



west virginia department of environmental protection

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

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

June 18, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10303107, issued to STATOIL USA ONSHORE PROPERTIES, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

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

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

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

James Martin

Chief

Operator's Well No: CHARLES MUSGRAVE SOUTH 5

Farm Name: DORSEY, ROBERT

API Well Number: 47-10303107

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

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.

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

1) Well Operator: Statoil USA Onshore Properties

<u>494505083</u>	<u>103</u> Wetzel	<u>01</u> Center	<u>438</u> Littleton
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Operator ID County District Quadrangle

2) Operator's Well Number: Charles Musgrave South 5H 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 7465' TVD, 46' thick, 5031 Psi, Intermediate Casing MASP 2300 psi

DMH
3-11-15

8) Proposed Total Vertical Depth: 7510' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,025' MD

11) Proposed Horizontal Leg Length: 7952'

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

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

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(10/14)

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API NO. 47- _____
OPERATOR WELL NO. Charles Musgrave South 5H
Well Pad Name: Charles Musgrave

18)

CASING AND TUBING PROGRAM

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#	530'	530'	cmt to surface-322 cuft
Coal	NA						
Intermediate	9.625"	New	J-55	36#	2780'	2780'	cmt to surface-1134 cuft
Production	5.5"	New	P-110	20#	16025'	16025'	cmt to 1780'-3627 cuft
Tubing	2.375"	New	L-80	4.7#	---	---	---
Liners							

*DMH
3-11-15*

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	2300	Class A	2.31 cu ft/sk
Production	5.5"	8.5"	.361"	12640 psi	3616	Class A	1.3 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'			

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10303107

API NO. 47-

OPERATOR WELL NO. Charles Musgrave South 5H

Well Pad Name: Charles Musgrave

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:

DM 4 3-11-15

See Attached

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

See Attached

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25) Proposed borehole conditioning procedures:

See Attached

*Note: Attach additional sheets as needed.

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~~4710303105~~

WW-6B – Charles Musgrave South 5H

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 1/2" surface hole will be drilled with fresh water to approximately 530md/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 1/4" intermediate hole section will be drilled with air and a mud motor to approximately 2780' 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 1/2" vertical hole section will be drilled on air to planned kick-off point. The production hole will then be drilled 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 16025' MD/7510' TVD using SBM and conventional mud motors. A 5 1/2" 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% CaCl₂
- Intermediate - Class A cmt, 0.05% Retarder, 0.25% Defoamer, 1% Accelerator, 0.25% Dispersant, 0.65% Retarder, 9.10 gal/sk Fresh Water.
- Production - Class A cmt, 10% bwow 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.

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25) Proposed borehole conditioning procedures:

Surface – Drilled with fresh water to section total depth. Prior to tripping, hole will be circulated clean of cuttings and back-reamed if necessary.

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

Production - Drilled 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 20 bbl 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 wet both casing and formation.

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CEMENT ADDITIVES

Surface - Class A + 3% CaCl₂

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

Production - Class A cmt, 10% bwow 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.

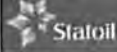
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Marcellus - Drilling Well Schematic



Well Name: Charles Musgrave 5H GLE (ft): 1,344 TVD(ft): 7,510
 Field Name: Marcellus DF(ft): 22 TMD(ft): 16,025
 County: Wetzler, WV BHL: X = 1758950.06 Y = 14402548.14 Profile: Horizontal
 API #: 0 SHL: X = 1753592.37 Y = 14409176.48 AFE No.: n/a

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
										17 1/2" Surface
Casing Point	530	530	836	65	-	-	Water	530		
Approximate fresh water strata -466'										
1st Salt Sand	691	691	675				Air/Mist			FIT/LOT: 14.0 ppg EMW
Washington Coal	774	774	592				Air/Mist			12 1/4" Intermediate
Waynesburg A Co	846	846	520				Air/Mist			
Waynesburg Coal	904	904	462				Air/Mist			
Sewickley Coal	1,126	1,126	240				Air/Mist			
Redstone Coal	1,206	1,206	160				Air/Mist			
Pittsburg Coal	1,228	1,228	138				Air/Mist			
							Air/Mist	TOC 1780		
							Air/Mist			
Big Injun (Base)	2,679	2,679	-1,313				Air/Mist			
Casing Point	2,780	2,780	-1,414	82	-	>18.0	Air/Mist	2,780		
Cuyahoga	2,821	2,821	-1,455				Air/Mist			FIT/LOT: 16.6 ppg EMW
Weir	2,827	2,827	-1,461				Air/Mist			8 1/2" Production
Berea	3,033	3,033	-1,667				Air/Mist			
Gordon	3,267	3,267	-1,901				Air/Mist			
Warren	3,943	3,943	-2,577				Air/Mist			
Java	5,673	5,673	-4,307				Air/Mist			
KOP	6,658	6,645	-5,279				12.0 - 12.5			
West River	740	7,245	-5,879				12.0 - 12.5			
Genesee	7,517	7,314	-5,948	117	-	-	12.0 - 12.5			
Marcellus	7,893	7,465	-6,099	118	-	-	12.0 - 12.5			
Tgt Landing Point	8,075	7,485	-6,119	118			12.0 - 12.5			
										TMD: 16,025 TVD: 7,510
Onondaga		7,511	-6,145							

Last Revision Date: 2/25/2015
Revised by: Ryan Cardenas

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

 Cement Outside Casing

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:

- _____ 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.

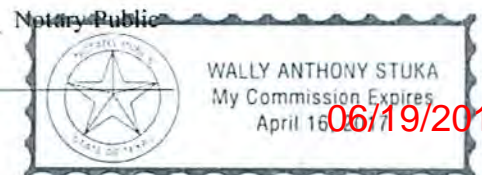
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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

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Subscribed and sworn before me this 2 day of March, 2015

Wally Anthony Stuka
My commission expires April 16, 2017



Statoil USA Onshore Properties Inc.

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

Lime 2-4 Tons/acre or to correct to pH see E&S notes

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

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

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

Title: Oil + Gas Inspector Date: 3-11-15

Field Reviewed? Yes No

10303107

Scanned to Q



Statoil

Charles Musgrave Pad – Site Safety Plan

Statoil USA Onshore Properties, Inc.

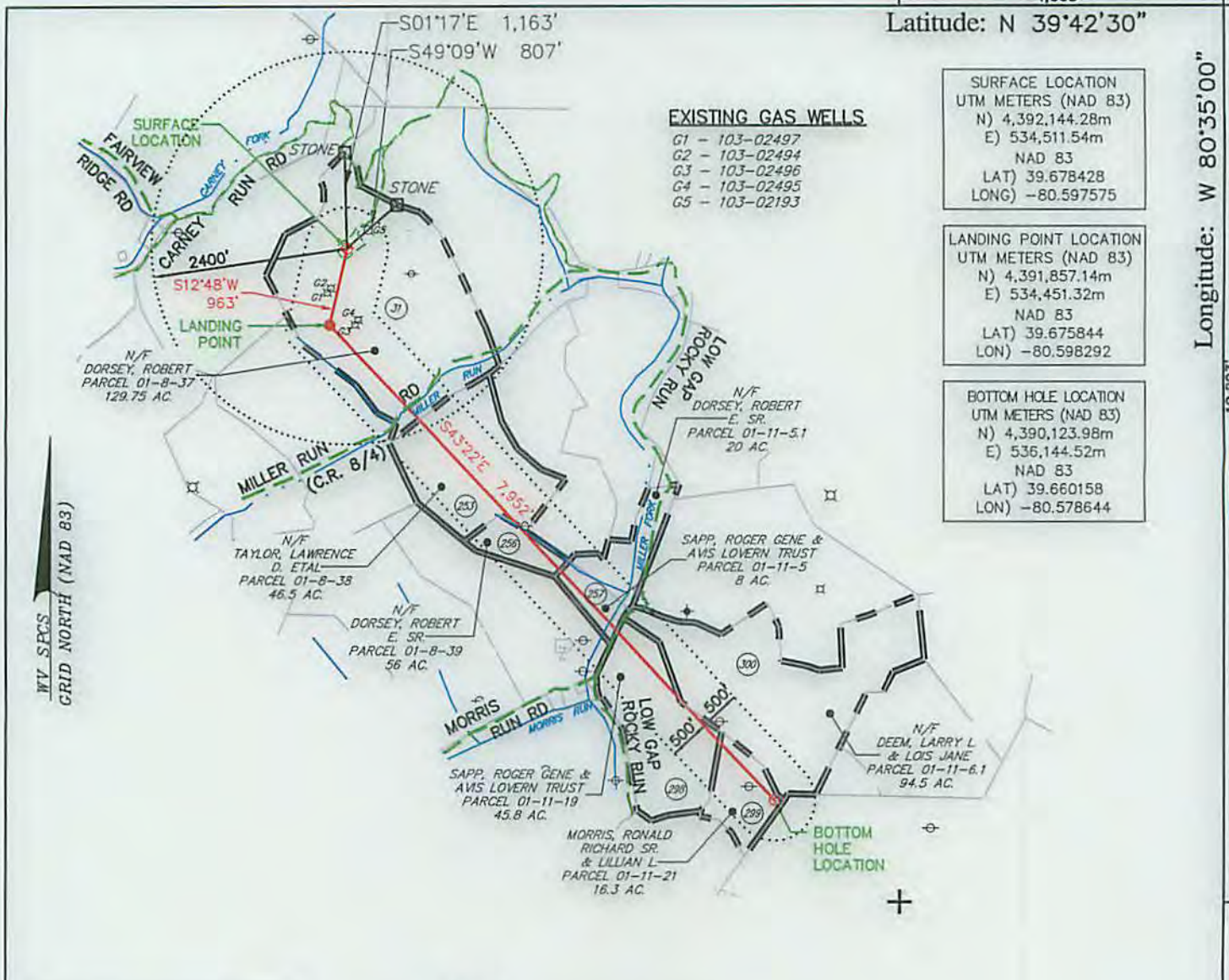
DMA
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Latitude: N 39°42'30"

