**west virginia** department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

February 27, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-10303069, issued to STATOIL USA ONSHORE PROPERTIES, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: NORTH HENDERSON NORTH 5H
Farm Name: HENDERSON, HOWARD
**API Well Number: 47-10303069**
**Permit Type: Horizontal 6A Well**
Date Issued: 02/27/2015

**Promoting a healthy environment.**

API Number: 103-03069

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-6B
(9/13)

# STATE OF WEST VIRGINIA
# DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
# WELL WORK PERMIT APPLICATION

| 1) Well Operator: | Statoil USA Onshore Properties Inc. | 494505083 | Wetzel | Center | Littleton |
|---|---|---|---|---|---|
| | | Operator ID | County | District | Quadrangle |

2) Operator's Well Number: North Henderson North Unit 5H Well Pad Name: North Henderson (existing pad)

3) Farm Name/Surface Owner: Howard Henderson Public Road Access: Low Gap Rocky Run Road

4) Elevation, current ground: 1,342' Elevation, proposed post-construction: 1,342' (existing pad)

5) Well Type (a) Gas _____ Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow ■ _____ Deep _____
Horizontal ■ _____

6) Existing Pad: Yes or No Yes

DMH 2-23-15

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus: Formation Top-7465' TVD, Target Depth-7484' TVD, 47' thick, 5258 psi, *Intermediate Casing MASP 2300

8) Proposed Total Vertical Depth: 7484' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 15,417 MD/7400' TVD

11) Proposed Horizontal Leg Length: 7257'

12) Approximate Fresh Water Strata Depths: 619' TVD

13) Method to Determine Fresh Water Depths: offset wells

14) Approximate Saltwater Depths: 2074'

15) Approximate Coal Seam Depths: 755-764, 822-834, 882-919, 1102-1160, 1182-1183, 1222-1287

16) Approximate Depth to Possible Void (coal mine, karst, other): NA

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes ☐ _____ No ☑ _____

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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(9/13)

18) **CASING AND TUBING PROGRAM**

| TYPE | Size | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling | INTERVALS: Left in Well | CEMENT: Fill-up (Cu. Ft.) |
|---|---|---|---|---|---|---|---|
| Conductor | 20" | New | H-40 | 94# | 100' | 100' | Cmt to surface-150 cu ft |
| Fresh Water | 13.375" | New | J-55 | 54.4# | 700' | 700' | Cmt to surface-512 cuft |
| Coal | | | | | | | |
| Intermediate | 9.625" | New | J-55 | 36# | 2750' | 2750' | Cmt to surface-965 cuft |
| Production | 5.5" | New | P-110 | 20# | 15417' | 15417' | Cmt to 2250'-3150 cuft |
| Tubing | | | | | | | |
| Liners | | | | | | | |

DMH 2-23-15

| TYPE | Size | Wellbore Diameter | Wall Thickness | Burst Pressure | Cement Type | Cement Yield (cu. ft./k) |
|---|---|---|---|---|---|---|
| Conductor | 20" | 26" | .438" | 1530 psi | Class A | 1.3 cu ft/sk |
| Fresh Water | 13.375" | 17.5" | .380" | 2730 psi | Class A | 1.29 cu ft/sk |
| Coal | | | | | | |
| Intermediate | 9.625" | 12.25" | .352" | *3520 psi | Class A | 1.29 cu ft/sk |
| Production | 5.5 | 8.5" | .361" | 12640 psi | Class A | 2.42 cu ft/sk |
| Tubing | | | | | | |
| Liners | | | | | | |

**PACKERS**

| | | | | |
|---|---|---|---|---|
| Kind: | | | | |
| Sizes: | | | | |
| Depths Set: | | | | |

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(9/13)

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

See Attached

DMH 2-23-15

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well will fractured through the plug-n-perf method with +/- 25 fracturing stages per well. Each fracturing treatment will have 400,000 lbs of sand mixed in 7500 Bbls. of fresh water. The fracturing rate will be between 80 and 100 bpm at a pressure lower than a maximum pressure of 10,000 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 3.3 acres

22) Area to be disturbed for well pad only, less access road (acres): 2.9 acres

23) Describe centralizer placement for each casing string:

See attached

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24) Describe all cement additives associated with each cement type:

FEB 23 2015

See attached

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25) Proposed borehole conditioning procedures:

Surface – Drilled with fresh water to section total depth. Prior to tripping, hole will circulated clean of cuttings and back-reamed if necessary.
Intermediate – Drilled with 9.0 ppg 5% KCL Polymer Water Based Mud (WBM) to section total depth. At section total depth, pump 40bbl viscous pill and circulate hole clean.
Production - Drilled with 12.5-13.0 ppg Synthetic Based Mud (SBM) to section total depth. At section total depth pump 2-3 20bbl heavy weighted pill sweeps to transport excess cutting from the hole until clean. Pump rates will be maintained in excess of 600 GPM, and rotation in excess of 100 RPM to assist cuttings transport. A 60 bbl tuned weighted spacer will be pumped ahead of the cement to assist in mud cake removal and water wett both casing and formation.

*Note: Attach additional sheets as needed.

47103030 69

# CEMENT ADDITIVES

Surface - Class A + 3% CaCl2

Intermediate - Class A cmt, 0.05% Retarder, 0.25% Defoamer, 1% Accelerator, 0.25% Dispersant, 0.65% Retarder, 9.10 gal/sk Fresh Water.

Production - Class A cmt, 10% bwow Dispersent, 0.6% bwoc Fluid Loss, 0.4% bwoc Retarder, 0.1% bwoc Free water control agent, 0.25% bwoc Defoamer, 0.1% bwoc Fluid Loss, 6.32 gal/sk Fresh Water.

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# Marcellus - Drilling Well Schematic

Statoil

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Well Name: | North Henderson 5H | | | GLE (ft): | 1,340 | TVD(ft): | 7,400 |
| Field Name: | Marcellus | | | DF(ft): | 0 | TMD(ft): | 15,417 |
| County: | Wetzel Co., WV | BHL: | X = 534729.2 | Y= | 4395741.0 | Profile: | Horizontal |
| API #: | 0 | SHL: | X = 536199.8 | Y= | 4393817.0 | AFE No.: | 0 |

| Formations & Csg Points | Depth, ft MD | Depth, ft TVD | Depth, ft SS | Form. Temp. (F) | Pore Press. (EMW) | Frac Gradient (EMW) | Planned MW | Measure Depth (ft) |
|---|---|---|---|---|---|---|---|---|
| *Conductor* | *100* | *100* | *1,240* | - | - | - | - | 100 |
| | | | | | | | *Fresh Water* | |
| | | | | | | | 8.6 | |
| Red Clay | | 0 | | | | | | |
| Approximate Fresh Water Strata ~619' | | | | | | | | |
| | | | | | | | 8.6 | |
| *Casing Point* | *700* | *700* | *640* | *65* | - | - | | 700 |
| | | | | | | | *5% KCl* | |
| | | | | | | | 9.1 | |
| 1st Salt Sand | | 0 | | | | | | |
| 2nd Salt Sand | | 0 | | | | | | |
| 3rd Salt Sand | | 0 | | - | - | - | | |
| Pittsburgh Coal | | 1,222 | | | | | | |
| Maxton Sand | | 0 | | | | | | |
| Keener Sand | | 0 | | | | | | TOC @ 2250' MD |
| Big Lime | | 2,364 | | | | | | |
| Big Injun | | 2,464 | | | | | | |
| Berea Sand | | 2,966 | | | | | 9.1 | |
| *Casing Point* | *2,750* | *2,750* | *-1,410* | *82* | - | *>18.0* | | 2,750 |
| Gordon Sand | | 3,244 | | | | | *SBM* | |
| | | | | | | | 8.6 | |
| | | | | | | | 8.6 | |
| Java | | 5,674 | | | | | 8.6 | |
| | | | | | | | 8.6 | |
| Angola | | 0 | | | | | 8.6 | |
| | | | | | | | 8.6 | |
| Rhinestreet | | 0 | | | | | 8.6 | |
| | | | | | | | 8.6 | |
| Cashaqua | | 0 | | | | | 8.6 | |
| | | | | | | | 8.6 | |
| Middlesex | | 0 | | | | | 8.6 | |
| | | | | | | | 12.0 | |
| **KOP** | **7,293** | **6,988** | | | | | | |
| West River | | 7,244 | | | | | | |
| Genesco | | 7,314 | | | - | - | 12.0 | |
| Marcellus | | 7,465 | | | | | | |
| Cherry Valley | | 7,494 | | | - | - | 12.0 | |
| | | | | | - | - | 12.0 | |
| **Landing point** | **8,161** | **7,484** | | | | | | |
| | | | | | | | 12.0 | |
| Onondaga | | 7,512 | | | - | - | | |
| | | | | | - | - | | |

**20" Conductor**

**17-1/2" Surface**

| | |
|---|---|
| **Profile:** | Vertical |
| **Bit Type:** | 17-1/2" Tri-Cone |
| **BHA:** | Rotary Assembly |
| **Mud:** | 8.6 ppg Fresh Water |
| **Surveys:** | n/a |
| **Logging:** | n/a |
| **Casing:** | 13.375 54.5 J-55 BTC at 700' MD/700' TVD |
| **Centralizers:** | 1 centralizer w/ stop collar 10 ft above float shoe. One Single Bow every joint to 100ft below surface. |
| **Cement:** | 15.8 ppg Tail slurry w/ TOC @ Surface |
| **Potential Drilling Problems:** | Stuck Pipe, Floating, Collision, |

FIT/LOT: 14.0 ppg EMW

**12-1/4" Intermediate**

| | |
|---|---|
| **Profile:** | Vertical |
| **Bit Type:** | 12-1/4" Kymera<br>0 |
| **BHA:** | 8in 6:7 Lobe 4.0 Stg 1.5 ABH (0.17 rpg/620 Diff)<br>0 |
| **Mud:** | 9.1 ppg 5% KCl |
| **Surveys:** | Gyro SS, MWD - EM Pulse |
| **Logging:** | n/a |
| **Casing/Liner:** | 9.625 36 J-55 BTC at ' MD/' TVD |
| **Csg Hanger:** | Mandrel Hanger |
| **Centralizers:** | 1 centek centralizer w/ stop collar 10 ft above float shoe. 1 centek centralizer w/ stop collar 10 ft above float collar. 1 centralizer every joint for the first 15 joints. One centralizer every 3 jnts to 100ft below surface. |
| **Cement:** | 15.8 ppg Tail slurry w/ TOC @ Surface |
| **Potential Drilling Problems:** | Hole Cleaning , Poor ROP, Buckling, |

FIT/LOT: 15.8 ppg EMW

**8-1/2" Production**

| | |
|---|---|
| **Profile:** | |
| **Bit Type:** | 8-1/2" PDC<br>0 |
| **BHA:** | 6.75in 6/7 lobe 5.0 stg 1.95 FBH .29 rpg 715 DIFF<br>0 |
| **Mud:** | 12 ppg SBM |
| **Surveys:** | MWD - EM Pulse w/ 30ft surveys in curve, 100ft surveys in lateral |
| **Logging:** | GR |
| **Casing/Liner:** | 5.5 20 P110EC VAM TOP HT at ft MD/ ft TVD |
| **Csg Hanger:** | Mandrel Hanger |
| **Centralizers:** | 1 centek centralizer w/ stop collar 10ft above shoe. 1 centek centralizer 10ft above float collar. 1 centek centralizer every joint (floating) until KOP. 1 centek centralizer every 3 joints (floating) until 200ft inside intermediate shoe. 1 centek centralizer 50ft below mandrel hanger. |
| **Cement:** | 15 ppg Tail slurry w/ TOC @ 2250' MD' |
| **Potential Drilling Problems:** | Bit Preservation, Hole Cleaning , Torque & Drag, |

**Notes / Comments:** DMH 11-5-14

TMD: 15,417
TVD: 7,400

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**Last Revision Date:** 9/23/2014
**Revised by:** TB Gilbert

Note: Depths are referenced to RKB
Note: Not Drawn to Scale

Cement Outside Casing

WW-9
(9/13)

API Number 47 - ____ - ____
Operator's Well No. North Henderson North 5H

**STATE OF WEST VIRGINIA**
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**OFFICE OF OIL AND GAS**

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Statoil USA Onshore Properties Inc. OP Code 494505083

Watershed (HUC 10) Lower West Virginia Fork Fish Creek Quadrangle Littleton

Elevation 1342' County Wetzel District Center

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ☑ No ☐

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: ____

Will a synthetic liner be used in the pit? Yes ☐ No ☐ If so, what ml.? ____

DMR 11-5-14

Proposed Disposal Method For Treated Pit Wastes:

- ☐ Land Application
- ☑ Underground Injection ( UIC Permit Number Green Hunter API 34-121-23195 )
- ☐ Reuse (at API Number ____ )
- ☐ Off Site Disposal (Supply form WW-9 for disposal location)
- ☐ Other (Explain ____

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air/fresh Water vert. section based mud for horz sec

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? emulsifier, food grade oil, barite, surfactant, calcium carbonate, gilsonite, lubricant, graphite, lime

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) NA

-Landfill or offsite name/permit number? Wetzel County Landfill

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

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

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Company Official Signature ____

Company Official (Typed Name) Bekki Winfree

Company Official Title Sr. Regulatory Advisor

Subscribed and sworn before me this 21 day of October, 20 14

Notary Public ____

My commission expires April 16, 2017

WALLY ANTHONY STUKA
My Commission Expires
April 16, 2017

4710303069

Form WW-9

Operator's Well No. North Henderson North 5H

Statoil USA Onshore Properties Inc.

Proposed Revegetation Treatment: Acres Disturbed 3.3 Prevegetation pH Contractor to test

Lime 2-4 Tons/acre or to correct to pH See E&S Notes

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay or Straw 2-3, Wood Fiber 0.5-0.75, Pulp Fiber 0.5-0.75 Tons/acre

**Seed Mixtures**

| Temporary | | Permanent | |
|---|---|---|---|
| Seed Type | lbs/acre | Seed Type | lbs/acre |
| Annual Ryegrass | 26 or 40 | White Clover | 15 |
| Spring Oats | 64 or 96 | Red Top | 15 |
| Rye Grain | 140 | Orchard Grass | 20 |

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments:

