

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

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Office of Oil and Gas

NOV 30 2018

API 47-061-01784 County Monongalia District Clay
Quad Blacksville Pad Name Coastal Field/Pool Name _____
Farm name Coastal Forest Resources Company Well Number Coastal 6H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia Street E., Suite 1200 City Charleston State WV Zip 25301

WV Department of
Environmental Protection

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4395401.0 Easting 568196.0
Landing Point of Curve Northing 4395447.3 Easting 568378.8
Bottom Hole Northing 4393289.1 Easting 570045.2

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 08/25/17 Date drilling commenced 09/18/17 Date drilling ceased 12/28/17
Date completion activities began 2/10/2018 Date completion activities ceased 3/15/2018
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

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

Reviewed by:
[Signature]
1/28/2018

WR-35
Rev. 8/23/13

API 47-061 - 01784 Farm name Coastal Forest Resources Company Well number Coastal 6H

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"	1,340'	N	54.5	N/A	Y 49 bbls
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,680'	N	40	N/A	Y 39 bbls
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	17,611'	N	20	N/A	Y 2000'
Tubing							
Packer type and depth set							

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Comment Details _____

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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	985	16.4	1.09	1073.7	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	3470	14.5	1.1859	4115	4800'	48
Tubing							

Drillers TD (ft) 17,582' Loggers TD (ft) 17,552'
Deepest formation penetrated Marcellus Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) _____

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 _____

Perforation Record

Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	1/23/2018	17,678	0	0
2	1/24/2018	17,475	17,633	40
3	2/21/2018	17,276	17,434	80
4	2/21/2018	17,076	17,234	40
5	2/21/2018	16,876	17,034	40
6	2/22/2018	16,677	16,834	40
7	2/22/2018	16,477	16,635	40
8	2/23/2018	16,277	16,435	40
9	2/23/2018	16,077	16,235	40
10	2/24/2018	15,878	16,035	40
11	2/24/2018	15,678	15,836	40
12	2/24/2018	15,478	15,636	40
13	2/25/2018	15,278	15,436	40
14	2/25/2018	15,079	15,236	40
15	2/25/2018	14,879	15,037	40
16	2/25/2018	14,679	14,837	40
17	2/25/2018	14,479	14,637	40
18	2/26/2018	14,280	14,437	40
19	2/26/2018	14,080	14,238	40
20	2/26/2018	13,880	14,038	40
21	2/26/2018	13,680	13,838	40
22	2/26/2018	13,481	13,639	40
23	2/27/2018	13,281	13,439	40
24	2/27/2018	13,081	13,239	33
25	2/27/2018	12,882	13,039	40
26	2/27/2018	12,682	12,840	40
27	2/28/2018	12,482	12,640	40
28	2/28/2018	12,282	12,440	40
29	2/28/2018	12,083	12,240	40
30	3/1/2018	11,883	12,041	40
31	3/1/2018	11,683	11,841	40
32	3/1/2018	11,483	11,641	40
33	3/2/2018	11,284	11,441	40
34	3/16/2018	11,084	11,242	40
35	3/17/2018	10,884	11,042	40
36	3/17/2018	10,684	10,842	40
37	3/17/2018	10,485	10,642	40
38	3/18/2018	10,285	10,443	40
39	3/18/2018	10,085	10,243	40
40	3/18/2018	9,885	10,043	40

