

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

API 47-061-01699 County Monongalia District Grant
Quad Morgantown South Pad Name MIP Field/Pool Name _____
Farm name Enroute Properties, LLC Well Number 5H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia St. East, 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 4384061.3 Easting 587904.3
Landing Point of Curve Northing 4384674.7 Easting 587915.2
Bottom Hole Northing 4385579.5 Easting 586576.0

Elevation (ft) 1,058' 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 for 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 4/7/2015 Date drilling commenced 6/28/2015 Date drilling ceased 9/13/2015
Date completion activities began 10/28/2015 Date completion activities ceased 11/5/2015
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 300' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 700 ; 1,440' ; 2,120' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 295' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

VOID

Office of Oil and Gas
Reviewed by: _____
FEB 26 2016

05/06/2016

API 47-061 - 01699 Farm name Enroute Properties, LLC Well number 5H

| 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 | 42' | N | N/A | N/A | Y-to surface |
| Surface | 17.5 | 13 3/8 | 493' | N | 54.5 | N/A | Y-30 bbl return |
| Coal | | | | | | | |
| Intermediate 1 | 12.25 | 9 5/8 | 1,781' | N | 40 | N/A | Y-23 bbl return |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 8.5 | 5.5 | 14,375' | N | 20 | N/A | Y-8 bbl return |
| Tubing | 4.771 | 2.875 | 8,400' | N | 4.7 | N/A | |
| Packer type and depth set <u>.335</u> | | | | | | | |

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 ready mix | 36.4 | | .75 | 27.27 | CTS | 48 |
| Surface | Class A | 1004 | 15.2 | 1.27 | 1,271 | CTS | 8 |
| Coal | | | | | | | |
| Intermediate 1 | Class A | 858 | 15.2 | 1.26 | 1,074 | CTS | 8 |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 50/50 Premium NE - 1.3% R-3.3% MPA 170 | 3192 | 14.5 | 1.17 | 2,661 | CTS | 48 |
| Tubing | | | | | | | |

Drillers TD (ft) 14,454' Loggers TD (ft) 14,416'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure _____

Kick off depth (ft) 6,472'

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 aprox 120'

Intermediate: bow spring centralizers every 3rd joint or aprox 120'

Production: Hard bodied spiral centralizers every other joint or aprox 80' from TD to KOP then bow spring from KOP to 9 5/8" every forth joint or aprox 140'

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS Completed in a multi-stage plug-and-perforate manner.

30 Stages, 40 Shots per Stage

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

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U02D

| Lithology/Formation | Top Depth in FT 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) |
|----------------------|---------------------|------------------------|--------------------|-----------------------|--|
| Grey Shale | 0 | 130 | | | shale |
| Red Rock | 130 | 150 | | | red rock |
| Grey Shale/sandstone | 150 | 290 | | | sandstone/shale |
| Coal | 290 | 295 | | | coal |
| Grey Shale | 295 | 765 | | | shale |
| Red Rock | 765 | 825 | | | red rock |
| Grey Shale/sandstone | 825 | 1980 | | | shale/sandstone |
| Red Rock | 1980 | 2070 | | | red rock |
| Sandstone | 2070 | 2120 | | | sandstone |
| Grey Shale/sandstone | 2120 | 5312 | | | shale/sandstone |
| Geneseo | 7183 | 7199 | 7482 | 7525 | shale |
| Tully | 7199 | 7285 | 7525 | 7823 | limestone |
| Hamilton | 7285 | 7450 | 7823 | 8406 | shale |
| Marcellus | 7450 | 7503 | 8406 | 8701 | shale |
| Cherry Valley | 7503 | 7511 | 8701 | 8750 | limestone |
| Lower Marcellus | 7511 | | 8750 | | shale |

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 SURVEYED LONG: 79° 58' 34.9"

5080'

Latitude: 39° 37' 30" (NAD 27)

Longitude: 79° 57' 30" (NAD 27)

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 NO WATER WELLS FOUND WITHIN 250' OF THE CENTER OF WELL PAD

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| E) | 587901.8 |
| BOTTOM HOLE (UTM NAD 83) | |
| N) | 4386012.1 |
| E) | 586909.3 |

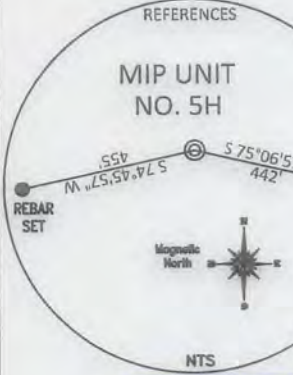
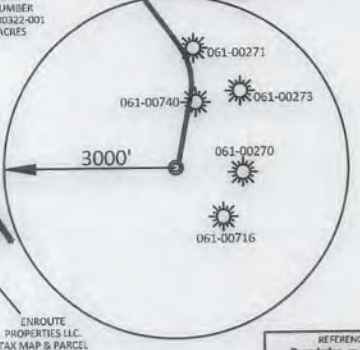
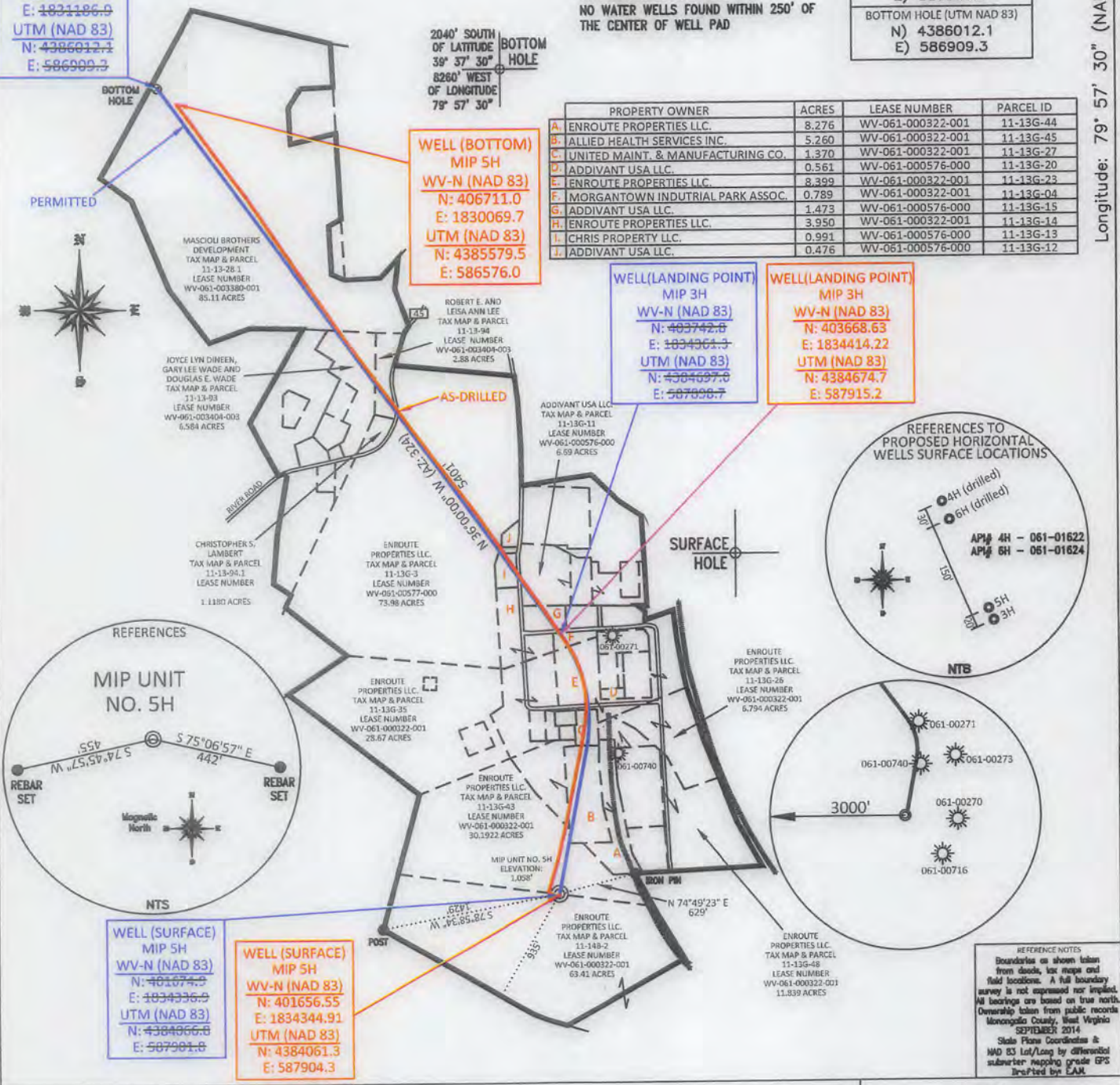
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| WELL (BOTTOM) MIP 5H | |
| WV-N (NAD 83) | |
| N) | 408112.0 |
| E) | 1831186.0 |
| UTM (NAD 83) | |
| N) | 4386012.1 |
| E) | 586909.3 |

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| E) | 1830069.7 |
| UTM (NAD 83) | |
| N) | 4385579.5 |
| E) | 586576.0 |

| | |
|-----------------------------|-----------|
| WELL (LANDING POINT) MIP 3H | |
| WV-N (NAD 83) | |
| N) | 403742.8 |
| E) | 1834361.3 |
| UTM (NAD 83) | |
| N) | 4384097.0 |
| E) | 587909.7 |

| | |
|-----------------------------|------------|
| WELL (LANDING POINT) MIP 3H | |
| WV-N (NAD 83) | |
| N) | 403668.63 |
| E) | 1834414.22 |
| UTM (NAD 83) | |
| N) | 4384674.7 |
| E) | 587915.2 |

| | PROPERTY OWNER | ACRES | LEASE NUMBER | PARCEL ID |
|---|-----------------------------------|-------|-------------------|-----------|
| A | ENROUTE PROPERTIES LLC. | 8.276 | WV-061-000322-001 | 11-13G-44 |
| B | ALLIED HEALTH SERVICES INC. | 5.260 | WV-061-000322-001 | 11-13G-45 |
| C | UNITED MAINT. & MANUFACTURING CO. | 1.370 | WV-061-000322-001 | 11-13G-27 |
| D | ADDIVANT USA LLC. | 0.561 | WV-061-000576-000 | 11-13G-20 |
| E | ENROUTE PROPERTIES LLC. | 8.399 | WV-061-000322-001 | 11-13G-23 |
| F | MORGANTOWN INDUSTRIAL PARK ASSOC. | 0.789 | WV-061-000322-001 | 11-13G-04 |
| G | ADDIVANT USA LLC. | 1.473 | WV-061-000576-000 | 11-13G-15 |
| H | ENROUTE PROPERTIES LLC. | 3.950 | WV-061-000322-001 | 11-13G-14 |
| I | CHRIS PROPERTY LLC. | 0.991 | WV-061-000576-000 | 11-13G-13 |
| J | ADDIVANT USA LLC. | 0.476 | WV-061-000576-000 | 11-13G-12 |



REFERENCE NOTES
 Boundaries on 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 SEPTEMBER 2014 State Plane Coordinates & NAD 83 Lat/Long by differential subscriber mapping grade GPS provided by EAM

FILE #: NNE004
 DRAWING #: 2442
 SCALE: 1"=1200'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE SUBMETER MAPPING OF ELEVATION: 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 Diposal Production Deep Gas Liquid Injection Storage Shallow

WATERSHED: UPPER MONONGAHELA RIVER ELEVATION : 1,058'

COUNTY/DISTRICT: MONONGALIA/GRANT QUADRANGLE: MORGANTOWN SOUTH

SURFACE OWNER: ENROUTE PROPERTIES LLC. ACREAGE: 63.41 +/-

OIL & GAS ROYALTY OWNER: ENROUTE PROPERTIES LLC. ACREAGE: 318.946 +/-

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: 7,530' TMD: 14,454'

WELL OPERATOR : NORTHEAST NATURAL ENERGY DESIGNATED AGENT : JOHN ADAMS

ADDRESS: 707 VIRGINIA STREET - SUITE 1200 ADDRESS: 707 VIRGINIA STREET - SUITE 1200

CITY: CHARLESTON STATE: WV ZIP CODE: 25301 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: JANUARY 11, 2016
 OPERATOR'S WELL #: MIP UNIT NO. 5H AS-DRILLED
 API WELL #: 47 61 01699
 STATE COUNTY PERMIT

05/06/2016

SURFACE HOLE DEC. LONG: 79.976364
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5080'

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| N: | 408112.0 |
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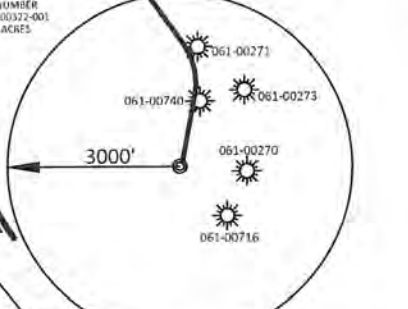
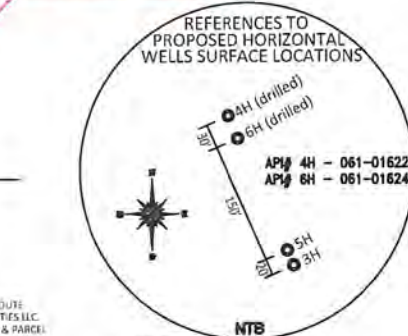
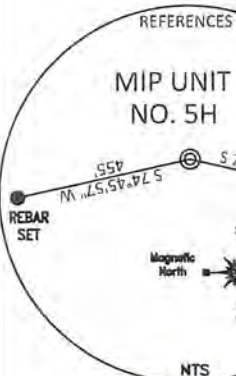
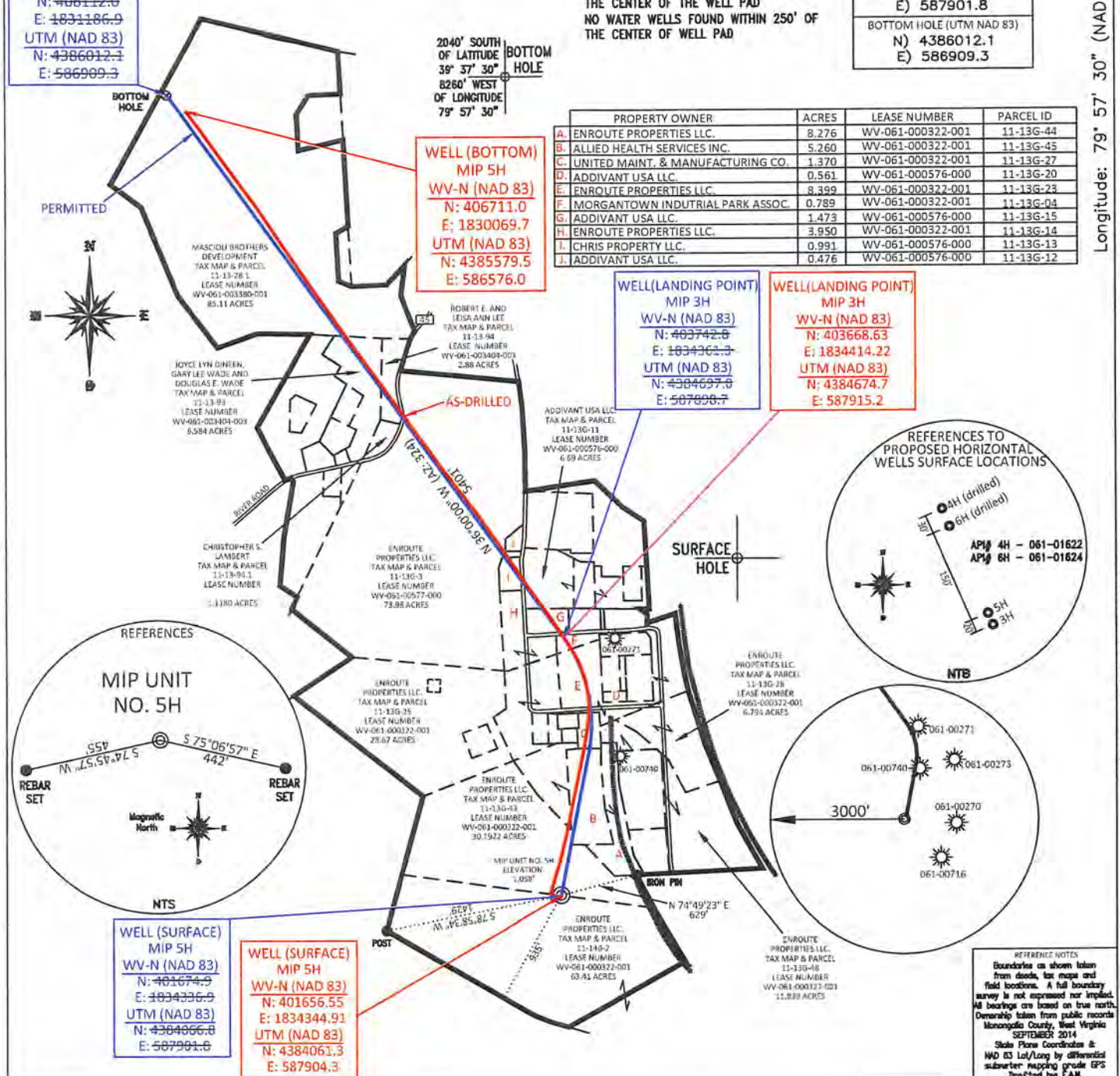
2040' SOUTH OF LATITUDE 39° 37' 30"
 8260' WEST OF LONGITUDE 79° 57' 30"

