

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

API 47-061-01782 County Monongalia District Clay
Quad Blacksville Pad Name Coastal Field/Pool Name _____
Farm name Coastal Forest Resources Company Well Number Coastal 4H
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 4395389.6 Easting 568191.9
Landing Point of Curve Northing 4395377.7 Easting 568178.1
Bottom Hole Northing 4393090.5 Easting 569891.3

Elevation (ft) 1,420' 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 08/25/2017 Date drilling commenced 10/06/17 Date drilling ceased 12/07/17
Date completion activities began 2/10/2018 Date completion activities ceased 3/15/2018
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug **OCT 19 2018**

Freshwater depth(s) ft 1243' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2510' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 600', 1200' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
MJK
11/10/18

Reviewed

API 47-061 - 01782 Farm name Coastal Forest Resources Company Well number Coastal 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"	40'	N	52.78	N/A	Grouted In
Surface	17-1/2"	13-3/8"	1,340'	N	54.5	N/A	Y 40 bbls
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,650'	N	40	N/A	Y 5 bbls
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18,030'	N	20	N/A	
Tubing	N/A	2-7/8"	N/A	N	4.7	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	36.4	-	.75	27.27	CTS	48
Surface	Class A	1075	15.6	1.21	1300.8	CTS	8
Coal							
Intermediate 1	Class A	940	15.6	1.209	1136.5	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	3556	14.5	1.1859	4204	3680'	48
Tubing							

Drillers TD (ft) 18,030' Loggers TD (ft) 18,000'

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 5,525'

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 - 01782 Farm name Coastal Forest Resources Company Well number Coastal 4H

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	8,227.59' TVD	18,042' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2842.56 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 1074.875 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 ₂ S, ETC)
	0		0		Please See Attachment

Please insert additional pages as applicable.

Drilling Contractor Patterson-UTI Drilling Company
Address 207 Carlton Dr. City Eighty Four State PA Zip 15330

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

Cementing Company BJ Services
Address 2228 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company Producers Service Corporation
Address 109 Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
Signature Hollie Medley Title Regulatory Manager Date 10-11-18

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



State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: Northeast Natural Energy LLC
API No: 47-061-01782 County: Monongalia
District: Clay Well No: Costal 4H
Farm Name: Costal Forest Resource Company

Discharge Date/s From:(MMDDYY) _____ To: (MMDDYY) _____

Discharge Times. From: _____ To: _____

Total Volume to be Disposed from this facility (gallons): _____

Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: _____ (Include a topographical map of the Area.)
- (2) UIC: _____ Permit No. _____
- (3) Offsite Disposal: _____ Site Location: _____
- (4) Reuse: _____ Alternate Permit Number: _____
- (5) Centralized Facility: _____ Permit No. _____
- (6) Other method: _____ (Include an explanation)

Follow Instructions below to determine your treatment category:

Optional Pretreatment test: _____ Cl- mg/l _____ DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?
(Y/N) _____ If yes, who? _____ and place a four (4) on line 7.
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) _____ If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) _____ If yes, go to line 4
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) _____ If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) _____ If yes, go to line 6
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) _____ If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. _____ is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: utilized a closed loop system

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Name of Principal Exec. Officer: Hollie Medley
Title of Officer: Regulatory Manager
Date Completed: 8/20/2018

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Hollie Medley
Signature of a Principal Exec. Officer or Authorized agent.

Category 1
Sampling Results

API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

*** Al is only reported if the pH is above 9.0

Category 2
Sampling Results

API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

Date: _____

** Include a description of your aeration technique.

Aeration Code: _____

*** Al is only reported if the pH is above 9.0

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Category 3
Sampling Results
API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____ Date: _____
 ** Include a description of your aeration technique. Aeration Code: _____
 *** Al is only reported if the pH is above 9.0.

Category 4
Sampling Results
API No: _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	lb/BI
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____ Date: _____

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Perforation Record

Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	2/9/2018	17,879	0	0
2	2/10/2018	17,672	17,834	40
3	2/10/2018	17,468	17,629	40
4	2/10/2018	17,264	17,425	40
5	2/11/2018	17,059	17,221	40
6	2/12/2018	16,855	17,016	40
7	2/13/2018	16,651	16,812	40
8	2/13/2018	16,447	16,608	40
9	2/14/2018	16,242	16,404	40
10	2/14/2018	16,038	16,199	40
11	2/15/2018	15,834	15,995	40
12	2/15/2018	15,629	15,791	40
13	2/15/2018	15,425	15,587	40
14	2/15/2018	15,221	15,382	40
15	2/16/2018	15,017	15,178	40
16	2/16/2018	14,812	14,974	40
17	2/16/2018	14,608	14,769	40
18	2/17/2018	14,404	14,565	40
19	2/17/2018	14,200	14,361	40
20	2/17/2018	13,995	14,157	40
21	3/2/2018	13,791	13,952	40
22	3/3/2018	13,587	13,748	40
23	3/3/2018	13,382	13,544	40
24	3/3/2018	13,178	13,340	40
25	3/3/2018	12,974	13,135	40
26	3/4/2018	12,770	12,931	40
27	3/4/2018	12,565	12,727	40
28	3/5/2018	12,361	12,523	40
29	3/5/2018	12,157	12,318	40
30	3/5/2018	11,953	12,114	40
31	3/6/2018	11,748	11,910	40
32	3/6/2018	11,544	11,705	40
33	3/6/2018	11,340	11,501	40
34	3/7/2018	11,135	11,297	40
35	3/7/2018	10,931	11,093	40
36	3/8/2018	10,727	10,888	40
37	3/9/2018	10,523	10,684	40
38	3/10/2018	10,318	10,480	40
39	3/10/2018	10,114	10,276	40
40	3/11/2018	9,910	10,071	40

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41	3/11/2018	9,706	9,867	40
42	3/12/2018	9,501	9,663	40
43	3/12/2018	9,297	9,458	40
44	3/12/2018	9,093	9,254	40
45	3/14/2018	8,889	9,050	40
46	3/14/2018	8,684	8,848	40
47	3/15/2018	8,480	8,641	40

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Stimulation Information Per Stage

Stage Number	Report Date	Avg Treating Rate (BPM)	Avg Treating Pressure (psi)	Breakdown Pressure (psi)	ISIP (psi)	Proppant Amount (lbs)	Amount Water (bbls)
1	2/9/2018	75	9,199	6,110	5,924	278,000	7,098
2	2/10/2018	80	9,752	7,166	5,675	387,280	9,599
3	2/10/2018	76	9,367	8,016	5,698	404,980	9,319
4	2/10/2018	76	9,220	7,543	5,451	403,180	8,701
5	2/11/2018	80	9,401	8,014	5,017	401,420	8,792
6	2/12/2018	76	9,081	7,383	5,582	405,880	8,502
7	2/13/2018	80	9,494	7,546	5,269	400,840	8,474
8	2/13/2018	75	9,222	7,703	5,528	408,920	8,803
9	2/14/2018	78	9,715	8,195	5,532	402,640	9,985
10	2/14/2018	80	9,163	7,498	5,341	407,260	8,870
11	2/15/2018	79	9,399	7,655	5,807	424,700	8,935
12	2/15/2018	80	9,287	7,924	5,539	332,140	7,925
13	2/15/2018	78	8,975	7,191	5,277	399,260	8,523
14	2/15/2018	77	9,228	7,326	5,247	400,660	9,063
15	2/16/2018	81	9,287	7,980	6,202	366,020	8,233
16	2/16/2018	82	9,277	7,991	5,271	408,140	8,781
17	2/16/2018	79	9,069	7,172	5,139	366,950	8,509
18	2/17/2018	82	9,077	7,548	5,615	399,640	9,249
19	2/17/2018	57	10,049	7,617	6,238	398,760	9,814
20	2/17/2018	65	9,066	7,337	6,006	299,180	8,269
21	3/2/2018	78	8,551	7,222	5,592	307,340	7,059
22	3/3/2018	80	8,799	7,744	6,004	307,270	6,334
23	3/3/2018	78	8,886	7,821	5,459	302,010	6,578
24	3/3/2018	78	8,459	7,798	5,246	296,840	6,329
25	3/3/2018	79	8,759	7,892	6,373	295,880	8,749
26	3/4/2018	80	8,635	7,716	6,531	303,300	6,634
27	3/4/2018	79	8,590	8,153	6,289	310,200	6,531
28	3/5/2018	80	8,512	7,546	5,969	308,180	6,837
29	3/5/2018	80	8,700	7,697	6,375	288,820	6,071
30	3/5/2018	79	8,443	8,069	6,123	300,780	6,399
31	3/6/2018	80	8,287	7,869	5,718	301,745	6,107
32	3/6/2018	81	8,673	7,267	5,129	300,860	6,534
33	3/6/2018	82	8,508	8,201	5,639	407,780	8,682
34	3/7/2018	79	8,586	7,622	5,047	409,420	8,455
35	3/7/2018	81	8,353	7,271	5,283	407,040	8,353
36	3/8/2018	81	8,342	7,431	5,566	399,840	8,616
37	3/9/2018	82	8,538	7,426	5,198	401,180	8,527
38	3/10/2018	83	8,527	7,957	5,362	402,700	8,037
39	3/10/2018	82	8,629	8,111	5,468	400,620	7,904
40	3/11/2018	81	8,293	7,324	5,674	407,440	8,091
41	3/11/2018	82	8,593	7,447	5,300	408,640	8,372
42	3/12/2018	82	8,498	7,926	5,030	401,060	8,372

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43	3/12/2018	80	8,051	7,751	5,231	399,400	8,211
44	3/12/2018	80	8,185	7,520	5,287	401,600	8,237
45	3/14/2018	80	8,265	6,792	5,653	375,560	8,026
46	3/14/2018	79	8,718	7,360	5,704	400,600	8,340
47	3/15/2018	78	8,170	7,593	5,357	400,160	8,202

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Lithology/Formation

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, H2S, etc)
Sand/Shale/Silt	0	40			sand/shale/silt
Red Rock	40	120			red rock
Sand/Shale/Silt	120	2407			sand/shale/silt
Limestone	2407	2495			limestone
Big Injun	2495	2625			sandstone
Sand/Shale	2625	3140			sand/shale
Shale	3140	5140			shale
Grey Shale	5140	5488			shale
Shale	5488	5898			shale
Sandstone/Shale	5898	7754			shale/sandstone
Burkett	7754	7928		8370	shale
Genesee	7928	7974	8152	8434	shale
Tully	7974	8016	8434	8511	limestone
Hamilton	8016	8131	8511	8716	shale
Marcellus	8131	8187	8716	8861	shale
Cherry Valley	8187	8191	8861	8872	limestone
Lower Marcellus	8191		8872		shale