02/15/2019

41	3/18/2018	9,686	9,844	40
42	3/18/2018	9,486	9,644	40
43	3/19/2018	9,286	9,444	40
44	3/19/2018	9,087	9,244	40
45	3/19/2018	8,887	9,045	40
46	3/19/2018	8,687	8,845	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)	Water Amount (bbls)
1	1/23/2018	76	9,102	4,339	5,221	312,180	7,511
2	1/24/2018	75	9,388	7,237	#N/A	352,540	7,310
3	2/21/2018	45	9,700	7,646	#N/A	16,220	2,886
4	2/21/2018	77	9,120	6,500	5,289	407,300	9,613
5	2/21/2018	80	9,191	7,883	5,766	403,210	9,286
8	2/23/2018	78	8,859	6,500	5,868	357,360	8,940
9	2/23/2018	80	9,154	7,398	6,329	354,200	8,181
10	2/24/2018	79	9,178	6,970	5,284	350,320	8,220
11	2/24/2018	79	9,145	7,117	5,923	349,940	8,050
12	2/24/2018	79	9,293	7,409	5,720	349,620	8,337
13	2/25/2018	80	9,185	7,452	5,555	374,940	8,259
14	2/25/2018	81	9,370	7,157	6,138	349,120	8,065
15	2/25/2018	80	9,247	7,105	5,893	350,420	7,949
16	2/25/2018	79	9,037	7,213	5,871	349,340	8,180
17	2/25/2018	79	9,251	6,996	5,554	349,780	7,913
18	2/26/2018	80	9,248	7,415	6,077	350,890	8,011
19	2/26/2018	81	9,093	7,205	6,137	352,110	8,029
20	2/26/2018	80	9,119	7,003	5,734	327,960	7,687
21	2/26/2018	79	9,045	7,421	5,920	295,960	7,862
22	2/26/2018	80	8,881	8,495	5,735	322,220	8,150
23	2/27/2018	80	9,154	7,899	5,885	359,180	8,307
24	2/27/2018	81	9,214	7,302	5,671	358,020	8,197
25	2/27/2018	78	9,476	7,079	6,523	349,240	7,980
26	2/27/2018	78	9,355	7,904	5,697	348,760	8,159
27	2/28/2018	40	9,758	8,640	#N/A	81,960	7,589
28	2/28/2018	79	8,914	7,661	5,304	350,120	7,687
29	2/28/2018	79	8,953	7,043	5,463	351,420	8,693
30	3/1/2018	78	9,369	7,228	6,365	246,050	6,236
31	3/1/2018	75	9,167	6,869	6,407	350,530	8,134
32	3/1/2018	75	8,775	7,226	5,190	351,780	8,078
33	3/2/2018	61	9,788	7,601	#N/A	38,980	4,949
34	3/16/2018	55	9,667	8,047	#N/A	11,080	1,755
35	3/17/2018	67	9,872	7,541	6,292	19,552	2,266
36	3/17/2018	77	8,960	7,393	5,823	144,760	6,508
37	3/17/2018	76	8,929	7,700	5,992	159,040	6,936
38	3/18/2018	66	9,673	8,057	6,399	36,440	3,556
39	3/18/2018	74	8,721	8,092	5,454	273,800	8,928
40	3/18/2018	73	8,529	7,881	4,770	308,900	8,614
41	3/18/2018	77	8,597	7,369	5,149	313,320	8,838
42	3/18/2018	75	8,646	7,852	5,245	300,280	8,838

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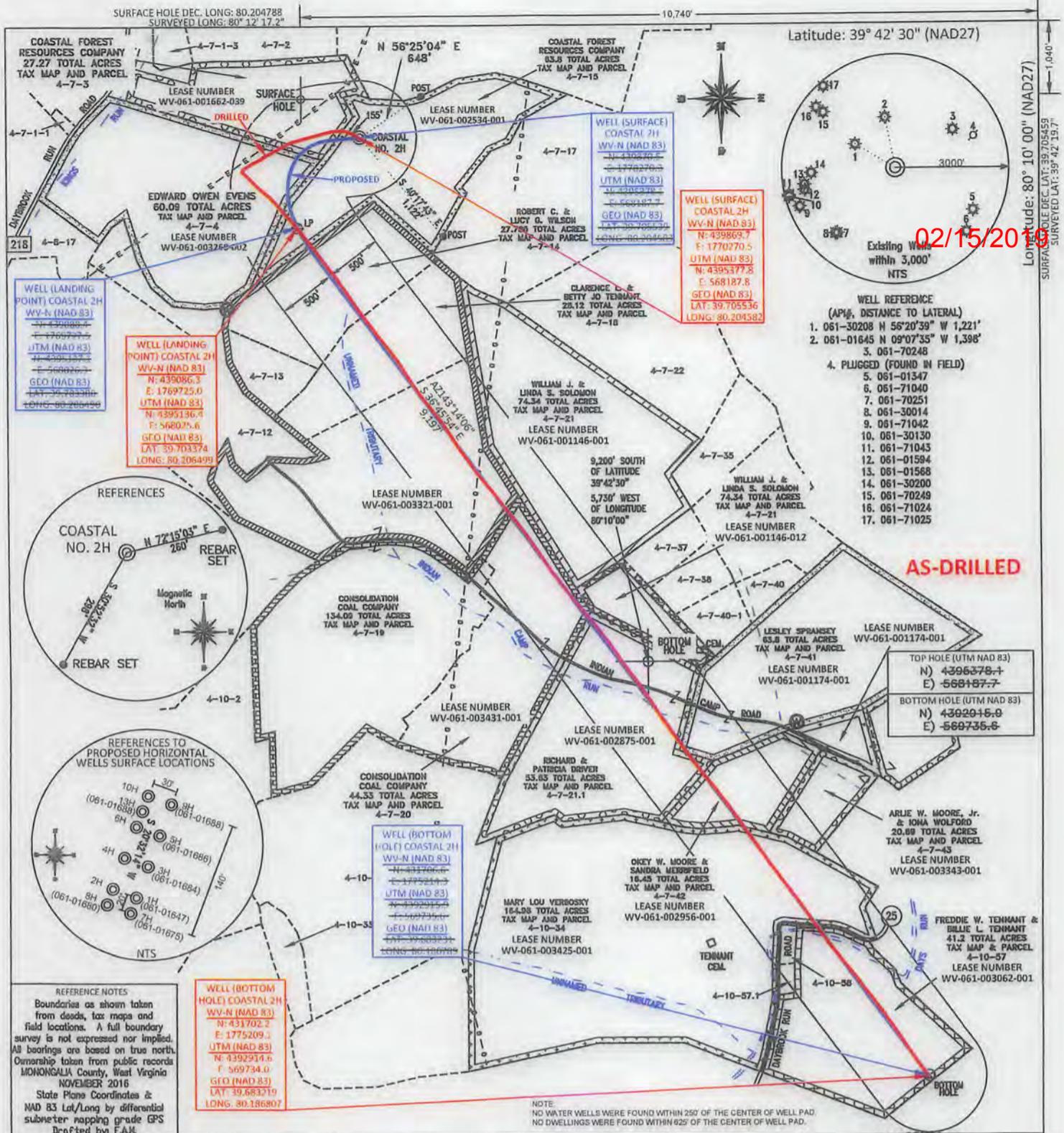
43	3/19/2018	75	8,438	8,424	5,000	304,500	8,726
44	3/19/2018	76	8,385	7,686	4,925	305,880	8,289
45	3/19/2018	80	8,250	8,168	5,641	314,500	8,543
46	3/19/2018	79	8,392	7,627	5,370	300,360	8,155
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Lithology/Formation

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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FILE #: NNE12
 DRAWING #: 2348
 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: [Signature]
 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 Diposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 SURFACE OWNER: COASTAL FOREST RESOURCES COMPANY
 OIL & GAS ROYALTY OWNER: WACO OIL AND GAS, ET AL
 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
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: JUNE 19, 2018
 OPERATOR'S WELL #: COASTAL NO. 2H
 API WELL #: 47 61 01784 HGA
 STATE COUNTY PERMIT

ELEVATION: 1,420'
 QUADRANGLE: BLACKSVILLE, WV
 ACREAGE: 63.8 +/-
 ACREAGE: 817.45 +/-

ESTIMATED DEPTH: TVD: 8,204' TMD: 18,100.73'
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	1/23/2018
Job End Date:	3/20/2018
State:	West Virginia
County:	Monongalia
API Number:	47-061-01781-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Coastal 2H
Latitude:	39.69505600
Longitude:	-80.22288900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,230
Total Base Water Volume (gal):	14,009,513
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	88.51109	None
Sand (Proppant)	Producers Service Corp	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	10.17971	None
HC Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.17610	None
STIMLUBE HBVB	Producers Service Corp	Friction Reducer	Petroleum Distillates	64742-47-8	30.00000	0.03182	None
			Ammonium Acetate	631-61-8	10.00000	0.01061	None
BIOC11219A	Nalco-Champion	Biocide	Methanol	67-56-1	60.00000	0.01273	None
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00637	None
			Glutaraldehyde	111-30-8	10.00000	0.00212	None
SCAL16486A	Nalco-Champion	Scale Inhibitor	Amine Triphosphate	Proprietary	30.00000	0.00168	None
			Ethylene Glycol	107-21-1	30.00000	0.00168	None