| | |
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| WELL (BOTTOM) MIP 5H | |
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| E. ENROUTE PROPERTIES LLC. | 8.399 | WV-061-000322-001 | 11-13G-23 |
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| I. CHRIS PROPERTY LLC. | 0.991 | WV-061-000576-000 | 11-13G-13 |
| J. ADDIVANT USA LLC. | 0.476 | WV-061-000576-000 | 11-13G-12 |

| | |
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| WV-N (NAD 83) | |
| N: | 403742.6 |
| E: | 1834362.3 |
| UTM (NAD 83) | |
| N: | 4384637.0 |
| E: | 587808.7 |

| | |
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| N: | 403668.63 |
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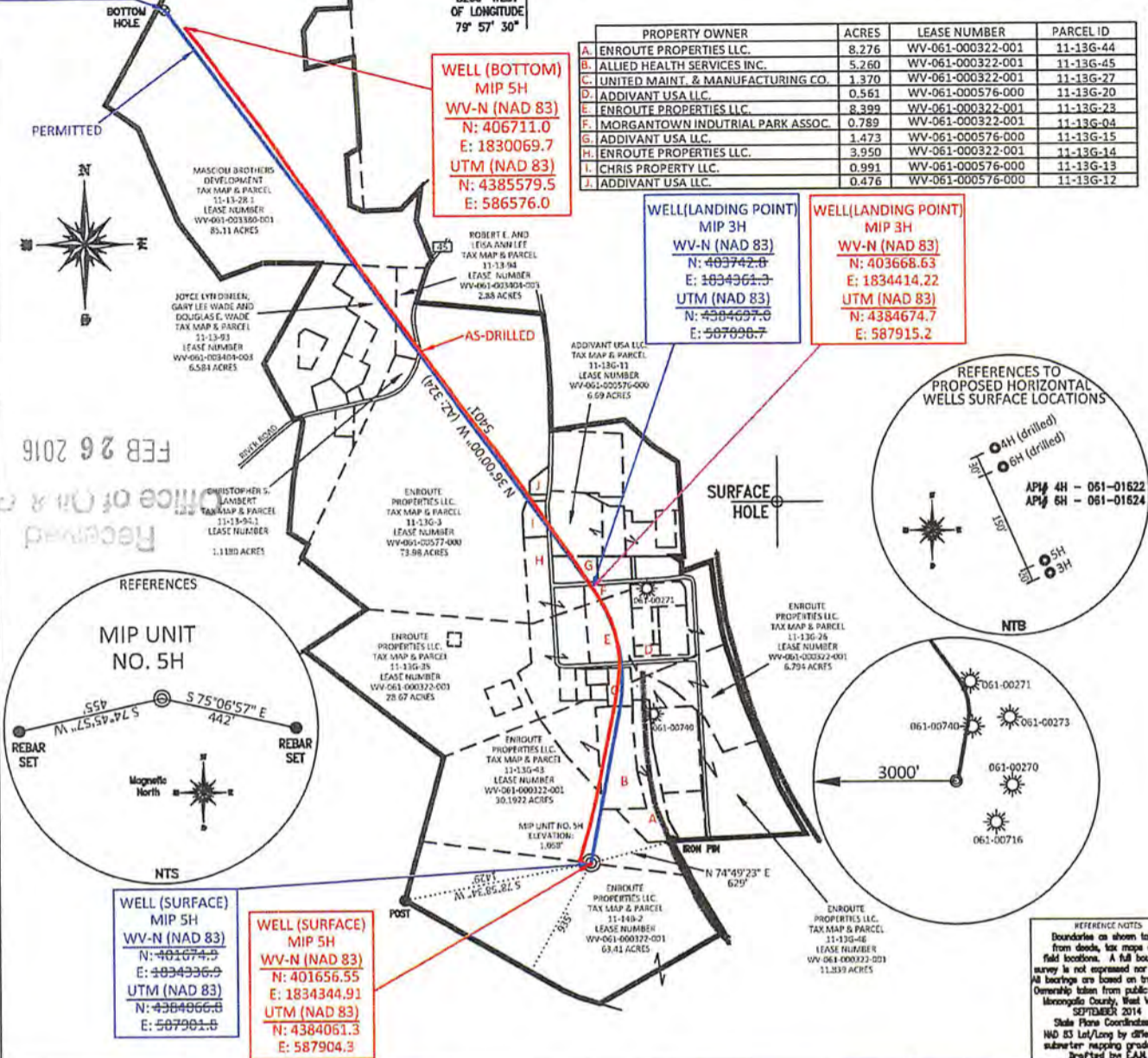
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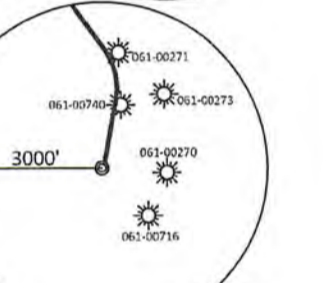
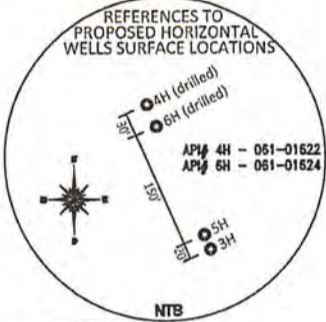
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Office of Oil & Gas
Received



WELL (SURFACE)
MIP 5H
WV-N (NAD 83)
N: 401674.9
E: 1834336.9
UTM (NAD 83)
N: 4384066.8
E: 587901.8

WELL (SURFACE)
MIP 5H
WV-N (NAD 83)
N: 401656.55
E: 1834344.91
UTM (NAD 83)
N: 4384061.3
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05/06/2016



Cementing Service Report

| Customer | | | | Job Number | | | |
|--|------------------|-------------------------------------|--|------------------------|--------------|---------------------|----------------------|
| Northeast Natural Energy | | | | DCHA-00036 | | | |
| Well | | Location (legal) | | Schlumberger Location | | Job Start | |
| MIP Unit 5H | | | | Strasburg, OH | | Jun/28/2015 | |
| Field | | Formation Name/Type | | Deviation | Bit Size | Well MD | Well TVD |
| | | Clean-Sandstone | | 0 deg | 17.5 in | 530.0 ft | 530.0 ft |
| County | | State/Province | | BHP | BHST | BHCT | Pore Press. Gradient |
| Monongalia | | West Virginia | | psi | degF | degF | lb/gal |
| Well Master | | API/UWI | | | | | |
| Rig Name | | Drilled For | Service Via | Casing/Liner | | | |
| US Energy 9 | | Oil & Gas | Land | Depth, ft | Size, in | Weight, lb/ft | Grade |
| | | | | 507.0 | 13.4 | 54.5 | J55 |
| Offshore Zone | | Well Class | Well Type | 0.0 | 0.0 | 0.0 | 8RD |
| | | New | Development | | | | |
| Drilling Fluid Type | | Max. Density | Plastic Viscosity | Tubing/Drill Pipe | | | |
| | | lb/gal | cP | T/D | Depth, ft | Size, in | Weight, lb/ft |
| | | | | | | | |
| Service Line | | Job Type | | | | | |
| Cementing | | 13 3/8" | | | | | |
| Max. Allowed Tub. Press | | Max. Allowed Ann. Press | WH Connection | Perforations/Open Hole | | | |
| 1500 psi | | psi | Single Cement head | Top, ft | Bottom, ft | shot/ft | No. of Shots |
| | | | | ft | ft | | Total Interval |
| | | | | | | | ft |
| Service Instructions | | | | ft | ft | | Diameter |
| Cement 13 3/8" casing with: 470sks Class A + 2% S001, .2% D046, .13 lb/sk D130, 15.6ppg, yield 1.20, water 5.251 gal/sk. 1 Cement pump, 2 Cement bulk trucks, 1 Supervisor, 3 Operators. | | | | ft | ft | | in |
| | | | | Treat Down | Displacement | Packer Type | Packer Depth |
| | | | | Casing | 71.4 bbl | | ft |
| | | | | Tubing Vol. | Casing Vol. | Annular Vol. | Openhole Vol. |
| | | | | bbl | 78.4 bbl | 71.8 bbl | bbl |
| Casing/Tubing Secured | | <input checked="" type="checkbox"/> | 1 Hole Vol. Circulated prior to Cement | Casing Tools | | Squeeze Job | |
| | | <input type="checkbox"/> | | | | | |
| Lift Pressure | | 200 psi | | Shoe Type | Float | Squeeze Type | |
| | | | | | | | |
| Pipe Rotated | | <input type="checkbox"/> | Pipe Reciprocated | Shoe Depth | 507.0 ft | Tool Type | |
| | | <input type="checkbox"/> | | | | | |
| No. Centralizers | | Top Plugs | 1 | Bottom Plugs | 0 | Stage Tool Type | |
| | | | | | | Tool Depth | |
| | | | | | | ft | |
| Cement Head Type | | Single | | Stage Tool Depth | ft | Tail Pipe Size | |
| | | | | | | in | |
| Job Scheduled For | | Arrived on Location | Leave Location | Collar Type | Float | Tail Pipe Depth | |
| Jun/28/2015 20:00 | | Jun/28/2015 22:00 | Jun/29/2015 02:00 | | | ft | |
| | | | | Collar Depth | 462.0 ft | Sqz. Total Vol. | |
| | | | | | | bbl | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | |
| 06/29/2015 | 00:02:08 | 68 | 3.6 | 8.38 | 0.1 | Started Acquisition | |
| 06/29/2015 | 00:02:16 | 68 | 3.6 | 8.38 | 0.5 | Start Pumping Water | |
| 06/29/2015 | 00:03:08 | 10 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:04:05 | 664 | 0.0 | 8.38 | 2.6 | low pressure test | |
| 06/29/2015 | 00:04:08 | 659 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:04:15 | 649 | 0.0 | 8.38 | 2.6 | pressure trips ok | |
| 06/29/2015 | 00:05:08 | 2105 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:05:43 | 2072 | 0.0 | 8.38 | 2.6 | Pressure Test Lines | |
| 06/29/2015 | 00:06:08 | 2056 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:07:08 | 2027 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:08:08 | 3 | 0.0 | 8.38 | 2.6 | | |
| 06/29/2015 | 00:09:08 | 28 | 3.5 | 8.38 | 3.5 | | |
| 06/29/2015 | 00:10:08 | 66 | 3.8 | 8.38 | 6.6 | | |
| 06/29/2015 | 00:11:08 | 88 | 4.4 | 8.38 | 10.5 | | |
| 06/29/2015 | 00:12:08 | 100 | 4.4 | 8.38 | 14.9 | | |
| 06/29/2015 | 00:13:08 | 104 | 4.4 | 8.38 | 19.2 | | |
| 06/29/2015 | 00:14:08 | 99 | 4.2 | 8.38 | 23.6 | | |
| 06/29/2015 | 00:15:08 | 99 | 4.2 | 8.38 | 27.7 | | |
| 06/29/2015 | 00:16:08 | 113 | 4.2 | 8.38 | 31.9 | | |
| 06/29/2015 | 00:17:08 | 114 | 4.3 | 8.38 | 36.1 | | |
| 06/29/2015 | 00:18:08 | 116 | 4.3 | 8.38 | 40.5 | | |

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| Well | | Field | | Job Start | | Customer | | Job Number | |
|-------------|------------------|-----------------------|---------------|--------------|------------|------------------------------|--|------------|--|
| MIP Unit 5H | | | | Jun/28/2015 | | Northeast Natural Energy | | DCHA-00036 | |
| Date | Time 24-hr clock | Treating Pressure PST | Flow Rate B/M | Density LB/G | Volume BBL | Message | | | |
| 06/29/2015 | 00:20:08 | 124 | 4.3 | 8.38 | 49.1 | | | | |
| 06/29/2015 | 00:21:08 | 132 | 4.3 | 8.38 | 53.4 | | | | |
| 06/29/2015 | 00:22:08 | 140 | 4.2 | 8.38 | 57.6 | | | | |
| 06/29/2015 | 00:24:08 | 145 | 4.2 | 8.38 | 66.1 | | | | |
| 06/29/2015 | 00:24:44 | 145 | 4.2 | 8.38 | 68.6 | Start Circulation | | | |
| 06/29/2015 | 00:25:08 | 138 | 4.3 | 8.42 | 70.3 | | | | |
| 06/29/2015 | 00:25:29 | 143 | 4.2 | 8.43 | 71.8 | End Water | | | |
| 06/29/2015 | 00:25:33 | 142 | 4.2 | 8.39 | 72.1 | Reset Total, Vol = 72.05 bbl | | | |
| 06/29/2015 | 00:25:37 | 144 | 4.2 | 8.40 | 72.3 | Start Pumping Spacer | | | |
| 06/29/2015 | 00:26:08 | 136 | 4.2 | 8.46 | 74.5 | | | | |
| 06/29/2015 | 00:27:08 | 153 | 4.2 | 8.67 | 78.7 | | | | |
| 06/29/2015 | 00:28:08 | 142 | 4.2 | 8.60 | 83.0 | | | | |
| 06/29/2015 | 00:29:08 | 146 | 4.2 | 8.64 | 87.2 | | | | |
| 06/29/2015 | 00:30:08 | 170 | 4.2 | 8.78 | 91.4 | | | | |
| 06/29/2015 | 00:31:08 | 138 | 4.2 | 8.38 | 95.6 | | | | |
| 06/29/2015 | 00:32:08 | 140 | 4.2 | 8.43 | 99.9 | | | | |
| 06/29/2015 | 00:33:08 | 71 | 2.1 | 8.45 | 102.8 | | | | |
| 06/29/2015 | 00:34:08 | 110 | 3.2 | 13.22 | 105.2 | | | | |
| 06/29/2015 | 00:34:16 | 118 | 3.1 | 13.93 | 105.7 | End Spacer | | | |
| 06/29/2015 | 00:34:31 | 124 | 2.9 | 14.92 | 106.4 | Start Cement Slurry | | | |
| 06/29/2015 | 00:35:08 | 77 | 1.5 | 14.79 | 107.7 | | | | |
| 06/29/2015 | 00:36:08 | 241 | 3.9 | 15.09 | 110.7 | | | | |
| 06/29/2015 | 00:37:08 | 180 | 4.1 | 15.33 | 114.7 | | | | |
| 06/29/2015 | 00:38:08 | 205 | 4.1 | 15.31 | 118.8 | | | | |
| 06/29/2015 | 00:39:08 | 227 | 4.0 | 15.60 | 122.8 | | | | |
| 06/29/2015 | 00:40:08 | 165 | 4.0 | 15.71 | 126.9 | | | | |
| 06/29/2015 | 00:41:08 | 211 | 4.0 | 15.68 | 130.9 | | | | |
| 06/29/2015 | 00:42:08 | 203 | 4.1 | 15.66 | 135.0 | | | | |
| 06/29/2015 | 00:43:08 | 216 | 4.2 | 15.71 | 139.0 | | | | |
| 06/29/2015 | 00:44:08 | 216 | 4.2 | 15.70 | 143.2 | | | | |
| 06/29/2015 | 00:45:08 | 210 | 4.2 | 15.65 | 147.4 | | | | |
| 06/29/2015 | 00:46:08 | 209 | 4.2 | 15.67 | 151.6 | | | | |
| 06/29/2015 | 00:47:08 | 219 | 4.2 | 15.68 | 155.8 | | | | |
| 06/29/2015 | 00:48:08 | 215 | 4.2 | 15.58 | 160.0 | | | | |
| 06/29/2015 | 00:49:08 | 223 | 4.2 | 15.84 | 164.2 | | | | |
| 06/29/2015 | 00:50:08 | 218 | 4.2 | 15.78 | 168.4 | | | | |
| 06/29/2015 | 00:51:08 | 215 | 4.2 | 15.83 | 172.6 | | | | |
| 06/29/2015 | 00:52:08 | 221 | 4.2 | 15.89 | 176.8 | | | | |
| 06/29/2015 | 00:53:08 | 225 | 4.2 | 15.82 | 181.0 | | | | |
| 06/29/2015 | 00:54:08 | 224 | 4.2 | 15.84 | 185.1 | | | | |
| 06/29/2015 | 00:55:08 | 229 | 4.2 | 15.80 | 189.3 | | | | |
| 06/29/2015 | 00:56:08 | 223 | 4.2 | 15.76 | 193.5 | | | | |
| 06/29/2015 | 00:57:08 | 223 | 4.2 | 15.74 | 197.7 | | | | |
| 06/29/2015 | 00:58:08 | 216 | 4.2 | 15.13 | 202.0 | | | | |
| 06/29/2015 | 00:59:01 | 136 | 4.1 | 14.93 | 205.7 | End Cement Slurry | | | |
| 06/29/2015 | 00:59:08 | 59 | 0.1 | 15.41 | 205.8 | | | | |
| 06/29/2015 | 00:59:14 | 56 | 0.0 | 15.41 | 207.5 | Drop Top Plug | | | |
| 06/29/2015 | 01:00:08 | 50 | 0.0 | 15.28 | 207.5 | | | | |
| 06/29/2015 | 01:01:08 | 49 | 0.0 | 15.23 | 207.5 | | | | |
| 06/29/2015 | 01:02:08 | 49 | 0.0 | 15.23 | 207.5 | | | | |
| 06/29/2015 | 01:03:08 | 49 | 0.0 | 15.22 | 207.5 | | | | |
| 06/29/2015 | 01:04:08 | 126 | 4.6 | 8.51 | 210.7 | | | | |
| 06/29/2015 | 01:05:08 | 130 | 4.6 | 8.43 | 215.3 | | | | |
| 06/29/2015 | 01:06:08 | 143 | 4.6 | 9.21 | 219.9 | | | | |

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| Well | | Field | | Job Start | | Customer | | Job Number | |
|-------------|------------------|-----------------------|---------------|--------------|------------|------------------------------|--|------------|--|
| MIP Unit 5H | | | | Jun/28/2015 | | Northeast Natural Energy | | DCHA-00036 | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | | | |
| 06/29/2015 | 01:08:08 | 151 | 4.6 | 8.39 | 229.1 | | | | |
| 06/29/2015 | 01:09:08 | 152 | 4.6 | 8.38 | 233.7 | | | | |
| 06/29/2015 | 01:10:08 | 153 | 4.6 | 8.38 | 238.2 | | | | |
| 06/29/2015 | 01:11:08 | 168 | 4.6 | 8.38 | 242.8 | | | | |
| 06/29/2015 | 01:12:08 | 203 | 4.5 | 8.43 | 247.3 | | | | |
| 06/29/2015 | 01:13:08 | 223 | 4.5 | 8.38 | 252.0 | | | | |
| 06/29/2015 | 01:14:08 | 216 | 4.5 | 8.38 | 256.5 | | | | |
| 06/29/2015 | 01:15:08 | 211 | 4.5 | 8.38 | 261.0 | | | | |
| 06/29/2015 | 01:16:08 | 262 | 4.5 | 8.41 | 265.6 | | | | |
| 06/29/2015 | 01:17:08 | 189 | 2.3 | 8.38 | 270.0 | | | | |
| 06/29/2015 | 01:18:08 | 202 | 2.1 | 8.38 | 272.1 | | | | |
| 06/29/2015 | 01:19:08 | 189 | 2.1 | 8.38 | 274.2 | | | | |
| 06/29/2015 | 01:20:08 | 186 | 2.1 | 8.38 | 276.3 | | | | |
| 06/29/2015 | 01:21:08 | 217 | 2.1 | 8.38 | 278.4 | | | | |
| 06/29/2015 | 01:22:08 | 215 | 2.1 | 8.38 | 280.4 | | | | |
| 06/29/2015 | 01:23:08 | 1229 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:23:38 | 1226 | 0.0 | 8.38 | 281.4 | Bump Top Plug | | | |
| 06/29/2015 | 01:23:41 | 1225 | 0.0 | 8.38 | 281.4 | Reset Total, Vol = 73.86 bbl | | | |
| 06/29/2015 | 01:23:43 | 1225 | 0.0 | 8.38 | 281.4 | 71bbbs by tanks | | | |
| 06/29/2015 | 01:23:50 | 1224 | 0.0 | 8.38 | 281.4 | 30bbbs cement to surface | | | |
| 06/29/2015 | 01:24:08 | 1224 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:25:08 | 1220 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:26:08 | 1218 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:27:08 | 1216 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:28:08 | 1214 | 0.0 | 8.38 | 281.4 | | | | |
| 06/29/2015 | 01:28:46 | 4 | 0.0 | 8.38 | 281.4 | 1/2bbl back, floats ok | | | |
| 06/29/2015 | 01:29:08 | 4 | 0.0 | 8.38 | 281.4 | | | | |

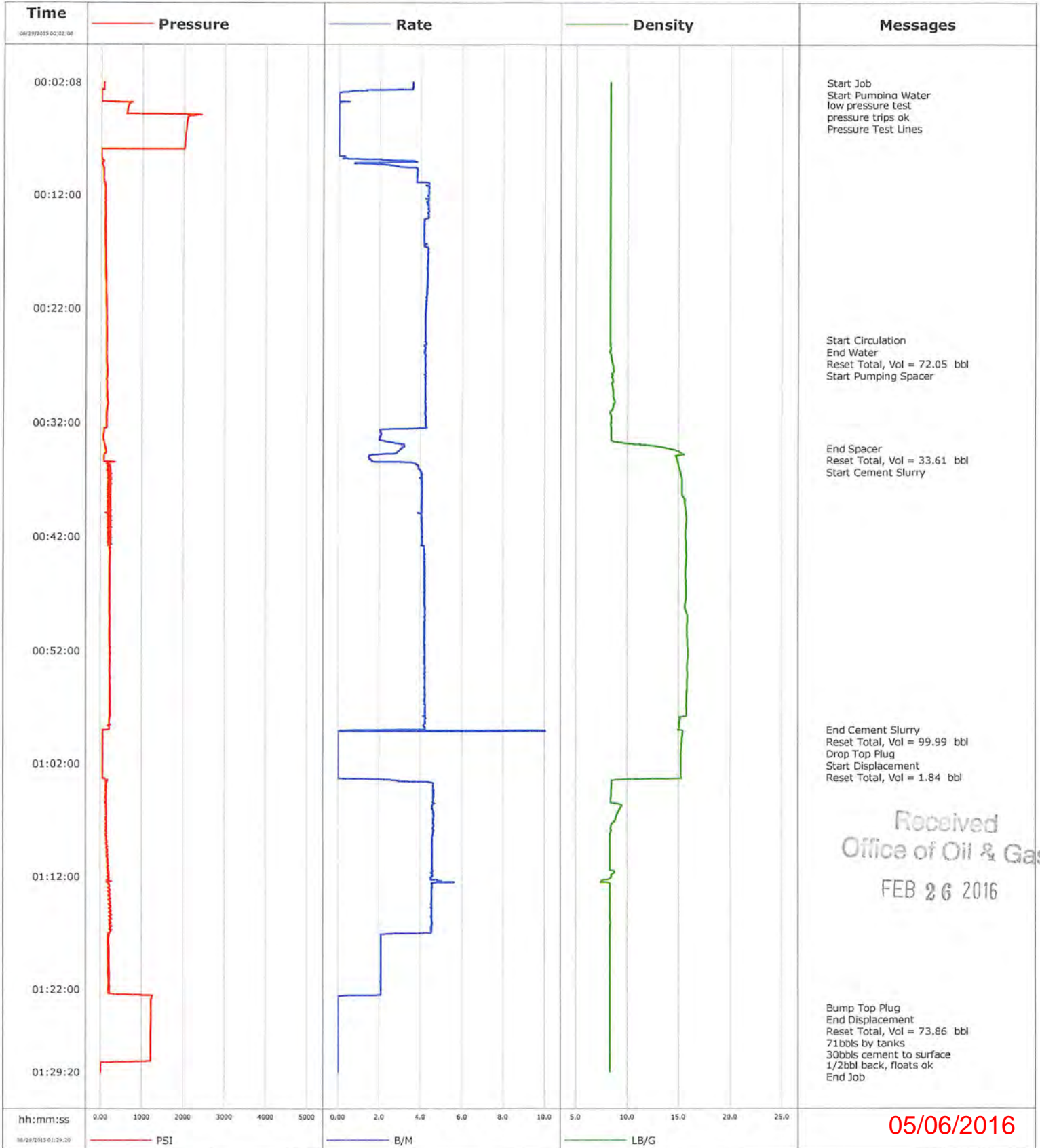
Post Job Summary

| Average Pump Rates, bbl/min | | | | Volume of Fluid Injected, bbl | | | |
|---------------------------------------|-------------------------|--------------|----------------|-------------------------------|-------------------------------------|---------------|-------------------------------------|
| Slurry | N2 | Mud | Maximum Rate | Total Slurry | Mud | Spacer | N2 |
| 3.8 | | | 4.5 | 101.0 | 0.0 | 35.0 | |
| Treating Pressure Summary, psi | | | | Breakdown Fluid | | | |
| Maximum | Final | Average | Bump Plug to | Breakdown | Type | Volume | Density |
| 2426 | 5 | 302 | 1200 | | | bbl | lb/gal |
| Avg. N2 Percent | Designed Slurry Volume | Displacement | Mix Water Temp | Cement Circulated to Surface? | <input checked="" type="checkbox"/> | Volume | 30.0 bbl |
| % | 101.0 bbl | 71.0 bbl | 76 degF | Washed Thru Perfs | <input type="checkbox"/> | To | ft |
| Customer or Authorized Representative | Schlumberger Supervisor | | | Circulation Lost | <input type="checkbox"/> | Job Completed | <input checked="" type="checkbox"/> |
| | Tim Ahrends | | | - | | - | |

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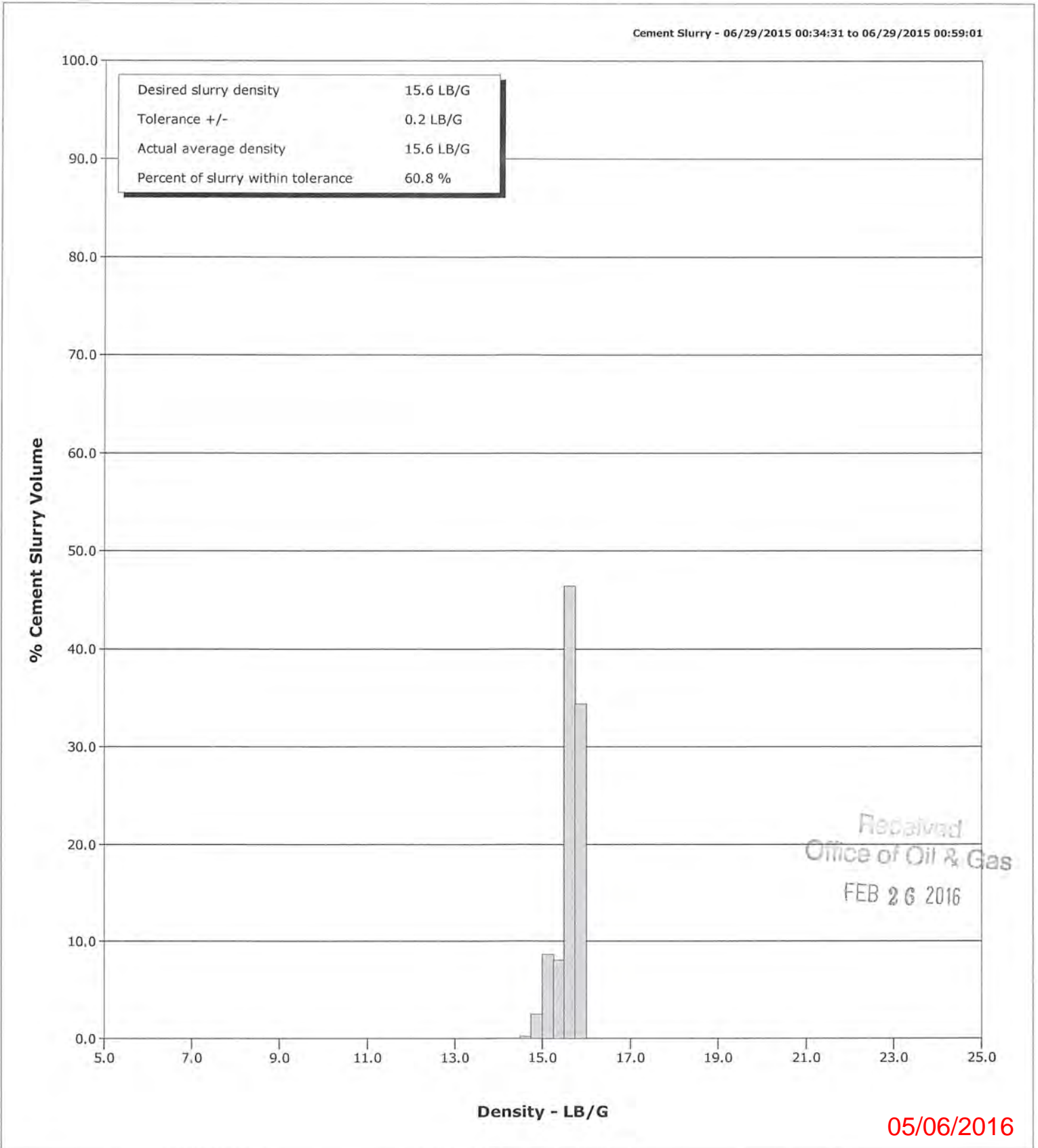
05/06/2016

| | | | |
|-----------------|---------------|-----------------|--------------------------|
| Well | MIP Unit 5H | Client | Northeast Natural Energy |
| Field | | SIR No. | DCHA-00036 |
| Engineer | Tim Ahrends | Job Type | 13 3/8" |
| Country | United States | Job Date | 06-28-2015 |



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| | | | |
|-----------------|---------------|-----------------|--------------------------|
| Well | MIP Unit 5H | Client | Northeast Natural Energy |
| Field | | SIR No. | DCHA-00036 |
| Engineer | Tim Ahrends | Job Type | 13 3/8" |
| Country | United States | Job Date | 06-28-2015 |



| Customer Northeast Natural Energy LLC | | | | Job Number DCHA-00042 | | | |
|---|--|---|---------------------------|---------------------------|-------------------------------|--------------------------|--------------------------------|
| Well MIP 5H 5H | | Location (legal) US Energy 9 | | Schlumberger Location | | Job Start Jul/01/2015 | |
| Field Undesignated | | Formation Name/Type Clean-Sandstone | | Deviation 0 deg | Bit Size 12.3 in | Well MD 1781.0 ft | Well TVD 1781.0 ft |
| County Monongalia | | State/Province West Virginia | | BHP 1500 psi | BHST 79 degF | BHCT 75 degF | Pore Press. Gradient lb/gal |
| Well Master 631634042 | | API/UWI 4706101699 | | | | | |
| Rig Name US Energy 9 | Drilled For Gas | Service Via Land | | Casing/Liner | | | |
| | | Depth, ft | Size, in | Weight, lb/ft | Grade | Thread | |
| Offshore Zone | Well Class New | Well Type Development | | 493.0 | 13.4 | 54.5 | J55 |
| | | 1781.0 | 9.6 | 40.0 | J55 | | |
| Drilling Fluid Type | | Max. Density lb/gal | Plastic Viscosity cP | Tubing/Drill Pipe | | | |
| | | | | T/D | Depth, ft | Size, in | Weight, lb/ft |
| | | | | | | | |
| Service Line Cementing | Job Type 9 5/8" Intermediate | | | | | | |
| Max. Allowed Tub. Press psi | Max. Allowed Ann. Press psi | WH Connection Single Cement head | | Perforations/Open Hole | | | |
| | | | | Top, ft | Bottom, ft | shot/ft | No. of Shots |
| | | | | ft | ft | | Total Interval ft |
| | | | | ft | ft | | Diameter in |
| | | | | ft | ft | | |
| Service Instructions 9 5/8" Intermediate 25bbl Gel spacer with D130 10bbl Water behind 137bbl Tail @ 15.6ppg(D901 Class A 641sk, 1.2cuft/sk, 5.252gps, D046 0.2%, S001 2%, D130 0.13%) Shut down / Drop top plug 130bbl Displacement | | Treat Down Casing | Displacement 131.0 bbl | Packer Type | | Packer Depth ft | |
| | | Tubing Vol. bbl | Casing Vol. bbl | Annular Vol. bbl | Openhole Vol. bbl | | |
| Casing/Tubing Secured <input checked="" type="checkbox"/> | | 1 Hole Vol. Circulated prior to Cement <input type="checkbox"/> | | Casing Tools | | Squeeze Job | |
| Lift Pressure 892 psi | | Shoe Type Float | | Squeeze Type | | | |
| Pipe Rotated <input type="checkbox"/> | | Pipe Reciprocated <input type="checkbox"/> | | Shoe Depth 1781.0 ft | | Tool Type | |
| No. Centralizers 13 | Top Plugs 1 | Bottom Plugs | Stage Tool Type | | Tool Depth ft | | |
| Cement Head Type Single | | Stage Tool Depth ft | | Tail Pipe Size in | | | |
| Job Scheduled For Jul/01/2015 06:00 | Arrived on Location Jul/01/2015 06:00 | Leave Location Jul/01/2015 12:00 | | Collar Type Float | Tail Pipe Depth ft | | |
| | | | | Collar Depth 1736.3 ft | Sqz. Total Vol. bbl | | |
| Date | Time 24-hr clock | CPF1_PRESS PSI | CPF1_DENS:CPF1 LB/G | DOWNHOLE CPF1_TTL B/M | STAGE CMT_DISP_VCCPF1_TTL BBL | CPF1_TTL VOLUME BBL | Message |
| 07/01/2015 | 08:45:34 | 4 | 8.81 | 0.0 | 0.0 | 0.0 | Started Acquisition |
| 07/01/2015 | 09:11:04 | 4 | 8.81 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:11:07 | 4 | 8.80 | 0.0 | 0.0 | 0.0 | Start Job |
| 07/01/2015 | 09:11:49 | 3 | 8.80 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:12:34 | 4 | 8.78 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:13:19 | 4 | 8.77 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:14:04 | 4 | 8.77 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:14:49 | 45 | 8.74 | 4.4 | 2.0 | 0.0 | |
| 07/01/2015 | 09:15:34 | 42 | 8.50 | 4.7 | 4.9 | 0.0 | |
| 07/01/2015 | 09:16:19 | 2 | 8.50 | 0.0 | 0.0 | 0.0 | |
| 07/01/2015 | 09:17:04 | 104 | 8.51 | 0.4 | 0.0 | 0.0 | |
| 07/01/2015 | 09:17:49 | 579 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:18:34 | 2692 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:19:19 | 2922 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:20:04 | 2810 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:20:49 | 2777 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:21:26 | 2750 | 8.50 | 0.0 | 0.1 | 0.0 | Pressure Test Lines |
| 07/01/2015 | 09:21:34 | 2740 | 8.50 | 0.0 | 0.1 | 0.0 | Reset Total, Vol = 5.54 bbl |
| 07/01/2015 | 09:22:19 | 2715 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:23:04 | 2696 | 8.50 | 0.0 | 0.1 | 0.0 | |
| 07/01/2015 | 09:23:49 | 2677 | 8.50 | 0.0 | 0.1 | 0.0 | |

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| Well | | Field | | | | Job Start | | Customer | Job Number |
|------------|------------------|----------------|---------------------|-------------------|--------------------|---------------------|---------------------|-------------------------------|------------|
| MIP 5H 5H | | Undesignated | | | | Jul/01/2015 | | Northeast Natural Energy LLC | DCHA-00042 |
| Date | Time 24-hr clock | CPF1_PRESS PSI | CPF1_DENS:CPF1 LB/G | DOWNHOLE_CPF1_B/M | CPF1_TTL_STAGE BBL | CMT_DISP_VCCPF1_BBL | CPF1_TTL_VOLUME BBL | Message | |
| 07/01/2015 | 09:25:19 | 5 | 8.50 | 0.0 | 0.1 | 0.0 | 5.5 | | |
| 07/01/2015 | 09:26:04 | 45 | 8.50 | 3.5 | 0.3 | 0.0 | 5.8 | | |
| 07/01/2015 | 09:26:49 | 83 | 8.51 | 6.8 | 4.8 | 0.0 | 10.3 | | |
| 07/01/2015 | 09:27:25 | 90 | 8.63 | 6.8 | 8.8 | 0.0 | 14.3 | Start Pumping Water | |
| 07/01/2015 | 09:27:34 | 89 | 8.58 | 6.8 | 9.9 | 0.0 | 15.3 | | |
| 07/01/2015 | 09:28:19 | 121 | 8.44 | 8.5 | 16.0 | 0.0 | 21.5 | | |
| 07/01/2015 | 09:28:59 | 125 | 8.43 | 8.3 | 21.6 | 0.0 | 27.1 | Water temp 72F, Bulk temp 63F | |
| 07/01/2015 | 09:29:00 | 130 | 8.43 | 8.3 | 21.7 | 0.0 | 27.2 | Slurry temp 91F | |
| 07/01/2015 | 09:29:04 | 122 | 8.43 | 8.3 | 22.3 | 0.0 | 27.8 | | |
| 07/01/2015 | 09:29:49 | 127 | 4.39 | 6.5 | 27.4 | 0.0 | 32.8 | | |
| 07/01/2015 | 09:30:34 | 118 | 8.42 | 8.3 | 33.5 | 0.0 | 39.0 | | |
| 07/01/2015 | 09:31:19 | 122 | 8.42 | 8.3 | 39.7 | 0.0 | 45.2 | | |
| 07/01/2015 | 09:32:04 | 123 | 8.42 | 8.3 | 45.9 | 0.0 | 51.4 | | |
| 07/01/2015 | 09:32:49 | 126 | 8.43 | 8.3 | 52.1 | 0.0 | 57.6 | | |
| 07/01/2015 | 09:33:34 | 128 | 8.43 | 8.4 | 58.4 | 0.0 | 63.9 | | |
| 07/01/2015 | 09:34:19 | 120 | 8.42 | 8.3 | 64.6 | 0.0 | 70.1 | | |
| 07/01/2015 | 09:35:04 | 120 | 8.42 | 8.3 | 70.9 | 0.0 | 76.4 | | |
| 07/01/2015 | 09:35:49 | 119 | 8.43 | 8.3 | 77.1 | 0.0 | 82.6 | | |
| 07/01/2015 | 09:36:34 | 123 | 8.43 | 8.3 | 83.3 | 0.0 | 88.8 | | |
| 07/01/2015 | 09:37:19 | 124 | 8.43 | 8.3 | 89.6 | 0.0 | 95.1 | | |
| 07/01/2015 | 09:38:04 | 126 | 8.43 | 8.3 | 95.8 | 0.0 | 101.3 | | |
| 07/01/2015 | 09:38:49 | 128 | 8.43 | 8.3 | 102.0 | 0.0 | 107.5 | | |
| 07/01/2015 | 09:39:34 | 127 | 8.43 | 8.3 | 108.3 | 0.0 | 113.8 | | |
| 07/01/2015 | 09:40:19 | 127 | 8.43 | 8.3 | 114.5 | 0.0 | 120.0 | | |
| 07/01/2015 | 09:41:04 | 126 | 8.43 | 8.3 | 120.8 | 0.0 | 126.3 | | |
| 07/01/2015 | 09:41:49 | 76 | 8.43 | 6.6 | 126.8 | 0.0 | 132.3 | | |
| 07/01/2015 | 09:42:34 | 72 | 8.43 | 6.7 | 131.8 | 0.0 | 137.3 | | |
| 07/01/2015 | 09:43:19 | 93 | 8.44 | 6.5 | 136.7 | 0.0 | 142.2 | | |
| 07/01/2015 | 09:43:54 | 6 | 8.45 | 0.0 | 139.3 | 0.0 | 144.8 | End Water | |
| 07/01/2015 | 09:43:57 | 6 | 8.44 | 0.0 | 139.3 | 0.0 | 144.8 | Reset Total, Vol = 139.24 bbl | |
| 07/01/2015 | 09:44:04 | 5 | 8.44 | 0.0 | 0.0 | 0.0 | 144.8 | | |
| 07/01/2015 | 09:44:49 | 5 | 8.43 | 0.0 | 0.0 | 0.0 | 144.8 | | |
| 07/01/2015 | 09:45:34 | 3 | 8.43 | 0.0 | 0.0 | 0.0 | 144.8 | | |
| 07/01/2015 | 09:46:19 | 3 | 8.43 | 0.0 | 0.0 | 0.0 | 144.8 | | |
| 07/01/2015 | 09:47:04 | 3 | 8.43 | 0.0 | 0.0 | 0.0 | 144.8 | | |
| 07/01/2015 | 09:47:20 | 41 | 9.55 | 2.6 | 0.1 | 0.0 | 144.9 | Start Pumping Spacer | |
| 07/01/2015 | 09:47:49 | 100 | 8.99 | 6.7 | 2.8 | 0.0 | 147.6 | | |
| 07/01/2015 | 09:48:34 | 101 | 9.11 | 6.7 | 7.8 | 0.0 | 152.6 | | |
| 07/01/2015 | 09:49:19 | 97 | 9.16 | 6.7 | 12.8 | 0.0 | 157.6 | | |
| 07/01/2015 | 09:50:04 | 53 | 8.89 | 4.8 | 17.3 | 0.0 | 162.0 | | |
| 07/01/2015 | 09:50:49 | 57 | 9.02 | 4.8 | 20.8 | 0.0 | 165.6 | | |
| 07/01/2015 | 09:51:34 | 60 | 8.92 | 5.2 | 24.5 | 0.0 | 169.3 | | |
| 07/01/2015 | 09:52:13 | 58 | 8.90 | 5.3 | 28.0 | 0.0 | 172.8 | End Spacer | |
| 07/01/2015 | 09:52:18 | 57 | 8.79 | 5.3 | 0.0 | 0.0 | 173.2 | Reset Total, Vol = 28.53 bbl | |
| 07/01/2015 | 09:52:19 | 57 | 8.76 | 5.2 | 0.1 | 0.0 | 173.3 | | |
| 07/01/2015 | 09:52:23 | 58 | 8.72 | 5.2 | 0.4 | 0.0 | 173.7 | Start Pumping Water | |
| 07/01/2015 | 09:53:04 | 57 | 8.68 | 5.4 | 4.1 | 0.0 | 177.3 | | |
| 07/01/2015 | 09:53:49 | 58 | 8.62 | 5.4 | 8.2 | 0.0 | 181.4 | | |
| 07/01/2015 | 09:54:08 | 57 | 8.62 | 5.4 | 9.9 | 0.0 | 183.1 | End Water | |
| 07/01/2015 | 09:54:32 | -6 | 8.63 | 0.0 | 0.1 | 0.0 | 184.4 | Reset Total, Vol = 11.13 bbl | |
| 07/01/2015 | 09:54:34 | -5 | 8.63 | 0.0 | 0.1 | 0.0 | 184.5 | | |
| 07/01/2015 | 09:54:55 | -5 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | Start Cement Slurry | |
| 07/01/2015 | 09:55:19 | -5 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | |
| 07/01/2015 | 09:55:41 | -5 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | 2CTF09204 | |

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| Well | | Field | | | | Job Start | | Customer | | Job Number |
|------------|------------------|----------------|---------------------|-------------------|--------------------|---------------------|---------------------|-------------------------------|--|------------|
| MIP 5H 5H | | Undesignated | | | | Jul/01/2015 | | Northeast Natural Energy LLC | | DCHA-00042 |
| Date | Time 24-hr clock | CPF1_PRESS PSI | CPF1_DENS/CPF1_LB/G | DOWNHOLE_CPF1_B/M | CPF1_TTL_STAGE BBL | CMT_DISP_VCCPF1_BBL | CPF1_TTL_VOLUME BBL | Message | | |
| 07/01/2015 | 09:56:49 | -5 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | | |
| 07/01/2015 | 09:57:34 | -4 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | | |
| 07/01/2015 | 09:58:19 | -4 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | | |
| 07/01/2015 | 09:59:04 | -4 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | | |
| 07/01/2015 | 09:59:49 | -3 | 8.63 | 0.0 | 0.0 | 0.0 | 184.5 | | | |
| 07/01/2015 | 10:00:34 | 92 | 15.11 | 4.8 | 0.8 | 0.0 | 185.2 | Start Mixing Tail Slurry | | |
| 07/01/2015 | 10:01:19 | 113 | 15.36 | 5.0 | 4.5 | 0.0 | 189.0 | | | |
| 07/01/2015 | 10:02:04 | 178 | 15.41 | 6.7 | 9.3 | 0.0 | 193.7 | | | |
| 07/01/2015 | 10:02:49 | 184 | 15.50 | 6.7 | 14.3 | 0.0 | 198.7 | | | |
| 07/01/2015 | 10:03:34 | 186 | 15.54 | 6.7 | 19.3 | 0.0 | 203.8 | | | |
| 07/01/2015 | 10:04:19 | 183 | 15.53 | 6.7 | 24.3 | 0.0 | 208.8 | | | |
| 07/01/2015 | 10:05:04 | 182 | 15.54 | 6.7 | 29.3 | 0.0 | 213.8 | | | |
| 07/01/2015 | 10:05:49 | 187 | 15.65 | 6.7 | 34.3 | 0.0 | 218.8 | | | |
| 07/01/2015 | 10:06:34 | 196 | 15.68 | 6.7 | 39.3 | 0.0 | 223.8 | | | |
| 07/01/2015 | 10:07:19 | 210 | 15.75 | 6.6 | 44.3 | 0.0 | 228.7 | | | |
| 07/01/2015 | 10:08:04 | 109 | 15.75 | 4.7 | 48.3 | 0.0 | 232.7 | | | |
| 07/01/2015 | 10:08:49 | 112 | 15.70 | 4.7 | 51.8 | 0.0 | 236.3 | | | |
| 07/01/2015 | 10:09:34 | 84 | 15.78 | 3.9 | 55.0 | 0.0 | 239.5 | | | |
| 07/01/2015 | 10:10:19 | 106 | 15.63 | 4.4 | 57.9 | 0.0 | 242.4 | | | |
| 07/01/2015 | 10:11:04 | 102 | 15.62 | 4.8 | 61.4 | 0.0 | 245.9 | | | |
| 07/01/2015 | 10:11:49 | 140 | 15.66 | 5.8 | 65.2 | 0.0 | 249.7 | | | |
| 07/01/2015 | 10:12:34 | 147 | 15.64 | 5.6 | 69.5 | 0.0 | 253.9 | | | |
| 07/01/2015 | 10:13:19 | 140 | 15.61 | 5.7 | 73.7 | 0.0 | 258.2 | | | |
| 07/01/2015 | 10:14:04 | 31 | 15.64 | 2.5 | 76.8 | 0.0 | 261.2 | | | |
| 07/01/2015 | 10:14:21 | 58 | 15.50 | 3.3 | 77.6 | 0.0 | 262.1 | 2CTT26395 | | |
| 07/01/2015 | 10:14:49 | 58 | 15.50 | 3.4 | 79.2 | 0.0 | 263.6 | | | |
| 07/01/2015 | 10:15:34 | 62 | 16.01 | 3.6 | 81.9 | 0.0 | 266.3 | | | |
| 07/01/2015 | 10:16:19 | 52 | 15.19 | 3.5 | 84.4 | 0.0 | 268.9 | | | |
| 07/01/2015 | 10:17:04 | 54 | 15.79 | 3.4 | 87.0 | 0.0 | 271.5 | | | |
| 07/01/2015 | 10:17:49 | 54 | 15.76 | 3.4 | 89.6 | 0.0 | 274.0 | | | |
| 07/01/2015 | 10:18:34 | 48 | 15.83 | 3.2 | 92.0 | 0.0 | 276.5 | | | |
| 07/01/2015 | 10:19:19 | 80 | 15.65 | 4.0 | 94.4 | 0.0 | 278.8 | | | |
| 07/01/2015 | 10:20:04 | 104 | 15.65 | 4.5 | 97.5 | 0.0 | 282.0 | | | |
| 07/01/2015 | 10:20:49 | 104 | 15.63 | 4.7 | 101.0 | 0.0 | 285.5 | | | |
| 07/01/2015 | 10:21:34 | 108 | 15.68 | 5.0 | 104.7 | 0.0 | 289.1 | | | |
| 07/01/2015 | 10:22:19 | 105 | 15.70 | 4.9 | 108.4 | 0.0 | 292.9 | | | |
| 07/01/2015 | 10:23:04 | 104 | 15.67 | 4.8 | 112.0 | 0.0 | 296.5 | | | |
| 07/01/2015 | 10:23:49 | 137 | 15.64 | 5.6 | 116.1 | 0.0 | 300.5 | | | |
| 07/01/2015 | 10:24:34 | 144 | 15.65 | 5.6 | 120.3 | 0.0 | 304.7 | | | |
| 07/01/2015 | 10:25:19 | 147 | 15.70 | 5.6 | 124.5 | 0.0 | 308.9 | | | |
| 07/01/2015 | 10:26:04 | 139 | 15.72 | 5.6 | 128.7 | 0.0 | 313.2 | | | |
| 07/01/2015 | 10:26:49 | 145 | 15.72 | 5.6 | 132.9 | 0.0 | 317.4 | | | |
| 07/01/2015 | 10:27:34 | 144 | 15.70 | 5.7 | 137.1 | 0.0 | 321.6 | | | |
| 07/01/2015 | 10:28:19 | 143 | 15.76 | 5.7 | 141.4 | 0.0 | 325.9 | | | |
| 07/01/2015 | 10:28:34 | 15 | 15.76 | 4.6 | 142.9 | 0.0 | 327.3 | End Tail Slurry | | |
| 07/01/2015 | 10:28:38 | -5 | 15.89 | 1.8 | 143.1 | 0.0 | 327.6 | Reset Total, Vol = 143.15 bbl | | |
| 07/01/2015 | 10:28:45 | -3 | 15.93 | 0.0 | 143.2 | 0.0 | 327.7 | End Cement Slurry | | |
| 07/01/2015 | 10:29:00 | -5 | 15.92 | 0.0 | 0.0 | 0.0 | 327.7 | Drop Top Plug | | |
| 07/01/2015 | 10:29:04 | -4 | 15.92 | 0.0 | 0.0 | 0.0 | 327.7 | | | |
| 07/01/2015 | 10:29:49 | -3 | 15.90 | 0.0 | 0.0 | 0.0 | 327.7 | | | |
| 07/01/2015 | 10:30:34 | -3 | 15.90 | 0.0 | 0.0 | 0.0 | 327.7 | | | |
| 07/01/2015 | 10:31:00 | 48 | 15.85 | 2.4 | 0.4 | 0.0 | 328.0 | Start Displacement | | |
| 07/01/2015 | 10:31:19 | 94 | 9.55 | 4.3 | 1.1 | 0.0 | 328.8 | | | |
| 07/01/2015 | 10:32:04 | 100 | 9.05 | 6.8 | 6.1 | 0.0 | 333.7 | | | |

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| Well | | Field | | | | Job Start | | Customer | | Job Number | |
|------------|------------------|----------------|---------------------|-----------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|------------|--|
| MIP 5H 5H | | Undesignated | | | | Jul/01/2015 | | Northeast Natural Energy LLC | | DCHA-00042 | |
| Date | Time 24-hr clock | CPF1_PRESS PSI | CPF1_DENS:CPF1 LB/G | DOWNHOLE_CPF1_TTL_STAGE B/M | CMT_DISP_VCCPF1_TTL_VOLUME BBL | CMT_DISP_VCCPF1_TTL_VOLUME BBL | CMT_DISP_VCCPF1_TTL_VOLUME BBL | Message | | | |
| 07/01/2015 | 10:33:34 | 92 | 8.73 | 6.8 | 16.2 | 5.9 | 343.8 | | | | |
| 07/01/2015 | 10:34:19 | 90 | 8.73 | 6.8 | 21.3 | 11.0 | 349.0 | | | | |
| 07/01/2015 | 10:35:04 | 89 | 8.63 | 6.8 | 26.4 | 16.1 | 354.0 | | | | |
| 07/01/2015 | 10:35:49 | 86 | 8.59 | 6.8 | 31.5 | 21.2 | 359.1 | | | | |
| 07/01/2015 | 10:36:34 | 85 | 8.56 | 6.8 | 36.6 | 26.3 | 364.2 | | | | |
| 07/01/2015 | 10:37:19 | 88 | 8.54 | 6.8 | 41.7 | 31.4 | 369.3 | | | | |
| 07/01/2015 | 10:38:04 | 89 | 8.54 | 6.8 | 46.8 | 36.5 | 374.5 | | | | |
| 07/01/2015 | 10:38:49 | 96 | 8.54 | 6.8 | 51.9 | 41.6 | 379.6 | | | | |
| 07/01/2015 | 10:39:34 | 131 | 8.51 | 6.6 | 56.9 | 46.6 | 384.5 | | | | |
| 07/01/2015 | 10:40:19 | 187 | 8.51 | 6.7 | 61.9 | 51.6 | 389.5 | | | | |
| 07/01/2015 | 10:41:04 | 253 | 8.51 | 6.6 | 66.8 | 56.5 | 394.5 | | | | |
| 07/01/2015 | 10:41:30 | 257 | 8.51 | 6.7 | 69.7 | 59.4 | 397.3 | Gel spacer to surface at 70bbl | | | |
| 07/01/2015 | 10:41:49 | 282 | 8.52 | 6.6 | 71.8 | 61.5 | 399.4 | | | | |
| 07/01/2015 | 10:42:34 | 315 | 8.51 | 6.6 | 76.7 | 66.4 | 404.3 | | | | |
| 07/01/2015 | 10:43:19 | 382 | 8.51 | 6.6 | 81.6 | 71.4 | 409.3 | | | | |
| 07/01/2015 | 10:44:04 | 467 | 8.51 | 6.5 | 86.6 | 76.3 | 414.2 | | | | |
| 07/01/2015 | 10:44:49 | 489 | 8.51 | 6.5 | 91.5 | 81.2 | 419.1 | | | | |
| 07/01/2015 | 10:45:34 | 536 | 8.51 | 6.5 | 96.4 | 86.1 | 424.0 | | | | |
| 07/01/2015 | 10:46:00 | 577 | 8.51 | 6.5 | 99.2 | 88.9 | 426.9 | Cement to surface at 100bbl | | | |
| 07/01/2015 | 10:46:19 | 577 | 8.51 | 6.5 | 101.3 | 91.0 | 428.9 | | | | |
| 07/01/2015 | 10:47:04 | 638 | 8.51 | 6.5 | 106.2 | 95.9 | 433.8 | | | | |
| 07/01/2015 | 10:47:49 | 688 | 8.51 | 6.5 | 111.1 | 100.8 | 438.7 | | | | |
| 07/01/2015 | 10:48:34 | 698 | 8.51 | 6.5 | 115.9 | 105.7 | 443.6 | | | | |
| 07/01/2015 | 10:49:19 | 716 | 8.51 | 6.5 | 120.8 | 110.6 | 448.5 | | | | |
| 07/01/2015 | 10:50:04 | 739 | 8.51 | 6.5 | 125.7 | 115.4 | 453.4 | | | | |
| 07/01/2015 | 10:50:49 | 679 | 8.51 | 4.6 | 130.4 | 120.2 | 458.1 | | | | |
| 07/01/2015 | 10:51:34 | 698 | 8.51 | 3.3 | 133.0 | 122.7 | 460.6 | | | | |
| 07/01/2015 | 10:52:19 | 1353 | 8.51 | 3.3 | 135.4 | 125.2 | 463.1 | | | | |
| 07/01/2015 | 10:53:01 | 1749 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | Bump Top Plug | | | |
| 07/01/2015 | 10:53:04 | 1749 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:53:49 | 1746 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:54:34 | 1743 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:55:19 | 1742 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:56:04 | 1740 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:57:34 | 1737 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:58:19 | 1647 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:59:04 | 6 | 8.51 | 0.0 | 135.9 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 10:59:49 | 6 | 8.51 | 0.0 | 0.0 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 11:00:00 | 6 | 8.51 | 0.0 | 0.0 | 125.6 | 463.6 | End Displacement | | | |
| 07/01/2015 | 11:00:34 | 1 | 8.51 | 0.0 | 0.0 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 11:01:19 | 1 | 8.51 | 0.0 | 0.0 | 125.6 | 463.6 | | | | |
| 07/01/2015 | 11:02:04 | 1 | 8.51 | 0.0 | 0.0 | 125.6 | 463.6 | | | | |

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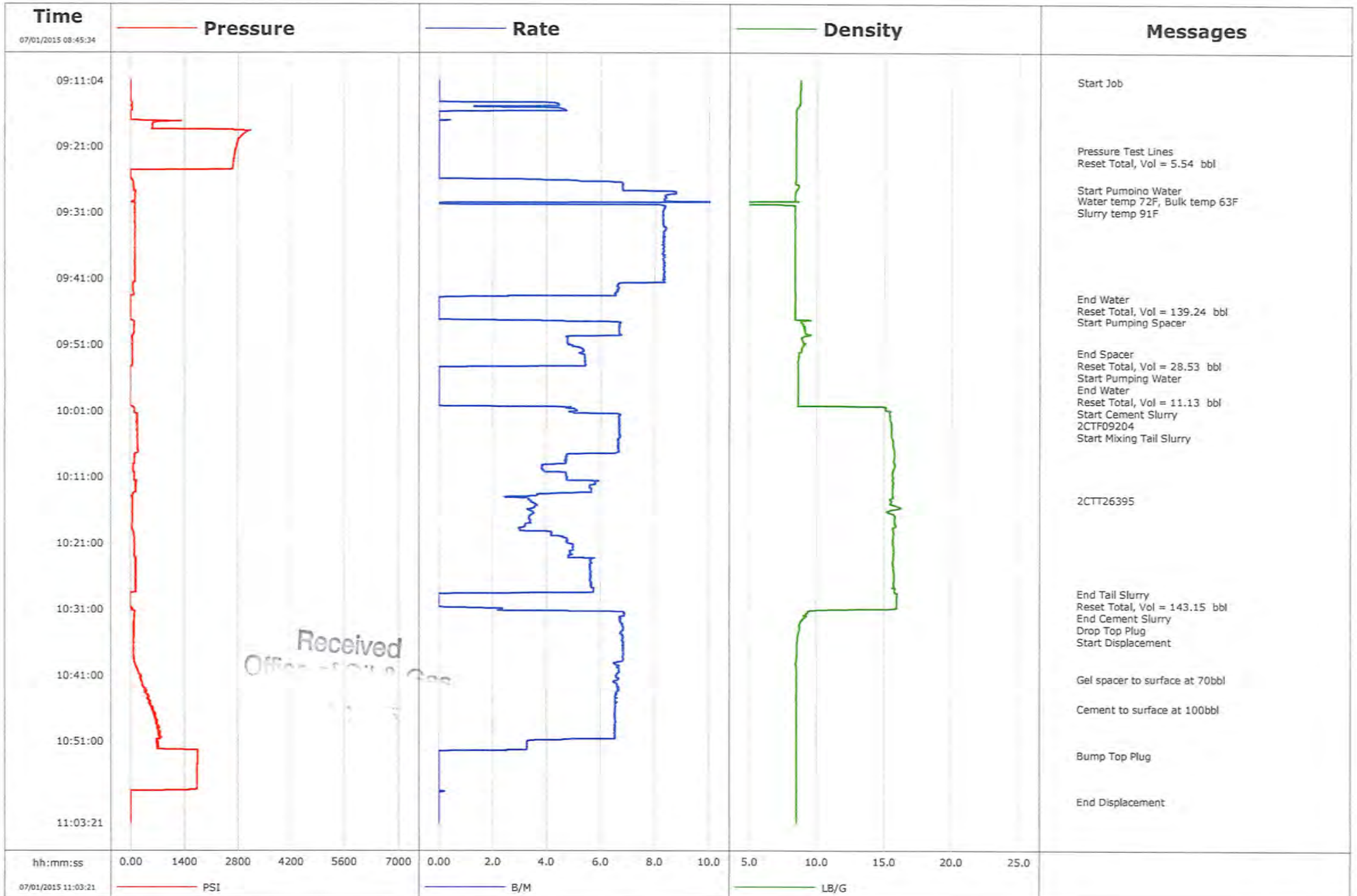
| | | | | |
|--------------------------|------------------------------|---------------------------------|---|---------------------------------|
| Well MIP 5H 5H | Field Undesignated | Job Start Jul/01/2015 | Customer Northeast Natural Energy LLC | Job Number DCHA-00042 |
|--------------------------|------------------------------|---------------------------------|---|---------------------------------|

Post Job Summary

| Average Pump Rates, bbl/min | | | | | Volume of Fluid Injected, bbl | | | |
|---|-------------------------------------|---------------------------|--|--|--|--|------------------------|----------|
| Slurry 6.0 | N2 | Mud | Maximum Rate 25.0 | Total Slurry 463.6 | Mud 0.0 | Spacer 172.8 | N2 | |
| Treating Pressure Summary, psi | | | | | Breakdown Fluid | | | |
| Maximum 3126 | Final 1 | Average 324 | Bump Plug to | Breakdown | Type FreshWater | Volume bbl | Density 8.34 lb/gal | |
| Avg. N2 Percent % | Designed Slurry Volume 128.0 bbl | Displacement 125.6 bbl | Mix Water Temp 72 degF | Cement Circulated to Surface? <input checked="" type="checkbox"/> | Washed Thru Perfs <input type="checkbox"/> | Circulation Lost <input type="checkbox"/> | Volume 31.0 bbl | To ft |
| Customer or Authorized Representative Jamie Czemeski | | | Schlumberger Supervisor Joshua Richards | | Job Completed <input checked="" type="checkbox"/> | | | |

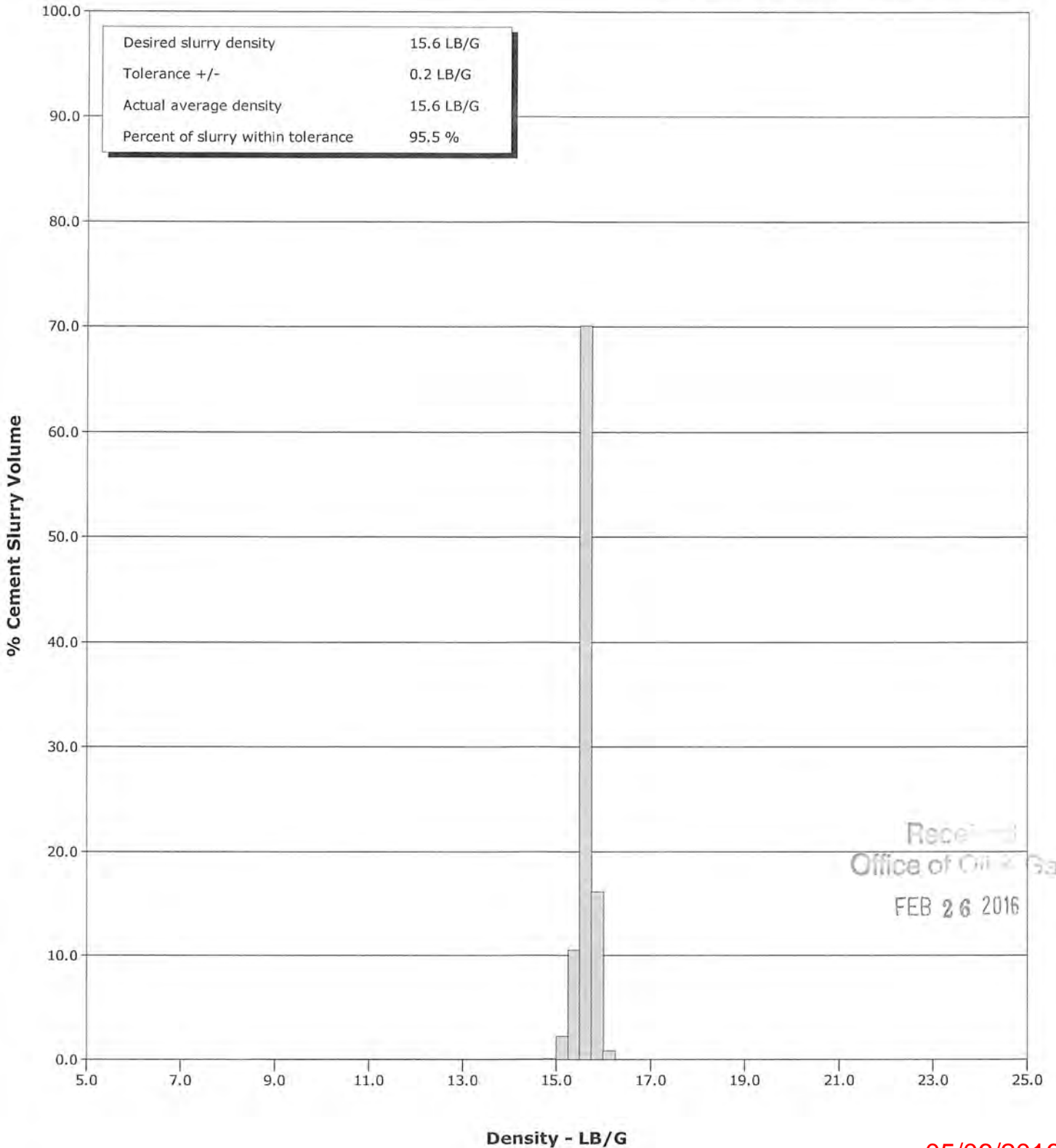
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| | | | |
|-----------------|-----------------|-----------------|------------------------------|
| Well | MIP 5H | Client | Northeast Natural Energy LLC |
| Field | Undesignated | SIR No. | DCHA-00042 |
| Engineer | Joshua Richards | Job Type | 9 5/8" Intermediate |
| Country | United States | Job Date | 07-01-2015 |



| | | | |
|-----------------|-----------------|-----------------|------------------------------|
| Well | MIP 5H | Client | Northeast Natural Energy LLC |
| Field | Undesignated | SIR No. | DCHA-00042 |
| Engineer | Joshua Richards | Job Type | 9 5/8" Intermediate |
| Country | United States | Job Date | 07-01-2015 |

Cement Slurry - 07/01/2015 09:54:55 to 07/01/2015 10:28:45



| Customer Northeast Natural Energy | | | | Job Number 2169491 | | | |
|---|--|-------------------------------------|----------------------------|------------------------------------|-----------------------|-----------------------------|--------------------------------|
| Well MIP 5H 5H | | Location (legal) Monongalia | | Schlumberger Location Strasburg | | Job Start Sep/15/2015 | |
| Field Undesignated | | Formation Name/Type Shale | | Deviation 90 deg | Bit Size 8.5 in | Well MD 14454.0 ft | Well TVD 7452.0 ft |
| County Monongalia | | State/Province West Virginia | | BHP psi | BHST 144 degF | BHCT 142 degF | Pore Press. Gradient lb/gal |
| Well Master 0631634042 | | API/UWI 4706101699H000 | | | | | |
| Rig Name Patterson 254 | Drilled For Gas | Service Via Land | Casing/Liner | | | | |
| Offshore Zone | Well Class New | Well Type Other | Depth, ft 14437.0 | Size, in 5.5 | Weight, lb/ft 20.0 | Grade P110 | Thread BUTT |
| Drilling Fluid Type | Max. Density lb/gal | Plastic Viscosity cP | T/D | Depth, ft | Size, in | Weight, lb/ft | Grade |
| Service Line Cementing | Job Type Cem Prod Casing | WH Connection Double Cement head | Tubing/Drill Pipe | | | | |
| Max. Allowed Tub. Press 6000 psi | Max. Allowed Ann. Press 6000 psi | Perforations/Open Hole | Top, ft | Bottom, ft | shot/ft | No. of Shots | Total Interval ft |
| Service Instructions Safely cement 5 1/2" Production Casing Lead 235.4 bbl, 15 ppg FlexSEAL Tail 370.2 bbl, 15.4 ppg Class A | | | ft | ft | | | Diameter in |
| | | | ft | ft | | | |
| | | | Treat Down Casing | Displacement 319.7 bbl | Packer Type | Packer Depth ft | |
| | | | Tubing Vol. bbl | Casing Vol. 319.7 bbl | Annular Vol. bbl | Openhole Vol. bbl | |
| Casing/Tubing Secured <input checked="" type="checkbox"/> | 1 Hole Vol. Circulated prior to Cement <input checked="" type="checkbox"/> | Casing Tools | Squeeze Job | | | | |
| Lift Pressure psi | Shoe Type Guide | Squeeze Type | | | | | |
| Pipe Rotated <input type="checkbox"/> | Pipe Reciprocated <input type="checkbox"/> | Shoe Depth 14437.0 ft | Tool Type | | | | |
| No. Centralizers 114 | Top Plugs 1 | Bottom Plugs | Stage Tool Type | Tool Depth ft | | | |
| Cement Head Type Double | Stage Tool Depth ft | Tail Pipe Size in | | | | | |
| Job Scheduled For Sep/15/2015 11:00 | Arrived on Location Sep/15/2015 13:00 | Leave Location Sep/16/2015 18:00 | Collar Type Float | Tail Pipe Depth ft | | | |
| | | | Collar Depth 14402.0 ft | Sqz. Total Vol. bbl | | | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | |
| 09/16/2015 | 00:26:20 | 24 | 0.0 | 8.43 | 0.0 | Started Acquisition | |
| 09/16/2015 | 00:26:38 | 26 | 0.0 | 8.43 | 0.0 | Start Job | |
| 09/16/2015 | 00:29:40 | 19 | 0.0 | 8.43 | 0.0 | | |
| 09/16/2015 | 00:33:00 | 26 | 0.0 | 8.43 | 0.0 | | |
| 09/16/2015 | 00:36:20 | 25 | 0.0 | 8.43 | 0.0 | | |
| 09/16/2015 | 00:39:40 | 14 | 0.0 | 8.43 | 0.0 | | |
| 09/16/2015 | 00:43:00 | 20 | 0.0 | 8.43 | 0.1 | | |
| 09/16/2015 | 00:46:20 | 34 | 0.0 | 8.43 | 0.1 | | |
| 09/16/2015 | 00:49:40 | 94 | 0.0 | 8.43 | 1.2 | | |
| 09/16/2015 | 00:53:00 | 362 | 2.2 | 8.43 | 5.7 | | |
| 09/16/2015 | 00:54:06 | 186 | 0.2 | 8.40 | 8.1 | Pressure Test Lines | |
| 09/16/2015 | 00:56:20 | 992 | 0.0 | 8.40 | 8.1 | | |
| 09/16/2015 | 00:59:40 | 1064 | 0.0 | 8.40 | 8.1 | | |
| 09/16/2015 | 01:03:00 | 2235 | 0.0 | 8.40 | 8.1 | | |
| 09/16/2015 | 01:06:20 | 5961 | 0.0 | 8.39 | 8.1 | | |
| 09/16/2015 | 01:09:40 | 5824 | 0.0 | 8.40 | 8.1 | | |
| 09/16/2015 | 01:11:52 | 158 | 0.0 | 8.39 | 8.2 | Reset Total, Vol = 8.16 bbl | |
| 09/16/2015 | 01:11:58 | 163 | 0.0 | 8.40 | 8.2 | Start Pumping Spacer | |
| 09/16/2015 | 01:13:00 | 185 | 0.0 | 8.40 | 8.2 | | |
| 09/16/2015 | 01:16:20 | 194 | 0.0 | 8.39 | 8.2 | | |
| 09/16/2015 | 01:19:40 | 207 | 0.0 | 8.40 | 8.2 | | |

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| Well | | Field | | Job Start | | Customer | | Job Number | |
|------------|------------------|-----------------------|---------------|--------------|------------|---|--|------------|--|
| MIP 5H 5H | | Undesignated | | Sep/15/2015 | | Northeast Natural Energy | | 2169491 | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | | | |
| 09/16/2015 | 01:26:20 | 199 | 0.0 | 8.40 | 8.2 | | | | |
| 09/16/2015 | 01:29:40 | 213 | 0.0 | 8.40 | 8.3 | | | | |
| 09/16/2015 | 01:33:00 | 208 | 0.0 | 8.40 | 8.3 | | | | |
| 09/16/2015 | 01:36:20 | 264 | 0.0 | 8.40 | 8.3 | | | | |
| 09/16/2015 | 01:39:40 | 244 | 0.0 | 8.40 | 8.3 | | | | |
| 09/16/2015 | 01:43:00 | 224 | 0.0 | 8.40 | 8.3 | | | | |
| 09/16/2015 | 01:46:20 | 224 | 0.0 | 8.40 | 8.4 | | | | |
| 09/16/2015 | 01:49:40 | 214 | 0.0 | 8.40 | 8.4 | | | | |
| 09/16/2015 | 01:53:00 | 206 | 0.0 | 8.40 | 8.4 | | | | |
| 09/16/2015 | 01:56:20 | 208 | 0.0 | 8.40 | 8.4 | | | | |
| 09/16/2015 | 01:59:40 | 200 | 0.0 | 8.40 | 8.5 | | | | |
| 09/16/2015 | 02:03:00 | 190 | 0.0 | 8.40 | 8.5 | | | | |
| 09/16/2015 | 02:06:20 | 185 | 0.0 | 8.40 | 8.5 | | | | |
| 09/16/2015 | 02:09:40 | 190 | 0.0 | 8.40 | 8.5 | | | | |
| 09/16/2015 | 02:13:00 | 259 | 0.0 | 8.40 | 8.5 | | | | |
| 09/16/2015 | 02:16:20 | 213 | 0.0 | 8.40 | 8.6 | | | | |
| 09/16/2015 | 02:19:40 | 508 | 2.0 | 13.25 | 13.4 | | | | |
| 09/16/2015 | 02:23:00 | 627 | 4.5 | 14.17 | 21.8 | | | | |
| 09/16/2015 | 02:26:20 | 556 | 4.5 | 13.69 | 36.9 | | | | |
| 09/16/2015 | 02:29:21 | 454 | 4.5 | 13.41 | 50.5 | Start Spacer | | | |
| 09/16/2015 | 02:29:40 | 447 | 4.5 | 13.12 | 52.0 | | | | |
| 09/16/2015 | 02:33:00 | 413 | 4.5 | 14.24 | 64.0 | | | | |
| 09/16/2015 | 02:36:20 | 372 | 4.6 | 14.08 | 79.1 | | | | |
| 09/16/2015 | 02:39:40 | 150 | 2.3 | 13.91 | 93.0 | | | | |
| 09/16/2015 | 02:43:00 | 316 | 4.4 | 13.92 | 101.3 | | | | |
| 09/16/2015 | 02:43:49 | 354 | 4.4 | 14.13 | 104.9 | Reset Total, Vol = 96.70 bbl | | | |
| 09/16/2015 | 02:43:54 | 339 | 4.3 | 14.17 | 105.2 | End Spacer | | | |
| 09/16/2015 | 02:43:55 | 339 | 4.4 | 14.19 | 105.3 | Start Mixing Lead Slurry | | | |
| 09/16/2015 | 02:46:00 | 154 | 2.2 | 14.41 | 112.4 | Reset Total, Vol = 7.51 bbl | | | |
| 09/16/2015 | 02:46:20 | 157 | 2.2 | 14.40 | 113.1 | | | | |
| 09/16/2015 | 02:49:40 | 381 | 4.4 | 14.57 | 125.9 | | | | |
| 09/16/2015 | 02:53:00 | 129 | 1.9 | 14.07 | 138.4 | | | | |
| 09/16/2015 | 02:56:20 | 59 | 0.0 | 14.38 | 140.2 | | | | |
| 09/16/2015 | 02:59:40 | 315 | 4.1 | 15.11 | 144.1 | | | | |
| 09/16/2015 | 03:03:00 | 65 | 0.0 | 14.63 | 149.6 | | | | |
| 09/16/2015 | 03:06:20 | 190 | 2.2 | 14.75 | 154.2 | | | | |
| 09/16/2015 | 03:09:40 | 262 | 2.4 | 14.27 | 161.7 | | | | |
| 09/16/2015 | 03:13:00 | 574 | 5.8 | 14.51 | 175.5 | | | | |
| 09/16/2015 | 03:16:20 | 562 | 5.9 | 14.36 | 195.0 | | | | |
| 09/16/2015 | 03:17:19 | 575 | 5.9 | 14.39 | 200.8 | Verify density with Mud Balance 14.8ppg | | | |
| 09/16/2015 | 03:19:40 | 560 | 5.7 | 14.41 | 214.5 | | | | |
| 09/16/2015 | 03:23:00 | 562 | 5.7 | 14.41 | 233.6 | | | | |
| 09/16/2015 | 03:26:20 | 420 | 4.1 | 14.26 | 250.3 | | | | |
| 09/16/2015 | 03:29:40 | 248 | 2.3 | 14.11 | 258.5 | | | | |
| 09/16/2015 | 03:33:00 | 390 | 4.4 | 14.32 | 269.7 | | | | |
| 09/16/2015 | 03:35:56 | 561 | 6.2 | 14.36 | 285.2 | Verify density with Mud balance 14.6ppg | | | |
| 09/16/2015 | 03:36:20 | 576 | 6.2 | 14.36 | 287.7 | | | | |
| 09/16/2015 | 03:39:40 | 491 | 5.6 | 14.34 | 308.2 | | | | |
| 09/16/2015 | 03:43:00 | 503 | 5.6 | 14.29 | 326.8 | | | | |
| 09/16/2015 | 03:46:20 | 292 | 4.1 | 14.33 | 345.3 | | | | |
| 09/16/2015 | 03:48:49 | 299 | 4.1 | 14.56 | 355.4 | Reset Total, Vol = 242.99 bbl | | | |
| 09/16/2015 | 03:48:53 | 323 | 4.1 | 14.58 | 355.6 | End Lead Slurry | | | |
| 09/16/2015 | 03:48:54 | 326 | 4.1 | 14.58 | 355.7 | Start Mixing Tail Slurry | | | |
| 09/16/2015 | 03:49:40 | 327 | 4.1 | 14.92 | 358.9 | | | | |