Longitude: W 80°35'00"

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) 4,392,144.28m
 E) 534,511.54m
 NAD 83
 LAT) 39.678428
 LONG) -80.597575

LANDING POINT LOCATION
 UTM METERS (NAD 83)
 N) 4,391,857.14m
 E) 534,451.32m
 NAD 83
 LAT) 39.675844
 LON) -80.598292

BOTTOM HOLE LOCATION
 UTM METERS (NAD 83)
 N) 4,390,123.98m
 E) 536,144.52m
 NAD 83
 LAT) 39.660158
 LON) -80.578644

WV SECS
 GRID NORTH (NAD 83)



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, CHARLES E. MUSGRAVE & ILA MAE MUSGRAVE, ET AL.
253	01-8-38	46.50	WILLIAM RITIER ET UX
256	01-8-39	20	GREEN DOT FARM, INC. JAMES HARRY ASHCRAFT, ET AL.
257	01-11-5 01-11-5.1	28	HEIRS & ASSIGNS OF JAMES RITER, ET AL.
298	01-11-19	62.00	GREEN DOT FARM, INC. WALTER ROBERT MEYERS, ET AL.
300	01-11-6.1	94.50	NANCY RENZELLI, ELIZABETH DRAKE, ET AL.
299	01-11-21	16.30	GREEN DOT FARM, INC. WALTER ROBERT MEYERS, ET AL.

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:

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: FEBRUARY 13, 2015

OPERATOR'S WELL #: CHARLES MUSGRAVE SOUTH 5H

API WELL #: 47 103 0310741A

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) 06/19/2015

COUNTY/DISTRICT: WETZEL / CENTER QUADRANGLE: LITTLETON

SURFACE OWNER: ROBERT DORSEY 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: 7,512'

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

10303107

WW-6A1
(5/13)

Operator's Well No. Charles Musgrave South 5H

**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)

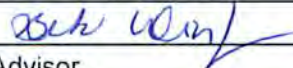
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**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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 
 Its: Sr. Regulatory Advisor

10303107

Form WW-6A-1 (Attachment)

Charles Musgrave South 5H*NOTE: All Mineral/Unit Tracts are identified on the Well Plat in Order from Top Hole to Bottom Hole***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 253

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 256

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 / 365
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 298

Lease Number	Grantor, Lessor	Grantee, Lessee	Royalty	Book/Page
115029003	Walter Robert Myers	Drilling Appalachian Corporation	At Least 1/8	103A/166
115029004	Green Dot Farm Inc.	Drilling Appalachian Corporation	At Least 1/8	103A/269
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 299

Lease Number	Grantor, Lessor	Grantee, Lessee	Royalty	Book/Page
115029003	Walter Robert Myers	Drilling Appalachian Corporation	At Least 1/8	103A/166
115029004	Green Dot Farm Inc.	Drilling Appalachian Corporation	At Least 1/8	103A/269
N/A	Drilling Appalachian Corporation	Statoil USA Onshore Properties Inc.	Assignment	138A/54

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BECKMEN LAW

February 2, 2015

10303107.

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

Re: Green Dot 4 Unit - Tract Index No. 253
Prospect No. 20140206.1
District No. 1, Tax Map No. 8, Parcel No. 38
Lawrence D. Taylor, James M. Taylor, L. Dean Taylor, Gregory R.
Crabtree and Piney Holdings, Inc., 46.5 acres
Wetzel County, West Virginia
Certification Date: June 1, 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 February 4, 1882, to the Certification Date as 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]

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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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February 2, 2015

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

Re: Green Dot 4 Unit - Tract Index No. 256
Prospect No. 20140206.1
District No. 1, Tax Map No. 8, Parcel No. 39
Robert E. Dorsey, Sr., 56 acres
Wetzel County, West Virginia
Certification Date: March 28, 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 September 4, 1883, to the Certification Date, as 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]

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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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10303107

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.

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06/19/2015

10303107

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, 8th 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

10303107

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 57th Street SE
Charleston, WV 25304

Re: Well No.: _____
Operator: Statoil USA Onshore Properties
Property: Oil and Gas underlying 62 acres, Map 11, Parcel 19, Center
District, Wetzel County, WV (AMI 298)
Effective Date of Title Examination: April 10, 2012

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

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BECKMEN LAW

February 2, 2015

10303107

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

Re: Green Dot 4 Unit - Tract Index No. 300
Prospect No. 20140206.1
District No. 1, Tax Map No. 11, Parcel No. 6.1
Larry L. Deem and wife, Lois Jane Deem, 94.5 acres
Wetzel County, West Virginia
Certification Date: May 30, 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 January 3, 1905, to the Certification Date, as 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]

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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