Title: Oil + Gas Inspector Date: 11-5-14

Field Reviewed? (✓) Yes ( ) No

4710303069

Statoil

# North Henderson Pad – Site Safety Plan

## Statoil USA Onshore Properties, Inc.

DMH
11-5-14

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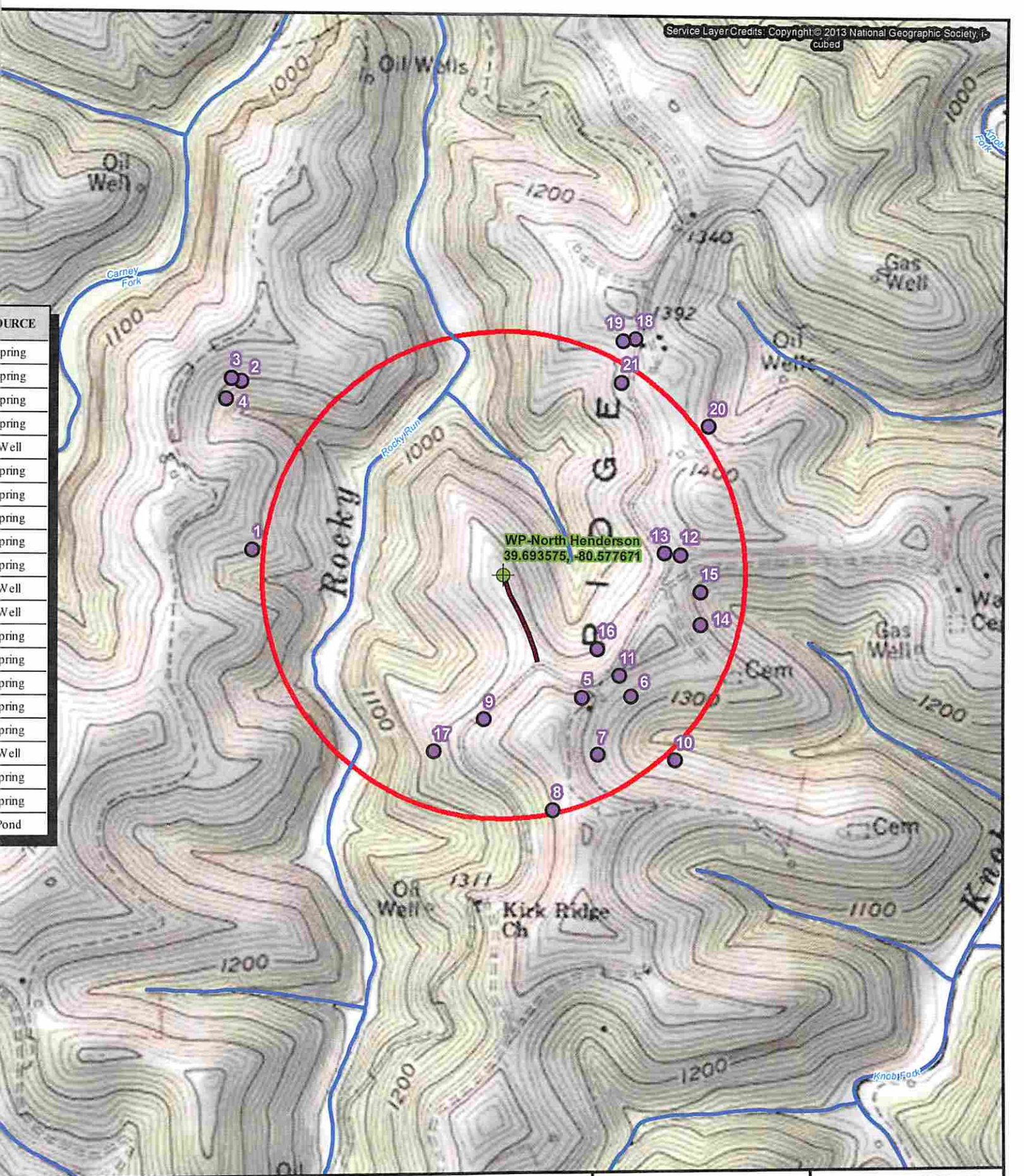


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| pring |
| Pond |

Access Road

NHD Stream

2000' Well Pad Radius

Lake/Pond (None Present)

N W E S

0 1,000 Feet

1 inch = 1,000 feet

Littleton, WV USGS 7.5' Topographic Quadrangle

Drawn By: JPM

11/13/2014

H:\Projects\09991\09991016\GIS\MapDocs\Exhibits\099912016_NorthHenderson_Topo_WaterSource_Locations_11x17.mxd

10,115'

Latitude: N 39°42'30"

Longitude: W 80°32'30"

5,402'

**LEGEND**

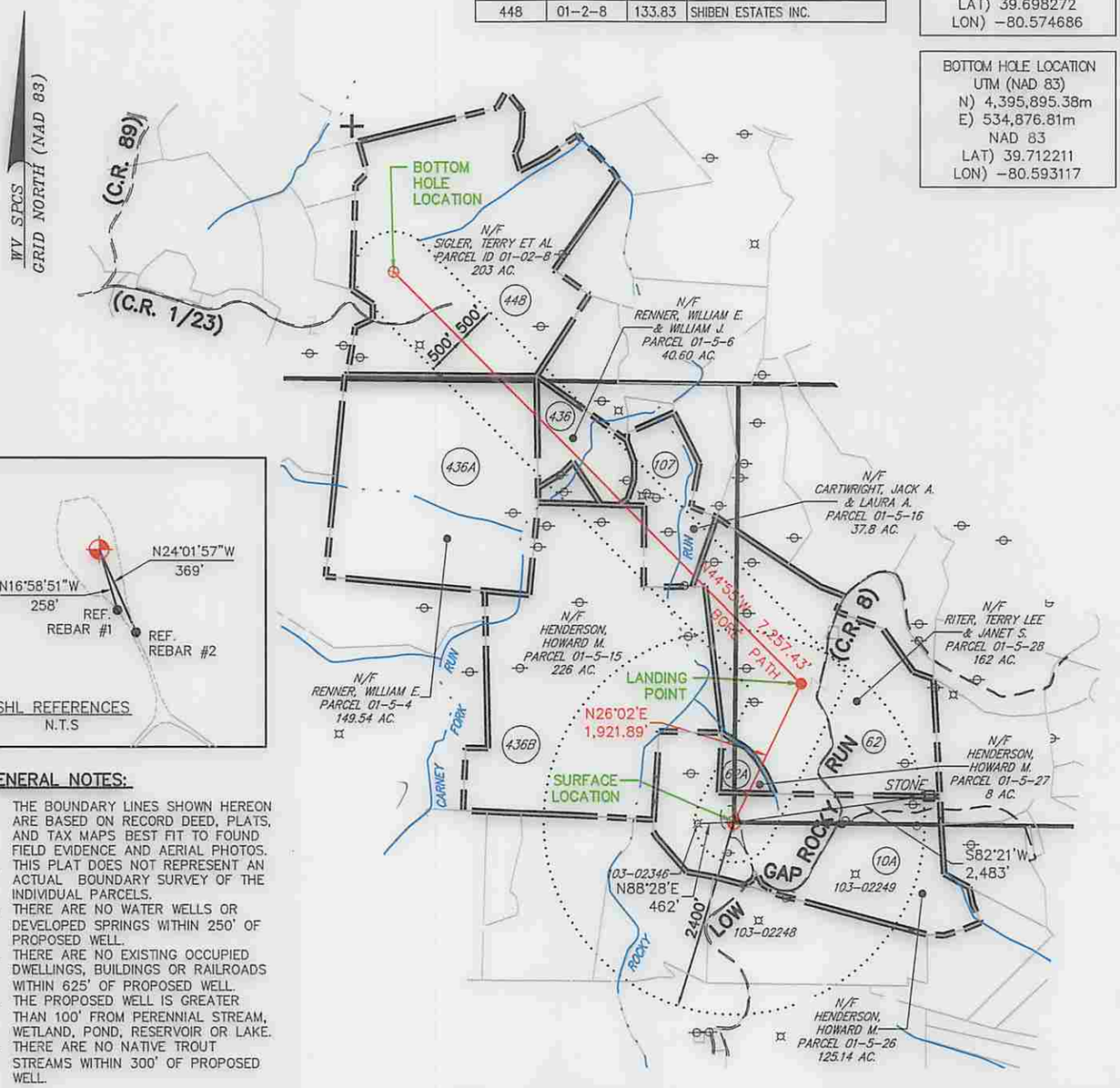
- PROPOSED GAS WELL
- EXISTING GAS WELLS
- PRE-29 WELLS
- PROPOSED BORE
- MINERAL TRACT BOUNDARY
- 500'/2,400' BUFFER
- STREAM LINE
- SURFACE TRACT BOUNDARY
- ROADS
- TOPO MAP POINT

| MINERAL TRACT NUMBER | TAX MAP PARCEL NUMBER | TAX GROSS ACRES | MINERAL OWNERSHIP |
|---|---|---|---|
| 10A | 01-5-26 | 125.14 | MAXINE HENDERSON |
| 62A | 01-5-27 | 8.00 | MAXINE HENDERSON |
| 62 | 01-5-28<br>01-5-29 | 170.00 | TERRY RITER et al |
| 107 | 01-5-16 | 37.75 | SHERRY JEAN RAMSEY et al |
| 436B | 01-5-15 | 226.00 | CHARLES E. HORNER et al |
| 436 | 01-5-6 | 40.60 | WILLIAM E. RENNER et al |
| 436A | 01-5-4 | 149.54 | ANN MARIE HOVIK et al |
| 448 | 01-2-8 | 133.83 | SHIBEN ESTATES INC. |

SURFACE LOCATION
UTM (NAD 83) METERS
N) 4,393,825.22m
E) 536,215.83m
NAD 83
LAT) 39.693503
LON) -80.577610

LANDING POINT LOCATION
UTM (NAD 83)
N) 4,394,355.63m
E) 536,464.01m
NAD 83
LAT) 39.698272
LON) -80.574686

BOTTOM HOLE LOCATION
UTM (NAD 83)
N) 4,395,895.38m
E) 534,876.81m
NAD 83
LAT) 39.712211
LON) -80.593117







**GENERAL NOTES:**

1. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, PLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS.
2. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
3. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
4. THERE ARE NO EXISTING OCCUPIED DWELLINGS, BUILDINGS OR RAILROADS WITHIN 625' OF PROPOSED WELL.
5. THE PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
6. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.

FILE #: 099912016

DRAWING #: 099912016_WELL PLAT

SCALE: 1" = 2,000'

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING 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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:

R.P.E.: L.L.S.: 2241

CRAIG ROBERT WEST LICENSED No. 2241 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

**WVDEP**
**OFFICE OF OIL & GAS**
**601 57TH STREET**
**CHARLESTON, WV 25304**

DATE: OCTOBER 20, 2014

OPERATOR'S WELL #: NORTH HENDERSON NORTH UNIT 5H

API WELL #: 47 (STATE) 103 (COUNTY) 03016946A (PERMIT)

WELL TYPE: ☐ OIL ☒ GAS ☐ WASTE DISPOSAL ☐ LIQUID INJECTION ☒ PRODUCTION ☐ STORAGE ☐ DEEP ☒ SHALLOW

WATERSHED: LOWER WEST VIRGINIA FORK FISH CREEK

ELEVATION: 1,342' (AS-BUILT)

COUNTY/DISTRICT: WETZEL / CENTER

QUADRANGLE: LITTLETON

SURFACE OWNER: HOWARD HENDERSON

ACREAGE: 125±

OIL & GAS ROYALTY OWNER: MAXINE HENDERSON

LEASE ACREAGE: SEE MINERAL INTEREST TABLE

CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐

DRILL ☒ PLUG OFF OLD FORMATION ☐ CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY):

TARGET FORMATION: MARCELLUS

ESTIMATED DEPTH: 7,484'

WELL OPERATOR: STATOIL USA ONSHORE PROPERTIES INC.

DESIGNATED AGENT: RICHARD PYLES

ADDRESS: 2103 CITYWEST BLVD., SUITE 800

ADDRESS: 803 NASH ROAD

CITY: HOUSTON STATE: TX ZIP CODE: 77042

CITY: MIDDLEBOURNE STATE: WV ZIP CODE: 26149