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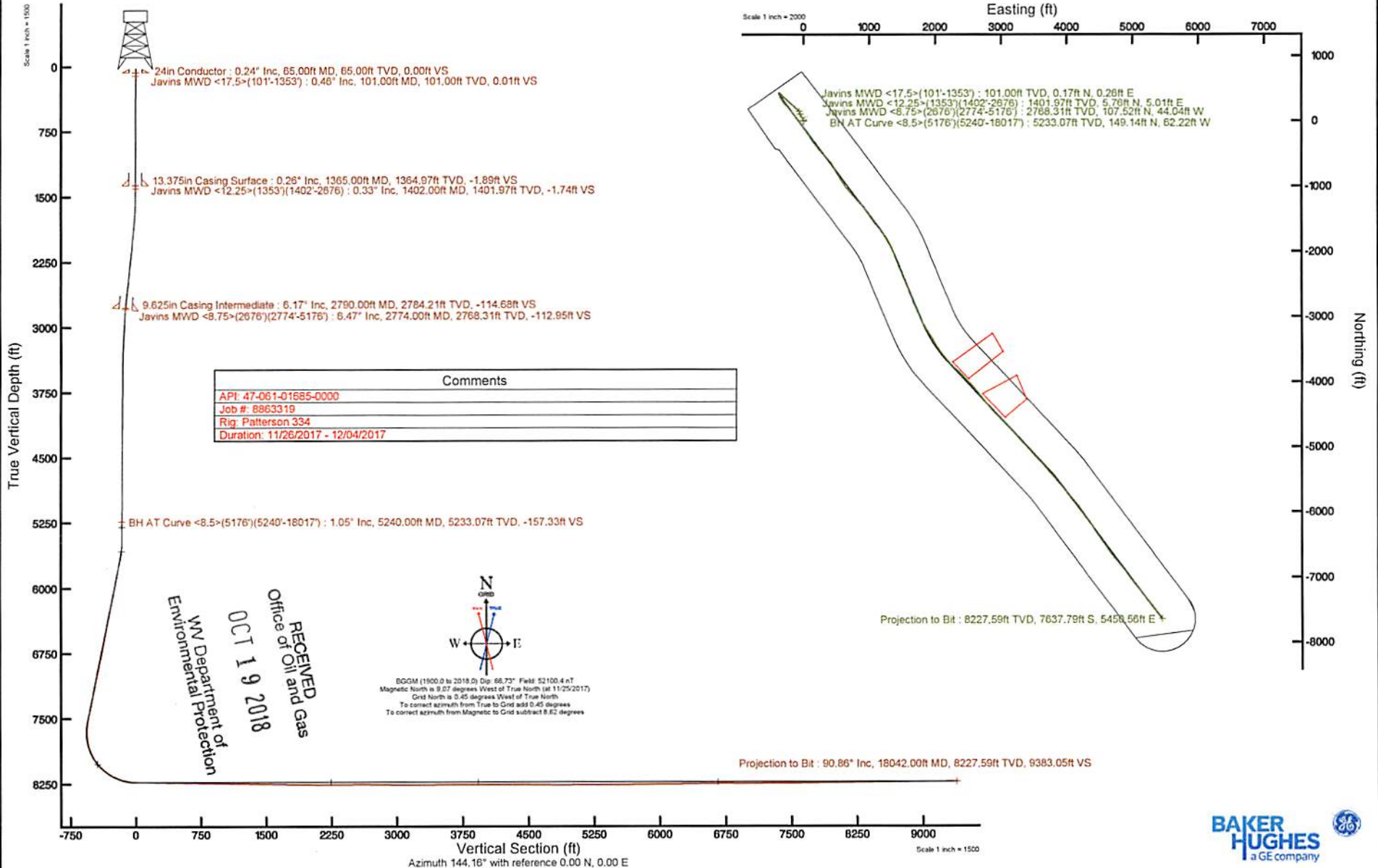
NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot 04
 Well: Coastal 4H
 Wellbore: Coastal 4H PWB



Plot reference wellbore is Coastal 4H PWB #04010	Grid System: NAD83 (Lambert West Virginia State Plane Zone 18701) US Feet
True vertical depths are referenced to Reference 334 (RVD)	* = Wellbore was transformed from a different geographic datum
Measured depths are referenced to Reference 334 (RVD)	North Reference: Grid North
Reference 334 (RVD) is Mean Sea Level (MSL)	Scale: True Distance
Mean Sea Level is Ground Level (SL) (MSL) (SL) = 1625 feet	Depth are in feet
Coordinates are in feet referenced to MSL	Created by: R. H. H. on 11/11/2014
	Updated: 04/04/2016



Tie/Proj	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	True Vertical Depth (ft)	Northing (ft)	Easting (ft)	DLS (deg/100ft)	Vertical Section (ft)	Closure Distance (ft)	Course Length (ft)	Build Rate (deg/100ft)	Turn Rate (deg/100ft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25.00	0.00	56.81	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	101.00	0.46	56.81	101.00	0.17	0.26	0.61	0.01	0.31	76.00	0.61	0.00
	132.00	0.30	54.52	132.00	0.28	0.43	0.52	0.02	0.51	31.00	-0.52	-7.39
	160.00	0.29	84.47	160.00	0.33	0.56	0.55	0.06	0.65	28.00	-0.04	106.96
	189.00	0.50	40.79	189.00	0.43	0.71	1.22	0.06	0.83	29.00	0.72	-150.62
	217.00	0.26	43.67	217.00	0.57	0.84	0.86	0.02	1.01	28.00	-0.86	10.29
	246.00	0.57	73.27	246.00	0.66	1.02	1.27	0.06	1.21	29.00	1.07	102.07
	280.00	0.47	69.92	279.99	0.76	1.31	1.53	0.15	1.52	34.00	-0.29	-9.85
	311.00	0.65	34.82	310.99	0.95	1.84	1.22	0.13	1.80	31.00	0.58	-113.23
	337.00	0.54	1.06	372.99	1.48	1.84	1.25	-0.12	2.36	31.00	-0.16	-128.81
	373.00	0.54	1.06	372.99	1.48	1.74	0.29	0.03	2.12	31.00	-0.19	19.90
	405.00	0.49	38.44	404.99	1.74	1.93	1.04	-0.28	2.60	32.00	-0.16	116.81
	447.00	0.44	29.99	445.99	1.94	2.07	0.27	-0.36	2.84	31.00	-0.16	-77.26
	476.00	0.28	35.23	466.99	2.11	2.18	0.53	-0.43	3.03	31.00	-0.52	16.90
	498.00	0.27	17.99	497.99	2.24	2.24	0.27	-0.50	3.17	31.00	-0.03	-55.61
	529.00	0.39	35.13	528.99	2.39	2.33	0.50	-0.58	3.34	31.00	0.39	55.29
	561.00	0.42	71.81	560.99	2.52	2.50	0.80	-0.58	3.55	32.00	0.09	114.62
	592.00	0.61	38.44	591.98	2.69	2.71	1.12	-0.59	3.82	31.00	0.61	-107.65
	623.00	0.51	42.35	622.98	2.92	2.91	0.35	-0.66	4.12	31.00	-0.32	12.61
	654.00	0.45	44.96	653.98	3.10	3.09	0.21	-0.71	4.38	31.00	-0.19	8.42
	685.00	0.39	74.21	684.98	3.22	3.27	0.71	-0.69	4.59	31.00	-0.19	94.55
	716.00	0.33	35.28	715.98	3.34	3.36	1.52	-0.74	4.74	31.00	-0.19	-262.32
	748.00	0.49	35.01	747.98	3.56	3.34	0.50	-0.94	4.88	32.00	0.50	0.37
	779.00	0.15	338.68	778.98	3.73	3.30	1.12	-1.09	4.99	31.00	-1.10	-46.23
	810.00	0.37	337.26	809.98	3.86	3.25	0.71	-1.23	5.05	31.00	0.71	-4.58
	841.00	0.44	22.75	840.98	4.07	3.26	1.03	-1.39	5.21	31.00	0.23	146.74
	872.00	0.11	5.89	871.98	4.20	3.31	1.08	-1.47	5.35	31.00	-1.06	-54.39
	903.00	0.41	26.98	902.98	4.33	3.36	1.00	-1.54	5.48	31.00	0.97	68.03
	934.00	0.12	347.91	933.98	4.46	3.40	1.05	-1.63	5.61	31.00	-0.94	-126.03
	966.00	0.22	348.00	965.98	4.56	3.38	0.31	-1.71	5.68	32.00	0.31	0.28
	997.00	0.21	343.84	996.98	4.67	3.36	0.06	-1.82	5.75	31.00	-0.03	-13.42
	1028.00	0.11	1027.98	1027.98	4.75	3.35	0.40	-1.89	5.81	31.00	-0.32	89.74
	1059.00	0.34	1058.98	1058.98	4.84	3.42	0.85	-1.92	5.93	31.00	0.74	128.35
	1090.00	0.27	1089.98	1089.98	4.92	3.57	0.45	-1.90	6.07	31.00	-0.23	75.06
	1121.00	0.32	1120.98	1120.98	5.02	3.65	1.08	-1.94	6.21	31.00	0.16	-220.68
	1152.00	0.12	1151.98	1151.98	5.14	3.67	0.69	-2.01	6.31	31.00	-0.65	70.03
	1184.00	0.47	1183.97	1183.97	5.23	3.80	1.17	-2.01	6.47	32.00	1.09	101.03
	1215.00	0.41	1214.97	1214.97	5.34	4.01	0.22	-1.98	6.68	31.00	-0.19	12.29
	1246.00	0.50	1245.97	1245.97	5.45	4.23	0.29	-1.94	6.90	31.00	0.29	-3.58
	1277.00	0.50	1276.97	1276.97	5.62	4.43	0.29	-1.94	6.90	31.00	0.29	-3.58
	1308.00	0.22	1307.97	1307.97	5.74	4.57	1.25	-1.97	7.34	31.00	-0.90	153.74
	1340.00	0.35	1339.97	1339.97	5.78	4.72	0.49	-1.92	7.47	32.00	0.41	-57.87
	1373.00	0.29	1352.97	1352.97	5.81	4.79	0.47	-1.91	7.53	13.00	-0.46	20.08
	1402.00	0.33	1401.97	1401.97	5.76	5.01	0.67	-1.74	7.64	49.00	0.08	130.04
	1433.00	0.49	1432.97	1432.97	5.59	5.14	0.68	-1.52	7.59	31.00	0.52	63.29
	1464.00	0.26	1463.97	1463.97	5.40	5.21	0.88	-1.33	7.50	31.00	-0.74	76.19
	1495.00	0.54	1494.97	1494.97	5.19	5.23	0.90	-1.14	7.37	31.00	0.90	-5.26
	1526.00	0.51	1525.97	1525.97	5.09	5.12	2.92	-1.13	7.22	31.00	-0.10	383.65
	1558.00	0.94	1557.96	1557.96	5.31	4.78	1.47	-1.50	7.15	32.00	1.34	48.75
	1589.00	1.22	1588.96	1588.96	5.77	4.45	1.97	-2.07	7.29	31.00	0.90	94.81
	1620.00	1.66	1619.95	1619.95	6.49	4.15	1.42	-2.83	7.70	31.00	1.42	-2.26
	1651.00	2.35	1650.93	1650.93	7.45	3.66	2.34	-3.90	8.30	31.00	2.23	-21.23
	1682.00	3.43	1681.89	1681.89	8.81	3.49	3.49	-5.45	9.28	31.00	3.48	3.29
	1714.00	3.62	1713.83	1713.83	10.55	1.97	0.67	-7.40	10.73	32.00	0.59	4.97

Company: Baker Hughes, a GE Company
 Customer/Operator: Northeast Natural
 Date Range: 11/25/2017 - 12/4/2017
 Rig Name: Patterson 334
 Rig Elv/Dat: 25.00 (ft) / GL
 Well: Coastal 4H
 Wellbore: Coastal 4H
 Long: 80° 12' 16.321" W
 Lat: 39° 42' 20.31" N
 Ref North: Gnd
 Mag Declination: 9.07 (deg) W
 True to Grid Conv: 0.45 (deg) W
 TAC: -8.62 (deg)
 VerSecAz: 144.16 (deg)
 GT: 9.804 (m/s2)
 BT: 52100 (mT)
 DIP: 66.73 (deg)
 Mag Ref: BGM
 Non-Mag Spacing: Short
 MagCorr: OFF





1745.00	4.31	338.12	1744.76	12.50	1.08	2.53	-9.50	12.55	31.00	2.23	17.42
1776.00	5.09	335.58	1775.65	14.83	0.08	2.60	-11.98	14.84	31.00	2.52	-8.19
1807.00	5.24	334.42	1806.53	17.36	-1.10	0.59	-14.72	17.40	31.00	0.48	-3.74
1838.00	5.42	336.63	1837.39	19.98	-2.29	0.88	-17.54	20.12	31.00	0.58	7.13
1870.00	5.61	338.13	1869.24	22.82	-3.47	0.75	-20.54	23.09	32.00	0.59	4.69
1901.00	6.04	336.13	1900.08	25.72	-4.70	1.53	-23.60	26.15	31.00	1.39	-6.45
1932.00	6.18	338.09	1930.91	28.76	-5.98	0.81	-26.82	29.38	31.00	0.45	6.32
1963.00	5.54	334.81	1961.74	31.66	-7.24	2.33	-29.91	32.48	31.00	-2.06	-10.58
1995.00	5.24	337.12	1993.60	34.41	-8.47	1.16	-32.85	35.43	32.00	-0.94	7.22
2026.00	5.12	332.41	2024.48	36.94	-9.66	1.42	-35.60	38.18	31.00	-0.39	-15.19
2057.00	5.19	331.37	2055.35	39.39	-10.97	0.38	-38.36	40.89	31.00	0.23	-3.35
2088.00	5.47	333.69	2086.22	41.95	-12.30	1.14	-41.21	43.71	31.00	0.90	7.48
2120.00	5.55	332.95	2118.07	44.69	-13.68	0.33	-44.24	46.74	32.00	0.25	-2.31
2151.00	6.00	330.03	2148.91	47.43	-15.17	1.73	-47.33	49.80	31.00	1.45	-9.42
2182.00	6.05	330.16	2179.74	50.25	-16.79	0.17	-50.57	52.98	31.00	0.16	0.42
2213.00	6.45	326.67	2210.56	53.13	-18.56	1.78	-53.93	56.27	31.00	1.29	-11.26
2244.00	6.58	329.05	2241.36	56.10	-20.43	0.97	-57.44	59.71	31.00	0.42	7.68
2276.00	6.20	329.94	2273.16	59.17	-22.24	1.23	-60.99	63.21	32.00	-1.19	2.78
2307.00	6.04	329.73	2303.98	62.03	-23.90	0.52	-64.28	66.47	31.00	-0.52	-0.68
2338.00	6.00	329.71	2334.81	64.84	-25.54	0.13	-67.51	69.68	31.00	-0.13	-0.06
2369.00	5.89	332.55	2365.64	67.65	-27.09	1.01	-70.70	72.87	31.00	-0.35	9.16
2400.00	5.47	334.85	2396.49	70.40	-28.45	1.54	-73.72	75.93	31.00	-1.35	7.42
2431.00	5.91	336.51	2427.34	73.20	-29.71	1.52	-76.74	79.00	31.00	1.42	5.35
2463.00	6.20	335.91	2459.16	76.29	-31.07	0.93	-80.04	82.37	32.00	0.91	-1.87
2494.00	6.61	334.78	2489.97	79.43	-32.52	1.38	-83.43	85.83	31.00	1.32	-3.65
2525.00	6.67	336.20	2520.76	82.69	-34.00	0.56	-86.94	89.41	31.00	0.19	4.58
2556.00	6.76	337.14	2551.55	86.02	-35.44	0.46	-90.48	93.03	31.00	0.29	3.03
2588.00	6.23	337.52	2583.34	89.36	-36.84	1.66	-94.01	96.65	32.00	-1.66	1.19
2619.00	6.25	339.88	2614.16	92.50	-38.06	0.83	-97.27	100.02	31.00	0.06	7.61
2650.00	5.84	339.99	2644.98	95.56	-39.18	1.32	-100.41	103.28	31.00	-1.32	0.35
2676.00	5.62	339.96	2670.85	98.00	-40.07	0.85	-102.91	105.88	26.00	-0.85	-0.12
2774.00	6.47	335.08	2768.31	107.52	-44.04	1.01	-112.95	116.19	98.00	0.87	-4.98
2805.00	5.89	334.73	2799.13	110.54	-45.45	1.87	-116.22	119.52	31.00	-1.87	-1.13
2836.00	4.68	337.22	2830.00	113.14	-46.62	3.97	-119.02	122.37	31.00	-3.90	8.03
2868.00	3.90	340.23	2861.91	115.37	-47.50	2.54	-121.34	124.77	32.00	-2.44	9.41
2899.00	3.50	342.46	2892.84	117.27	-48.14	1.37	-123.25	126.76	31.00	-1.29	7.19
2930.00	3.72	337.60	2923.78	119.10	-48.81	1.22	-125.13	128.71	31.00	0.71	-15.68
2961.00	3.72	340.49	2954.72	120.98	-49.53	0.60	-127.07	130.72	31.00	0.00	9.32
2992.00	3.48	337.00	2985.65	122.79	-50.23	1.05	-128.95	132.67	31.00	-0.77	-11.26
3024.00	3.44	340.46	3017.60	124.59	-50.93	0.66	-130.82	134.60	32.00	-0.12	10.81
3055.00	3.60	336.33	3048.54	126.36	-51.63	0.97	-132.66	136.50	31.00	0.52	-13.32
3086.00	3.68	336.44	3079.47	128.16	-52.42	0.26	-134.59	138.47	31.00	0.26	0.35
3117.00	3.34	339.42	3110.42	129.92	-53.14	1.24	-136.43	140.36	31.00	-1.10	9.61
3148.00	3.59	339.56	3141.36	131.67	-53.79	0.81	-138.24	142.24	31.00	0.81	0.45
3179.00	2.88	339.37	3172.31	133.31	-54.40	2.29	-139.92	143.98	31.00	-2.29	-0.61
3211.00	2.61	340.83	3204.27	134.75	-54.93	0.87	-141.40	145.52	32.00	-0.84	4.56
3242.00	2.72	341.71	3235.24	136.12	-55.39	0.38	-142.78	146.95	31.00	0.35	2.84
3273.00	2.21	336.17	3266.21	137.36	-55.86	1.81	-144.06	148.29	31.00	-1.65	-17.87
3304.00	1.56	341.99	3297.19	138.31	-56.23	2.18	-145.05	149.30	31.00	-2.10	18.77
3335.00	1.39	345.46	3328.18	139.07	-56.46	0.62	-145.80	150.10	31.00	-0.55	11.19
3367.00	1.39	345.07	3360.17	139.83	-56.66	0.03	-146.52	150.87	32.00	0.00	-1.22
3398.00	0.99	344.83	3391.17	140.45	-56.82	1.29	-147.13	151.51	31.00	-1.29	-0.77
3429.00	0.57	9.11	3422.17	140.86	-56.87	1.70	-147.49	151.90	31.00	-1.35	78.32
3460.00	0.48	33.33	3453.16	141.12	-56.77	0.77	-147.64	152.11	31.00	-0.29	78.13
3491.00	0.36	352.90	3484.16	141.32	-56.71	1.00	-147.77	152.28	31.00	-0.39	-130.42
3522.00	0.30	332.66	3515.16	141.49	-56.76	0.42	-147.94	152.45	31.00	-0.19	-65.29
3553.00	0.18	10.83	3546.16	141.61	-56.79	0.62	-148.05	152.58	31.00	-0.39	123.13
3585.00	0.47	268.92	3578.16	141.66	-56.91	1.68	-148.16	152.66	32.00	0.91	-318.47
3616.00	0.54	290.73	3609.16	141.71	-57.18	0.66	-148.36	152.81	31.00	0.23	70.35
3647.00	0.74	251.29	3640.16	141.70	-57.50	1.52	-148.54	152.92	31.00	0.65	-127.23
3678.00	0.53	271.10	3671.16	141.63	-57.84	0.97	-148.68	152.99	31.00	-0.68	63.90
3709.00	0.45	301.79	3702.16	141.70	-58.08	0.87	-148.88	153.14	31.00	-0.26	99.00
3740.00	0.50	295.00	3733.16	141.82	-58.31	0.24	-149.11	153.34	31.00	0.16	-21.90
3772.00	0.56	296.40	3765.15	141.95	-58.58	0.19	-149.37	153.56	32.00	0.19	4.37
3803.00	0.72	297.30	3796.15	142.11	-58.88	0.52	-149.68	153.82	31.00	0.52	2.90
3834.00	0.58	318.20	3827.15	142.31	-59.16	0.88	-150.01	154.12	31.00	-0.45	67.42
3865.00	0.25	294.76	3858.15	142.46	-59.33	1.18	-150.22	154.32	31.00	-1.06	-75.61
3897.00	0.32	324.40	3890.15	142.56	-59.44	0.50	-150.37	154.46	32.00	0.22	92.62
3928.00	0.18	352.21	3921.15	142.68	-59.50	0.59	-150.50	154.59	31.00	-0.45	89.71
3959.00	0.22	337.50	3952.15	142.78	-59.53	0.21	-150.60	154.70	31.00	0.13	-47.45
3990.00	0.30	302.57	3983.15	142.88	-59.62	0.56	-150.74	154.82	31.00	0.26	-112.68
4022.00	0.35	309.30	4015.15	142.99	-59.77	0.20	-150.91	154.98	32.00	0.16	21.03

RECEIVED
Office of Oil and Gas

4054.00	4046.15	143.10	59.97	0.62	151.12	155.16	31.00	0.48	-25.23
4084.00	290.84	4077.15	143.20	60.22	151.35	155.35	31.00	0.03	-7.32
4115.00	288.17	4108.14	143.31	60.51	151.60	155.56	31.00	0.39	8.61
4146.00	292.50	4139.14	143.44	60.68	151.91	155.81	31.00	0.35	-18.28
4178.00	286.65	4171.14	143.58	61.27	152.27	156.11	32.00	0.25	-18.28
4209.00	295.98	4202.14	143.74	61.68	152.64	156.42	31.00	0.00	30.10
4240.00	307.74	4233.13	143.93	62.00	152.98	156.72	31.00	-0.81	37.94
4271.00	335.38	4264.13	144.12	62.17	153.23	156.96	31.00	-0.58	89.16
4302.00	359.10	4296.13	144.25	62.21	153.36	157.09	32.00	-0.91	74.12
4334.00	39.99	4327.13	144.33	62.17	153.40	157.15	31.00	0.52	131.90
4365.00	63.68	4358.13	144.41	62.08	153.41	157.18	31.00	-0.23	76.42
4396.00	120.79	4389.13	144.41	62.00	153.37	157.16	31.00	-0.23	184.23
4427.00	113.63	4420.13	144.36	61.89	153.27	157.07	31.00	0.65	-23.10
4458.00	109.95	4451.13	144.29	61.72	153.11	156.94	31.00	0.19	-11.87
4490.00	121.80	4483.13	144.19	61.51	152.90	156.76	32.00	0.28	37.03
4521.00	121.36	4514.13	144.08	61.34	152.72	156.60	31.00	-0.68	1.42
4552.00	128.68	4545.13	144.00	61.22	152.59	156.48	31.00	0.00	23.61
4584.00	259.22	4577.13	143.95	61.21	152.53	156.42	32.00	0.37	407.94
4615.00	296.10	4608.13	143.98	61.31	152.61	156.49	31.00	0.42	118.97
4647.00	303.74	4640.12	144.16	61.27	153.12	156.89	62.00	1.05	-20.32
4678.00	303.74	4701.12	144.32	62.32	153.48	157.20	31.00	-0.74	65.29
4709.00	324.58	4732.12	144.48	62.52	153.73	157.43	31.00	-1.35	67.23
4740.00	312.77	4764.12	144.62	62.40	153.91	157.60	32.00	0.34	-36.91
4771.00	15.16	4795.12	144.72	62.70	154.04	157.72	31.00	-0.74	201.26
4802.00	44.76	4826.12	144.81	62.56	154.02	157.75	31.00	1.16	178.90
4834.00	61.78	4857.12	144.94	62.27	153.96	157.75	31.00	0.61	-28.52
4865.00	67.74	4888.11	145.12	61.89	153.88	157.77	31.00	0.39	19.23
4896.00	63.59	4920.11	145.31	61.47	153.79	157.78	32.00	0.06	-12.97
4927.00	55.05	4951.11	145.52	61.11	153.75	157.83	31.00	-0.35	-27.55
4958.00	39.48	4982.11	145.77	60.83	153.79	157.96	31.00	0.26	-50.23
4989.00	18.05	5013.10	146.09	60.66	153.95	158.18	31.00	0.19	-69.13
5020.00	9.72	5045.10	146.49	60.56	154.22	158.52	32.00	0.19	-26.03
5052.00	345.27	5076.10	146.90	60.88	154.56	158.90	31.00	0.00	-78.87
5083.00	327.36	5107.09	147.34	60.79	155.03	159.39	31.00	0.90	-77.77
5114.00	318.94	5138.09	147.82	61.15	155.63	159.97	31.00	0.39	-27.06
5145.00	315.41	5169.08	148.27	61.50	156.21	160.52	31.00	-0.65	23.13
5176.00	315.41	5200.07	149.14	62.22	157.33	161.60	64.00	0.12	-16.77
5207.00	315.41	5231.07	149.14	62.22	157.33	161.60	64.00	0.12	-16.77
5238.00	315.41	5262.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5269.00	315.41	5293.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5300.00	315.41	5324.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5331.00	315.41	5355.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5362.00	315.41	5386.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5393.00	315.41	5417.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5424.00	315.41	5448.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5455.00	315.41	5479.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5486.00	315.41	5510.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5517.00	315.41	5541.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5548.00	315.41	5572.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5579.00	315.41	5603.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5610.00	315.41	5634.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5641.00	315.41	5665.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5672.00	315.41	5696.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5703.00	315.41	5727.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5734.00	315.41	5758.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5765.00	315.41	5789.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5796.00	315.41	5820.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5827.00	315.41	5851.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5858.00	315.41	5882.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5889.00	315.41	5913.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5920.00	315.41	5944.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5951.00	315.41	5975.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
5982.00	315.41	6006.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6013.00	315.41	6037.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6044.00	315.41	6068.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6075.00	315.41	6099.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6106.00	315.41	6130.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6137.00	315.41	6161.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6168.00	315.41	6192.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6199.00	315.41	6223.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6230.00	315.41	6254.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6261.00	315.41	6285.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6292.00	315.41	6316.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6323.00	315.41	6347.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6354.00	315.41	6378.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6385.00	315.41	6409.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6416.00	315.41	6440.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6447.00	315.41	6471.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6478.00	315.41	6502.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6509.00	315.41	6533.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6540.00	315.41	6564.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6571.00	315.41	6595.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6602.00	315.41	6626.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6633.00	315.41	6657.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6664.00	315.41	6688.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6695.00	315.41	6719.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6726.00	315.41	6750.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6757.00	315.41	6781.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6788.00	315.41	6812.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6819.00	315.41	6843.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6850.00	315.41	6874.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6881.00	315.41	6905.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6912.00	315.41	6936.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6943.00	315.41	6967.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
6974.00	315.41	6998.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7005.00	315.41	7029.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7036.00	315.41	7060.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7067.00	315.41	7091.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7098.00	315.41	7122.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7129.00	315.41	7153.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7160.00	315.41	7184.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7191.00	315.41	7215.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7222.00	315.41	7246.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7253.00	315.41	7277.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7284.00	315.41	7308.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7315.00	315.41	7339.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7346.00	315.41	7370.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7377.00	315.41	7401.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7408.00	315.41	7432.07	149.75	62.80	158.17	162.39	95.00	-1.06	155.48
7439.00	315.41	7463.07	149.75	62.80					



8655.00	88.34	143.56	8229.39	83.07	-13.04	2.55	59.70	84.09	94.00	2.52	-0.36
8748.00	88.46	143.20	8231.98	157.68	42.41	0.41	152.66	163.28	93.00	0.13	-0.39
8842.00	88.34	148.07	8234.61	-235.22	95.43	5.18	246.56	253.84	94.00	-0.13	5.18
8937.00	89.32	145.67	8236.55	-314.75	147.34	2.73	341.43	347.53	95.00	1.03	-2.53
9032.00	89.32	140.80	8237.68	-390.83	204.18	5.13	436.38	440.95	95.00	0.00	-5.13
9127.00	89.35	139.00	8238.78	-463.49	265.36	1.89	531.11	534.08	95.00	0.03	-1.89
9222.00	88.98	137.86	8240.17	-534.55	328.39	1.26	625.62	627.37	95.00	-0.39	-1.26
9316.00	89.35	139.51	8241.54	-605.15	390.44	1.80	719.18	720.17	94.00	0.39	1.76
9411.00	89.35	147.80	8242.62	-681.59	446.69	8.73	814.08	814.92	95.00	0.00	8.73
9506.00	89.17	151.48	8243.84	-763.54	494.69	3.88	908.63	909.79	95.00	-0.19	3.87
9601.00	89.05	151.53	8245.32	-847.03	540.01	0.14	1002.83	1004.52	95.00	-0.13	0.05
9694.00	89.05	144.54	8246.86	-925.86	589.21	7.52	1095.55	1097.45	93.00	0.00	-7.52
9788.00	89.85	144.23	8247.76	-1002.28	643.94	0.91	1189.55	1191.31	94.00	0.85	-0.33
9882.00	89.11	139.32	8248.62	-1076.10	702.09	5.28	1283.43	1284.88	94.00	-0.79	-5.22
9977.00	88.71	139.39	8250.43	-1148.17	763.95	0.43	1378.08	1379.10	95.00	-0.42	0.07
10072.00	88.89	137.45	8252.42	-1219.21	826.99	2.05	1472.58	1473.22	95.00	0.19	-2.04
10167.00	89.23	139.85	8253.97	-1290.51	889.73	2.55	1567.12	1567.50	95.00	0.36	2.53
10262.00	88.95	144.77	8255.48	-1365.65	947.79	5.19	1662.03	1662.32	95.00	-0.29	5.18
10358.00	89.38	145.88	8256.88	-1444.59	1002.40	1.24	1758.00	1758.31	96.00	0.45	1.16
10452.00	89.51	144.60	8257.79	-1521.81	1055.99	1.37	1851.97	1852.31	94.00	0.14	-1.36
10547.00	89.63	140.33	8258.51	-1597.13	1113.85	4.50	1946.91	1947.17	95.00	0.13	-4.49
10642.00	89.66	142.76	8259.10	-1671.51	1172.93	2.56	2041.80	2041.99	95.00	0.03	2.56
10737.00	89.69	144.70	8259.63	-1748.10	1229.13	2.04	2136.79	2136.96	95.00	0.03	2.04
10832.00	89.91	148.54	8259.97	-1827.42	1281.38	4.05	2231.69	2231.90	95.00	0.23	4.04
10927.00	90.15	154.45	8259.92	-1910.86	1326.70	6.23	2325.87	2326.27	95.00	0.25	6.22
11021.00	90.34	157.84	8259.51	-1996.82	1364.71	3.61	2417.80	2418.62	94.00	0.20	3.61
11117.00	90.25	160.29	8259.02	-2086.47	1399.01	2.55	2510.56	2512.09	96.00	-0.09	2.55
11212.00	89.97	157.45	8258.84	-2175.08	1433.25	3.00	2602.44	2604.84	95.00	-0.29	-2.99
11307.00	89.75	158.46	8259.07	-2263.13	1468.91	1.09	2694.70	2698.05	95.00	-0.23	1.06
11402.00	89.48	156.98	8259.71	-2351.03	1504.92	1.58	2787.05	2791.44	95.00	-0.28	-1.56
11496.00	89.26	155.92	8260.74	-2437.20	1542.48	1.15	2878.89	2884.30	94.00	-0.23	-1.13
11591.00	89.29	159.35	8261.94	-2525.03	1578.62	3.61	2971.25	2977.89	95.00	0.03	3.61
11686.00	89.17	158.27	8263.22	-2613.60	1612.95	1.14	3063.15	3071.24	95.00	-0.13	-1.14
11781.00	90.09	158.94	8263.83	-2702.05	1647.61	1.20	3155.14	3164.76	95.00	0.97	0.71
11876.00	90.37	158.43	8263.45	-2790.55	1682.14	0.61	3247.11	3258.34	95.00	0.29	-0.54
11971.00	90.65	156.61	8262.61	-2878.32	1718.46	1.94	3339.53	3352.29	95.00	0.29	-1.92
12065.00	90.49	156.47	8261.67	-2964.55	1755.88	0.23	3431.34	3445.53	94.00	-0.17	-0.15
12161.00	89.94	156.61	8261.31	-3052.61	1794.10	0.59	3525.10	3540.80	96.00	-0.57	0.15
12256.00	90.18	150.54	8261.21	-3137.65	1836.36	6.39	3618.78	3635.52	95.00	0.25	-6.39
12350.00	90.06	147.30	8261.02	-3218.14	1884.88	3.45	3712.44	3729.50	94.00	-0.13	-3.45
12445.00	90.15	147.76	8260.84	-3298.29	1935.88	0.49	3807.28	3824.44	95.00	0.09	0.48
12541.00	90.00	152.42	8260.72	-3381.48	1983.73	4.86	3902.74	3920.41	96.00	-0.16	4.85
12635.00	90.31	148.00	8260.46	-3463.04	2030.42	4.71	3996.19	4014.38	94.00	0.33	-4.70
12729.00	90.06	143.21	8260.16	-3540.58	2083.51	5.10	4090.13	4108.13	94.00	-0.27	-5.10
12824.00	90.09	141.31	8260.03	-3615.70	2141.65	2.00	4185.08	4202.38	95.00	0.03	-2.00
12918.00	90.12	140.05	8259.86	-3688.42	2201.21	1.34	4278.90	4295.32	94.00	0.03	-1.34
13013.00	89.38	134.16	8260.28	-3757.99	2265.85	6.25	4373.14	4388.23	95.00	-0.78	-6.20
13108.00	89.66	131.70	8261.07	-3822.68	2335.40	2.61	4466.31	4479.62	95.00	0.29	-2.59
13202.00	89.38	135.87	8261.86	-3887.71	2403.24	4.45	4558.75	4570.54	94.00	-0.30	4.44
13296.00	89.29	136.83	8262.95	-3955.72	2468.12	1.03	4651.87	4662.55	94.00	-0.10	1.02
13391.00	89.48	137.13	8263.97	-4025.17	2532.93	0.37	4746.12	4755.81	95.00	0.20	0.32
13486.00	90.00	139.96	8264.40	-4096.37	2595.82	3.03	4840.65	4849.59	95.00	0.55	2.98
13580.00	90.06	140.69	8264.35	-4168.71	2655.83	0.78	4934.44	4942.83	94.00	0.06	0.78
13675.00	90.49	141.57	8263.90	-4242.68	2715.45	1.03	5029.31	5037.26	95.00	0.45	0.93
13771.00	90.65	141.58	8262.94	-4317.88	2775.11	0.17	5125.20	5132.77	96.00	0.17	0.01
13866.00	90.37	140.46	8262.10	-4391.73	2834.86	1.22	5220.06	5227.21	95.00	-0.29	-1.18
13960.00	89.91	136.56	8261.87	-4462.13	2897.12	4.18	5313.58	5320.14	94.00	-0.49	-4.15
14054.00	89.97	135.74	8261.96	-4529.91	2962.24	0.87	5406.66	5412.49	94.00	0.06	-0.87
14149.00	90.00	137.43	8261.99	-4598.92	3027.53	1.78	5500.83	5506.00	95.00	0.03	1.78
14243.00	90.06	135.12	8261.94	-4666.85	3092.50	2.46	5593.94	5598.48	94.00	0.06	-2.46
14338.00	90.37	136.20	8261.58	-4734.79	3158.90	1.18	5687.89	5691.82	95.00	0.33	1.14
14433.00	90.58	139.24	8260.80	-4805.06	3222.80	3.21	5782.28	5785.76	95.00	0.22	3.20
14528.00	90.74	138.33	8259.70	-4876.52	3285.39	0.97	5876.85	5879.99	95.00	0.17	-0.96
14623.00	90.37	136.71	8258.78	-4946.58	3349.54	1.75	5971.21	5973.95	95.00	-0.39	-1.71
14717.00	90.31	137.74	8258.22	-5015.58	3413.37	1.10	6064.52	6066.89	94.00	-0.06	1.10
14812.00	90.43	139.34	8257.61	-5086.77	3476.27	1.69	6159.05	6161.14	95.00	0.13	1.68
14906.00	90.68	135.67	8256.70	-5156.06	3539.76	3.91	6252.40	6254.19	94.00	0.27	-3.90
15001.00	90.71	136.21	8255.55	-5224.32	3605.81	0.57	6346.42	6347.87	95.00	0.03	0.57
15095.00	90.89	139.62	8254.23	-5294.07	3668.80	3.63	6439.84	6441.06	94.00	0.19	3.63
15190.00	90.52	140.84	8253.06	-5367.08	3729.57	1.34	6534.60	6535.69	95.00	-0.39	1.28
15285.00	90.68	138.74	8252.07	-5439.62	3790.89	2.22	6629.32	6630.26	95.00	0.17	-2.21
15379.00	90.40	138.94	8251.18	-5510.39	3852.76	0.37	6722.91	6723.70	94.00	-0.30	0.21

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	15474.00	89.42	140.48	8251.33	-5582.85	3914.19	1.92	6817.62	6818.29	95.00	-1.03	1.62
	15568.00	89.54	138.89	8252.19	-5654.52	3975.00	1.70	6911.32	6911.89	94.00	0.13	-1.69
	15663.00	90.31	140.50	8252.31	-5726.97	4036.45	1.88	7006.03	7006.50	95.00	0.81	1.69
	15759.00	90.25	141.24	8251.84	-5801.43	4097.03	0.77	7101.87	7102.27	96.00	-0.06	0.77
	15853.00	90.12	141.61	8251.54	-5874.92	4155.64	0.42	7195.76	7196.11	94.00	-0.14	0.39
	15948.00	90.15	145.99	8251.31	-5951.56	4211.74	4.61	7290.74	7291.08	95.00	0.03	4.61
	16043.00	90.43	145.04	8250.83	-6029.87	4265.52	1.04	7385.71	7386.07	95.00	0.29	-1.00
	16137.00	90.43	145.12	8250.13	-6106.94	4319.33	0.09	7479.69	7480.06	94.00	0.00	0.09
	16233.00	90.43	146.93	8249.41	-6186.55	4372.97	1.89	7575.64	7576.03	96.00	0.00	1.89
	16327.00	90.68	147.53	8248.50	-6265.58	4423.85	0.69	7669.50	7669.94	94.00	0.27	0.64
	16422.00	90.83	144.65	8247.24	-6344.41	4476.84	3.04	7764.42	7764.90	95.00	0.16	-3.03
	16517.00	90.62	144.94	8246.04	-6422.03	4531.60	0.38	7859.41	7859.89	95.00	-0.22	0.31
	16612.00	90.65	145.06	8244.99	-6499.84	4586.09	0.13	7954.40	7954.88	95.00	0.03	0.13
	16706.00	90.80	145.82	8243.80	-6577.25	4639.41	0.82	8048.36	8048.87	94.00	0.16	0.81
	16802.00	90.74	142.41	8242.51	-6655.01	4695.67	3.55	8144.34	8144.84	96.00	-0.06	-3.55
	16897.00	90.80	139.93	8241.23	-6729.00	4755.22	2.61	8239.20	8239.64	95.00	0.06	-2.61
	16992.00	90.62	140.42	8240.06	-6801.96	4816.06	0.55	8333.96	8334.33	95.00	-0.19	0.52
	17087.00	90.58	142.65	8239.06	-6876.33	4875.15	2.35	8428.85	8429.17	95.00	-0.04	2.35
	17181.00	90.74	145.25	8237.98	-6952.32	4930.46	2.77	8522.83	8523.15	94.00	0.17	2.77
	17277.00	90.58	144.61	8236.87	-7030.88	4985.61	0.69	8618.82	8619.14	96.00	-0.17	-0.67
	17372.00	90.65	139.76	8235.85	-7105.91	5043.84	5.11	8713.73	8714.02	95.00	0.07	-5.11
	17467.00	90.68	140.56	8234.75	-7178.85	5104.69	0.84	8808.49	8808.73	95.00	0.03	0.84
	17562.00	90.77	143.71	8233.55	-7253.83	5162.99	3.32	8903.41	8903.62	95.00	0.09	3.32
	17657.00	90.65	145.62	8232.37	-7331.32	5217.93	2.01	8998.39	8998.61	95.00	-0.13	2.01
	17752.00	90.68	144.28	8231.27	-7409.08	5272.48	1.41	9093.38	9093.60	95.00	0.03	-1.41
	17848.00	90.65	140.09	8230.15	-7484.90	5331.32	4.36	9189.29	9189.49	96.00	-0.03	-4.36
	17943.00	90.74	140.98	8229.00	-7558.24	5391.70	0.94	9284.09	9284.25	95.00	0.09	0.94
	18017.00	90.86	145.01	8227.97	-7617.31	5436.23	5.45	9358.06	9358.21	74.00	0.16	5.45
Proj	18042.00	90.86	145.01	8227.59	-7637.79	5450.56	0.00	9383.05	9383.20	25.00	0.00	0.00

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/9/2018
Job End Date:	3/15/2018
State:	West Virginia
County:	Monongalia
API Number:	47-061-01782-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Coastal 4H
Latitude:	39.69505000
Longitude:	-80.22288800
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,260
Total Base Water Volume (gal):	15,232,016
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	87.25429	None
Sand (Proppant)	Producers Service Corp	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	11.89495	None
IC Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.10813	None
STIMLUBE HBVB	Producers Service Corp	Friction Reducer	Petroleum Distallates	64742-47-8	30.00000	0.03064	None
			Ammonium Acetate	631-61-8	10.00000	0.01021	None
BIOC11219A	Nalco-Champion	Biocide	Methanol	67-56-1	60.00000	0.01244	None
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00622	None
			Glutaraldehyde	111-30-8	10.00000	0.00207	None
SCAD 16486A	Nalco-Champion	Scale Inhibitor	Ethylene Glycol	107-21-1	30.00000	0.00164	None
			Amine Triphosphate	Proprietary	30.00000	0.00164	None

PROHIB II	Producers Service Corp	Inhibitor					
			Acetic Acid	64-19-7	90.00000	0.00121	None
			2-Ethylhexanol	104-76-7	10.00000	0.00013	None
			Methanol	67-56-1	10.00000	0.00013	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00007	None
			Diethanolamine	111-42-2	1.00000	0.00001	None
PRO-DRB-LT	Producers Service Corp	Oxidizer					
			Ammonium Persulfate	7727-54-0	80.00000	0.00017	None
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	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					
			Ammonium Acetate	631-61-8	10.00000	0.01021	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00622	
			Glutaraldehyde	111-30-8	10.00000	0.00207	
			Ethylene Glycol	107-21-1	30.00000	0.00164	
			2-Ethylhexanol	104-76-7	10.00000	0.00013	
			Methanol	67-56-1	10.00000	0.00013	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00007	
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	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)

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Customer: NORTHEAST NATURAL ENERGY LLC-EBUS
 Job: 0904355324
 Case: Case 1

2.0 Real-Time Job Summary

2.1 Job Event Log

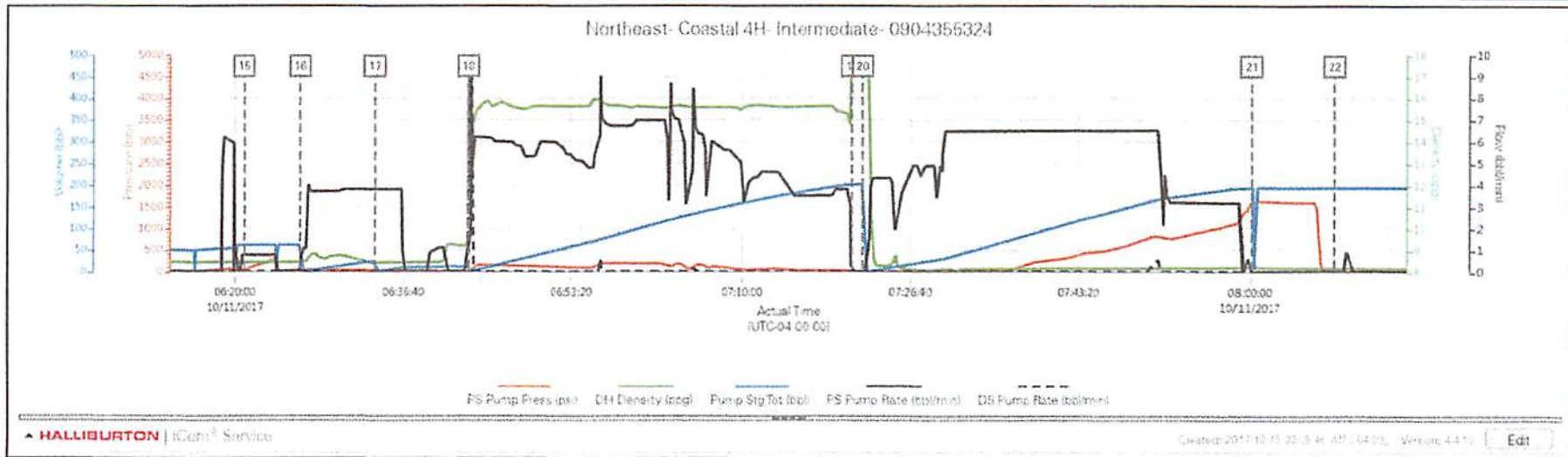
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Pump Stg Tot (bbl)	PS Pump Rate (bbl/min)	DS Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	10/10/2017	06:10:00	USER						
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/10/2017	08:55:00	USER						
Event	3	Depart Shop for Location	Depart Shop for Location	10/10/2017	09:00:00	USER						
Event	4	Arrive At Loc	Arrive At Loc	10/10/2017	13:30:00	USER						
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/10/2017	14:00:00	USER						rig beginning to run casing. water temp. 70°F
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/10/2017	14:30:00	USER						
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/10/2017	14:40:00	USER						
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/10/2017	23:40:00	USER	1.00	8.43	8.60	0.00	0.00	
Event	9	Start Job	Start Job	10/10/2017	23:52:20	COM5	2.00	8.43	8.60	0.00	0.00	load lines 3bbl.
Event	10	Test Lines	Test Lines	10/10/2017	23:57:43	COM5	3.00	8.47	4.90	0.00	0.00	test lines to 3000psi.
Event	11	Circulate Well	Circulate Well	10/11/2017	00:00:05	COM5	6.00	8.45	4.90	0.00	0.00	pumped 630bbl processed water to try and pump down landing joint.
Event	12	Shutdown	Shutdown	10/11/2017	02:08:43	COM5	17.00	8.48	648.20	0.00	0.00	could not pump down landing joint. rig to remove one 40' joint and replace it with 20' joint.

Event	13	Circulate Well	Circulate Well	10/11/2017	03:39:02	COM5						had to circulate in order to get 40' joint out of hole.
Event	14	Shutdown	Shutdown	10/11/2017	03:52:24	COM5						40' joint out of hole, rig replacing it with 20' joint at this time.
Event	15	Test Lines	Test Lines	10/11/2017	06:20:55	COM5						3bbl Fresh Water. Tested lines to 500psi, then 4000psi.
Event	16	Pump Spacer 1	Pump Spacer 1	10/11/2017	06:26:32	COM5						25bbl Gel Spacer, 3bpm.
Event	17	Pump Spacer 2	Pump Spacer 2	10/11/2017	06:33:52	COM5						10bbl Fresh Water Spacer
Event	18	Pump Lead Cement	Pump Lead Cement	10/11/2017	06:43:02	COM5	6.00	9.54	11.90	1.40	0.00	202bbl Halcem 15.6ppg, 7bpm, 200psi, 82°F.
Event	19	Drop Top Plug	Drop Top Plug	10/11/2017	07:21:00	USER	9.00	20.83	202.20	0.00	0.00	
Event	20	Pump Displacement	Pump Displacement	10/11/2017	07:22:05	COM5	-5.00	19.36	202.20	0.00	0.00	205bbl Processed Water Displacement. 7bpm, 400psi. slowed down at 180bbl away to 3bpm. 2bbl of cement to surface.
Event	21	Bump Plug	Bump Plug	10/11/2017	08:00:03	COM5	1610.00	8.21	194.20	0.00	0.00	bumped at 1000psi, taken to 1500psi. held for 5 min. bled back 1.5bbl. FLOATS HELD.
Event	22	End Job	End Job	10/11/2017	08:08:14	COM5						
Event	23	Rig-Down Equipment	Rig-Down Equipment	10/11/2017	09:00:09	USER						
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/11/2017	09:05:00	USER						
Event	25	Depart Location Safety Meeting	Depart Location Safety Meeting	10/11/2017	10:55:00	USER						

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The Road to Excellence Starts with Safety

Sold To #: 359876	Ship To #: 0003618748	Quote #: 0022345894	Sales Order #: 0904340510
Customer: NORTHEAST NATURAL ENERGY LLC-EBUS		Customer Rep: ross drnjovich	
Well Name: COASTAL	Well #: 4H	API/UWI #: 47-061-01685-08	
Field:	City (SAP): BLACKSVILLE	County/Parish: MONONGALIA	State: WEST VIRGINIA
Legal Description: 1010S 39*42'30"-10720W 80*10'00"-BLACKSV			
Contractor:		Rig/Platform Name/Num:	
Job BOM: 7521 7521			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HB67143		Srcv Supervisor: Eric Lawson	
Job			

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST
Job depth MD	1340ft		Job Depth TVD
Water Depth			Wk Ht Above Floor
Perforation Depth (MD)	From		To

Well Data

Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		24	23.75	94.62			0	40		
Casing		13.375	12.615	54.5	BTC	J-55	0	1340		
Open Hole Section			17.5				40	1340		

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	13.375			1340	Top Plug	13.375		HES
Float Shoe	13.375				Bottom Plug	13.375		HES
Float Collar	13.375				SSR plug set	13.375		HES
Insert Float	13.375				Plug Container	13.375		HES
Stage Tool	13.375				Centralizers	13.375		HES

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Fresh Water	Fresh Water	10	bbl	8.33				

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Gel Spacer	Gel Spacer	25	bbl	8.4				
		20 lbm/bbl NATIONAL PREMIUM GOLD - 50 LB BAG (101612629)							
		1 lbm/bbl POLY-E-FLAKE (101216940)							

last updated on 10/7/2017 9:10:22 PM

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Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Fresh Water	Fresh Water	10	bbl	8.33				
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	HalCem (TM) System	HALCEM (TM) SYSTEM	1075	sack	15.6	1.21		6	5.41
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	Fresh Water Displacement	Fresh Water Displacement	201	bbl	8.33			6	
Cement Left In Pipe		Amount 45 ft	Reason			Shoe Joint			
Mix Water: pH 7		Mix Water Chloride: ## ppm			Mix Water Temperature: ## °F °C				
Cement Temperature: 76°F		Plug Displaced by: ## lb/gal kg/m3 XXXX			Disp. Temperature: ## °F °C				
Plug Bumped? Yes		Bump Pressure: 500 psi			Floats Held? Yes				
Cement Returns: 40bbl		Returns Density: ## lb/gal kg/m3			Returns Temperature: ## °F °C				
Comment									

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Summary Report



Crew: _____
Job Start Date: 10/07/2017 05:00PM

Sales Order #: 0904340510
WO #: 0904340510
PO #: NA
AFE #:

Customer:	NORTHEAST NATURAL ENERGY LLC-EBUS	Field:		Job Type:	CMT SURFACE CASING BOM
UWI / API Number:	47-081-01885-08	County/Parish:	MONONGALIA	Service Supervisor:	Eric Lawson
Well Name:	COASTAL	State:	WEST VIRGINIA		
Well No:	4H	Latitude:	39.705642	Cust Rep Name:	ross dmjevich
		Longitude:	-80.204533	Cust Rep Phone #:	
		Sect / Twn / Rng:	//		

Remarks:		
<i>The Information Stated Herein Is Correct</i>	Customer Representative Signature	Date
	Customer Representative Printed Name	

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2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Pass-Side Pump Pressure (psi)	Downhole Density (ppg)	Pump Stage Total (bbl)	Driv-Side Pump Rate (bbl/min)	Pass-Side Pump Rate (bbl/min)	Comments
Event	1	Arrive At Loc	Arrive At Loc	10/6/2017	11:00:00	USER						Arrive At Loc
Event	2	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	10/6/2017	11:30:00	USER						Safety Meeting - Assessment of Location
Event	3	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	10/7/2017	01:00:00	USER						Safety Meeting - Pre Rig-Up
Event	4	Second Pumping Unit on Location	Second Pumping Unit on Location	10/7/2017	17:00:00	USER						Second Pumping Unit on Location
Event	5	Safety Meeting - Pre Job	Safety Meeting - Pre Job	10/7/2017	17:15:00	USER	0.00	8.19	12.7	0.00	0.00	Safety Meeting - Pre Job
Event	6	Start Job	Start Job	10/7/2017	17:28:40	COM6	-1.00	8.21	12.7	0.00	0.00	Start Job
Event	7	Pump Spacer 1	Pump Spacer 1	10/7/2017	17:31:12	COM6	-2.00	0.00	0.0	0.00	0.00	Pump Spacer 1 pumped 5 bbl to load lines
Event	8	Test Lines	Test Lines	10/7/2017	17:33:21	COM6	8.00	8.15	5.7	0.00	0.00	tested lines to 500 psi then to 3000 psi
Event	9	Pump Spacer 2	Pump Spacer 2	10/7/2017	17:36:20	COM6	3.00	8.17	0.0	0.00	0.00	pumped 207 bbl water to brake circulation
Event	10	Pump Spacer 1	Pump Spacer 1	10/7/2017	18:05:07	COM6	7.00	8.22	0.0	1.30	0.00	pumped 25 bbl gel spacer
Event	11	Pump Cement	Pump Cement	10/7/2017	18:16:06	COM6	11.00	8.18	0.0	0.00	0.00	pumped 231 bbl cement density 15.6 yield 1.21 water 5.41 down hole temp 76 deg f
Event	12	Drop Top Plug	Drop Top Plug	10/7/2017	18:56:51	COM6	11.00	18.57	233.8	0.00	0.00	dropped 3rd party 13 3/8 top plug
Event	13	Pump Displacement	Pump Displacement	10/7/2017	18:58:05	COM6	11.00	18.57	233.8	0.00	0.00	pumped 201 bbl water displacement started

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iCem[®] Service
 (v. 4.2.393)
 Created: Saturday, October 07, 2017

											getting gel back at 136 bbl into displacement and cement back at 161 bbl into displacement for a total of 40 bbl back	
Event	14	Other	Other	10/7/2017	19:21:35	COM6	418.00	8.23	149.6	6.80	0.00	started getting spacer back
Event	15	Bump Plug	Bump Plug	10/7/2017	19:34:42	COM6	1179.00	8.24	206.5	0.00	0.00	bumped plug at 500 psi and took pressure to 1015 and held for 5 min then released pressure back to the truck and received 1.5 bbl back to the truck floaters held
Event	16	End Job	End Job	10/7/2017	19:40:10	COM6	15.00	8.24	206.5	0.00	0.00	End Job
Event	17	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	10/7/2017	19:40:15	USER	15.00	8.23	206.5	0.00	0.00	Safety Meeting - Pre Rig-Down

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Pump Stg Tot (bbl)	PS Pump Rate (bbl/min)	DS Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	10/10/2017	06:10:00	USER						
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/10/2017	08:55:00	USER						
Event	3	Depart Shop for Location	Depart Shop for Location	10/10/2017	09:00:00	USER						
Event	4	Arrive At Loc	Arrive At Loc	10/10/2017	13:30:00	USER						
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/10/2017	14:00:00	USER						rig beginning to run casing. water temp. 70°F
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/10/2017	14:30:00	USER						
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/10/2017	14:40:00	USER						
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/10/2017	23:40:00	USER	1.00	8.43	8.60	0.00	0.00	
Event	9	Start Job	Start Job	10/10/2017	23:52:20	COM5	2.00	8.43	8.60	0.00	0.00	load lines 3bbl.
Event	10	Test Lines	Test Lines	10/10/2017	23:57:43	COM5	3.00	8.47	4.90	0.00	0.00	test lines to 3000psi.
Event	11	Circulate Well	Circulate Well	10/11/2017	00:00:05	COM5	6.00	8.45	4.90	0.00	0.00	pumped 630bbl processed water to try and pump down landing joint.
Event	12	Shutdown	Shutdown	10/11/2017	02:08:43	COM5	17.00	8.48	648.20	0.00	0.00	could not pump down landing joint. rig to remove one 40' joint and replace it with 20' joint.