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

10303107
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 57th Street SE
Charleston, WV 25304

Re: Well No.: _____
Operator: Statoil USA Onshore Properties
Property: Oil and Gas underlying 16.25 acres, Map 11, Parcel 21,
Center District, Wetzel County, WV (AMI 299)
Effective Date of Title Examination: April 10, 2012

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

Date of Notice Certification: 03/15/2015

API No. 47- _____
Operator's Well No. Charles Musgrave South 5H
Well Pad Name: Charles Musgrave

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>534,511.54 m</u>
County: <u>Wetzel</u>		Northing: <u>4,392,144.28 m</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>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
--	---

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been notified as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

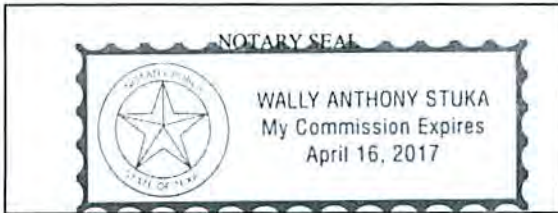
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Certification of Notice is hereby given:

THEREFORE, I Bekki Winfree, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Statoil USA Onshore Properties Inc.</u>	Address:	<u>2103 City West Boulevard, Suite 800</u>
By:	<u>Bekki Winfree/ <i>[Signature]</i></u>		<u>Houston, TX 77042</u>
Its:	<u>Sr. Regulatory Advisor</u>	Facsimile:	<u>713-918-8290</u>
Telephone:	<u>713-485-2640</u>	Email:	<u>BEKW@Statoil.com</u>



Subscribed and sworn before me this 16 day of March.
[Signature] Notary Public
 My Commission Expires April 16, 2017

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.

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WW-6A
(9-13)

10303107

OPERATOR WELL NO. Charles Musgrave South 5H

Well Pad Name: Charles Musgrave

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

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

Date of Notice: 3/2/2015 Date Permit Application Filed: _____

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

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WW-6A
(8-13)

API NO. 47- _____ - _____
OPERATOR WELL NO. Charles Musgrave South 5H
Well Pad Name: Charles Musgrave

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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting 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 403 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 modification to address the items

06/19/2015

10303107

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

WW-6A
(8-13)

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 57th St. SE
Charleston, WV 25304
(304) 926-0450

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. NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

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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)

APIN 103107
OPERATOR WELL NO. Charles Musgrave South 5H
Well Pad Name: Charles Musgrave

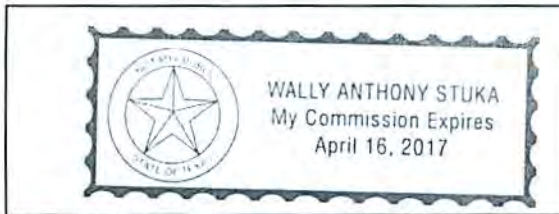
Notice is hereby given by:

Well Operator: Statoil USA Onshore Properties Inc.
Telephone: (832) 929-9895 *Statoil*
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.



Subscribed and sworn before me this 3 day of March, 2015.

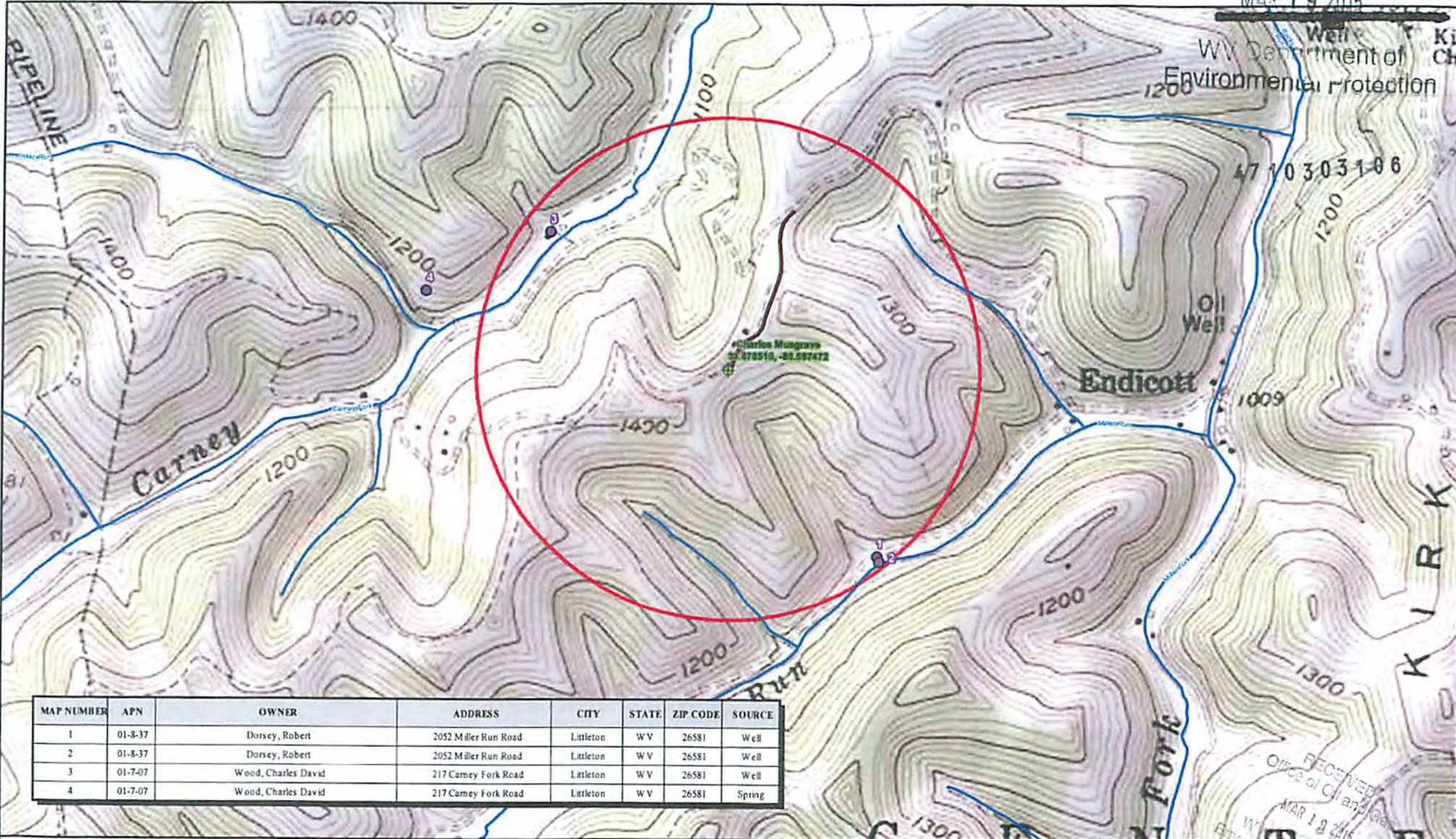
Wally Anthony Stuka Notary Public

My Commission Expires April 16, 2017

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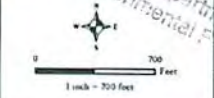
MAP NUMBER	APN	OWNER	ADDRESS	CITY	STATE	ZIP CODE	SOURCE
1	01-8-37	Dorsey, Robert	2052 Miller Run Road	Littleton	WV	26581	Well
2	01-8-37	Dorsey, Robert	2052 Miller Run Road	Littleton	WV	26581	Well
3	01-7-07	Wood, Charles David	217 Camey Fork Road	Littleton	WV	26581	Well
4	01-7-07	Wood, Charles David	217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

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Statoil North America, Inc.
Charles Musgrave Well Pad
 Topographic Map - Water Sources
 Center District, Wetzell County, WV
 Project No. 099912019

REVIEW

-  Water Source
-  Well Pad
-  Access Road
-  NHD Stream
-  2,000' Well Pad Radius
-  Lake/Pond (None Present)



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

10303107

WW-6A – Charles Musgrave South 5H

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

Additional Surface Owners of Water Wells (1)

Charles David Wood
217 Carney Fork Road
Littleton, WV 26581

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 02/27/2015 **Date Permit Application Filed:** _____

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

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Robert Dorsey
Address: HC 68 Box 38B
Littleton, WV 26581

Name: _____
Address: _____

Notice is hereby given:

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

State: West Virginia UTM NAD 83 Easting: 534,511.54
County: Wetzel Northing: 4,392,144.28
District: Center Public Road Access: CR 5/1
Quadrangle: Littleton 7.5" Generally used farm name: Musgrave Farm
Watershed: Miller Run & Carney Fork

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Statoil USA Onshore Properties Inc.
Address: 2103 CityWest Boulevard, Suite 800
Houston, TX 77042
Telephone: (832) 929-9895
Email: chamm@statoil.com
Facsimile: (713) 918-8290

Authorized Representative: Bekki Winfree
Address: 2103 CityWest Blvd. Building 4, Suite 800
Houston, TX 77042
Telephone: 713-918-8200
Email: BEKW@Statoil.com
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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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Environmental Protection
06/19/2015

WW-6A5
(1/12)

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

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

Date of Notice: 03/02/2015 **Date Permit Application Filed:** _____

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

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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 Name: _____
Address: HC 68 Box 38B Address: _____
Littleton, WV 26581 _____

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>534,511.54</u>
County:	<u>Wetzel</u>		Northing:	<u>4,392,144.28</u>
District:	<u>Center</u>	Public Road Access:		<u>CR 5/1</u>
Quadrangle:	<u>Littleton 7.5"</u>	Generally used farm name:		<u>Musgrave Farm</u>
Watershed:	<u>Miller Run & Carney Fork</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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator:	<u>Statoil USA Onshore Properties Inc.</u>	Address:	<u>2103 CityWest Boulevard, Suite 800</u>
Telephone:	<u>(832) 929-9895</u>		<u>Houston, TX 77042</u>
Email:	<u>chamm@statoil.com</u>	Facsimile:	<u>(713) 918-8290</u>

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.