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| Well | | Field | | Job Start | | Customer | | Job Number | | |
|------------|------------------|-----------------------|---------------|--------------|------------|--------------------------|---|------------|--|--|
| MIP 5H 5H | | Undesignated | | Sep/15/2015 | | Northeast Natural Energy | | 2169491 | | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | | | | |
| 09/16/2015 | 03:56:20 | | 396 | 4.5 | 15.37 | 388.5 | | | | |
| 09/16/2015 | 03:58:12 | | 415 | 4.5 | 15.50 | 396.9 | Verify Density with Mud balance 15.6ppg | | | |
| 09/16/2015 | 03:59:40 | | 402 | 4.5 | 15.54 | 403.5 | | | | |
| 09/16/2015 | 04:03:00 | | 371 | 4.5 | 15.45 | 418.5 | | | | |
| 09/16/2015 | 04:06:20 | | 668 | 6.3 | 15.37 | 434.8 | | | | |
| 09/16/2015 | 04:09:40 | | 587 | 5.9 | 15.31 | 455.3 | | | | |
| 09/16/2015 | 04:13:00 | | 407 | 4.5 | 15.34 | 472.6 | | | | |
| 09/16/2015 | 04:16:20 | | 421 | 4.5 | 15.42 | 487.6 | | | | |
| 09/16/2015 | 04:19:40 | | 448 | 4.5 | 15.53 | 502.6 | | | | |
| 09/16/2015 | 04:23:00 | | 439 | 4.5 | 15.42 | 522.2 | | | | |
| 09/16/2015 | 04:26:20 | | 419 | 4.5 | 15.41 | 537.2 | | | | |
| 09/16/2015 | 04:29:40 | | 220 | 2.1 | 15.35 | 549.4 | | | | |
| 09/16/2015 | 04:33:00 | | 399 | 4.5 | 15.17 | 559.6 | | | | |
| 09/16/2015 | 04:36:20 | | 442 | 4.5 | 15.44 | 574.7 | | | | |
| 09/16/2015 | 04:39:40 | | 670 | 6.3 | 15.43 | 593.4 | | | | |
| 09/16/2015 | 04:43:00 | | 638 | 6.3 | 15.38 | 614.6 | | | | |
| 09/16/2015 | 04:46:20 | | 639 | 6.3 | 15.40 | 635.8 | | | | |
| 09/16/2015 | 04:49:40 | | 659 | 6.3 | 15.41 | 656.9 | | | | |
| 09/16/2015 | 04:53:00 | | 706 | 6.3 | 15.39 | 678.1 | | | | |
| 09/16/2015 | 04:56:20 | | 589 | 5.9 | 15.18 | 699.1 | | | | |
| 09/16/2015 | 04:59:40 | | 392 | 4.5 | 15.32 | 716.6 | | | | |
| 09/16/2015 | 05:03:00 | | 253 | 0.0 | 15.44 | 731.4 | | | | |
| 09/16/2015 | 05:04:10 | | 110 | 1.6 | 15.12 | 736.0 | Reset Total, Vol = 380.63 bbl | | | |
| 09/16/2015 | 05:04:12 | | 107 | 0.7 | 15.18 | 736.1 | End Tail Slurry | | | |
| 09/16/2015 | 05:04:14 | | 107 | 0.1 | 15.20 | 736.1 | Wash pump and lines | | | |
| 09/16/2015 | 05:06:20 | | 74 | 0.0 | 15.01 | 736.1 | | | | |
| 09/16/2015 | 05:09:40 | | 331 | 4.6 | 8.78 | 741.0 | | | | |
| 09/16/2015 | 05:13:00 | | 104 | 0.7 | 8.39 | 759.3 | | | | |
| 09/16/2015 | 05:14:33 | | 116 | 0.0 | 8.41 | 759.3 | Reset Total, Vol = 23.30 bbl | | | |
| 09/16/2015 | 05:14:38 | | 117 | 0.0 | 8.41 | 759.3 | Drop Top Plug | | | |
| 09/16/2015 | 05:14:39 | | 118 | 0.0 | 8.41 | 759.3 | Start Displacement | | | |
| 09/16/2015 | 05:16:20 | | 262 | 6.5 | 8.40 | 764.1 | | | | |
| 09/16/2015 | 05:19:40 | | 1313 | 8.3 | 8.40 | 789.6 | | | | |
| 09/16/2015 | 05:19:59 | | 1335 | 8.3 | 8.40 | 792.2 | End Displacement | | | |
| 09/16/2015 | 05:23:00 | | 1709 | 8.1 | 8.40 | 816.8 | | | | |
| 09/16/2015 | 05:26:20 | | 2157 | 8.1 | 8.39 | 843.9 | | | | |
| 09/16/2015 | 05:29:40 | | 2622 | 8.1 | 8.39 | 870.9 | | | | |
| 09/16/2015 | 05:33:00 | | 3094 | 8.0 | 8.39 | 897.8 | | | | |
| 09/16/2015 | 05:36:20 | | 3514 | 7.9 | 8.39 | 924.4 | | | | |
| 09/16/2015 | 05:39:40 | | 3741 | 7.8 | 8.40 | 950.5 | | | | |
| 09/16/2015 | 05:43:00 | | 3798 | 7.7 | 8.39 | 976.3 | | | | |
| 09/16/2015 | 05:46:20 | | 3868 | 7.6 | 8.39 | 1001.8 | | | | |
| 09/16/2015 | 05:48:36 | | 3849 | 7.6 | 8.39 | 1019.1 | Cement to surface | | | |
| 09/16/2015 | 05:49:40 | | 3862 | 7.6 | 8.39 | 1027.2 | | | | |
| 09/16/2015 | 05:53:00 | | 3419 | 4.4 | 8.39 | 1048.0 | | | | |
| 09/16/2015 | 05:56:20 | | 3474 | 4.4 | 8.39 | 1062.6 | | | | |
| 09/16/2015 | 05:59:40 | | 3177 | 2.0 | 8.39 | 1073.6 | | | | |
| 09/16/2015 | 06:03:00 | | 3237 | 2.0 | 8.39 | 1080.3 | | | | |
| 09/16/2015 | 06:06:14 | | 4348 | 2.0 | 8.39 | 1086.9 | Bump Top Plug | | | |
| 09/16/2015 | 06:06:20 | | 4464 | 0.1 | 8.39 | 1087.0 | | | | |
| 09/16/2015 | 06:09:40 | | 4430 | 0.0 | 8.39 | 1087.0 | | | | |
| 09/16/2015 | 06:12:55 | | 3521 | 0.0 | 8.40 | 1087.0 | Reset Total, Vol = 327.66 bbl | | | |
| 09/16/2015 | 06:13:00 | | 3296 | 0.0 | 8.39 | 1087.0 | | | | |
| 09/16/2015 | 06:15:40 | | 108 | 0.0 | 8.39 | 1087.0 | 8 bbl back | | | |

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| Well | | Field | | Job Start | | Customer | | Job Number | |
|------------|------------------|-----------------------|---------------|--------------|------------|-----------------------------|--|------------|--|
| MIP 5H 5H | | Undesignated | | Sep/15/2015 | | Northeast Natural Energy | | 2169491 | |
| Date | Time 24-hr clock | Treating Pressure PSI | Flow Rate B/M | Density LB/G | Volume BBL | Message | | | |
| 09/16/2015 | 06:19:40 | 114 | 0.0 | 8.38 | 1087.0 | | | | |
| 09/16/2015 | 06:21:26 | 782 | 2.1 | 8.39 | 1087.6 | Bump plug 2nd time | | | |
| 09/16/2015 | 06:23:00 | 3406 | 2.0 | 8.39 | 1090.8 | | | | |
| 09/16/2015 | 06:23:48 | 3299 | 0.8 | 8.39 | 1092.4 | Pressure Drops | | | |
| 09/16/2015 | 06:26:20 | 2981 | 0.0 | 8.39 | 1092.4 | | | | |
| 09/16/2015 | 06:29:40 | 3006 | 0.0 | 8.39 | 1092.4 | | | | |
| 09/16/2015 | 06:33:00 | 2383 | 0.0 | 8.39 | 1092.4 | | | | |
| 09/16/2015 | 06:36:20 | 2415 | 0.0 | 8.39 | 1092.4 | | | | |
| 09/16/2015 | 06:37:20 | 2422 | 0.0 | 8.39 | 1092.4 | Pressure levels off | | | |
| 09/16/2015 | 06:39:40 | 2443 | 0.0 | 8.39 | 1092.4 | | | | |
| 09/16/2015 | 06:43:00 | 135 | 0.0 | 8.39 | 1092.5 | | | | |
| 09/16/2015 | 06:46:06 | 163 | 0.0 | 8.39 | 1092.5 | Reset Total, Vol = 5.44 bbl | | | |
| 09/16/2015 | 06:46:20 | 163 | 0.0 | 8.39 | 0.0 | | | | |

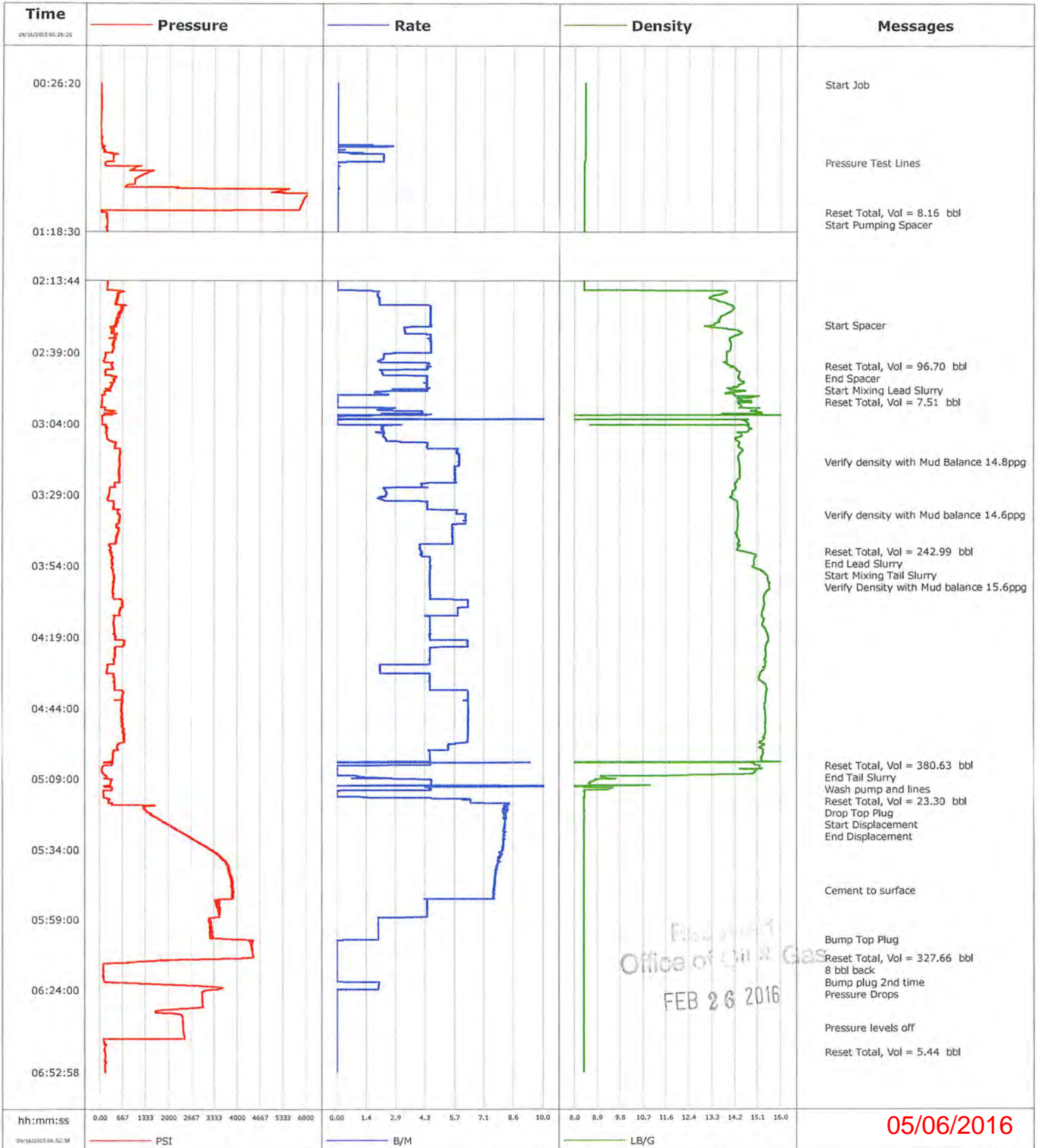
Post Job Summary

| Average Pump Rates, bbl/min | | | | Volume of Fluid Injected, bbl | | | |
|---------------------------------------|------------------------|---------|-------------------------|-------------------------------|-------------------------------------|-------------------------------------|---------|
| Slurry | N2 | Mud | Maximum Rate | Total Slurry | Mud | Spacer | N2 |
| 3.6 | | | 25.0 | 605.0 | 0.0 | 100.0 | |
| Treating Pressure Summary, psi | | | | Breakdown Fluid | | | |
| Maximum | Final | Average | Bump Plug to | Breakdown | Type | Volume | Density |
| 6261 | 158 | 977 | 4200 | | | bbl | lb/gal |
| Avg. N2 Percent | Designed Slurry Volume | | Displacement | Mix Water Temp | Cement Circulated to Surface? | Volume | |
| % | 0.0 bbl | | 317.0 bbl | 72 degF | <input checked="" type="checkbox"/> | 70.0 bbl | |
| Customer or Authorized Representative | | | Schlumberger Supervisor | | Washed Thru Perfs | To | |
| | | | Ana Rodriguez | | <input type="checkbox"/> | ft | |
| | | | | | Circulation Lost | Job Completed | |
| | | | | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| | | | | | - | - | |

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| | | | |
|-----------------|---------------|-----------------|--------------------------|
| Well | MIP 5H | Client | Northeast Natural Energy |
| Field | Undesignated | SIR No. | 2169491 |
| Engineer | Ana Rodriguez | Job Type | Cem Prod Casing |
| Country | United States | Job Date | 09-15-2015 |