PROHIB II	Producers Service Corp	Inhibitor					
			Acetic Acid	64-19-7	90.00000	0.00197	None
			Methanol	67-56-1	10.00000	0.00022	None
			2-Ethylhexanol	104-76-7	10.00000	0.00022	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00011	None
			Diethanolamine	111-42-2	1.00000	0.00002	None
PRO-DRB-LT	Producers Service Corp	Oxidizer					
			Ammonium Persulfate	7727-54-0	80.00000	0.00008	None
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	0.00002	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Ammonium Acetate	631-61-8	10.00000	0.01061	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00637	
			Glutaraldehyde	111-30-8	10.00000	0.00212	
			Ethylene Glycol	107-21-1	30.00000	0.00168	
			Methanol	67-56-1	10.00000	0.00022	
			2-Ethylhexanol	104-76-7	10.00000	0.00022	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00011	
			Diethanolamine	111-42-2	1.00000	0.00002	
			Crystalline Silica in the form of Quartz	14808-60-7	15.00000	0.00002	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
 Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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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)	PS Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	10/19/2017	18:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/19/2017	21:45:00	USER					
Event	3	Depart Shop for Location	Depart Shop for Location	10/19/2017	22:00:00	USER					
Event	4	Arrive At Loc	Arrive At Loc	10/20/2017	01:00:00	USER					
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/20/2017	01:05:00	USER					
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/20/2017	01:20:00	USER					
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/20/2017	01:30:00	USER					
Event	10	Test Lines	Test Lines	10/20/2017	02:51:16	RTD Import	8.21	8.38	0.00	23.87	Test Lines to 4000psi.
Event	18	Circulate Well	Circulate Well*	10/20/2017	02:53:30	RTD Import	14.80	8.38	0.00	0.00	Circulate Well to help wash casing down.
Event	19	Other	Other	10/20/2017	03:10:12	RTD Import	0.68	8.43	0.00	68.62	shutdown to allow rig to run more casing.
Event	20	Other	Other	10/20/2017	05:29:23	RTD Import	15.74	8.44	1.90	69.27	rig needs us to wash down more casing.
Event	27	Other	Other	10/20/2017	06:05:11	RTD Import	-0.26	4.02	0.00	220.62	Other
Event	28	Other	Other	10/20/2017	06:36:26	RTD Import	5.39	8.39	0.00	220.62	Other

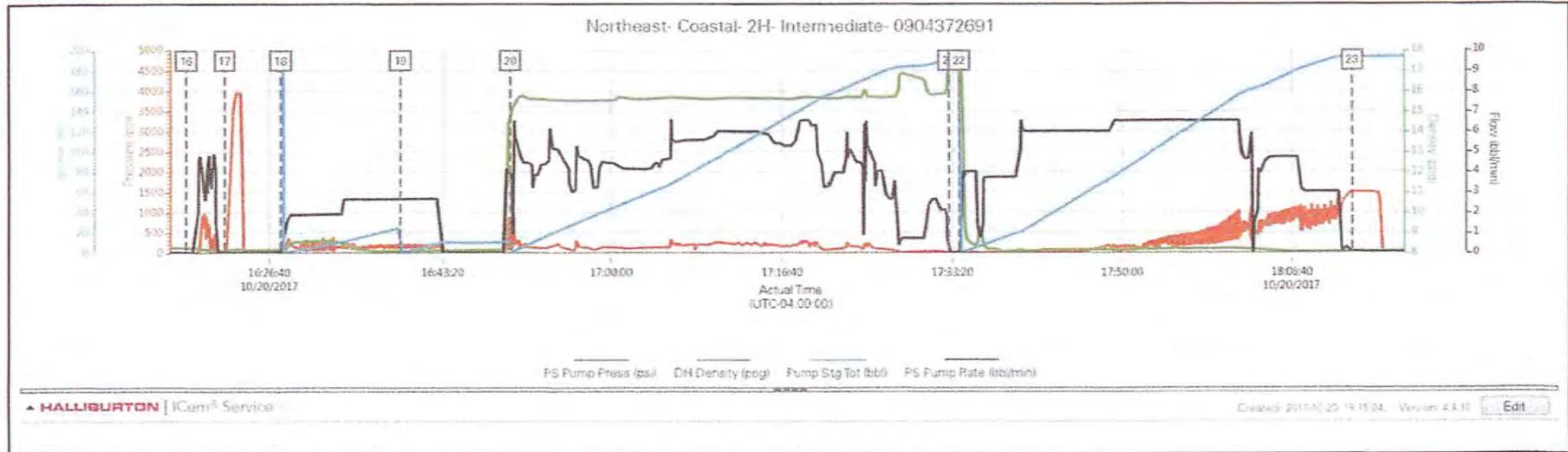
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Customer: NORTHEAST NATURAL ENERGY LLC-EBUS
Job: 0904372691
Case: Case 2