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10303107

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

September 11, 2014

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

Subject: DOH Permit for the Charles Musgrave Unit 2H 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

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MAR 19 2015

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

WV Department of
Environmental Protection

10303107

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
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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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FRICITION REDUCER

Sodium Chloride	7647-14-5
Ammonium Chloride	12125-02-9
Petroleum Distillates	64742-47-8
Alcohols, C12-16, Ethoxylated	68551-12-2

SAND

Crystalline Silica (quartz)	14808-60-7
Aluminum Oxide	1344-28-1
Iron Oxide	1309-37-1
Titanium Oxide	13463-67-7

GEL

Gelling Agent & Hydrocarbons	64742-96-7
------------------------------	------------

10303107

FRICITION REDUCER

Sodium Chloride	7647-14-5
Ammonium Chloride	12125-02-9
Petroleum Distillates	64742-47-8
Alcohols, C12-16, Ethoxylated	68551-12-2

SAND

Crystalline Silica (quartz)	14808-60-7
Aluminum Oxide	1344-28-1
Iron Oxide	1309-37-1
Titanium Oxide	13463-67-7

GEL

Gelling Agent & Hydrocarbons	64742-96-7
------------------------------	------------

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06/19/2015

CONTROL PLAN

10303107

AVE WELL PAD WETZEL COUNTY, WV



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 # 1425468958 DATE: 02/11/2014

SOILS CLASSIFICATION

Co. OLPHI-PEAROOK COMPLEX, 15 TO 25 PERCENT SLOPES
 CgE. OLPHI-PEAROOK COMPLEX, 35 TO 70 PERCENT SLOPES
 SL. SIOKMORE 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

*DMH
3-11-15*



FOR REVIEW ASSOCIATES BY:	
MANAGER:	
DESIGN BY:	CHKD BY:
JUN	DEW
DRAWN BY:	CHKD BY:
JUN	MWP
SURV. CHIEF:	REVISION NO.:
JULI MILLER	

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

RETTEW.
 RETTEW Associates, Inc.
 7th Floor, 4505 Blackhawk Pk., 29th St., Pittsburgh, PA 15205
 Phone (412) 441-1728 • Fax (412) 448-1133
 Email: rettew@rettew.com
 Website: www.rettew.com

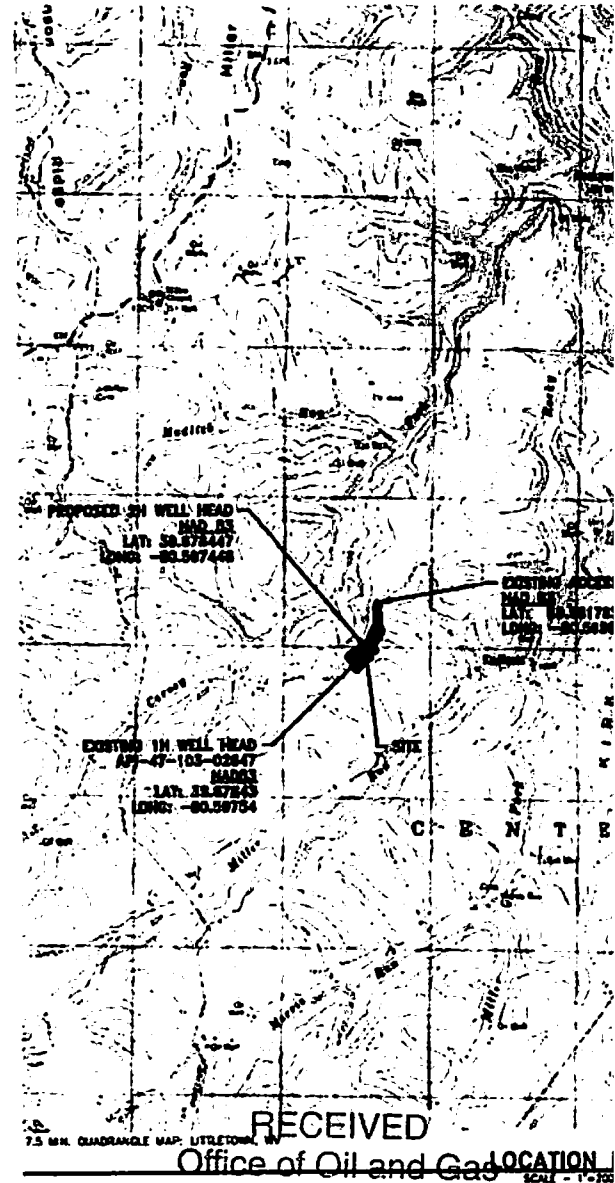
COVER SHEET
 EROSION AND SEDIMENT CONTROL PLAN
 FOR
**CHARLES MUSGRAVE
 WELL PAD**
 WETZEL COUNTY, WV
 CENTER TAX DISTRICT

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

EROSION & SEDIMENT FOR CHARLES MUSGRAVE CENTER TAX DISTRICT, W

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 1-800-245-4348.
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 SHALL 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 STATE AND APPROPRIATE RESPONSIBLE AUTHORITIES SHOULD ANY HISTORICAL ARTIFACTS (I.E. BONES, POTTERY, ETC.) BE UNCOVERED DURING CONSTRUCTION.
18. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.