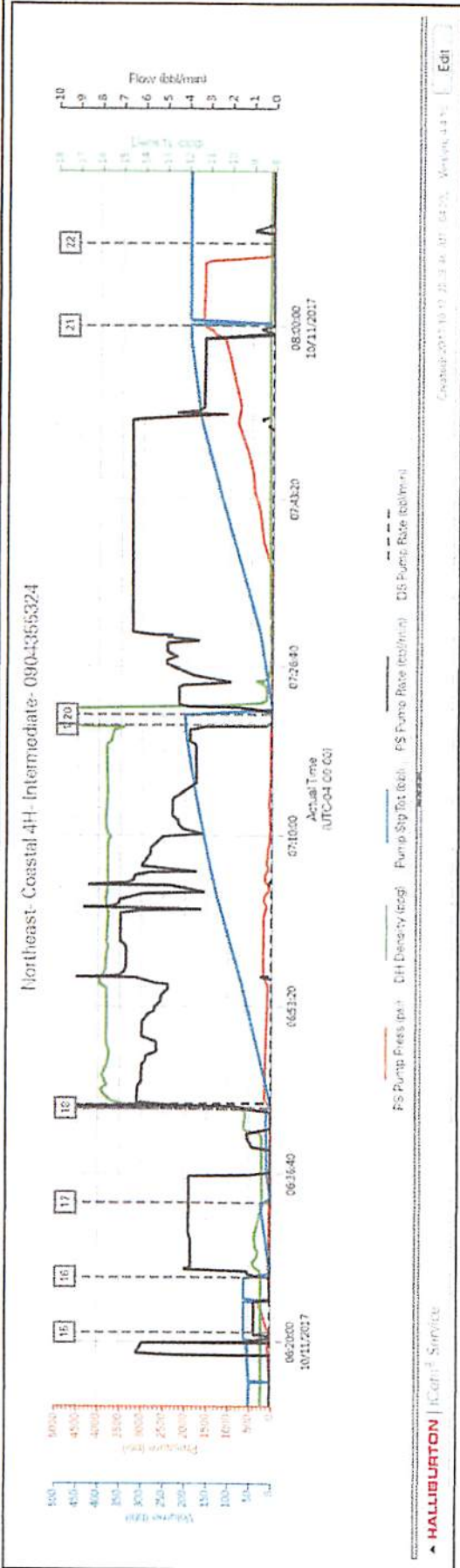
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Event	13	Circulate Well	Circulate Well	10/11/2017	03:39:02	COM5						had to circulate in order to get 40' joint out of hole.
Event	14	Shutdown	Shutdown	10/11/2017	03:52:24	COM5						40' joint out of hole, rig replacing it with 20' joint at this time.
Event	15	Test Lines	Test Lines	10/11/2017	06:20:55	COM5						3bbl Fresh Water. Tested lines to 500psi, then 4000psi.
Event	16	Pump Spacer 1	Pump Spacer 1	10/11/2017	06:26:32	COM5						25bbl Gel Spacer, 3bpm.
Event	17	Pump Spacer 2	Pump Spacer 2	10/11/2017	06:33:52	COM5						10bbl Fresh Water Spacer
Event	18	Pump Lead Cement	Pump Lead Cement	10/11/2017	06:43:02	COM5	6.00	9.54	11.90	1.40	0.00	202bbl Halcem 15.6ppg, 7bpm, 200psi, 82°F.
Event	19	Drop Top Plug	Drop Top Plug	10/11/2017	07:21:00	USER	9.00	20.83	202.20	0.00	0.00	
Event	20	Pump Displacement	Pump Displacement	10/11/2017	07:22:05	COM5	-5.00	19.36	202.20	0.00	0.00	205bbl Processed Water Displacement. 7bpm, 400psi. slowed down at 180bbl away to 3bpm. 2bbl of cement to surface.
Event	21	Bump Plug	Bump Plug	10/11/2017	08:00:03	COM5	1610.00	8.21	194.20	0.00	0.00	bumped at 1000psi, taken to 1500psi. held for 5 min. bled back 1.5bbl. FLOATS HELD.
Event	22	End Job	End Job	10/11/2017	08:08:14	COM5						
Event	23	Rig-Down Equipment	Rig-Down Equipment	10/11/2017	09:00:09	USER						
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/11/2017	09:05:00	USER						
Event	25	Depart Location Safety Meeting	Depart Location Safety Meeting	10/11/2017	10:55:00	USER						

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Cementing Treatment



Start Date	12/6/2017	Well	COASTAL 4H
End Date	12/6/2017	County	FAYETTE
Client	NORTHEAST NATURAL ENERGY LLC	State/Province	PA
Client Field Rep	Brad Chadwick	API	37-051-24458
Service Supervisor		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	2,650.00	2,650.00	0.00	J-55	
Open Hole	8.50			18,042.00	8,250.00	10.00		
Casing	4.78	5.50	20.00	18,030.00	8,250.00		P-110	BTC
Open Hole	8.75			5,251.00	5,251.00	10.00		

Shoe Length (ft): 25

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	18,004.00
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)	
Top Plug Size	5.500	Max Casing Pressure - Operated (psi)	
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	Manifold
Centralizers Type		Top Connection Thread	BTC
Landing Collar Depth (ft)	18,004	Top Connection Size	5.5

CIRCULATION PRIOR TO JOB

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Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	
Circulation Time (min)		10 min SGS	
Circulation Rate (bpm)	10.00	30 min SGS	
Circulation Volume (bbls)		Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	12.80	Gas Units	
Mud Density Out (ppg)	12.80		
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)		Slurry Cement Temperature (°F)	64.00
Mix Water Temperature (°F)	58.00	Flow Line Temperature (°F)	

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	13.5000					100.0000
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	13.5000					77.0000
Tail Slurry	Single Slurry 14.5 ppg	14.5000	1.1859	5.18	3,555	4,204.0000	748.7000
Displacement 1	Inhibited Water	8.3400				0.0000	20.0000
Displacement Final	Treated Water	8.3400				0.0000	378.6000

Fluid Type	Fluid Name	Component	Concentration	UOM
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Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	IntegraGuard RHEO 10	100.00 PCT
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	SURFACTANT, S-5	3.50 GPB
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	RETARDER, R-3	1.10 PPB
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	FOAM PREVENTER, FP-13L	0.03 GPB
Spacer / Pre Flush / Flush	MultiBond 13.5 ppg	13.5 ppg IntegraGUARD Multi	100.00 PCT
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	WEIGHTING ADDITIVE, BARITE	284.62 PPB
Tail Slurry	Single Slurry 14.5 ppg	BONDING AGENT, EC-1	1.00 BWOB
Tail Slurry	Single Slurry 14.5 ppg	SPECIAL ADDITIVE, MPA-170	0.30 BWOB
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, CLASS A	50.00 PCT
Tail Slurry	Single Slurry 14.5 ppg	FOAM PREVENTER, FP-13L	0.75 GALS/100SK
Tail Slurry	Single Slurry 14.5 ppg	RETARDER, R-3	0.30 BWOB
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, FLY ASH (POZZOLAN)	50.00 PCT
Displacement 1	Inhibited Water	SCALE CONTROL, FraCare SI 720	0.25 GPT
Displacement 1	Inhibited Water	BIOCIDE, ALPHA 1427	0.80 GPT
Displacement 1	Inhibited Water	RETARDER, SUGAR, GRANULAR	200.00 LBS
Displacement Final	Treated Water	BIOCIDE, ALPHA 1427	0.80 GPT
Displacement Final	Treated Water	SCALE CONTROL, FraCare SI 720	0.25 GPT

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
12/6/2017 7:15 PM	UltraBond 10 13.5 ppg	5.50	100.00		900.00	Ultrabond
12/6/2017 7:35 PM	MultiBond 13.5 ppg	5.50	77.00		1,190.00	Multibond
12/6/2017 8:05 PM	Single Slurry 14.5 ppg	6.50	748.70		850.00	Cement
12/6/2017 10:19 AM	Inhibited Water	8.00	20.00		900.00	Sugar Water Displacement
12/6/2017 10:23 PM	Treated Water	8.00	380.00		3,950.00	Displacement

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Cementing Treatment



	Min	Max	Avg
Pressure (psi)	0.00	4,690.00	900.00
Rate (bpm)	2.00	9.50	6.50

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	0.00
Calculated Displacement Volume (bbls)	399.70	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	400.00	Amount of Spacer to Surface	165.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	6.50
Bump Plug Pressure (psi)	4,690.00	Total Volume Pumped (bbls)	1,330.00
Were Returns Planned at Surface	No	Top Out Cement Spotted	No
Cement returns During Job	None	Lost Circulation During Cement Job	No

CEMENT PLUG

Bottom of Cement Plug?	Yes	Wiper Balls Used?	No
Wiper Ball Quantity		Plug Catcher	No
Number of Plugs			

SQUEEZE

Injection Rate (bpm)	Fluid Density (ppg)
Injection Pressure (psi)	ISIP (psi)
Type of Squeeze	FSIP (psi)
Operators Max SQ Pressure (psi)	

COMMENTS

Treatment Report

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Cementing Treatment



Job Summary

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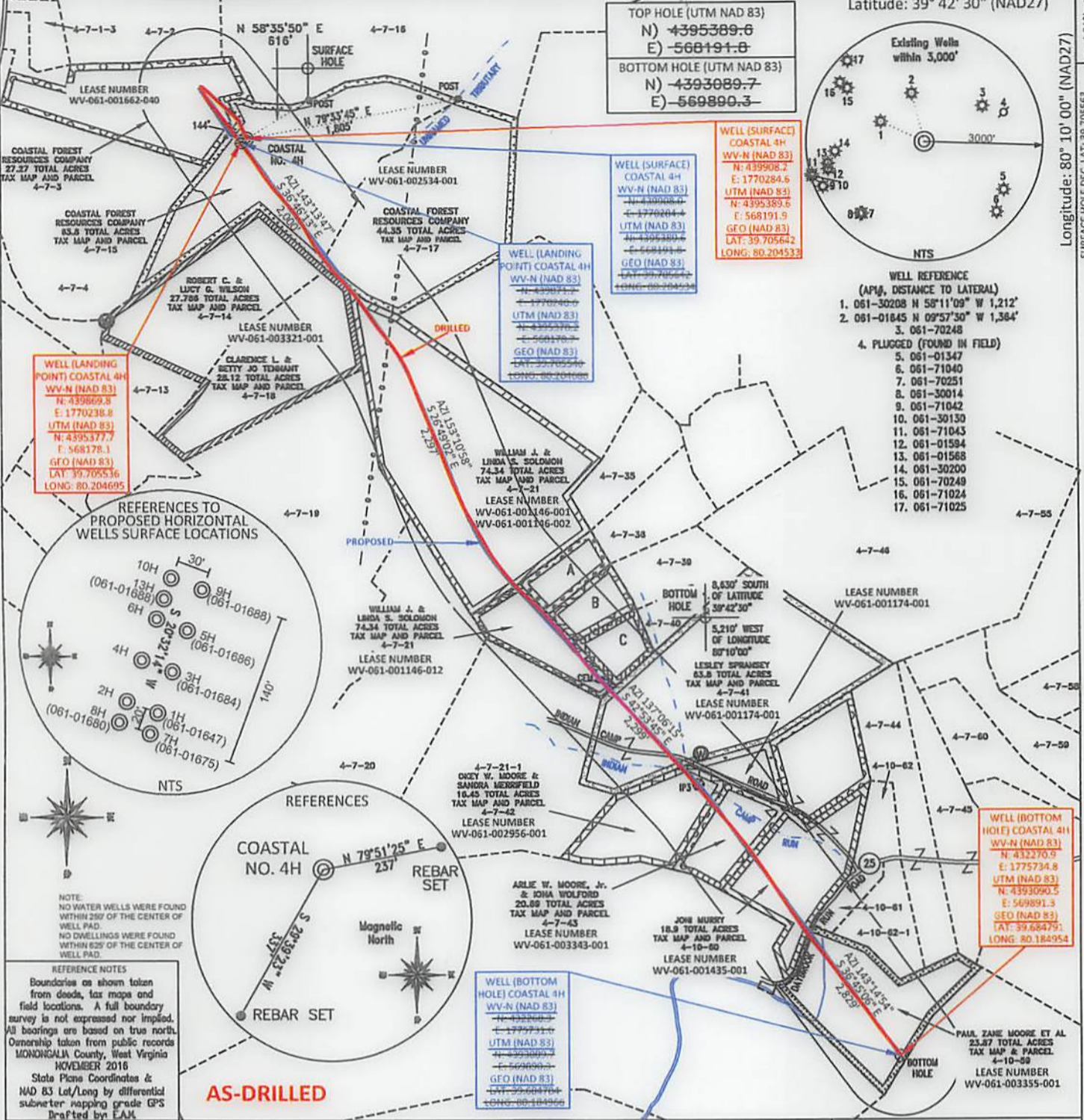
SURFACE HOLE DEC. LONG: 80.204740
SURVEYED LONG: 80° 12' 17.1"

10,730'

Latitude: 39° 42' 30" (NAD27)

Longitude: 80° 10' 00" (NAD27)

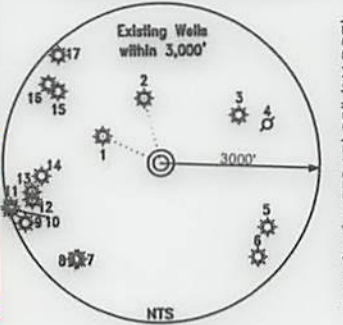
SURFACE HOLE DEC. LAT: 39.705563
SURVEYED LAT: 39° 42' 20.0"



TOP HOLE (UTM NAD 83)
N) 4395389.6
E) 568191.8
BOTTOM HOLE (UTM NAD 83)
N) 4393089.7
E) 568990.3

WELL (SURFACE) COASTAL 4H
WV-N (NAD 83)
N: 439908.2
E: 1770284.6
UTM (NAD 83)
N: 4395389.6
E: 568191.9
GEO (NAD 83)
LAT: 39.705642
LONG: 80.204533

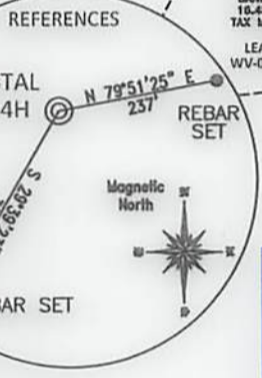
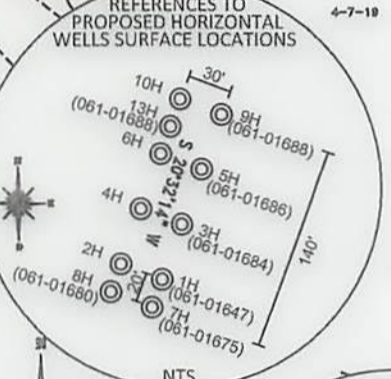
WELL (SURFACE) COASTAL 4H
WV-N (NAD 83)
N: 439908.2
E: 1770284.6
UTM (NAD 83)
N: 4395389.6
E: 568191.9
GEO (NAD 83)
LAT: 39.705642
LONG: 80.204533



- WELL REFERENCE (API#, DISTANCE TO LATERAL)
- 061-30208 N 58°11'09" W 1,212'
 - 061-01845 N 09°57'30" W 1,364'
 - 061-70248
 - PLUGGED (FOUND IN FIELD)
 - 061-01347
 - 061-71040
 - 061-70251
 - 061-30014
 - 061-71042
 - 061-30130
 - 061-71043
 - 061-01594
 - 061-01568
 - 061-30200
 - 061-70249
 - 061-71024
 - 061-71025

WELL (LANDING POINT) COASTAL 4H
WV-N (NAD 83)
N: 439869.8
E: 1770238.8
UTM (NAD 83)
N: 4395377.7
E: 568178.1
GEO (NAD 83)
LAT: 39.705536
LONG: 80.204695

WELL (LANDING POINT) COASTAL 4H
WV-N (NAD 83)
N: 439869.8
E: 1770238.8
UTM (NAD 83)
N: 4395377.7
E: 568178.1
GEO (NAD 83)
LAT: 39.705536
LONG: 80.204695



NOTE:
NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.
NO DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF WELL PAD.

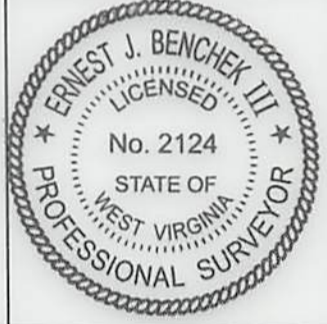
REFERENCE NOTES
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records MONONGALIA County, West Virginia NOVEMBER 2016
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS Drafted by E.A.M.

AS-DRILLED

FILE #: NNE12
DRAWING #: 2349
SCALE: PLAT: 1" = 1200'
TICK MARK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

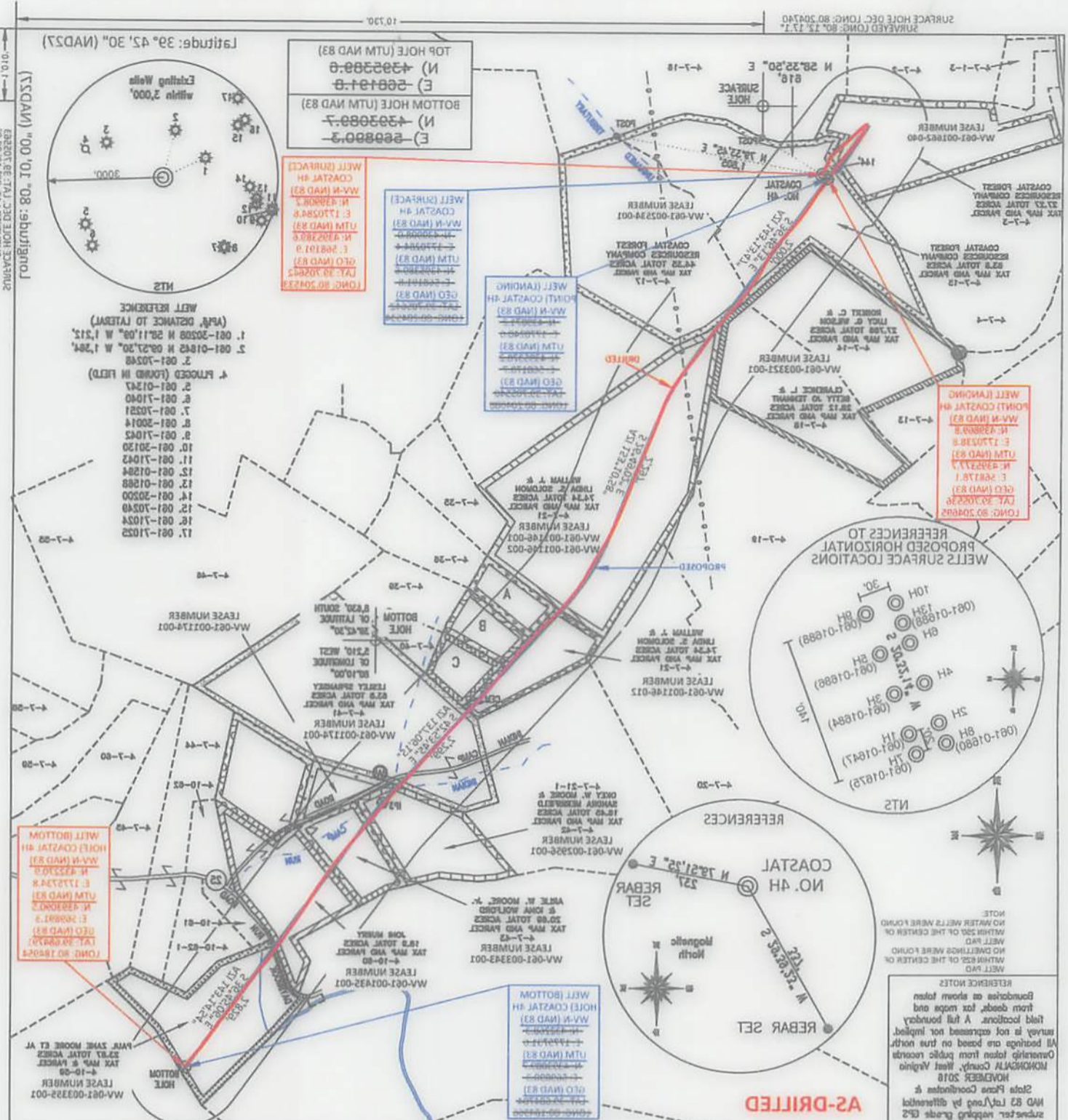
I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed:
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304
Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow
WATERSHED: DUNKARD CREEK ELEVATION: 1,420'
COUNTY/DISTRICT: MONONGALIA / CLAY QUADRANGLE: BLACKSVILLE, WV
SURFACE OWNER: COASTAL FOREST RESOURCES COMPANY ACREAGE: 63.8 +/-
OIL & GAS ROYALTY OWNER: WACO OIL AND GAS, ET AL ACREAGE: 374.24 +/-
LEASE NUMBERS:
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 8,204' TMD: 18,031.85'
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

DATE: JUNE 19, 2018
OPERATOR'S WELL #: COASTAL NO. 4H
API WELL #: 47 61
STATE COUNTY PERMIT



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS
 PLAN 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: _____
 L.S. #2124; Ernest J. Benchek III

FILE #:	INE12
DRAWING #:	2349
SCALE:	PLAT: 1" = 1200' TICK MARK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:	1/200
PROVEN SOURCE OF ELEVATION:	GRADE GPS
PROVEN SOURCE SUBMETER MAPPING:	

CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 DESIGNATED AGENT: JOHN ADAMS
 ESTIMATED DEPTH: TVD: 8,204' TMD: 18,031.82'
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE

LEASE NUMBERS: WACO OIL AND GAS, ET AL / COASTAL FOREST RESOURCES COMPANY
 SURFACE OWNER: COASTAL FOREST RESOURCES COMPANY
 COUNTY/DISTRICT: MONONGALIA / CLAY
 WATERSHED: DUNKARD CREEK
 OIL & GAS ROYALTY OWNER: WACO OIL AND GAS, ET AL
 SURFACE OWNER: COASTAL FOREST RESOURCES COMPANY
 COUNTY/DISTRICT: MONONGALIA / CLAY
 WATERSHED: DUNKARD CREEK
 Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

CHARLESTON, WV 25304
 601 27TH STREET
 OFFICE OF OIL & GAS
 WDEP
 UNITED STATES TOPOGRAPHIC MAPS
 (+) DENOTES LOCATION OF WELL ON

DATE: JUNE 19, 2018
 OPERATOR'S WELL #: COASTAL NO. 4H
 STATE COUNTY PERMIT
 API WELL #: 47 / 61
 ACRES: 374.24 +/-
 ACRES: 63.8 +/-
 QUADRANGLE: BLACKSVILLE, WV
 ELEVATION: 1,420'