



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

October 28, 2013

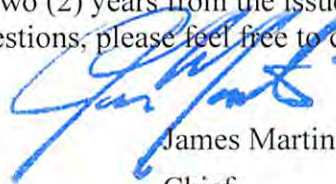
WELL WORK PERMIT
Rework/Horizontal 6A Well

This permit, API Well Number: 47-3305712, 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: GOODWIN 3-2H
Farm Name: COASTAL FOREST RESOURCES
API Well Number: 47-3305712
Permit Type: Rework/Horizontal 6A Well
Date Issued: 10/28/2013

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 (USACOE). Through this permit, you are hereby being advised to consult with USACOE 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.

ACA
✓

WR-35
Rev (9-11)

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

DATE: 7/2/13
API #: 47-033-05712

Farm name: Coastal Forest Resources Operator Well No.: Goodwin 3-2H

LOCATION: Elevation: 1100 Quadrangle: Salem 7.5'

District: Sardis County: Harrison
Latitude: 2005 Feet South of 39 Deg. 22 Min. 10.9 Sec.
Longitude: 8885 Feet West of 60 Deg. 31 Min. 53.2 Sec.

Company: PetroEdge Energy LLC

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
4477 Williamstown Pike Williamstown, WV 26187	20"	120	120	Surface
Agent: Dan Mullins	13 3/8	337	323.7	Surface
Inspector: Sam Ward	9 5/8	2345	2340.88	Surface
Date Permit Issued: <u>2/7/13</u>	5 1/2	13220	13206.43	Surface
Date Well Work Commenced: <u>4/4/13</u>				
Date Well Work Completed: <u>5/5/13</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input type="checkbox"/> Cable <input type="checkbox"/> Rig <input checked="" type="checkbox"/>				
Total Vertical Depth (ft): <u>7368</u>				
Total Measured Depth (ft): <u>13220</u>				
Fresh Water Depth (ft.): <u>45</u>				
Salt Water Depth (ft.): <u>1630</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>535</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

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OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Not completed Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

Sam Mullins
Signature

7/2/13
Date

33-05712

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Mud Log and Gamma Ray
Drill cuttings were analyzed then disposed of

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Well has not been fractured - transferring well into Statoil's name - Statoil will apply for a fracturing permit as soon as the well has been transferred.

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Fresh Water	45	46
Coal	535	537
Salt Water	1630	1634
Benson	5211	6880
Middlesex	6880	7256
Genesee	7256	7312
Tully Limestone	7312	7383
Hamilton	7383	7509
Lower Hamilton	7509	7661
Marcellus	7661	Not recorded

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Environmental Protection**

11/01/2013

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: Statoil USA Onshore Properties Inc. 494505083 Harrison Sardis Salem 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: 3-2 H Well Pad Name: Goodwin

3 Elevation, current ground: 1100 Elevation, proposed post-construction: 1100

4) