & GAS ROYALTY OWNER: LOIS A. JENKINS IRREVOCABLE TRUST, ET AL

WELL TYPE: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WELL # 47
 STATE PERMIT 01757
 OPERATOR'S WELL #: JENKINS NO. 10H
 DATE: FEBRUARY 13, 2019

ACREAGE: 1099.123 +/-
 ACREAGE: 98.84 +/-
 QUADRANGLE: BLACKSVILLE
 ELEVATION: 1,128'
 PROPOSED ELEVATION: 1,113.77'

CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE