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**west virginia** department of environmental protection

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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

June 18, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-10303113, 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

Operator's Well No: CHARLES MUSGRAVE SOUTH 3

Farm Name: DORSEY, ROBERT

API Well Number: 47-10303113

Permit Type: Horizontal 6A Well

Date Issued: 06/18/2015

**Promoting a healthy environment.**

06/19/2015

## 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

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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  
(10/14)

RECEIVED  
Office of Oil and Gas  
API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Charles Musgrave South 3H  
Well Pad Name: Charles Musgrave

WV Department of  
Environmental Protection

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

1) Well Operator: Statoil USA Onshore Propp 494505083 Wetzel Center Littleton  
Operator ID County District Quadrangle

2) Operator's Well Number: Charles Musgrave South 3H Well Pad Name: Charles Musgrave

3) Farm Name/Surface Owner: Musgrave Farm/Roberty Dorsey Public Road Access: Fairview Road

4) Elevation, current ground: 1344' (existing) Elevation, proposed post-construction: 1344' (existing pad)

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

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Marcellus: Formation Top 7470' TVD, 44' thick, 5258 Psi

8) Proposed Total Vertical Depth: 7511' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19,297' MD

11) Proposed Horizontal Leg Length: 11,337'

12) Approximate Fresh Water Strata Depths: 466' TVD

13) Method to Determine Fresh Water Depths: 1980 study "Freshwater & Saline Groundwater of WV" by James Foster

14) Approximate Saltwater Depths: 691' TVD

15) Approximate Coal Seam Depths: 774', 846', 904', 1126', 1206', 1228'

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 X

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

WW-6B  
(10/14)

APR 27 2015

API NO. 47- 47-10303113  
OPERATOR WELL NO. Charles Musgrave South  
Well Pad Name: Charles Musgrave

WV Department of  
Environmental Protection  
**CASING AND TUBING PROGRAM**

18)

| TYPE         | Size (in) | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling (ft) | INTERVALS: Left in Well (ft) | CEMENT: Fill-up (Cu. Ft.)/CTS |
|--------------|-----------|-------------|-------|------------------------|----------------------------|------------------------------|-------------------------------|
| Conductor    | 20"       | New         | H-40  | 94#                    | 120'                       | 120'                         | cmt to surface-150 cuft       |
| Fresh Water  | 13.375"   | New         | J-55  | 54.4#                  | 510'                       | 510'                         | cmt to surface-500 cuft       |
| Coal         | NA        |             |       |                        |                            |                              |                               |
| Intermediate | 9.625"    | New         | J-55  | 36#                    | 2900'                      | 2900'                        | cmt to surface-508 cuft       |
| Production   | 5.5"      | New         | P-110 | 20#                    | 19297'                     | 19297'                       | cmt to 1900'-3227 cuft        |
| Tubing       | 2.375"    | New         | L-80  | 4.7#                   | ---                        | ---                          | ---                           |
| Liners       |           |             |       |                        |                            |                              |                               |

DMH 4-24-15

| TYPE         | Size (in) | Wellbore Diameter (in) | Wall Thickness (in) | Burst Pressure (psi) | Max. Associated Surface Pressure (psi) | 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     | 2.31 cu ft/sk            |
| Coal         | NA        |                        |                     |                      |  |             |                          |
| Intermediate | 9.625"    | 12.25"                 | .352"               | 3520 psi             | 2213                                   | Class A     | 2.31 cu ft/sk            |
| Production   | 5.5"      | 8.5"                   | .361"               | 12640 psi            | 10000                                  | Class A     | 1.37 cu ft/sk            |
| Tubing       | 2.375"    | 5.5"                   | .19"                | 11200 psi            | 3616                                   | ---         | ---                      |
| Liners       |           |                        |                     |                      |  |             |                          |

**PACKERS**

|             |                                  |  |  |  |
|-------------|----------------------------------|--|--|--|
| Kind:       | HES Versa-Set Retrievable Packer |  |  |  |
| Sizes:      | 2.375" x 5.5"                    |  |  |  |
| Depths Set: | 6825'                            |  |  |  |

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

See Attached

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

Well will be 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): 4.5 acres

22) Area to be disturbed for well pad only, less access road (acres): 2.8 acres

23) Describe centralizer placement for each casing string:

See Attached

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

See Attached

25) Proposed borehole conditioning procedures:

See Attached

\*Note: Attach additional sheets as needed.

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

20" conductor will be pre-set prior to start of operations and cemented in place to surface at approximately 120ft. A 17 ½" surface hole will be drilled with fresh water to approximately 530' md/tvd. 13 3/8" surface casing will be installed and cemented to surface in order to isolate fresh water zones and provide a competent shoe for well control while drilling deeper horizons. A 12 ¼" intermediate hole section will be drilled with 5% KCL Polymer (WBM) and a conventional mud motor to approximately 2783' md/tvd through the base of the Big Injun formation. 9 5/8" Intermediate casing will be installed and cemented to surface in order to isolate the Red Beds and Big Injun formation from lower hydrocarbon bearing zones while providing a competent shoe for well control. An 8 ½" vertical hole section will be to planned kick-off point using Synthetic Based Mud (SBM) and a conventional mud motor. The wellbore will be deviated from vertical and landed horizontally in the Marcellus Target horizon, and extended laterally to total depth of 19,297' md/7,511' tvd using SBM and conventional mud motors. A 5 ½" production casing will be installed and cemented so estimated top of cement is at least 300ft inside the previous casing shoe. The Drilling Rig will then be released to the next well.

**23) Describe centralizer placement for each casing string:**

Surface - 1 centralizer w/ stop collar 10 ft above float shoe. One Single Bow every joint to 100ft below surface.

Intermediate – 1 centralizer w/ stop collar 10 ft above float shoe. 1 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.

Production - 1 centralizer w/ stop collar 10ft above shoe. 1 centralizer 10ft above float collar. 1 centralizer every joint (floating) until KOP. 1 centralizer every 3 joints (floating) until 200ft inside intermediate shoe. 1 centralizer 50ft below mandrel hanger.

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

Surface - Class A + 3% CaCl<sub>2</sub>

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 Dispersant, 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.

**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 air and displace to 9.0 ppg 5% KCL Polymer Water Based Mud (WBM) at section total depth. At section total depth, pump 40bbl viscous pill and circulate hole clean.**

**Production - Drilled with with air to kick-off point then 12.0-13.0 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.**



# Marcellus - Drilling Well Schematic

Well Name: Charles Musgrave South 3H  
 Field Name: Marcellus  
 County: Wetzel Co., WV  
 API #: 0

GLE (ft): 1,344  
 DF(ft): 22  
 BHL: X = 1762412.0 Y = 14401053.3  
 SHL: X = 1753604.9 Y = 14409184.7

TVD(ft): 7,511  
 TMD(ft): 19,297  
 Profile: Horizontal  
 AFE No.: 0

| Formations & Csg Points              | Depth, ft |       |        | Form. Temp. (F) | Pore Press. (EMW) | Frac Gradient (EMW) | Planned MW  | Measure Depth (ft) | Program | Details               |
|--------------------------------------|-----------|-------|--------|-----------------|-------------------|---------------------|-------------|--------------------|---------|-----------------------|
|                                      | MD        | TVD   | SS     |                 |                   |                     |             |                    |         |                       |
| Conductor                            | 120       | 120   | 1,246  | -               | -                 | -                   | -           | 120                |         | 20" Conductor         |
|                                      |           |       |        |                 |                   |                     | Fresh Water |                    |         | 17-1/2" Surface       |
|                                      |           |       |        |                 |                   |                     | 8.6         |                    |         |                       |
| Approximate Fresh Water Strata ~466' |           |       |        |                 |                   |                     |             |                    |         |                       |
| Casing Point                         | 530       | 530   | 836    | 65              | -                 | -                   | -           | 530                |         |                       |
|                                      |           |       |        |                 |                   |                     | 8.6         |                    |         |                       |
| Top Salt Water                       | 691       | 691   | 675    | -               | -                 | -                   | Air/Mist    |                    |         | FIT/LOT: 14.0 ppg EMW |
| Washington Coal                      |           | 773   | 593    | -               | -                 | -                   | Air/Mist    |                    |         | 12-1/4" Intermediate  |
| Waynesburg Coal                      |           | 903   | 463    | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Sewickley Coal                       |           | 1,126 | 240    | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Pittsburgh Coal                      |           | 1,206 | 160    | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Big Injun                            |           | 2,600 | -1234  | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Base of Big Injun                    |           | 2,683 | -1317  | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Casing Point                         | 2,783     | 2,783 | -1,417 | 82              | -                 | >18.0               | -           | 2,783              |         |                       |
| Weir                                 |           | 2,832 | -1,466 | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Gordon                               |           | 3,272 | -1,906 | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Warren                               |           | 3,948 | -2,582 | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Java                                 |           | 5,664 | -4,298 | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Benson                               |           | 5,687 | -4,321 | -               | -                 | -                   | Air/Mist    |                    |         |                       |
| Waynesburg Coal                      |           | 5,715 | -4,349 | -               | -                 | -                   | -           |                    |         |                       |
| KOP                                  | 6,459     | 6,453 | -5,087 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Middlesex                            |           | 7,218 | -5,852 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| West River                           |           | 7,251 | -5,885 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Genesee                              |           | 7,322 | -5,956 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Tully                                |           | 7,351 | -5,985 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Hamilton                             |           | 7,374 | -6,008 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Marcellus                            |           | 7,470 | -6,104 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Landing point                        | 7,963     | 7,501 | -6,135 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |
| Onondaga                             |           | 7,514 | -6,148 | -               | -                 | -                   | -           | 12.0-12.5          |         |                       |

**Profile:** Vertical  
**Bit Type:** 17-1/2" SMITH MSI716  
**BHA:** 9 5/8" Motor with Shock Sub  
**Mud:** 8.6 ppg Fresh Water  
**Surveys:** n/a  
**Logging:** n/a  
**Casing:** 13.375 54.5 J-55 BTC at 530' MD/530' TVD  
**Centralizers:** 1 centralizer w/ stop collar 10 ft above float shoe. One Single flow every joint to 100ft below surface.  
**Cement:** 15.8 ppg Tail slurry w/ TOC @ Surface  
**Potential Drilling Problems:** Stuck Pipe, Floating Collison

**FIT/LOT: 14.0 ppg EMW**  
**Profile:** Vertical  
**Bit Type:** 12-1/4" Hughes TCI VG-35ADX1 (IADC:547) w/ 3x22's  
**BHA:** 8" Directional Assy 7.8 Lobe 2.0 Stg. 07 rpg 1.83ABH (0.10 rpg/375 Diff)  
**Mud:** Air/Mist  
**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**  
**Profile:** Vertical  
**Bit Type:** 8-1/2" Hughes VG-30ADX1 (IADC:547) w/ 3x22's  
 8 1/2" Smith SDAI513 Curve Lateral w/ 7 x16's  
**BHA:** 8" Directional Assy 7.8 Lobe 2.0 Stg. 07 rpg 1.83ABH (0.10 rpg/375 Diff)  
**Mud:** - ppg Air/Mist  
**Surveys:** MWD - EM Pulse w/ 30ft surveys in curve, 100ft surveys in lateral  
**Logging:** GR  
**Casing/Liner:** 5.5 20 P110EC Tenaris Blue at ft MD/ R 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 @ 1900' MD'  
**Potential Drilling Problems:** Bit Preservation, Hole Cleaning  
**Notes / Comments:**

TMD: 19,297  
 TVD: 7,511

Last Revision Date: 6/11/2015  
 Revised by: Ryan Cardenas  
 Note: Depths are referenced to RKB  
 Note: Not Drawn to Scale  
 Cement Outside Casing



RECEIVED  
Office of Oil and Gas  
4710303113  
APR 27 2015

## CEMENT ADDITIVES

WV Department of  
Environmental Protection

Surface - Class A + 3% CaCl<sub>2</sub>

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 Dispersant, 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.