05/06/2016

Stimulation Record

| Stage Number | Report Date | Avg Treating Rate (BPM) | Avg Treating Pressure (psi) | Breakdown Pressure (psi) | ISIP (psi) | Total Proppant Amount (lbs) | Total Clean Fluid (Bbls) |
|--------------|-------------|-------------------------|-----------------------------|--------------------------|------------|-----------------------------|--------------------------|
| 1 | 10/28/2015 | 69.8 | 8305 | 7500 | 0 | 328880 | 6307 |
| 2 | 10/29/2015 | 68.5 | 8619 | 7804 | 5965 | 329020 | 6924 |
| 3 | 10/29/2015 | 82 | 8827 | 6906 | 5885 | 265640 | 5682 |
| 4 | 10/29/2015 | 77.4 | 8735 | 6499 | 0 | 260460 | 5284 |
| 5 | 10/30/2015 | 75 | 8111 | 5749 | 5278 | 272280 | 6138 |
| 6 | 10/30/2015 | 88 | 8691 | 7201 | 5817 | 267420 | 7766 |
| 7 | 10/30/2015 | 78.8 | 8330 | 6383 | 1.24 | 401540 | 8548 |
| 8 | 10/31/2015 | 81.2 | 8455 | 5970 | 6156 | 400180 | 7702 |
| 9 | 10/31/2015 | 85 | 8217 | 6009 | 5312 | 398620 | 7557 |
| 10 | 10/31/2015 | 91.2 | 8644 | 6647 | 5401 | 398840 | 7736 |
| 11 | 10/31/2015 | 83.7 | 8655 | 6841 | 5408 | 400480 | 7514 |
| 12 | 10/31/2015 | 85.9 | 8747 | 6253 | 0 | 403380 | 7916 |
| 13 | 11/1/2015 | 92.8 | 8672 | 6436 | 5898 | 398620 | 8971 |
| 14 | 11/1/2015 | 93 | 8702 | 6654 | 5820 | 400100 | 7783 |
| 15 | 11/1/2015 | 94 | 8648 | 6453 | 5403 | 403260 | 7674 |
| 16 | 11/1/2015 | 89.6 | 8861 | 7417 | 5983 | 400400 | 7289 |
| 17 | 11/2/2015 | 90 | 8972 | 6435 | 6465 | 400540 | 7823 |
| 18 | 11/3/2015 | 88.7 | 8892 | 6457 | 6814 | 397180 | 7690 |
| 19 | 11/3/2015 | 94 | 8782 | 6536 | 6219 | 400500 | 7743 |
| 20 | 11/3/2015 | 94 | 8613 | 6266 | 5535 | 378600 | 7457 |
| 21 | 11/3/2015 | 99.5 | 8773 | 6213 | 6145 | 400620 | 7686 |
| 22 | 11/3/2015 | 94.7 | 8718 | 6617 | 5788 | 401800 | 7794 |
| 23 | 11/4/2015 | 92.9 | 8900 | 6736 | 6907 | 290880 | 5781 |
| 24 | 11/4/2015 | 98 | 8797 | 6780 | 6697 | 334620 | 7259 |
| 25 | 11/4/2015 | 98 | 8609 | 6384 | 5596 | 358260 | 7534 |
| 26 | 11/4/2015 | 97 | 8587 | 6729 | 6323 | 402100 | 8094 |
| 27 | 11/4/2015 | 93.9 | 8829 | 6528 | 6250 | 398820 | 8010 |
| 28 | 11/5/2015 | 91.2 | 8899 | 7891 | 6250 | 394780 | 8366 |
| 29 | 11/5/2015 | 99.6 | 8229 | 6550 | 6513 | 399720 | 8029 |
| 30 | 11/5/2015 | 99 | 8368 | 7031 | 6482 | 400560 | 8149 |

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Perforation Record

| Stage Number | Report Date | Perforated from MD ft | Perforated to MD ft | Number of Perforations | Formation |
|--------------|-------------|-----------------------|---------------------|------------------------|-----------------|
| 1 | 10/28/2015 | 14228 | 14166 | 40 | Marcellus Shale |
| 2 | 10/29/2015 | 14148 | 13988 | 40 | Marcellus Shale |
| 3 | 10/29/2015 | 13950 | 13790 | 40 | Marcellus Shale |
| 4 | 10/29/2015 | 13752 | 13592 | 40 | Marcellus Shale |
| 5 | 10/30/2015 | 13554 | 13394 | 40 | Marcellus Shale |
| 6 | 10/30/2015 | 13356 | 13201 | 40 | Marcellus Shale |
| 7 | 10/30/2015 | 13158 | 12998 | 40 | Marcellus Shale |
| 8 | 10/31/2015 | 12960 | 12800 | 40 | Marcellus Shale |
| 9 | 10/31/2015 | 12762 | 12602 | 40 | Marcellus Shale |
| 10 | 10/31/2015 | 12564 | 12404 | 40 | Marcellus Shale |
| 11 | 10/31/2015 | 12366 | 12206 | 40 | Marcellus Shale |
| 12 | 10/31/2015 | 12168 | 12008 | 40 | Marcellus Shale |
| 13 | 11/1/2015 | 11970 | 11810 | 40 | Marcellus Shale |
| 14 | 11/1/2015 | 11772 | 11612 | 40 | Marcellus Shale |
| 15 | 11/1/2015 | 11574 | 11414 | 40 | Marcellus Shale |
| 16 | 11/1/2015 | 11376 | 11216 | 40 | Marcellus Shale |
| 17 | 11/2/2015 | 11178 | 11018 | 40 | Marcellus Shale |
| 18 | 11/3/2015 | 10980 | 10820 | 40 | Marcellus Shale |
| 19 | 11/3/2015 | 10782 | 10622 | 40 | Marcellus Shale |
| 20 | 11/3/2015 | 10584 | 10424 | 40 | Marcellus Shale |
| 21 | 11/3/2015 | 10386 | 10224 | 40 | Marcellus Shale |
| 22 | 11/3/2015 | 10188 | 10028 | 40 | Marcellus Shale |
| 23 | 11/4/2015 | 9990 | 9830 | 40 | Marcellus Shale |
| 24 | 11/4/2015 | 9792 | 9640 | 40 | Marcellus Shale |
| 25 | 11/4/2015 | 9594 | 9434 | 40 | Marcellus Shale |
| 26 | 11/4/2015 | 9396 | 9236 | 40 | Marcellus Shale |
| 27 | 11/4/2015 | 9186 | 9040 | 40 | Marcellus Shale |
| 28 | 11/5/2015 | 9000 | 8840 | 40 | Marcellus Shale |
| 29 | 11/5/2015 | 8802 | 8642 | 40 | Marcellus Shale |
| 30 | 11/5/2015 | 8596 | 8444 | 40 | Marcellus Shale |

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Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|--------------------------------|------------------------------|
| Job Start Date: | 9/12/2015 |
| Job End Date: | 11/7/2015 |
| State: | West Virginia |
| County: | Monongalia |
| API Number: | 47-061-01698-00-00 |
| Operator Name: | Northeast Natural Energy LLC |
| Well Name and Number: | Statler 7H |
| Longitude: | -80.17804900 |
| Latitude: | 39.70782300 |
| Datum: | NAD83 |
| Federal/Tribal Well: | NO |
| True Vertical Depth: | 7,908 |
| Total Base Water Volume (gal): | 8,214,948 |
| Total Base Non Water Volume: | 0 |



Hydraulic Fracturing Fluid Composition:

| Trade Name | Supplier | Purpose | Ingredients | Chemical Abstract Service Number (CAS #) | Maximum Ingredient Concentration in Additive (% by mass)** | Maximum Ingredient Concentration in HF Fluid (% by mass)** | Comments |
|------------|------------------------------|----------------------------|---|--|--|--|----------|
| Water | Northeast Natural Energy LLC | Water | | | | | |
| | | | Water | 7732-18-5 | 100.00000 | 86.08478 | |
| Sand | C&J Well Services | Sand - Bulk - Pennsylvania | | | | | |
| | | | Crystalline Silica, quartz | 14808-60-7 | 99.90000 | 8.04830 | |
| | | | Aluminum Oxide | 1344-28-1 | 1.10000 | 0.08862 | |
| | | | Iron Oxide | 1309-37-1 | 0.10000 | 0.00806 | |
| | | | Titanium Oxide | 13463-67-7 | 0.10000 | 0.00806 | |
| Sand | C&J Well Services | Sand - Bulk - Pennsylvania | | | | | |
| | | | Crystalline Silica, quartz | 14808-60-7 | 99.90000 | 4.81366 | |
| | | | Aluminum Oxide | 1344-28-1 | 1.10000 | 0.05300 | |
| | | | Titanium Oxide | 13463-67-7 | 0.10000 | 0.00482 | |
| | | | Iron Oxide | 1309-37-1 | 0.10000 | 0.00482 | |
| HC-15 | C&J Well Services | Bulk Acid | | | | | |
| | | | Hydrochloric Acid | 7647-01-0 | 15.00000 | 0.09904 | |
| GA-6 | C&J Well Services | Gelling Agents | | | | | |
| | | | Distillates (Petroleum), Hydrotreated Light | 64742-47-8 | 60.00000 | 0.03278 | |
| | | | Guar Gum | 9000-30-0 | 55.00000 | 0.03005 | |

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| | | | | | | |
|-----------|-------------------|----------------------------|---|-------------|----------|---------|
| | | | Organophylic Clay | 68953-58-2 | 3.00000 | 0.00164 |
| FR-18 | C&J Well Services | Friction Reducer | | | | |
| | | | Distillates (Petroleum), Hydrotreated Light | 64742-47-8 | 45.00000 | 0.03096 |
| | | | Ethylene Glycol | 107-21-1 | 10.00000 | 0.00688 |
| K-219 | Nalco-Champion | Microbial Control | | | | |
| | | | Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides | 68424-85-1 | 30.00000 | 0.01128 |
| | | | Methanol | 67-56-1 | 60.00000 | 0.01090 |
| | | | Glutaraldehyde | 111-30-8 | 10.00000 | 0.00308 |
| BR-11 | C&J Well Services | Gel Breakers | | | | |
| | | | Ammonium Persulfate | 7727-54-0 | 92.00000 | 0.01641 |
| | | | Cured Resin | Proprietary | 13.00000 | 0.00232 |
| | | | Silica, Crystalline-Quartz | 14808-60-7 | 1.00000 | 0.00018 |
| HC-7.5 | C&J Well Services | Bulk Acid | | | | |
| | | | Hydrochloric Acid | 7647-01-0 | 7.50000 | 0.01482 |
| NI 200 FR | ECM | Friction Reduction | | | | |
| | | | Water | 7732-18-5 | 50.00000 | 0.00372 |
| | | | Copolymer of Two Propenamide | 69418-26-4 | 30.00000 | 0.00223 |
| | | | Petroleum Distillate | 64742-47-8 | 20.00000 | 0.00149 |
| | | | Alcohols, C-12-16, Ethoxylated | 68551-12-2 | 2.00000 | 0.00015 |
| | | | Oleic Acid Diethanolamide | 93-83-4 | 2.00000 | 0.00015 |
| | | | Ammonium Chloride ((NH4)Cl) | 12125-02-9 | 1.00000 | 0.00007 |
| SV-1 | C&J Well Services | Paraffin & Scale Additives | | | | |
| | | | Alkanes, C10-24 branched and linear | 848301-67-7 | 90.00000 | 0.00101 |
| | | | Dodecane | 112-40-3 | 40.00000 | 0.00045 |
| | | | Tridecane | Proprietary | 30.00000 | 0.00034 |
| | | | Tetradecane | 629-59-4 | 30.00000 | 0.00034 |
| | | | Undecane | 1120-21-4 | 30.00000 | 0.00034 |
| | | | Hydrocarbons | Proprietary | 25.00000 | 0.00028 |
| EC6486A | Nalco-Champion | Scale Inhibitor | | | | |
| | | | Ethylene Glycol | 107-21-1 | 30.00000 | 0.00139 |
| | | | Amine Triphosphate | Proprietary | 30.00000 | 0.00134 |
| K-139 | Nalco-Champion | Microbial Control | | | | |
| | | | Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride | 68424-85-1 | 30.00000 | 0.00165 |
| | | | Glutaraldehyde | 111-30-8 | 10.00000 | 0.00065 |
| | | | Ethanol | 64-17-5 | 5.00000 | 0.00023 |
| CI-3 | C&J Well Services | Acid Corrosion Inhibitors | | | | |
| | | | Ethylene Glycol | 107-21-1 | 40.00000 | 0.00072 |
| | | | Dimethylformamide | 68-12-2 | 20.00000 | 0.00036 |
| | | | 2-Butoxyethanol | 111-76-2 | 15.00000 | 0.00027 |
| | | | Cinnamaldehyde | 104-55-2 | 15.00000 | 0.00027 |

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| | | | | | | |
|--|-------------------|-------------------|--|-------------|-----------|---------|
| | | | Tar bases, quinoline derivs, benzyl chloride-quaternized | 72480-70-7 | 15.00000 | 0.00027 |
| | | | Nonyphenol (branched), ethoxylated | 127087-87-0 | 5.00000 | 0.00009 |
| | | | 1-DECANOL | 112-30-1 | 5.00000 | 0.00009 |
| | | | Isopropyl Alcohol | 67-63-0 | 2.50000 | 0.00004 |
| | | | 1-OCTANOL | 111-87-5 | 2.50000 | 0.00004 |
| | | | Triethyl Phosphate | 78-40-0 | 2.50000 | 0.00004 |
| 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 Ingredients | C&J Well Services | Other Ingredients | | | | |
| | | | Water | 7732-18-5 | 85.00000 | 0.56125 |
| | | | Water | 7732-18-5 | 92.50000 | 0.18275 |
| | | | Anionic Polyacrylamide | Proprietary | 100.00000 | 0.02270 |
| | | | Water | 7732-18-5 | 33.00000 | 0.02270 |
| | | | Alcohol Ethoxylates component | Proprietary | 100.00000 | 0.00344 |
| | | | Alcohol Ethoxylates Component | Proprietary | 100.00000 | 0.00344 |
| | | | Proprietary | Proprietary | 12.80000 | 0.00228 |
| | | | Ethoxylated Alcohols (C10-C16) | 68002-97-1 | 3.00000 | 0.00164 |
| | | | Proprietary | Proprietary | 1.00000 | 0.00018 |
| | | | Proprietary | Proprietary | 0.70000 | 0.00012 |
| | | | Silica, Crystalline-Quartz | 14808-60-7 | 0.05000 | 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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Hydraulic Fracturing Fluid Product Component Information Disclosure



| | |
|--------------------------------|------------------------------|
| Job Start Date: | 9/14/2015 |
| Job End Date: | 9/24/2015 |
| State: | West Virginia |
| County: | Monongalia |
| API Number: | 47-061-01698-00-00 |
| Operator Name: | Northeast Natural Energy LLC |
| Well Name and Number: | Staller 10H |
| Longitude: | -80.17804900 |
| Latitude: | 39.70782800 |
| Datum: | NAD83 |
| Federal/Tribal Well: | NO |
| True Vertical Depth: | 7,948 |
| Total Base Water Volume (gal): | 7,845,600 |
| Total Base Non Water Volume: | 0 |

Hydraulic Fracturing Fluid Composition:

| Trade Name | Supplier | Purpose | Ingredients | Chemical Abstract Service Number (CAS #) | Maximum Ingredient Concentration in Additive (% by mass)** | Maximum Ingredient Concentration in HF Fluid (% by mass)** | Comments |
|---------------------------------|------------------------------|----------------------------|---|--|--|--|----------|
| Water | Northeast Natural Energy LLC | Water | | | | | |
| | | | Water | 7732-18-5 | 100.00000 | 84.52772 | |
| Sand | C&J Well Services | Sand - Bulk - Pennsylvania | | | | | |
| | | | Crystalline Silica, quartz | 14808-60-7 | 99.90000 | 11.15588 | |
| | | | Aluminum Oxide | 1344-28-1 | 1.10000 | 0.12284 | |
| | | | Iron Oxide | 1309-37-1 | 0.10000 | 0.01117 | |
| | | | Titanium Oxide | 13463-67-7 | 0.10000 | 0.01117 | |
| Sand | C&J Well Services | Sand - Bulk - Pennsylvania | | | | | |
| | | | Crystalline Silica, quartz | 14808-60-7 | 99.90000 | 3.74169 | |
| | | | Aluminum Oxide | 1344-28-1 | 1.10000 | 0.04120 | |
| | | | Iron Oxide | 1309-37-1 | 0.10000 | 0.00375 | |
| | | | Titanium Oxide | 13463-67-7 | 0.10000 | 0.00375 | |
| HCl Acid (12.5-18.0%), 22 Baume | C&J Well Services | Bulk Acid | | | | | |
| | | | Water | 7732-18-5 | 87.50000 | 0.41419 | |
| | | | Hydrochloric Acid | 7647-01-0 | 18.00000 | 0.08521 | |
| FR-18 | C&J Well Services | Friction Reducer | | | | | |
| | | | Distillates (Petroleum), Hydrotreated Light | 64742-47-8 | 45.00000 | 0.02298 | |

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