Event	73	Other	Other	10/20/2017	08:26:34	RTD Import	15.74	8.40	0.00	305.56	Other
Event	316	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/20/2017	16:10:00	USER	-3.09	8.24	0.00	1122.00	
Event	320	Start Job	Start Job	10/20/2017	16:18:26	RTD Import	-2.15	8.26	0.00	1122.00	Start Cement Job
Event	322	Test Lines	Test Lines	10/20/2017	16:22:17	RTD Import	55.29	8.10	0.00	1129.23	Test Lines to 4000psi.
Event	332	Pump Spacer 1	Pump Spacer 1*	10/20/2017	16:27:46	RTD Import	10.09	8.16	0.00	0.00	Pump Spacer 1 Gel. 3bpm 130psi.
Event	368	Pump Spacer 2	Pump Spacer2*	10/20/2017	16:39:15	RTD Import	110.85	8.08	2.67	0.02	Pump Spacer2 10bbl Fresh Water
Event	396	Pump Cement	Pump Cement*	10/20/2017	16:49:59	RTD Import	698.43	14.83	3.96	12.09	Pump 190bbl Cement. 940sks. 15.6ppg, 6bpm, 200psi. 82°F.
Event	467	Drop Top Plug	Drop Top Plug	10/20/2017	17:33:00	USER	-6.86	17.75	0.00	189.96	
Event	468	Pump Displacement	Pump Displacement*	10/20/2017	17:33:59	RTD Import	-6.86	17.57	0.00	0.00	Pump 198bbl Displacement. 1bbl Cement to surface. 6bpm, 400psi.
Event	489	Bump Plug	Bump Plug	10/20/2017	18:12:41	RTD Import	1497.88	8.07	0.00	193.63	Bump Plug at 1000psi, taken to 1500psi. held for 5 min. bled back 1bbl. FLOATS HELD.
Event	491	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/20/2017	19:34:04	USER					
Event	492	Rig-Down Equipment	Rig-Down Equipment	10/20/2017	19:40:00	USER					
Event	493	Depart Location Safety Meeting	Depart Location Safety Meeting	10/20/2017	21:35:00	USER					
Event	494	Depart Location	Depart Location	10/20/2017	21:45:00	USER					

3.0 Attachments

3.1 Tiger #2811.png





Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 359876	Ship To #: 0003588367	Quote #: 0022345686	Sales Order #: 0904363974
Customer: NORTHEAST NATURAL ENERGY LLC-EBUS		Customer Rep:	
Well Name: COASTAL	Well #: 2H	API/UWI #: 47-061-01679-08	
Field:	City (SAP): BLACKSVILLE	County/Parish: MONONGALIA	State: WEST VIRGINIA
Legal Description: 1080S 39*42'30"-10740W 80*10'00"-BLACKSV			
Contractor:		Rig/Platform Name/Num:	
Job BOM: 7521 7521			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HB67143		Srcv Supervisor: Mike Rader	

Job

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	1338ft 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	1338		
Open Hole Section			17.5				40	1370		

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	13.375			1338	Top Plug	13.375		HES
Float Shoe	13.375				Bottom Plug	13.375		HES
Float Collar	13.375			1295	SSR plug set	13.375		HES
Insert Float	13.375				Plug Container	13.375	1	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	Processed Water	200	bbl	8.5					
Stage/Plug #: 2										
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 (101216940) and Gas								
		1 lbm/bbl POLY-E-FLAKE (101216940)								

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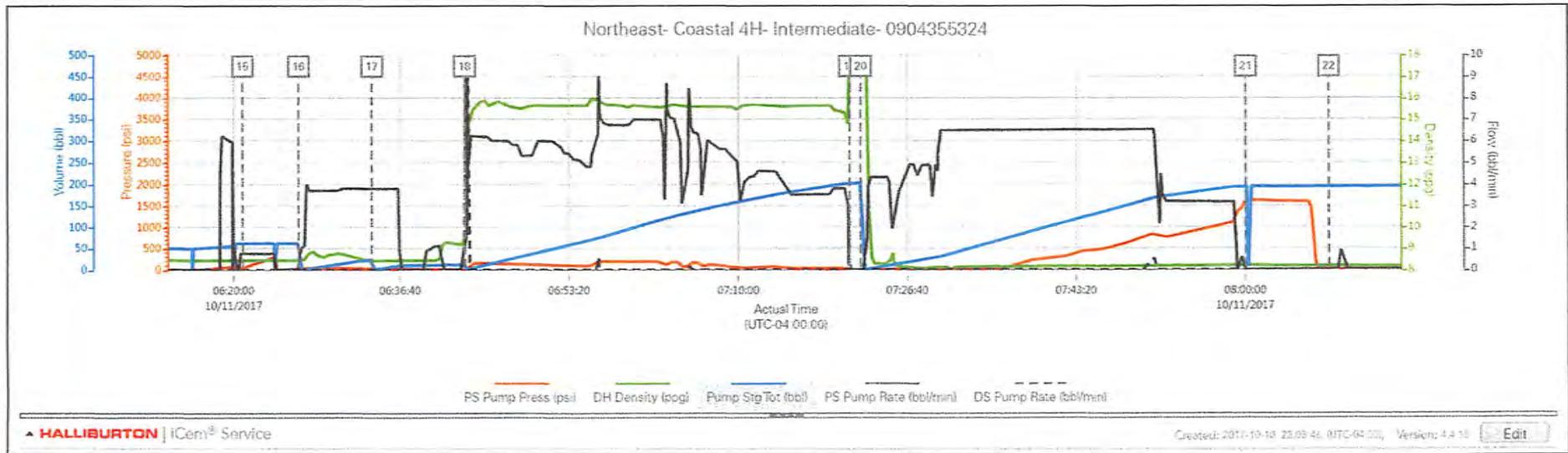
Cementing Job Summary