06/19/2015

APR 27 2015

WV Department of

Marcellus - Drilling Well Schematic

Well Name: Charles Musgrave South 3H  
Field Name: Marcellus  
County: Wetzel Co, WV  
API #: 0

BILL: X = 1762412.0 Y = 14401053.3  
SHL: X = 1753604.9 Y = 14409184.7

GLE (R): 1.344  
DF(R): 22  
TVD(R): 7,511  
TMD(R): 19,297  
Profile: Horizontal  
AFE No.: 0

| Formations & Csg Points              | Depth, ft |        |        | Form. Temp. (F) | Pore Press. (EMW) | Frac Gradient (EMW) | Planned MW  | Measure Depth (ft) | Program | Details                   |
|--------------------------------------|-----------|--------|--------|-----------------|-------------------|---------------------|-------------|--------------------|---------|---------------------------|
|                                      | MD        | TVD    | SS     |                 |                   |                     |             |                    |         |                           |
| Conductor                            | 120       | 120    | 1,246  | -               | -                 | -                   | -           | 120                |         | 20' 4"                    |
|                                      |           |        |        |                 |                   |                     | Fresh Water |                    |         | 17 1/2" SurfL             |
|                                      |           |        |        |                 |                   |                     | 8.6         |                    |         |                           |
| Approximate Fresh Water Strata ~466' |           |        |        |                 |                   |                     |             |                    |         |                           |
| Casing Point                         | 510       | 510    | 856    | 65              | -                 | -                   | -           | 510                |         |                           |
| Top Salt Water                       | 691       | 691    | 675    | -               | -                 | -                   | Air/Mist    |                    |         | 12 1/4" Intermedi         |
| Washington Coal                      | 773       | 593    |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Waynesburg Coal                      | 903       | 463    |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Sewickley Coal                       | 1,126     | 240    |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Pittsburgh Coal                      | 1,206     | 160    |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Big Injun                            | 2,600     | -1,234 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Base of Big Injun                    | 2,796     | -1,430 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Casing Point                         | 2,900     | 2,900  | -1,534 | 82              | -                 | -                   | -18.0       | 2,900              |         |                           |
| Weir                                 | 2,832     | -1,466 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Gordon                               | 3,272     | -1,906 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Warren                               | 3,948     | -2,582 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Java                                 | 5,664     | -4,298 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Berston                              | 5,687     | -4,321 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| Waynesburg Coal                      | 5,715     | -4,349 |        |                 |                   |                     | Air/Mist    |                    |         |                           |
| KOP                                  | 6,459     | 6,453  | -5,087 |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Middlesex                            | 7,218     | -5,852 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| West River                           | 7,251     | -5,885 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Genesee                              | 7,322     | -5,956 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Tully                                | 7,351     | -5,985 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Hamilton                             | 7,374     | -6,008 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Marcellus                            | 7,470     | -6,104 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |
| Landing point                        | 7,963     | 7,501  | -6,135 |                 |                   |                     | 12.0-12.5   |                    |         | TMD: 19,297<br>TVD: 7,511 |
| Onondaga                             | 7,514     | -6,148 |        |                 |                   |                     | 12.0-12.5   |                    |         |                           |

Profile: Vertical  
Bit Type: 17-1/2" SMITH M5716  
BHA: 9 5/8" Motor with Shock Sub  
Mud: 8.6 ppg Fresh Water  
Surveys: n/a  
Logging: n/a  
Casing/Liner: 13.375 54.5 J-55 BTC at 510' MD/510' TVD  
Centralizers: 1 centralizer w/ stop collar 10 ft above float shoe. One Single B-joint to 100ft below surface.  
Cement: 15.8 ppg Tail slurry w/ TOC @ Surface  
Potential Drilling Problems: Stuck Pipe, Floating Collar.

FIT/LOT: 14.0 ppg EMW  
Profile: Vertical  
Bit Type: 12-1/4" Hughes TCI VG-35ADX1 (IADC:547) w/ 3x22's  
BHA: 8" Directional Assy 7-9 Lobe 2.0 Sg .07 rpg 1.83ABW (0.16 rpg)  
Mud: Air/Mist  
Surveys: Cyro SS, MWD - EM Pulse  
Logging: n/a  
Casing/Liner: 9.625 36 J-55 BTC at MD/ TVD  
Csg Hanger: Mandrel Hanger  
Centralizers: 1 cement centralizer w/ stop collar 10 ft above float shoe. 1 cement centralizer w/ stop collar 10 ft above float collar. 1 centralizer for the first 15 joints. One centralizer every 3 joints to 100ft below  
Cement: 15.8 ppg Tail slurry w/ TOC @ Surface  
Potential Drilling Problems: Hole Bleeding, Poor KOP, Buckling.

FIT/LOT: 15.8 ppg EMW  
Profile: 8-1/2" Production  
Bit Type: 8-1/2" Hughes VG-30ADX1 (IADC: 547) w/ 3x22's  
BHA: 8 1/2" Smith SDAS13 Curve Lateral w/ 7 x16's  
Mud: - ppg Air/Mist  
Surveys: MWD - EM Pulse w/ 30ft surveys in curve. 100ft surveys in later CR  
Logging:  
Casing/Liner: 5.5 20 P110EC Tenaris Blue at ft MD/ ft TVD  
Csg Hanger: Mandrel Hanger  
Centralizers: 1 cement centralizer w/ stop collar 10ft above shoe. 1 cement cen 10ft above float collar. 1 cement centralizer every joint (floating) 1 cement centralizer every 3 joints (floating) until 200ft inside in shoe. 1 cement centralizer 50ft below mandrel hanger.  
Cement: 15 ppg Tail slurry w/ TOC @ 1900' MD'  
Potential Drilling Problems: Bit Preservation, Hole Bleeding.

Notes / Comments:

Last Revision Date: 4/21/2015  
Revised by: Ryan Cardenas  
Note: Depths are referenced to RKB  
Note: Not Drawn to Scale  
Cement Outside Casing

4710303113

APR 27 2015

WW-9  
(2/15)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Charles Musgrave South 3H

WV Department of  
Environmental Protection  
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

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.? \_\_\_\_\_

Proposed Disposal Method For Treated Pit Wastes:

*DMH 4-24-15*

- 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. sec/oil based mud horiz. 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, 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

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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.

Company Official Signature *Bekki Winfree*

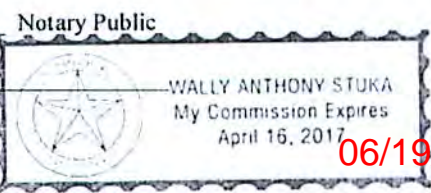
Company Official (Typed Name) Bekki Winfree

Company Official Title Sr. Regulatory Advisor

Subscribed and sworn before me this 15<sup>th</sup> day of Apr. 1, 20 15

*Wally Anthony Stuka*

My commission expires Apr. 16, 2017



06/19/2015

**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

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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: 4-24-15

Field Reviewed?  Yes  No



# Marcellus - Drilling Well Schematic

47-10-303113  
TVD(R): 7,511  
TMD(R): 19,458  
Profile: Horizontal  
AFE No.: 0

Well Name: Charles Musgrave South 4H  
Field Name: Marcellus  
County: Wetzel Co., WV  
API #: 0

BHL: X = 1762089.3 Y = 14400359.2  
SHL: X = 1753598.6 Y = 14409180.6  
GLE (R): 1,344  
DF(R): 22

| Formations & Csg Points              | Depth, ft |       |        | Form. Temp. (F) | Pore Press. (EMW) | Frac Gradient (EMW) | Planned MW  | Measure Depth (ft) | Program              | Details |
|--------------------------------------|-----------|-------|--------|-----------------|-------------------|---------------------|-------------|--------------------|----------------------|---------|
|                                      | MD        | TVD   | SS     |                 |                   |                     |             |                    |                      |         |
| Conductor                            | 120       | 120   | 1,246  | -               | -                 | -                   | -           | 120                | 17-1/2" Surface      | 20' C   |
|                                      |           |       |        |                 |                   |                     | Fresh Water |                    |                      |         |
|                                      |           |       |        |                 |                   |                     | 8.6         |                    |                      |         |
| Approximate Fresh Water Strata ~466' |           |       |        |                 |                   |                     |             |                    |                      |         |
| Casing Point                         | 510       | 510   | 856    | 65              | -                 | -                   | -           | 510                | 12-1/4" Intermediate |         |
| Top Salt Water                       | 691       | 691   | 675    |                 |                   |                     | Air/Mist    |                    |                      |         |
| Washington Coal                      |           | 773   | 593    |                 |                   |                     | Air/Mist    |                    |                      |         |
| Waynesburg Coal                      |           | 903   | 463    |                 |                   |                     | Air/Mist    |                    |                      |         |
| Sewickley Coal                       |           | 1,126 | 240    |                 |                   |                     | Air/Mist    |                    |                      |         |
| Pittsburgh Coal                      |           | 1,206 | 160    |                 |                   |                     | Air/Mist    |                    |                      |         |
| Big Injun                            |           | 2,600 | -1,234 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Base of Big Injun                    |           | 2,796 | -1,430 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Casing Point                         | 2,900     | 2,900 | -1,534 | 82              | -                 | >18.0               | -           | 2,900              | 8-1/2" Production    |         |
| Weir                                 |           | 2,832 | -1,466 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Gordon                               |           | 3,272 | -1,906 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Warren                               |           | 3,948 | -2,582 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Java                                 |           | 5,664 | -4,298 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Benson                               |           | 5,687 | -4,321 |                 |                   |                     | Air/Mist    |                    |                      |         |
| Waynesburg Coal                      |           | 5,715 | -4,349 |                 |                   |                     |             |                    |                      |         |
| KOP                                  | 6,915     | 6,909 | -5,543 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Middlesex                            |           | 7,218 | -5,852 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| West River                           |           | 7,251 | -5,885 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Genesee                              |           | 7,322 | -5,956 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Tully                                |           | 7,351 | -5,985 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Hamilton                             |           | 7,374 | -6,008 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Marcellus                            |           | 7,470 | -6,104 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Landing point                        | 7,828     | 7,496 | -6,130 |                 |                   |                     | 12.0-12.5   |                    |                      |         |
| Onondaga                             |           | 7,514 | -6,148 |                 |                   |                     | 12.0-12.5   |                    |                      |         |

Profile: Vertical  
 Bit Type: 17-1/2" SMITH MS/716  
 BHA: 9 5/8" Motor with Shock Sub  
 Mud: 8.6 ppg Fresh Water  
 Surveys: n/a  
 Logging: n/a  
 Casing: 13 375 54.5 J-55 BTC at 510' MD/510' TVD  
 Centralizers: 1 centralizer w/ stop collar 10 ft above float shoe. One Single Box 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  
 Profile: Vertical  
 Bit Type: 12-1/4" Hughes TCI VG-35ADX1 (IADC:547) w/ 3x22's  
 BHA: 8" Directional Assy 7-8 Lobe 2.0 Stg .07 rpg 1.83ABH (0.10 rpg)  
 Mud: Air/Mist  
 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 ev for the first 15 joints. One centralizer every 3 jnts to 100ft below  
 Cement: 15.8 ppg Tail slurry w/ TOC @ Surface  
 Potential Drilling Problems: Hole Boreing, Poor ROP, Buckling

FIT/LOT: 15.8 ppg EMW  
 Profile: Vertical  
 Bit Type: 8-1/2" Hughes VG-30ADX1 (IADC: 547) w/ 3x22's  
 BHA: 8 1/2" Smith SDA1513 Curve Lateral w/ 7 x16's  
 Mud: - ppg Air/Mist  
 Surveys: MWD - EM Pulse w/ 30ft surveys in curve, 100ft surveys in later  
 Logging: GR  
 Casing/Liner: 5.5 20 P110EC Tenaris Blue at ft MD/ ft TVD  
 Csg Hanger: Mandrel Hanger  
 Centralizers: 1 centek centralizer w/ stop collar 10ft above shoe. 1 centek cen 10ft above float collar. 1 centek centralizer every joint (floating) 1 centek centralizer every 3 joints (floating) until 200ft inside in shoe. 1 centek centralizer 50ft below mandrel hanger.  
 Cement: 15 ppg Tail slurry w/ TOC @ 1900' MD'  
 Potential Drilling Problems: Bit Preservation, Hole Boreing, ..  
 Notes / Comments:

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WV Department of Environmental Protection

Last Revision Date: 4/21/2015  
 Revised by: Ryan Cardenas

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

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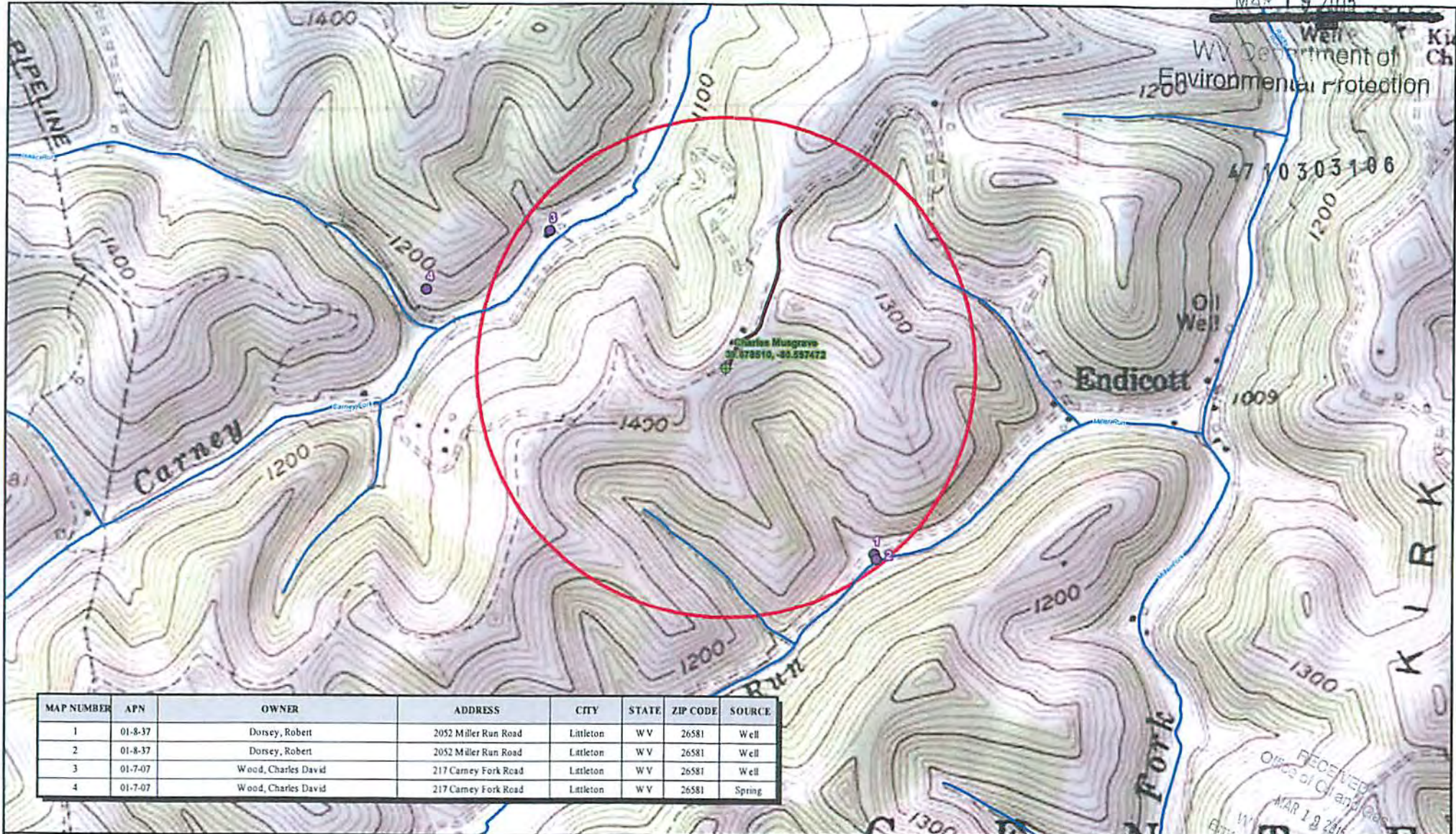
## Charles Musgrave Pad – Site Safety Plan

Statoil USA Onshore Properties, Inc.

DMH  
3-11-15

06/19/2015

MAR 19 2015



| MAP NUMBER | APN     | OWNER               | ADDRESS              | CITY      | STATE | ZIP CODE | SOURCE |
|------------|---------|---------------------|----------------------|-----------|-------|----------|--------|
| 1          | 01-8-37 | Dorsey, Robert      | 2052 Miller Run Road | Littleton | WV    | 26581    | Well   |
| 2          | 01-8-37 | Dorsey, Robert      | 2052 Miller Run Road | Littleton | WV    | 26581    | Well   |
| 3          | 01-7-07 | Wood, Charles David | 217 Carney Fork Road | Littleton | WV    | 26581    | Well   |
| 4          | 01-7-07 | Wood, Charles David | 217 Carney Fork Road | Littleton | WV    | 26581    | Spring |



**Statoil North America, Inc.**  
**Charles Musgrave Well Pad**  
Topographic Map - Water Sources  
Crest District, West Coal County, WV  
Project No. 09991 2014

**REVIEW**

- Water Source
- Well Pad

- Access Road
- NHD Stream

- 2,000' Well Pad Radius
- Lake/Pond (None Present)

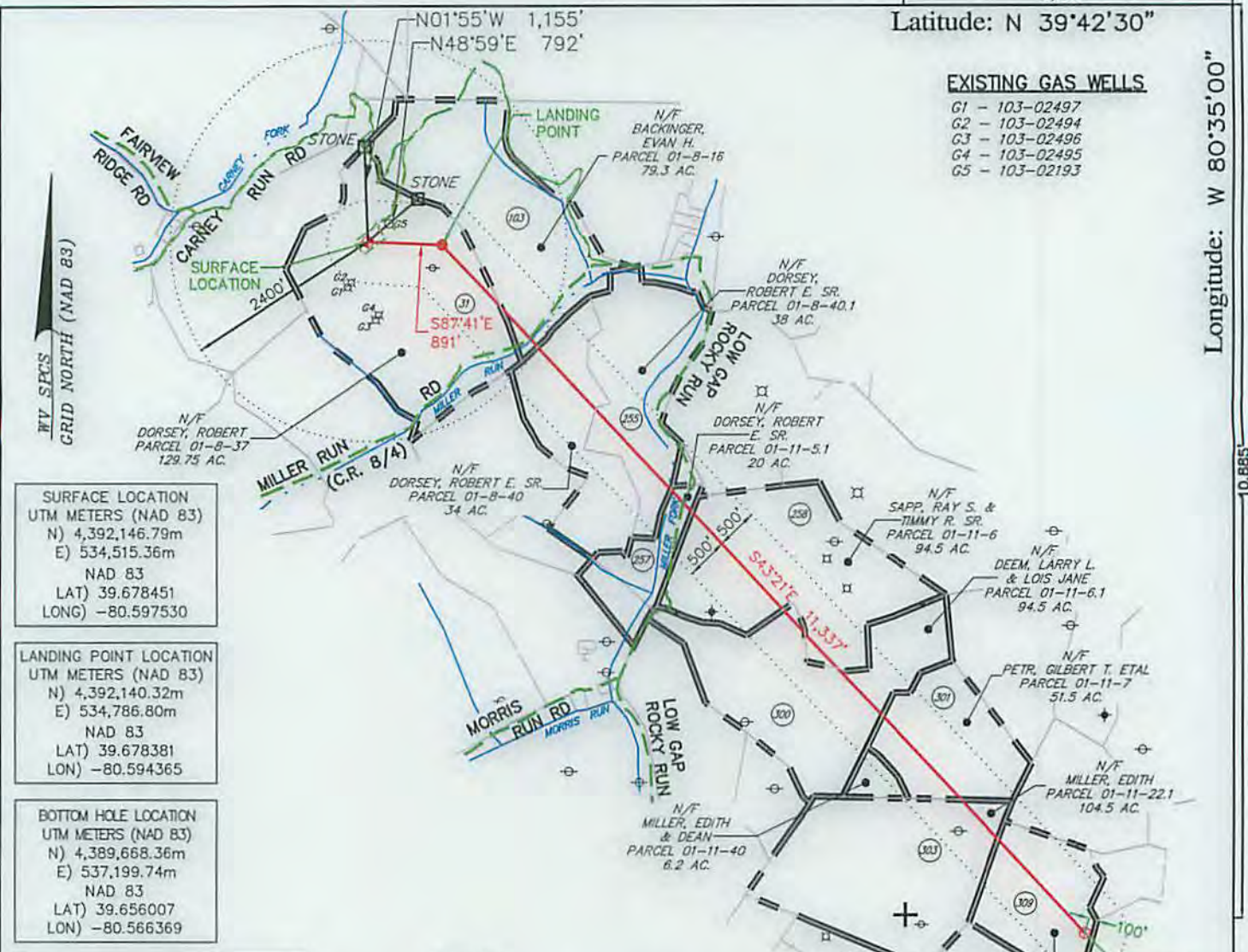


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Littleton, WV USGS 7.5'  
Topographic Quadrangle  
Drawn By: JPM  
10/6/2014



EXISTING GAS WELLS

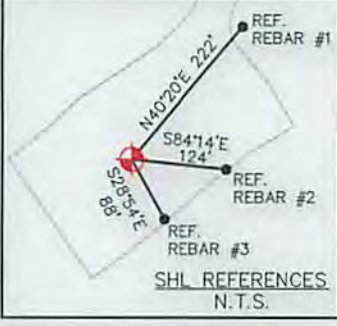
- G1 - 103-02497
- G2 - 103-02494
- G3 - 103-02496
- G4 - 103-02495
- G5 - 103-02193



**SURFACE LOCATION**  
 UTM METERS (NAD 83)  
 N) 4,392,146.79m  
 E) 534,515.36m  
 NAD 83  
 LAT) 39.678451  
 LONG) -80.597530

**LANDING POINT LOCATION**  
 UTM METERS (NAD 83)  
 N) 4,392,140.32m  
 E) 534,786.80m  
 NAD 83  
 LAT) 39.678381  
 LONG) -80.594365

**BOTTOM HOLE LOCATION**  
 UTM METERS (NAD 83)  
 N) 4,389,668.36m  
 E) 537,199.74m  
 NAD 83  
 LAT) 39.656007  
 LONG) -80.566369



LEGEND

- PROPOSED GAS WELL
- EXISTING GAS WELLS
- PRE-29 WELLS
- PLUGGED GAS 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 | TRACT GROSS ACRES | MINERAL OWNERSHIP  |
|----------------------|-----------------------|-------------------|--|
| 31                   | 01-8-37               | 129.75            | DIANE WYKERT<br>CHARLES E. MUSGRAVE &<br>ILA MAE MUSGRAVE, ET AL |
| 103                  | 01-8-16               | 79.25             | DIANA DAWN VANHORN<br>EARNEST H. &<br>CALRIS C. CADLE, ET AL     |
| 255                  | 01-8-40<br>01-8-40.1  | 68                | GREEN DOT FARM, INC.<br>JAMES HARRY ASHCRAFT, ET AL              |
| 257                  | 01-11-5<br>01-11-5.1  | 28                | HEIRS & ASSIGNS OF<br>JAMES RITER, ET AL                         |
| 258                  | 01-11-6               | 100.50            | NANCY RENZELLI<br>ELIZABETH DRAKE, ET AL                         |
| 300                  | 01-11-6.1             | 94.50             | NANCY RENZELLI<br>ELIZABETH DRAKE, ET AL                         |
| 301                  | 01-11-7               | 51.50             | GREEN DOT FARM, INC.   |
| 303                  | 01-11-22.1            | 104.50            | SHIBEN ESTATES INC., ET AL                                       |
| 309                  | 01-11-24              | 47.10             | JAMES B MONTGOMERY &<br>MARGIE L MONTGOMERY                      |

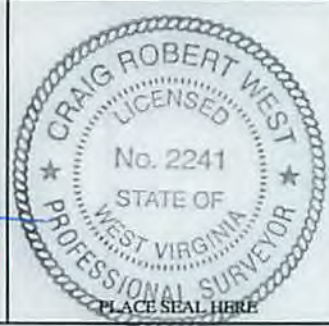
GENERAL NOTES:

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 #: 099912019  
 DRAWING #: 099912019\_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: *Craig Robert West*  
 R.P.E.: \_\_\_\_\_ L.L.S.: 2241



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



DATE: APRIL 16, 2015  
 OPERATOR'S WELL #: CHARLES MUSGRAVE SOUTH 3H  
 API WELL #: 47 103 03113H6A  
 STATE COUNTY PERMIT

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

WATERSHED: LOWER WEST VIRGINIA FORK FISH CREEK ELEVATION: 1,344' (AS-BUILT)

COUNTY/DISTRICT: WETZEL / CENTER QUADRANGLE: LITTLETON

SURFACE OWNER: DORSEY, ROBERT ACREAGE: 130±

OIL & GAS ROYALTY OWNER: DIANE WYKERT, CHARLES E. & ILA MAE MUSGRAVE, ET AL 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: TVD 7,511'

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

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WV Department of  
Environmental Protection



April 24, 2015

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 23504-2345

Attention: Mr. Gene Smith

Reference: Charles Musgrave South 3H - Permit Application  
Wetzel County, WV

Mr. Smith:

Statoil USA Onshore Properties Inc. (Statoil) herein submits an application to drill, hydraulically fracture, complete and produce the Charles Musgrave South 3H from the existing Charles Musgrave pad in Wetzel, County. In support of this application enclosed please find the following:

- Required documentation for a Horizontal 6A Well Permit Application as outlined on the "Horizontal 6A Well Permit Application Checklist"
- Check No. 2000336916 in the amount of \$5,150.00
- CD containing a copy of the MSDS, Pad As-Built/E&S Plan and the Site Safety Plan

If you have any questions or require additional information, please contact the undersigned at 713-485-2640 or at [BEKW@statoil.com](mailto:BEKW@statoil.com).

Sincerely,

A handwritten signature in blue ink that reads "Bekki Winfree".

Bekki Winfree  
Sr. Regulatory Advisor – Marcellus

06/19/2015

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

| Lease Name or Number    | Grantor, Lessor, etc. | Grantee, Lessee, etc. | Royalty | Book/Page |
|-------------------------|-----------------------|-----------------------|---------|-----------|
| (Please See Attachment) |                       |                       |         |           |

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**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Statoil USA Onshore Properties Inc.  
 By: Bekki Winfree *Bekki Winfree*  
 Its: Sr. Regulatory Advisor

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479 Office of Oil and Gas

0303  
APR 27 2015 3

Form WW-6A-1- Preliminary Information: (Attachment)

Charles Musgrave South 3H

*NOTE: All Mineral/Unit Tracts are Identified on the Well Plat In Order from Top Hole to Bottom Hole* WV Department of  
Environmental Protection

| Tract 31     |   |  |              |            |
|--------------|---|--|--------------|------------|
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115703001    | Diane Wykert  | Drilling Appalachian Corporation         | At Least 1/8 | 83A / 697  |
| 115703002    | Charles E Musgrave & Ila Mae Musgrave, et al  | Drilling Appalachian Corporation         | At Least 1/8 | 83A / 671  |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A / 54  |
| Tract 103    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115623007    | Diana Dawn Vanhorn  | Drilling Appalachian Corporation         | At Least 1/8 | 98A / 647  |
| 115623008    | Earnest H and Calris C Cadle, et al   | Drilling Appalachian Corporation         | At Least 1/8 | 86A / 578  |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A / 54  |
| Tract 255    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115042007    | Green Dot Farm, Inc.  | Drilling Appalachian Corporation         | At Least 1/8 | 103A / 265 |
| 115042006    | James Harry Ashcraft, et al   | Drilling Appalachian Corporation         | At Least 1/8 | 102A / 367 |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A / 54  |
| Tract 257    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115269000    | William Riter and Helen Riter   | The Manufacturers Light and Heat Company | At Least 1/8 | 13A/1      |
| N/A          | The Manufacturers Light and Heat Company  | Tenneco Oil Company                      | Assignment   | 50A/156    |
| N/A          | Tenneco Oil Company   | TOC - Mid-Continent, Inc.                | Assignment   | 321/323    |
| N/A          | TOC - Mid-Continent, Inc.   | Mesa Midcontinent Limited Partnership    | Assignment   | 321/351    |
|              | Mesa Midcontinent Limited Partnership merged into Mesa Midcontinent Co.* on January 5, 1994 |  |              |            |
|              | *Mesa Midcontinent Co. was a wholly owned subsidiary of MESA Inc.                           |  |              |            |
|              | MESA Inc. merged with and into Pioneer Natural Resources, USA on August 7, 1997             |  |              |            |
| N/A          | Pioneer Natural Resources, USA  | Grenadier Energy Partners, LLC           | Assignment   | 128A / 238 |
| N/A          | Grenadier Energy Partners, LLC  | Statoil USA Onshore Properties, Inc      | Assignment   | 138A / 54  |
| Tract 258    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115046009    | Nancy Renzelli  | Drilling Appalachian Corporation         | At Least 1/8 | 134A / 100 |
| 115046013    | Elizabeth Drake, et al  | Drilling Appalachian Corporation         | At Least 1/8 | 134A / 102 |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A / 54  |
| Tract 300    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115046009    | Nancy Renzelli  | Drilling Appalachian Corporation         | At Least 1/8 | 134A/100   |
| 115046013    | Elizabeth Drake, et al  | Drilling Appalachian Corporation         | At Least 1/8 | 134A/102   |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A/54    |
| Tract 301    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| 115756000    | Green Dot Farm Inc  | Drilling Appalachian Corporation         | At Least 1/8 | 101A / 781 |
| N/A          | Drilling Appalachian Corporation  | Statoil USA Onshore Properties Inc.      | Assignment   | 138A / 54  |
| Tract 303    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| N/A          | Shiben Estates, Inc   | Grenadier Energy Partners                | At Least 1/8 | 123A / 772 |
| N/A          | Grenadier Energy Partners, LLC  | Statoil USA Onshore Properties, Inc      | Assignment   | 138A / 54  |
| Tract 309    |   |  |              |            |
| Lease Number | Grantor, Lessor   | Grantee, Lessee                          | Royalty      | Book/Page  |
| Pending      | James B Montgomery and Margie L Montgomery  | Statoil USA Onshore Properties Inc       | At Least 1/8 | 160A/629   |

06/19/2015

4710303113



400 White Oak Boulevard  
Bridgeport, WV 26330  
(304) 933-8000 (304) 933-8183 Fax  
www.step-toe-johnson.com

Writer's Contact Information  
(304) 933-8133  
Marsha.Hudkins@step-toe-johnson.com

November 24, 2014

RECEIVED  
Office of Oil and Gas

APR 27 2015

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

WV Department of  
Environmental Protection

Re: Well No.: \_\_\_\_\_  
Operator: Statoil USA Onshore Properties  
Property: Oil and Gas underlying 129.75 acres, Map 8, Parcel 37,  
Center District, Wetzel County, WV (AMI 31)  
Effective Date of Title Examination: September 3, 2010

Ladies and Gentlemen:

We have examined title to the above captioned property as of the above stated Effective Date. Based upon our review of all relevant land title records, we are of the opinion that no basis exists of record for the West Virginia Department of Highways to own or to claim any ownership of the oil and/or gas within and underlying any roads which traverse or abound the above captioned property.

Very truly yours,

STEP TOE & JOHNSON PLLC

By: Marsha K. Hudkins  
Marsha Hudkins, a Member

cc: Catherine Hammock, Statoil USA Onshore Properties



400 White Oaks Boulevard  
Bridgeport, WV 26330  
(304) 933-8000 (304) 933-8183 Fax  
www.stepToe-johnson.com

4710303113  
Writer's Contact Information  
(304) 933-8133  
Marsha Hudkins@stepToe-johnson.com

November 24, 2014

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

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Office of Oil and Gas

APR 27 2015

WV Department of  
Environmental Protection

Re: Well No.: \_\_\_\_\_  
Operator: Statoil USA Onshore Properties  
Property: Oil and Gas underlying 38 acres, Map 8, Parcel 40.1, Center  
District, Wetzel County, WV (AMI 255)  
Effective Date of Title Examination: April 22, 2011

Ladies and Gentlemen:

We have examined title to the above captioned property as of the above stated Effective Date. Based upon our review of all relevant land title records, we are of the opinion that no basis exists of record for the West Virginia Department of Highways to own or to claim any ownership of the oil and/or gas within and underlying any roads which traverse or abound the above captioned property.

Very truly yours,

STEPTOE & JOHNSON PLLC

By: Marsha Hudkins  
Marsha Hudkins, a Member

cc: Catherine Hammock, Statoil USA Onshore Properties



400 White Oaks Boulevard  
Bridgeport, WV 26330  
(304) 933-8000 (304) 933-8183 Fax  
www.steptoe-johnson.com

4710303113

Writer's Contact Information

(304) 933-8133  
Marsha.Hudkins@steptoe-johnson.com

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Office of Oil and Gas

November 24, 2014

APR 27 2015

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

WV Department of  
Environmental Protection

Re: Well No.: \_\_\_\_\_  
Operator: Statoil USA Onshore Properties  
Property: Oil and Gas underlying 195 acres, Map 11, Parcel Nos. 6 &  
6.2, Center District, Wetzel County, WV (AMI 258)  
Effective Date of Title Examination: February 3, 2010

Ladies and Gentlemen:

We have examined title to the above captioned property as of the above stated Effective Date. Based upon our review of all relevant land title records, we are of the opinion that no basis exists of record for the West Virginia Department of Highways to own or to claim any ownership of the oil and/or gas within and underlying any roads which traverse or abound the above captioned property.

Very truly yours,

STEP TOE & JOHNSON PLLC

By: Marsha Hudkins  
Marsha Hudkins, a Member

cc: Catherine Hammock, Statoil USA Onshore Properties



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Office of Oil and Gas  
APR 27 2015

WV Department of  
Environmental Protection

February 2, 2015

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, West Virginia 25304

Re: Green Dot 4 - Tract Index No. 301  
Prospect No. 20140206.1  
District No. 1, Tax Map No. 11, Parcel No. 7  
Green Dot Farm, Inc., 51.50 acres  
Wetzel County, West Virginia  
Certification Date: May 9, 2014, at 2:00 p.m.

Ladies and Gentlemen:

Based on our review of the following, we have determined that the State of West Virginia does not own any portion of the mineral interest or gas royalty underlying the above captioned lands, and there are no public roadways located thereon:

1. The land books maintained by the Office of the Clerk of the County Commission of Wetzel County, West Virginia from January 9, 1882, through the Certification Date set forth above;
2. Indices maintained by the aforesaid County Clerk;
3. A General Highway Map of Wetzel County, West Virginia, last revised January 1, 1998, provided to us by the West Virginia Department of Transportation, Division of Transportation Planning; and
4. W. Va. Code § 17-2A-17, stating in relevant part that:

... the commissioner may acquire... all real or personal property ... deemed by the commissioner to be necessary for ... state road purposes ... Such real property may be acquired in fee simple or in any lesser estate or interest therein, **except in the case of a public road the right-of-way only shall be acquired** ... [emphasis added]



APR 27 2015

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Page 2

47-10303-1; W. Va. Department of Environmental Protection

We hereby certify that subject to the correctness of the indices and/or any information that may be disclosed by an accurate survey and inspection of the above-captioned lands, there are no public roadways located on the above-captioned lands and therefore, the State of West Virginia does not own a mineral interest or gas royalty in said lands.

Beckmen Law, P.C.

By: Janeth A. Cornelious  
Janeth A. Cornelious

06/19/2015



February 2, 2015

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471030311  
APR 03 2015  
WV Department of  
Environmental Protection

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, West Virginia 25304

Re: Green Dot 4 Unit – Tract Index No. 309  
Prospect No. 20140206.1  
District No. 1, Tax Map No. 11, Parcel No. 24  
James B. Montgomery and wife, Margie L. Montgomery, 47.126 acres  
Wetzel County, West Virginia  
Certification Date: May 12, 2014, at 4:30 p.m.

Ladies and Gentlemen:

Based on our review of the following, we have determined that the State of West Virginia does not own any portion of the mineral interest or gas royalty underlying the above captioned lands, and there are no public roadways located thereon:

1. The land books maintained by the Office of the Clerk of the County Commission of Wetzel County, West Virginia from October 8, 1881, through the Certification Date set forth above;
2. Indices maintained by the aforesaid County Clerk;
3. A General Highway Map of Wetzel County, West Virginia, last revised January 1, 1998, provided to us by the West Virginia Department of Transportation, Division of Transportation Planning; and
4. W. Va. Code § 17-2A-17, stating in relevant part that:

... the commissioner may acquire... all real or personal property ... deemed by the commissioner to be necessary for ... state road purposes ... Such real property may be acquired in fee simple or in any lesser estate or interest therein, **except in the case of a public road the right-of-way *only* shall be acquired** ... [emphasis added]

4710303113

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Page 2

We hereby certify that subject to the correctness of the indices and/or any information that may be disclosed by an accurate survey and inspection of the above-captioned lands, there are no public roadways located on the above-captioned lands and therefore, the State of West Virginia does not own a mineral interest or gas royalty in said lands.

Beckmen Law, P.C.

By: Janeth A. Cornelious  
Janeth A. Cornelious

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APR 27 2015

WV Department of  
Environmental Protection



400 White Oaks Boulevard  
Bridgeport, WV 26330  
(304) 933-8000 (304) 933-8183 Fax  
www.steptoe-johnson.com

4710303113  
Writer's Contact Information  
Marsha.Hudkins@steptoe-johnson.com (304) 933-8133

November 24, 2014

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West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

WV Department of  
Environmental Protection

Re: Well No.: \_\_\_\_\_  
Operator: Statoil USA Onshore Properties  
Property: Oil and Gas underlying 79.25 acres, Map 8, Parcel 16, Center  
District, Wetzel County, WV (AMI 103)  
Effective Date of Title Examination: December 27, 2010

Ladies and Gentlemen:

We have examined title to the above captioned property as of the above stated Effective Date. Based upon our review of all relevant land title records, we are of the opinion that no basis exists of record for the West Virginia Department of Highways to own or to claim any ownership of the oil and/or gas within and underlying any roads which traverse or abound the above captioned property.

Very truly yours,

STEP TOE & JOHNSON PLLC

By: Marsha K. Hudkins  
Marsha Hudkins, a Member

cc: Catherine Hammock, Statoil USA Onshore Properties



47 RECEIVED  
Office of Oil and Gas  
303713  
APR 27 2015

WV Department of  
Environmental Protection

November 26, 2014

West Virginia Department of Environmental  
Protection Office of Oil and Gas  
601 57th Street SE  
Charleston, West Virginia 25304

Re: Chesapeake Appalachia, L.L.C, *et al.* (Mineral Owners)  
28.0000 Acres  
Center District, Wetzel County, West Virginia  
Tax Parcel Nos. 01-11-05/0000-0000 & 01-11-05/0001-0000  
Musgrave South Unit (API No. 47-103-00725; W. Riter Well No. 603030)  
Statoil Tract No.: 257  
Certification Date: October 17, 2014 at 4:00 p.m.  
Lenington & Parrino LLP No.: 00001

---

Ladies and Gentlemen:

Based on our review of the following: (a) the land books maintained by the Office of the Clerk of the County Commission of Wetzel County, West Virginia from October 6, 1831, through the Certificate Date set forth above; and (b) indices maintained by the aforesaid County Clerk; we are of the opinion that the State of West Virginia does not own any portion of the mineral fee underlying (1) the above-captioned tract, or (2) any public roadways located thereon.

Our opinion is subject to the correctness of the documents reviewed, as well as anything that may be disclosed by an accurate survey and inspection of the above-captioned tract, including a visual inspection verifying that there is no current work presently undertaken by the West Virginia Department of Transportation.

06/19/2015

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APR 27 2015

47103037  
WV Department of  
Environmental Protection

Very truly yours,

Lenington Partner



Jacob S. Lenington  
Managing Partner  
Licensed in Pennsylvania, Ohio, West Virginia, Texas  
and New Mexico

cc: Marty Babin  
Statoil North America, Inc.  
2101 City West Boulevard, Suite 800  
Building 4, 8<sup>th</sup> Floor  
Houston, Texas 77042

06/19/2015



400 White Oaks Boulevard  
Bridgeport, WV 26330  
(304) 933-8000 (304) 933-8183 Fax  
www.stepToe-johnson.com

Writer's Contact Information  
(304) 933-8133  
Marsha.Hudkins@stepToe-johnson.com

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Office of Oil and Gas  
APR 13 2015

November 24, 2014

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

WV Department of  
Environmental Protection

Re: Well No.: \_\_\_\_\_  
Operator: Statoil USA Onshore Properties  
Property: Oil and Gas underlying 195 acres, Map 11, Parcel 6.1, Center  
District, Wetzel County, WV (AMI 300)  
Effective Date of Title Examination: February 3, 2010

Ladies and Gentlemen:

We have examined title to the above captioned property as of the above stated Effective Date. Based upon our review of all relevant land title records, we are of the opinion that no basis exists of record for the West Virginia Department of Highways to own or to claim any ownership of the oil and/or gas within and underlying any roads which traverse or abound the above captioned property.

Very truly yours,

STEPTOE & JOHNSON PLLC

By: Marsha Hudkins  
Marsha Hudkins, a Member

cc: Catherine Hammock, Statoil USA Onshore Properties



February 2, 2015

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Office of Oil and Gas  
APR 27 2015  
WV Department of  
Environmental Protection

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street SE  
Charleston, West Virginia 25304

Re: Green Dot 4 Unit - Tract Index No. 303  
Prospect No. 20140206.1  
District No. 1, Tax Map No. 11, Parcel No. 22.1  
Shiben Estates, Inc., 104.5 acres  
Wetzel County, West Virginia  
Certification Date: May 9, 2014, at 2:00 p.m.

Ladies and Gentlemen:

Based on our review of the following, we have determined that the State of West Virginia does not own any portion of the mineral interest or gas royalty underlying the above captioned lands, or the public roadway(s) located thereon:

1. The land books maintained by the Office of the Clerk of the County Commission of Wetzel County, West Virginia from February 13, 1865, through the Certification Date set forth above;
2. Indices maintained by the aforesaid County Clerk;
3. A General Highway Map of Wetzel County, West Virginia, last revised January 1, 1998, provided to us by the West Virginia Department of Transportation, Division of Transportation Planning; and
4. W. Va. Code § 17-2A-17, stating in relevant part that:

... the commissioner may acquire... all real or personal property ... deemed by the commissioner to be necessary for ... state road purposes ... Such real property may be acquired in fee simple or in any lesser estate or interest therein, **except in the case of a public road the right-of-way only shall be acquired** ... [emphasis added]



4710303113

We hereby certify that in accordance with the aforementioned law, and subject to the correctness of the indices and/or any information that may be disclosed by an accurate survey and inspection of the above-captioned lands, the State of West Virginia does own title to the mineral interest or gas royalty underlying the roadway(s) situated on said lands.

Beckmen Law, P.C.

By: Janeth A. Cornelious  
Janeth A. Cornelious

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Office of Oil and Gas

APR 27 2015

WV Department of  
Environmental Protection

WW-6A  
(9-13)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Charles Musgrave South 3H  
Well Pad Name: Charles Musgrave South

**4710303113**

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF APPLICATION

RECEIVED  
Office of Oil and Gas

APR 27 2015

WV Department of  
Environmental Protection

Notice Time Requirement: notice shall be provided no later than the filing date of permit application

Date of Notice: 4/15/2015 Date Permit Application Filed: 4/24/15

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: Robert Dorsey  
Address: 2052 Miller Run Road  
Littleton, WV 26581

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: CNX Land Resources, Inc.  
Address: 1000 Consol Energy Dr.  
Canonsburg, PA 15317

COAL OPERATOR

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: Robert Dorsey  
Address: 2052 Miller Run Road  
Littleton, WV 26581

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

06/19/2015

WW-6A  
(8-13)

APR 27 2015

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Charles Musgrave South 3H  
Well Pad Name: Charles Musgrave South

WV Department of  
Environmental Protection

4710303113

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

WW-6A  
(8-13)

API NO. 47-  
OPERATOR WELL NO. Charles Mugrave South 3H  
Well Pad Name Charles Mugrave South

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

#### Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

#### Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

#### Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

#### Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Office of Oil and Gas

APR 27 2015

WV Department of  
Environmental Protection

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons who tested water. NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

06/19/2015

**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A  
(8-13)

API NO. 47- -

OPERATOR WELL NO. Charles Musgrave South 3H

Well Pad Name: Charles Musgrave South

471030311-

**Notice is hereby given by:**

Well Operator: Statoil USA Onshore Properties Inc.

Telephone: 713-918-8200

Email: BEKW@Statoil.com *Debra Winger*

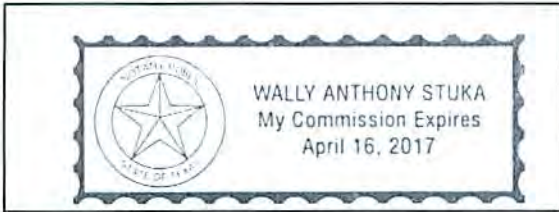
Address: 2103 CityWest Boulevard, Suite 800

Houston, TX 77042

Facsimile: (713) 918-8290

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 21 day of April, 2015.

*Wally Anthony Stuka* Notary Public

My Commission Expires April 16, 2017

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WW-PN  
(5-04-2012)

**Horizontal Natural Gas Well Work Permit  
Application Notice By Publication**

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**Notice is hereby given:**

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

**Paper:** Wetzel Chronicle and The Intelligencer (Wheeling)

**Public Notice Date:** 10/22/14 and 10/29/14

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

**Applicant:** Statoil USA Onshore Properties Inc. **Well Number:** Charles Musgrave South 3H

**Address:** 2103 CityWest Boulevard, Suite 800  
Houston, Texas 77042

**Business Conducted:** Natural gas production.

**Location –**

State: West Virginia County: Wetzel  
District: Center Quadrangle: Littleton  
UTM Coordinate NAD83 Northing: 4392141.32m  
UTM coordinate NAD83 Easting: 534510.80m  
Watershed: Lower West Virginia Fork Fish Creek

**Coordinate Conversion:**

To convert the coordinates above into longitude and latitude, visit: [http://tagis.dep.wv.gov/convert/llutm\\_conus.php](http://tagis.dep.wv.gov/convert/llutm_conus.php)

**Electronic notification:**

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

**Reviewing Applications:**

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to [DEP.oog@wv.gov](mailto:DEP.oog@wv.gov).

**Submitting Comments:**

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57<sup>th</sup> Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)

06/19/2015



| MAP NUMBER | APN     | OWNER               | ADDRESS              | CITY      | STATE | ZIP CODE |
|------------|---------|---------------------|----------------------|-----------|-------|----------|
| 1          | 01-8-37 | Dorsey, Robert      | 2052 Miller Run Road | Littleton | WV    | 26581    |
| 2          | 01-8-37 | Dorsey, Robert      | 2052 Miller Run Road | Littleton | WV    | 26581    |
| 3          | 01-7-07 | Wood, Charles David | 217 Carney Fork Road | Littleton | WV    | 26581    |
| 4          | 01-7-07 | Wood, Charles David | 217 Carney Fork Road | Littleton | WV    | 26581    |

**Statoil North America, Inc.**

**Charles Musgrave Well Pad**

Topographic Map - Water Sources

Center District, Wetzel County, WV

Project No. 09991 2019



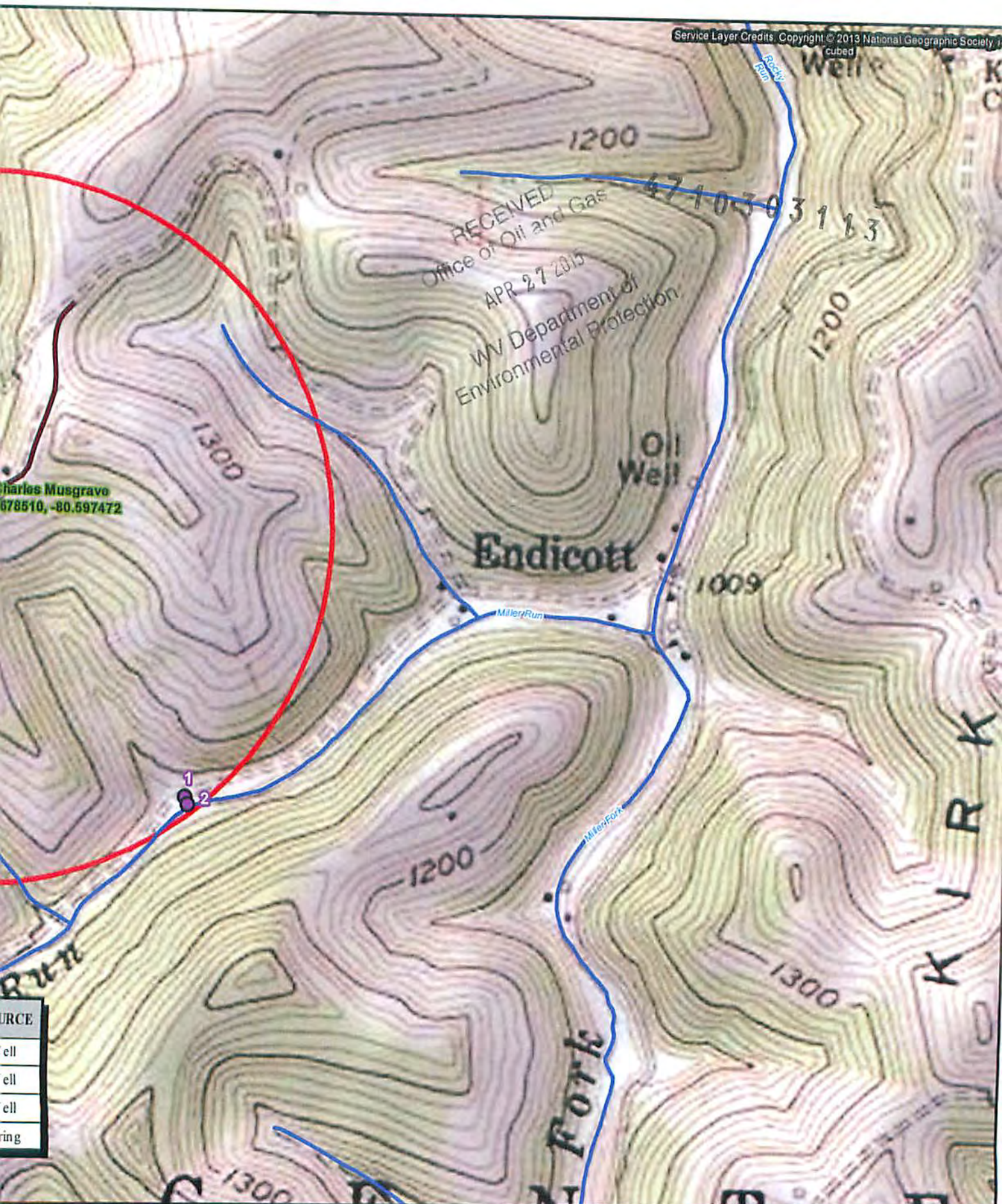
**RETTEW**

● Water Source



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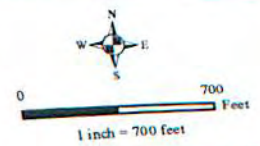
Charles Musgrave  
678510, -80.597472

SOURCE  
Well  
Well  
Well  
Spring

 2,000' Well Pad Radius

 Stream/Pond (None Present)

less Road



Littleton, WV USGS 7.5'  
Topographic Quadrangle

Drawn By: JPM  
10/6/2014  
**06/19/2015**

Charles Musgrave 3H – WW-6A Notice of Application

4710303113

Additional Coal Owners (3)

Diane Wykert  
HC 68 Box 13  
Wileyville, WV 26186

Charles E. Musgrave and Ila Mae Musgrave  
HC 68 Box 22  
Wileyville, WV 26186

James T. Garrison & Norma Lea Garrison  
33 1 Fulton St.  
Niles, OH 44446

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Additional Surface Owners of Water Wells (1)

Charles David Wood  
217 Carney Fork Road  
Littleton, WV 26581

06/19/2015

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF ENTRY FOR PLAT SURVEY**

**Notice Time Requirement:** Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

**Date of Notice:** 7/17/2014      **Date of Planned Entry:** 7/24/2014

Office of Oil and Gas

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**Delivery method pursuant to West Virginia Code § 22-6A-10a**

PERSONAL SERVICE       REGISTERED MAIL       METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

WV Department of Environmental Protection

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

**Notice is hereby provided to:**

SURFACE OWNER(s)

Name: Robert Dorsey  
Address: HC 68 BOX 38B  
Littleton, WV 26581  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: CNX Land Resources, Inc.  
Address: 1000 Consol Energy Dr.  
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Diane Wykert  
Address: HC 68 Box 13  
Wileyville, WV 26186

\*please attach additional forms if necessary

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

|                                   |   |
|-----------------------------------|---|
| State: <u>West Virginia</u>       | Approx. Latitude & Longitude: <u>534,530.9151/4,392,153.673</u> |
| County: <u>Wetzel</u>             | Public Road Access: <u>CR 5/1</u>                               |
| District: <u>Center</u>           | Watershed: <u>Miller Run &amp; Carney Fork</u>                  |
| Quadrangle: <u>Littleton 7.5'</u> | Generally used farm name: <u>Musgrave Farm</u>                  |

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Statoil USA Onshore Properties Inc.  
Telephone: (832) 929-9895  
Email: chamm@statoil.com

Address: 2103 CityWest Boulevard, Suite 800  
Houston, TX 77042  
Facsimile: (713) 918-8290

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

4710303

Additional Mineral Owners (2)

Charles E. Musgrave and Ila Mae Musgrave  
HC 68 Box 22  
Wileyville, WV 26186

James T. Garrison & Norma Lea Garrison  
331 Fulton St.  
Niles, OH 44446

Additional Coal Owners (3)

Diane Wykert  
HC 68 Box 13  
Wileyville, WV 26186

Charles E. Musgrave and Ila Mae Musgrave  
HC 68 Box 22  
Wileyville, WV 26186

James T. Garrison & Norma Lea Garrison  
331 Fulton St.  
Niles, OH 44446

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STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF PLANNED OPERATION

42703031  
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Notice Time Requirement: notice shall be provided no later than the filing date of permit application  
Date of Notice: 04/15/2015 Date Permit Application Filed: \_\_\_\_\_

Office of Oil and Gas

APR 27 2015

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL RETURN RECEIPT REQUESTED
- HAND DELIVERY

WV Department of Environmental Protection

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)  
(at the address listed in the records of the sheriff at the time of notice):

Name: Robert Dorsey  
Address: 2052 Miller Run Road  
Littleton, WV 26581

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

|             |  |                           |                      |                     |
|-------------|--|---------------------------|----------------------|---------------------|
| State:      | <u>West Virginia</u>                       | UTM NAD 83                | Easting:             | <u>534,515.36</u>   |
| County:     | <u>Wetzel</u>                              |                           | Northing:            | <u>4,392,140.32</u> |
| District:   | <u>Center</u>                              | Public Road Access:       | <u>CR 5/1</u>        |                     |
| Quadrangle: | <u>Littleton</u>                           | Generally used farm name: | <u>Musgrave Farm</u> |                     |
| Watershed:  | <u>Lower West Virginia Fork Fish Creek</u> |                           |                      |                     |

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Statoil USA Onshore Properties Inc.  
Telephone: (832) 929-9895  
Email: chamm@statoil.com

Address: 2103 CityWest Boulevard, Suite 800  
Houston, TX 77042  
Facsimile: (713) 918-8290

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
**Division of Highways**

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin  
Governor

Paul A. Mattox, Jr., P. E.  
Secretary of Transportation  
Commissioner of Highways

4710303-13

September 11, 2014

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

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APR 5 7 2015  
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Environmental Protection

Subject: DOH Permit for the Charles Musgrave Unit 3H Well Site

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit # 06 -2011-0128 for the subject site to Statoil USA Onshore Properties Inc. for access to the State Road for the well site located off of Wetzel County Route 8/5 SLS. This permit was originally issued in the name of Grenadier Energy Partners then transferred to Statoil.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton  
Regional Maintenance Engineer  
Central Office Oil & Gas Coordinator

Cc: Cathy Hammock  
Statoil USA Onshore Properties Inc.  
CH, OM, D-6  
File

06/19/2015

4710303113

## Frac Additives

### BIO CLEAR 2000

| Components                        | CAS#       |
|-----------------------------------|------------|
| Polyethylene Glycol               | 25322-68-3 |
| 2,2-dibromo-3-nitrilopropionamide | 10222-01-2 |

### BUFFER

|               |           |
|---------------|-----------|
| Sulfamic Acid | 5329-14-6 |
|---------------|-----------|

### ACID

|                   |           |
|-------------------|-----------|
| Hydrochloric Acid | 7647-01-0 |
|-------------------|-----------|

### BREAKER

|                 |          |
|-----------------|----------|
| Sucrose         | 57-50-1  |
| Ethylene Glycol | 107-21-1 |

### INHIBITOR

|                         |            |
|-------------------------|------------|
| Ethoxylated Nonylphenol | 68412-54-4 |
| Dimethylcocoamine       | 68607-28-3 |
| Ethylene Glycol         | 107-21-1   |
| Glycol Ethers           | 111-76-2   |
| Methanol                | 67-56-1    |
| Propargyl Alcohol       | 107-19-7   |

### SCALE INHIBITOR

|                 |          |
|-----------------|----------|
| Ethylene Glycol | 107-21-1 |
|-----------------|----------|

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## Frac Additives

### BIO CLEAR 2000

| Components                        | CAS#       |
|-----------------------------------|------------|
| Polyethylene Glycol               | 25322-68-3 |
| 2,2-dibromo-3-nitrilopropionamide | 10222-01-2 |

### BUFFER

|               |           |
|---------------|-----------|
| Sulfamic Acid | 5329-14-6 |
|---------------|-----------|

### ACID

|                   |           |
|-------------------|-----------|
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|-------------------|-----------|

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|                 |          |
|-----------------|----------|
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### INHIBITOR

|                         |            |
|-------------------------|------------|
| Ethoxylated Nonylphenol | 68412-54-4 |
| Dimethylcocoamine       | 68607-28-3 |
| Ethylene Glycol         | 107-21-1   |
| Glycol Ethers           | 111-76-2   |
| Methanol                | 67-56-1    |
| Propargyl Alcohol       | 107-19-7   |

### SCALE INHIBITOR

|                 |          |
|-----------------|----------|
| Ethylene Glycol | 107-21-1 |
|-----------------|----------|

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06/19/2015



# EROSION & SEDIMENT CONTROL PLAN

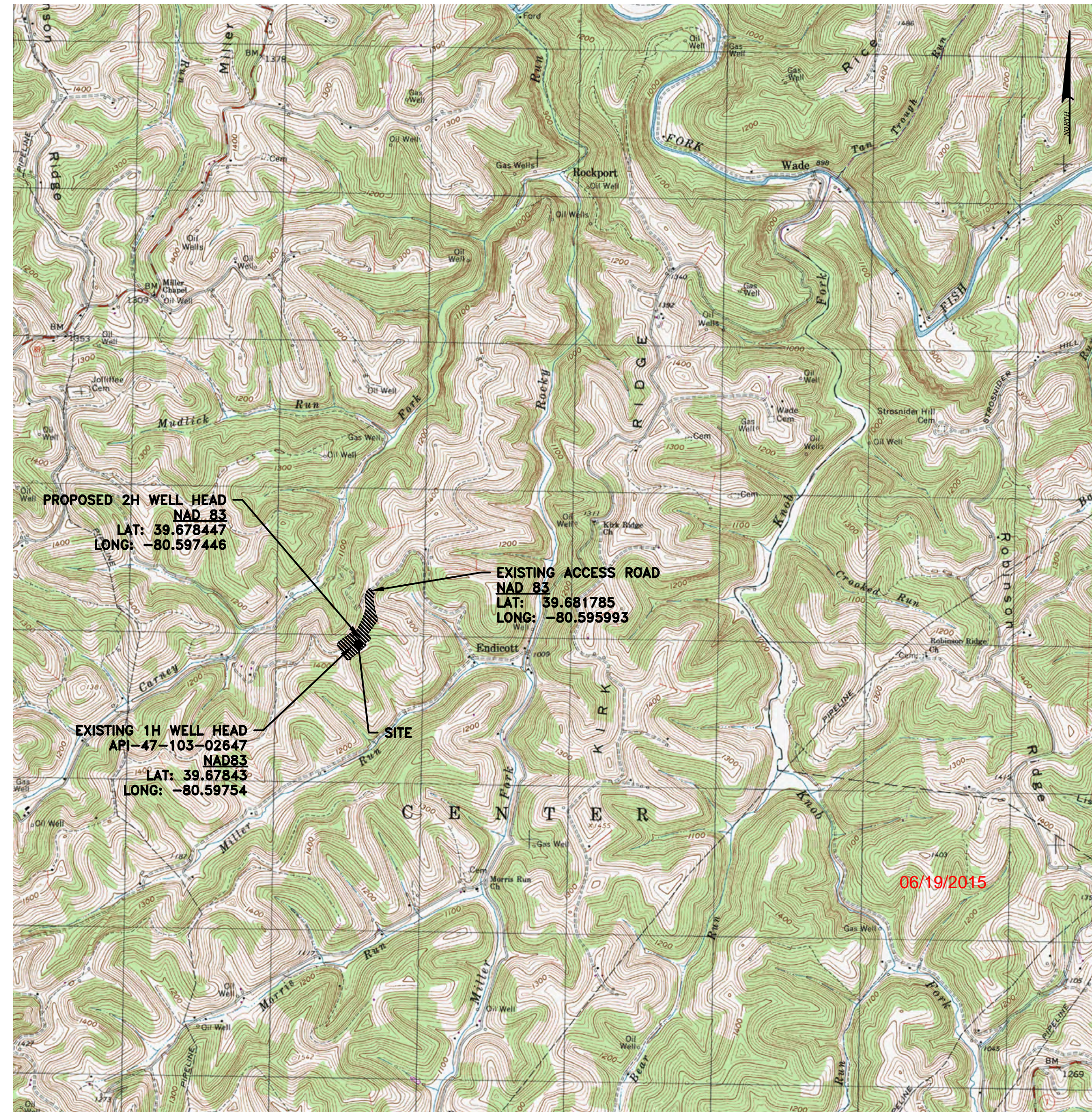
## FOR

# CHARLES MUSGRAVE WELL PAD

## CENTER TAX DISTRICT, WETZEL COUNTY, WV

### GENERAL NOTES

1. THE TOPOGRAPHIC AND AS-BUILT SURVEY UTILIZED FOR THIS BASE MAPPING WAS PERFORMED BY RETTEW ASSOCIATES, INC IN AUGUST AND SEPTEMBER 2014.
2. PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GIS PARCEL DATA.
3. EXISTING STRUCTURES, TREE LINES AND ROADWAYS HAVE BEEN LOCATED PER AVAILABLE ONLINE AERIAL PHOTOGRAPHY.
4. THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
5. THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).
6. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION PRIOR TO ANY EXCAVATION BY NOTIFYING MISS UTILITY OF WEST VIRGINIA AT 1-800-245-4848.
7. A WETLANDS PRESENCE/ABSENCE SURVEY WAS PERFORMED BY RETTEW ASSOCIATES IN AUGUST 2014.
8. ALL EXISTING UTILITIES HAVE BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION.
9. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES AND WILL BE RESPONSIBLE FOR THE PROTECTION OF THESE UTILITIES AND STRUCTURES AT ALL TIMES.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AND COMPLETELY AT HIS EXPENSE.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED OR DESTROYED LANDSCAPE AND LAWNS.
12. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
13. CONTRACTOR TO RELOCATE UTILITIES AS REQUIRED.
14. CONTRACTOR MAY WIDEN ACCESS ROAD DUE TO STEEP SLOPES IF DEEMED NECESSARY AND PER APPROVAL BY THE OWNER AND ENGINEER.
15. PROPOSED ROCK CONSTRUCTION ENTRANCE TO BE BUILT SUCH THAT RUNOFF FROM PROPOSED ACCESS WILL NOT SHEET FLOW ON TO PUBLIC ROAD.
16. SEED AND MULCH ALL DISTURBED AREAS PER DETAILS IN THIS PLAN.
17. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND CONTACT STATOIL AND APPROPRIATE RESPONSIBLE AUTHORITIES SHOULD ANY HISTORICAL ARTIFACTS (I.E. BONES, POTTERY, ETC.) BE ENCOUNTERED DURING CONSTRUCTION.
18. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.



7.5 MIN. QUADRANGLE MAP: LITTLE TOWN, WV

**LOCATION MAP**  
SCALE - 1"=2000'

**WEST VIRGINIA 811**  
CALL BEFORE YOU DIG! Dial 811 or 800.245.4848  
Miss Utility of West Virginia

AT LEAST 48 HOURS, BUT NOT MORE THAN 10 WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS), PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THESE ACTIVITIES SHALL CONTACT MISS UTILITY OF WEST VIRGINIA AT 811 OR 1-800-245-4848. TICKET #: 1425466958 DATE: 09/11/2014

### SOILS CLASSIFICATION

GrL: GILPIN-PEABODY COMPLEX, 15 TO 25 PERCENT SLOPES  
SCL: GILPIN-PEABODY COMPLEX, 35 TO 70 PERCENT SLOPES  
SkL: SKIDMORE GRAVELLY LOAM

### RECEIVING WATER CLASSIFICATION WATER QUALITY DESIGNATION

- UNNAMED TRIBUTARY NORTH TO CARNEY FORK - WARM WATER FISHERY (WWF)
- UNNAMED TRIBUTARY SOUTHEAST TO MILLER RUN - WARM WATER FISHERY (WWF)

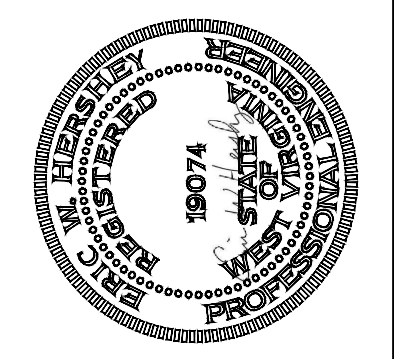
### LIST OF DRAWINGS

- |        |                                 |
|--------|---------------------------------|
| 1 OF 7 | COVER SHEET                     |
| 2 OF 7 | EXISTING CONDITIONS             |
| 3 OF 7 | EROSION & SEDIMENT CONTROL PLAN |
| 4 OF 7 | WELL PAD RECLAMATION PLAN       |
| 5 OF 7 | EVACUATION ROUTE PLAN           |
| 6 OF 7 | EVACUATION ROUTE PLAN - USGS    |
| 7 OF 7 | NOTES & DETAILS                 |

**WVDEP OOG**  
**ACCEPTED AS-BUILT**

*WJ* 6-9-2015

| NO. | DATE | REVISION |
|-----|------|----------|
|     |      |          |
|     |      |          |
|     |      |          |
|     |      |          |



|                             |                  |
|-----------------------------|------------------|
| FOR RETTEW ASSOCIATES BY:   | MANAGER:         |
| CHKD BY: DEW                | DESIGN BY: JUN   |
| CHKD BY: MWP                | DRAWN BY: JUN    |
| FELDBOOK NO. DATA COLLECTOR | SURV. CHIEF: JUN |

CLIENT: STATOIL USA ONSHORE PROPERTIES, INC.  
2103 CITY WEST BLVD., SUITE 800 HOUSTON, TEXAS 77042

**RETTEW**  
RETTEW Associates, Inc.  
Twin Towers, 4855 Stubenville Pk, Ste 305, Pittsburgh, PA 15205  
Phone (412) 446-1728 • Fax (412) 446-1733  
Email: rettew@rettew.com  
Website: www.rettew.com

Engineers • Planners • Surveyors • Landscape Architects  
Environmental Consultants

COVER SHEET  
EROSION AND SEDIMENT CONTROL PLAN  
FOR  
**CHARLES MUSGRAVE WELL PAD**  
CENTER TAX DISTRICT WETZEL COUNTY, WV

|           |           |
|-----------|-----------|
| DATE:     | 06/03/15  |
| SHEET NO. | 1 OF 7    |
| DWG. NO.  | 099912019 |

**LEGEND**

- EXISTING PROPERTY LINE
- EXISTING GRAVEL
- PROPOSED GRAVEL
- EXISTING PAVEMENT
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- LIMITS OF DISTURBANCE
- PROPOSED WELL HEAD
- APPROXIMATE PAD CENTER
- EXISTING WETLAND
- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING OVERHEAD ELECTRIC LINE
- PROPOSED FILTER SOCK
- PROPOSED CONTAINMENT WALL
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- SOIL TYPE BOUNDARY LINE
- SOIL TYPE DESIGNATION
- EXISTING GASLINE

NOTE:  
ALL COMPOST FILTER SOCK TO BE 18".

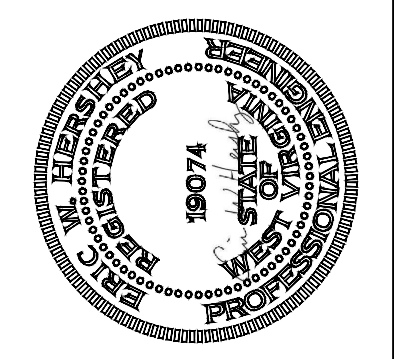
NOTE:  
DRAINAGE VALVES TO BE CLOSED PRIOR TO MOBILIZATION OF DRILLING EQUIPMENT ONTO PAD SITE AND DURING DRILLING AND COMPLETION OPERATIONS.