MAR 19 2015

WV Department of
Environmental Protection

06/19/2015

EROSION & SEDIMENT CONTROL PLAN

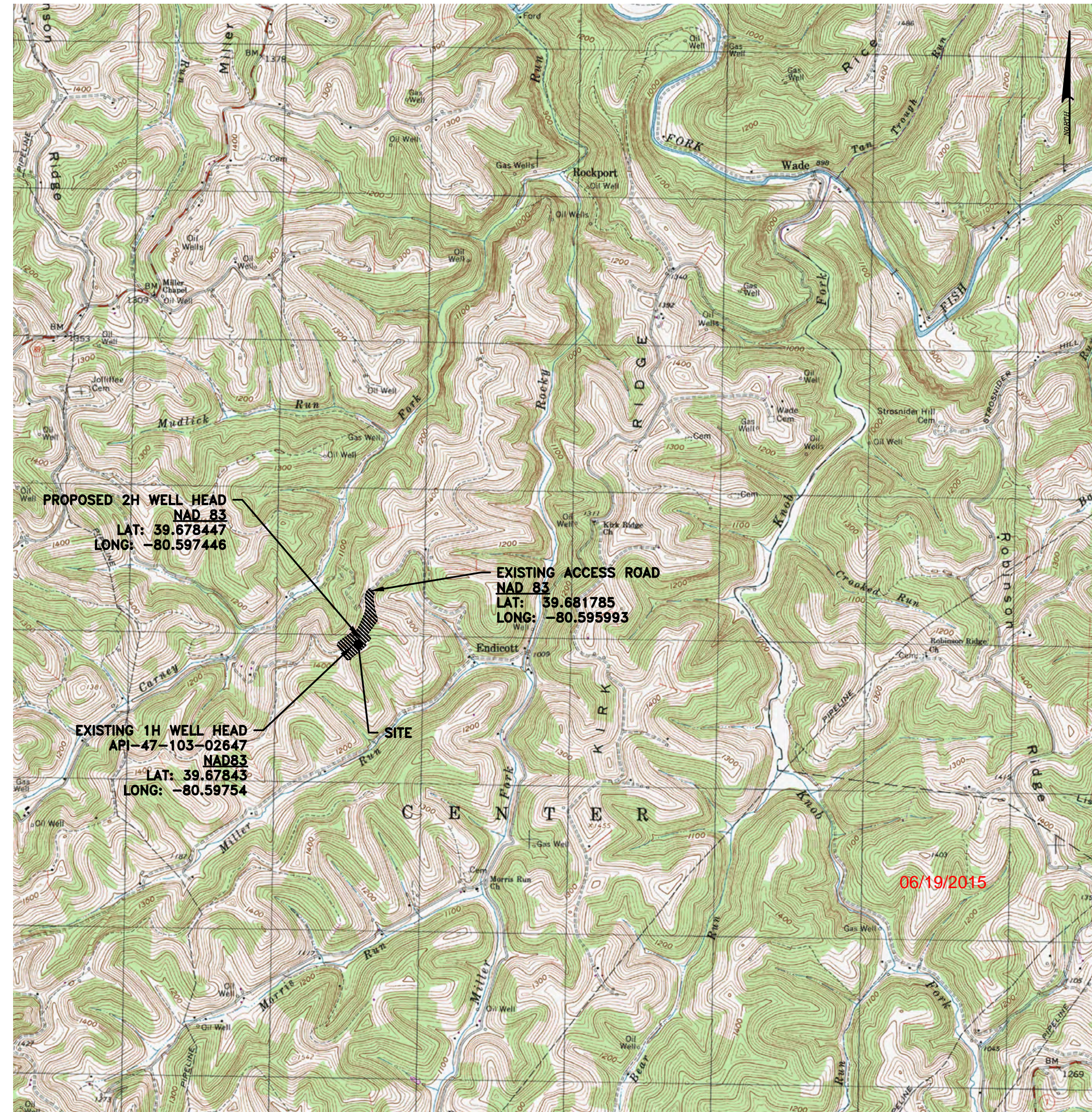
FOR

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)

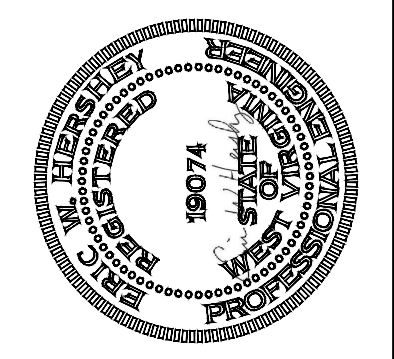
LIST OF DRAWINGS

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

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.rtetaw.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

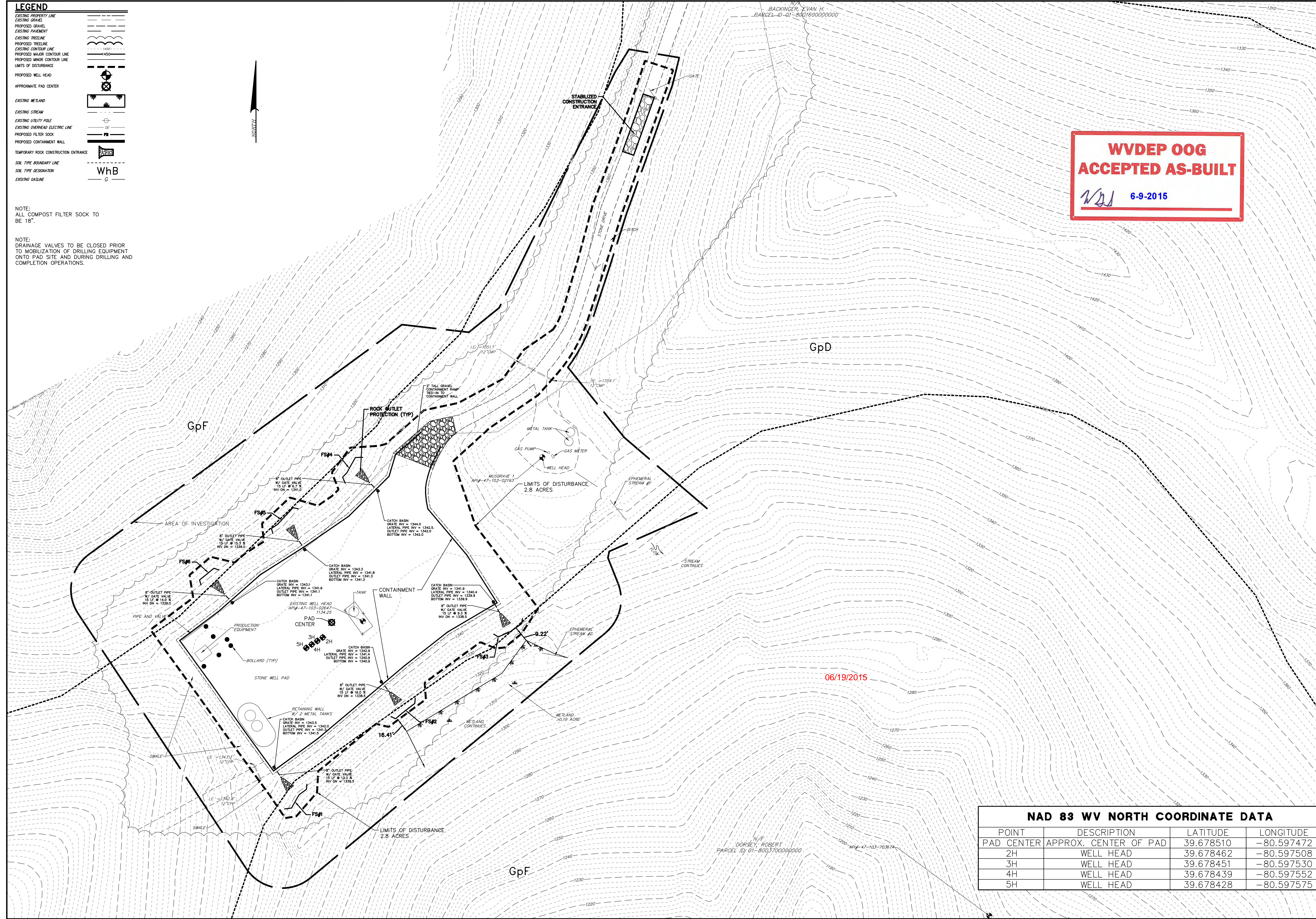
DATE:	06/03/15
SHEET NO.:	1 OF 7
DWG. NO.:	099912019

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.

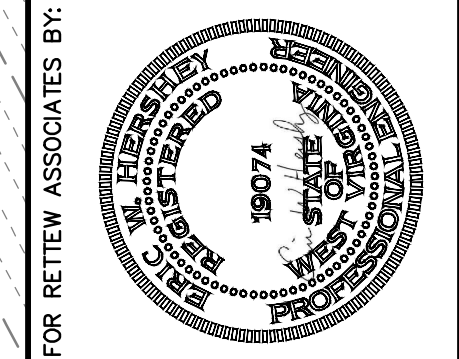


**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 6-9-2015

SCALE
0 25 50 100 150
1"=50'

NO.	DATE	REVISION



FOR RETTEW ASSOCIATES BY:

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

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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