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					
4	HalCem (TM) System	HALCEM (TM) SYSTEM	1080	sack	15.6	1.21		6	5.41	
5	Fresh Water Displacement	Processed Displacement	200	bbl	8.5			6		
Cement Left In Pipe		Amount	43 ft		Reason			Shoe Joint		

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3.0 Attachments

3.1 Elite #6163.png



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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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iCem* Service
(v. 4.4.18)

Created: Wednesday, October 11, 2017

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 Job Summary

The Road to Excellence Starts with Safety

Sold To #: 359876	Ship To #: 3588367	Quote #: 0022346082	Sales Order #: 0904372691
Customer: NORTHEAST NATURAL ENERGY LLC-EBUS		Customer Rep:	
Well Name: COASTAL	Well #: 2H	API/UWI #: 47-061-01679-08	
Field:	City (SAP): BLACKSVILLE	County/Parish: MONONGALIA	State: WEST VIRGINIA
Legal Description: 1080S 39*42'30"-10740W 80*10'00"-BLACKSV			
Contractor:		Rig/Platform Name/Num:	
Job BOM: 7522 7522			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HB67143		Srvc Supervisor: Dylan Morrison	
Job			

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	2760ft		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		13.375	12.615	54.5	BTC	J-55	0	1340		
Casing		9.625	8.835	40	8 RD	J-55	0	2645		
Open Hole Section			12.25				1340	2680		

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	9.625			2645	Top Plug	9.625	1	HES
Float Shoe	9.625				Bottom Plug	9.625		HES
Float Collar	9.625			2600	SSR plug set	9.625		HES
Insert Float	9.625				Plug Container	9.625	1	HES
Stage Tool	9.625				Centralizers	9.625		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	Gel Spacer	Gel Spacer	25	bbl	8.4			3		
		20 lbm/bbl NATIONAL PREMIUM GOLD - 50 LB BAG (101612629)								
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	Water Spacer	Water Spacer	10	bbl	8.33			4		

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HALLIBURTON

Cementing Job Summary

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	HalCem (TM) System	HALCEM (TM) SYSTEM Class A	940	sack	15.6	1.209		6	5.42

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	Water Displacement	Water Displacement	198	bbl	8.33			6	

Cement Left In Pipe	Amount	45 ft	Reason	Shoe Joint
Mix Water:	pH ##	Mix Water Chloride:	## ppm	Mix Water Temperature:
Cement Temperature:	82 °F	Plug Displaced by:	## lb/gal kg/m3 XXXX	Disp. Temperature:
Plug Bumped?	Yes	Bump Pressure:	1000 psi	Floats Held?
Cement Returns:	1 bbl	Returns Density:	## lb/gal kg/m3	Returns Temperature:

Comment bumped at 1000psi, taken to 1500psi, pumped 198bbl displacement, got 1bbl of cement to surface. Held pressure for 5 min. bled back 1bbl. Floats Held.

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Summary Report



Crew: _____

Job Start Date: 10/20/2017 01:00 AM

Sales Order #: 0904372691
WO #: 0904372691
PO #: NA
AFE #:

Customer: NORTHEAST NATURAL ENERGY LLC-EBUS
UWI / API Number: 47-061-01679-08
Well Name: COASTAL
Well No: 2H

Field: _____
County/Parish: MONONGALIA
State: WEST VIRGINIA
Latitude: 39.705538
Longitude: -80.204581
Sect / Twn / Rng: //

Job Type: CMT INTERMEDIATE CASING BOM
Service Supervisor: Dylan Morrison
Cust Rep Name:
Cust Rep Phone #:

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

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Customer: NORTHEAST NATURAL ENERGY LLC-EBUS
 Job: 0904372691
 Case: Case 2

2.0 Real-Time Job Summary

2.1 Job Event Log

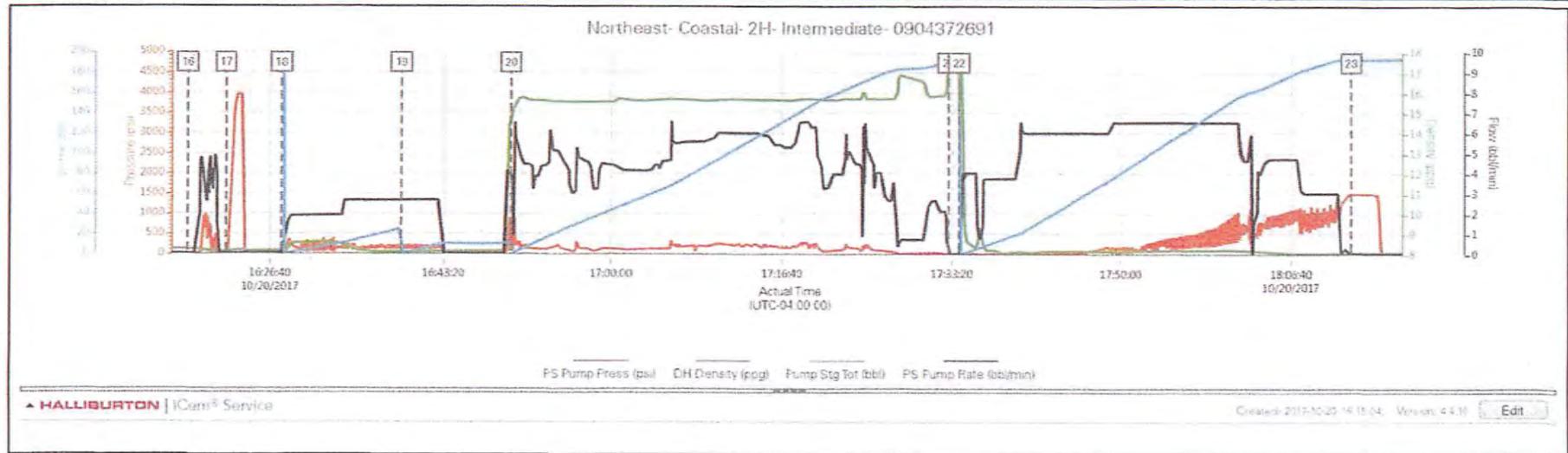
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	PS Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	10/19/2017	18:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	10/19/2017	21:45:00	USER					
Event	3	Depart Shop for Location	Depart Shop for Location	10/19/2017	22:00:00	USER					
Event	4	Arrive At Loc	Arrive At Loc	10/20/2017	01:00:00	USER					
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/20/2017	01:05:00	USER					
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/20/2017	01:20:00	USER					
Event	7	Rig-Up Equipment	Rig-Up Equipment	10/20/2017	01:30:00	USER					
Event	10	Test Lines	Test Lines	10/20/2017	02:51:16	RTD Import	8.21	8.38	0.00	23.87	Test Lines to 4000psi.
Event	18	Circulate Well	Circulate Well*	10/20/2017	02:53:30	RTD Import	14.80	8.38	0.00	0.00	Circulate Well to help wash casing down.
Event	19	Other	Other	10/20/2017	03:10:12	RTD Import	0.68	8.43	0.00	68.62	shutdown to allow rig to run more casing.
Event	20	Other	Other	10/20/2017	05:29:23	RTD Import	15.74	8.44	1.90	69.27	rig needs us to wash down more casing.
Event	27	Other	Other	10/20/2017	06:05:11	RTD Import	-0.26	4.02	0.00	220.62	Other
Event	28	Other	Other	10/20/2017	06:36:26	RTD Import	5.39	8.39	0.00	220.62	Other

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Event	73	Other	Other	10/20/2017	08:26:34	RTD Import	15.74	8.40	0.00	305.56	
Event	316	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/20/2017	16:10:00	USER	-3.09	8.24	0.00	1122.00	
Event	320	Start Job	Start Job	10/20/2017	16:18:26	RTD Import	-2.15	8.26	0.00	1122.00	Start Cement Job
Event	322	Test Lines	Test Lines	10/20/2017	16:22:17	RTD Import	55.29	8.10	0.00	1129.23	Test Lines to 4000psi.
Event	332	Pump Spacer 1	Pump Spacer 1*	10/20/2017	16:27:46	RTD Import	10.09	8.16	0.00	0.00	Pump Spacer 1 Gel. 3bpm 130psi.
Event	368	Pump Spacer 2	Pump Spacer2*	10/20/2017	16:39:15	RTD Import	110.85	8.08	2.67	0.02	Pump Spacer2 10bbl Fresh Water
Event	396	Pump Cement	Pump Cement*	10/20/2017	16:49:59	RTD Import	698.43	14.83	3.96	12.09	Pump 190bbl Cement. 940sks. 15.6ppg, 6bpm, 200psi. 82*F.
Event	467	Drop Top Plug	Drop Top Plug	10/20/2017	17:33:00	USER	-6.86	17.75	0.00	189.96	
Event	468	Pump Displacement	Pump Displacement*	10/20/2017	17:33:59	RTD Import	-6.86	17.57	0.00	0.00	Pump 198bbl Displacement. 1bbl Cement to surface. 6bpm, 400psi.
Event	489	Bump Plug	Bump Plug	10/20/2017	18:12:41	RTD Import	1497.88	8.07	0.00	193.63	Bump Plug at 1000psi, taken to 1500psi. held for 5 min. bled back 1bbl. FLOATS HELD.
Event	491	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/20/2017	19:34:04	USER					
Event	492	Rig-Down Equipment	Rig-Down Equipment	10/20/2017	19:40:00	USER					
Event	493	Depart Location Safety Meeting	Depart Location Safety Meeting	10/20/2017	21:35:00	USER					
Event	494	Depart Location	Depart Location	10/20/2017	21:45:00	USER					

3.0 Attachments

3.1 Tiger #2811.png



Cementing Treatment



Start Date	11/22/2017	Well	Coastal 2H
End Date	11/23/2017	County	Monongalia
Client	NORTHEAST NATURAL ENERGY LLC	State/Province	WV
Client Field Rep	Josh Grim	API	47-061-01781
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	2,654.00	2,654.00	0.00	J-55	
Open Hole	8.50			17,871.00	8,250.00	20.00		
Casing	4.78	5.50	20.00	17,871.00	8,250.00		P-110	
Open Hole	8.75			4,745.00	4,745.00	20.00		

Shoe Length (ft): 45

HARDWARE

Bottom Plug Used?	Yes	Tool Type	
Bottom Plug Provided By	Non BJ	Tool Depth (ft)	
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)	3,700.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity		Job Pumped Through	Manifold
Centralizers Type		Top Connection Thread	Buttress
Landing Collar Depth (ft)	17,826	Top Connection Size	5.5

CIRCULATION PRIOR TO JOB

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Cementing Treatment



Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	
Circulation Time (min)	2.00	10 min SGS	
Circulation Rate (bpm)	8.00	30 min SGS	
Circulation Volume (bbls)	1,160.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	14.00	Gas Units	
Mud Density Out (ppg)	14.00		
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)	32.00	Slurry Cement Temperature (°F)	75.00
Mix Water Temperature (°F)	60.00	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	3,813	4,508.0000	802.8000
Displacement 1	Inhibited Water	8.3400				0.0000	20.0000
Displacement Final	Treated Water	8.3400				0.0000	375.4000

Fluid Type	Fluid Name	Component	Concentration	UOM
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Cementing Treatment



Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	IntegraGuard RHEO 10	100.00 PCT
Spacer / Pre Flush / Flush	UltraBond 10 13.5 ppg	WEIGHTING ADDITIVE, BARITE	284.62 PPB
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
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, CLASS A	50.00 PCT
Tail Slurry	Single Slurry 14.5 ppg	CEMENT, FLY ASH (POZZOLAN)	50.00 PCT
Tail Slurry	Single Slurry 14.5 ppg	RETARDER, R-3	0.30 BWOB
Tail Slurry	Single Slurry 14.5 ppg	BONDING AGENT, EC-1	1.00 BWOB
Tail Slurry	Single Slurry 14.5 ppg	FOAM PREVENTER, FP-13L	0.75 GALS/100SK
Tail Slurry	Single Slurry 14.5 ppg	SPECIAL ADDITIVE, MPA- 170	0.30 BWOB
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	SCALE CONTROL,FraCare SI 720	0.25 GPT
Displacement Final	Treated Water	BIOCIDE, ALPHA 1427	0.80 GPT

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
11/23/2017 6:47 PM	UltraBond 10 13.5 ppg	5.00	100.00		1,100.00	
11/23/2017 7:05 PM	MultiBond 13.5 ppg	5.80	77.00		1,313.00	
11/23/2017 7:22 PM	Single Slurry 14.5 ppg	6.80	802.80		1,796.00	
11/23/2017 10:19 PM	Inhibited Water	6.80	20.00		2,637.00	
11/23/2017 10:22 PM	Treated Water	5.00	375.40		3,922.00	

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Cementing Treatment



	Min	Max	Avg
Pressure (psi)	0.00	4,300.00	2,500.00
Rate (bpm)	0.00	7.50	6.00

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	
Calculated Displacement Volume (bbls)	393.00	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	415.00	Amount of Spacer to Surface	71.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	
Bump Plug	No	Amount Bled Back After Job	4.50
Bump Plug Pressure (psi)		Total Volume Pumped (bbls)	1,405.00
Were Returns Planned at Surface	Yes	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	2		

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



Top of cement at 2288

Job Summary

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