**WVDEP OOG  
ACCEPTED AS-BUILT**

*WJ* 6-9-2015

SCALE  
1" = 50'  
0 25 50 100 150'

|     |      |          |
|-----|------|----------|
| NO. | DATE | REVISION |
|     |      |          |
|     |      |          |
|     |      |          |



FOR RETTEW ASSOCIATES BY:

|                |                             |
|----------------|-----------------------------|
| MANAGER:       | CHKD BY: DEW                |
| DESIGN BY: JUN | CHKD BY: MWP                |
| DRAWN BY: JUN  | FELDBOOK NO. DATA COLLECTOR |
| SURV. CHIEF:   |                             |

CLIENT  
**STATOIL USA ONSHORE PROPERTIES, INC.**  
2103 CITY WEST BLVD., SUITE 800  
HOUSTON, TEXAS 77042

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Website: www.rettew.com

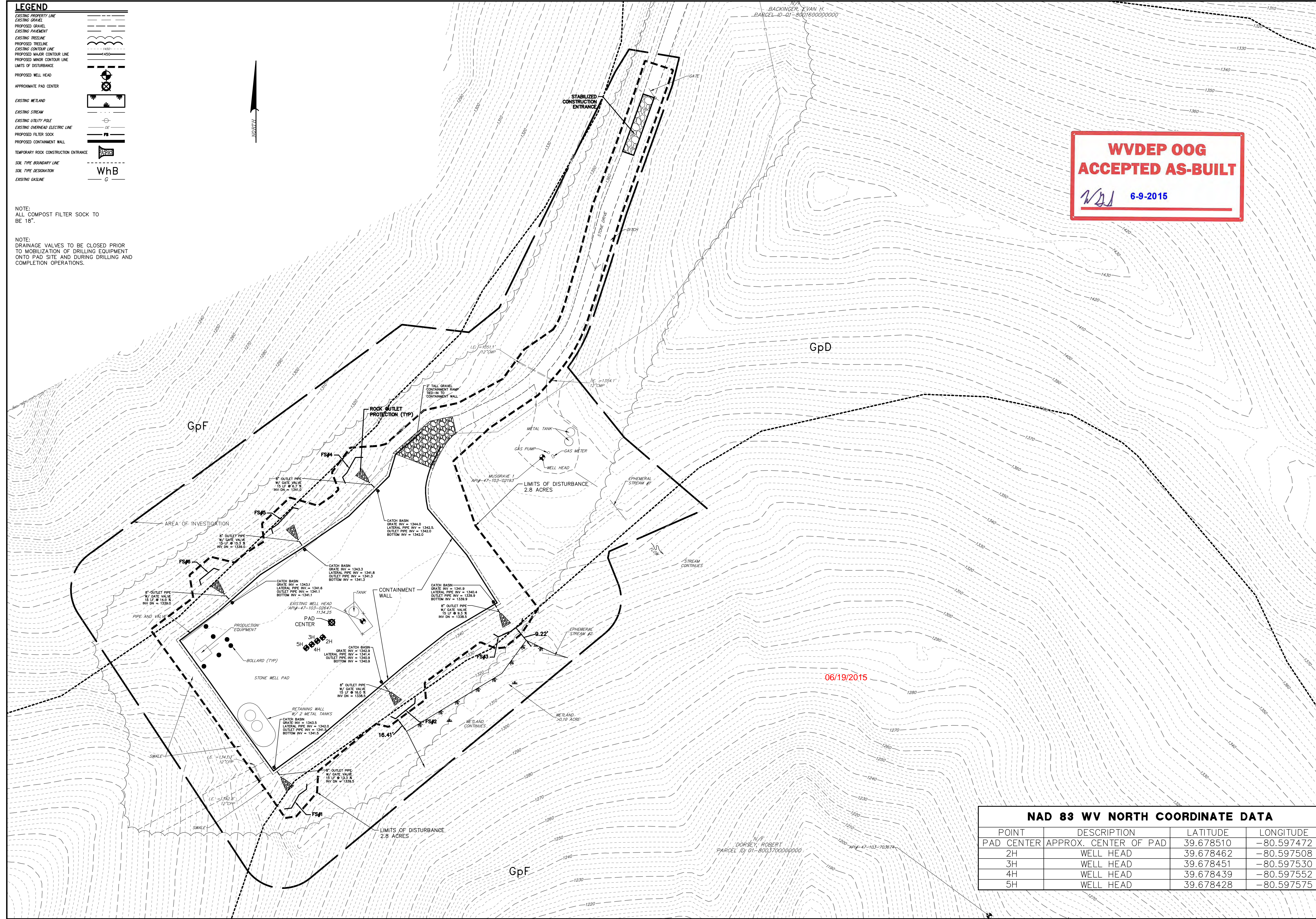
EROSION & SEDIMENT CONTROL PLAN  
EROSION AND SEDIMENT CONTROL PLAN  
FOR  
**CHARLES MUSGRAVE  
WELL PAD**

CENTER TAX DISTRICT  
WETZEL COUNTY, WV

|            |           |
|------------|-----------|
| DATE:      | 06/03/15  |
| SHEET NO.: | 3 OF 7    |
| DWG. NO.:  | 099912019 |

**NAD 83 WV NORTH COORDINATE DATA**

| POINT              | DESCRIPTION   | LATITUDE  | LONGITUDE  |
|--------------------|---------------|-----------|------------|
| PAD CENTER APPROX. | CENTER OF PAD | 39.678510 | -80.597472 |
| 2H                 | WELL HEAD     | 39.678462 | -80.597508 |
| 3H                 | WELL HEAD     | 39.678451 | -80.597530 |
| 4H                 | WELL HEAD     | 39.678439 | -80.597552 |
| 5H                 | WELL HEAD     | 39.678428 | -80.597575 |



NOT FOR CONSTRUCTION/NOT FOR BIDDING

# CONTROL PLAN

# WELL PAD WETZEL COUNTY, WV



**CALL BEFORE YOU DIG!** Dial 811 or 800.245.4848  
Max Utility of West Virginia

AT LEAST 48 HOURS, BUT NOT MORE THAN 10 WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS), PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THESE ACTIVITIES SHALL CONTACT MISS UTILITY OF WEST VIRGINIA AT 811 OR 1-800-245-4848. TICKET # 1525469358 DATE: 09/11/2014

### SOILS CLASSIFICATION

Qd: OLFIN-PEARBODY COMPLEX, 15 TO 75 PERCENT SLOPES  
Qe: OLFIN-PEARBODY COMPLEX, 35 TO 75 PERCENT SLOPES  
Sf: SKOWORE GRAVELLY LOAM

### RECEIVING WATER CLASSIFICATION WATER QUALITY DESIGNATION

- UNNAMED TRIBUTARY NORTH TO CARMKEY FORK  
- WARM WATER FISHERY (WFF)
- UNNAMED TRIBUTARY SOUTHEAST TO MILLER RUN  
- WARM WATER FISHERY (WFF)

### LIST OF DRAWINGS

- 1 OF 7 ..... COVER SHEET
- 2 OF 7 ..... EXISTING CONDITIONS
- 3 OF 7 ..... EROSION & SEDIMENT CONTROL PLAN
- 4 OF 7 ..... WELL PAD RECLAMATION PLAN
- 5 OF 7 ..... EVACUATION ROUTE PLAN
- 6 OF 7 ..... EVACUATION ROUTE PLAN - USGS
- 7 OF 7 ..... NOTES & DETAILS

*DMH  
3-11-15*

| NO. | DATE | REVISION |
|-----|------|----------|
|     |      |          |
|     |      |          |
|     |      |          |
|     |      |          |



FOR RETTEW ASSOCIATES BY:

|              |              |
|--------------|--------------|
| DESIGN BY:   | CHKD BY:     |
| JUN          | DEW          |
| DRAWN BY:    | CHKD BY:     |
| JUN          | MJP          |
| SUPV. CHECK: | REVISION NO. |
| JUN          | 314          |
|              | DATE         |
|              | JUN 2014     |

CLIENT  
**STATOIL USA ONSHORE PROPERTIES, INC.**  
2103 CITY WEST BLDG., SUITE 800  
HOUSTON, TEXAS 77042

**RETTEW.**  
RETTEW Associates, Inc.  
7th Floor, 4855 Shawnee Pk., Ste. 300, Pittsburgh, PA 15203  
Phone: (412) 448-1728 • Fax: (412) 448-1723  
E-mail: rettew@rettew.com  
Website: www.rettew.com

Engineers • Planners • Surveyors • Environmental Scientists  
Construction Management

COVER SHEET  
EROSION AND SEDIMENT CONTROL PLAN  
FOR  
**CHARLES MUSGRAVE  
WELL PAD**

CENTER TAX DISTRICT  
WETZEL COUNTY, WV

DATE: 12/10/2014  
SHEET NO. 1 OF 7  
DWG. NO. 099912019

# CHARLES MUSGRAVE FOR EROSION & SEDIMENT CENTER TAX DISTRICT, VA

RECEIVED  
Office of Oil and Gas  
APR 27 2015  
WV Department of  
Environmental Protection

06/19/2015

RECEIVED  
Office of Oil and Gas  
APR 27 2015  
WV Department of  
Environmental Protection

- GENERAL NOTES**
1. THE TOPOGRAPHIC AND AS-BUILT SURVEY UTILIZED FOR THIS CASE MAPPED WAS PERFORMED BY LETTER ASSOCIATES, INC. IN AUGUST AND SEPTEMBER 2014.
  2. PROPERTY BOUNDARIES, LANDSCAPE IMPROVEMENTS AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GIS PARCEL DATA.
  3. EXISTING STRUCTURES, TREE LINES AND ROADWAYS HAVE BEEN LOCATED PER AVAILABLE AERIAL PHOTOGRAPHY.
  4. THE MONITORIAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM 1983 (NAD 83) AND THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN VERTICAL DATUM 1988 (NAV D 88).
  5. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION PRIOR TO ANY EXCAVATION OF EXISTING WELLS UTILS AT 1-800-349-6464.
  6. A FIELDWORK PERMIT/ASSISTANCE SURVEY WAS PERFORMED BY LETTER ASSOCIATES IN AUGUST 2014.
  7. ALL EXISTING UTILITIES HAVE BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION.
  8. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES AT ALL TIMES.
  9. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND STRUCTURES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DUE TO THE CONTRACTORS NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AND COMPLETELY AT HIS EXPENSE.
  10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OR DAMAGED OR DESTROYED LANDSCAPE AND PLANTS.
  11. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
  12. CONTRACTOR SHALL MAINTAIN ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
  13. CONTRACTOR TO RELOCATE UTILITIES AS REQUIRED.
  14. CONTRACTOR MAY WORK ACCESS ROAD DUE TO STEEP SLOPES & REMOVED NECESSARY AND PER APPROVAL BY THE OWNER AND ENGINEER.
  15. PROPOSED ROCK CONSTRUCTION OUTRANKE TO BE BUILT SUCH THAT RUNOFF FROM PROPOSED ACCESS WILL NOT SPILL FLOW ON TO PUBLIC ROAD.
  16. SEED AND MULCH ALL DISTURBED AREAS PER DETAILS IN THIS PLAN.
  17. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND CONTACT STATE AND APPROPRIATE RESPONSIBLE AUTHORITIES SHOULD ANY HISTORICAL ARTIFACTS (E.G. COIN, POTTERY, ETC.) BE DISCOVERED DURING CONSTRUCTION.
  18. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.

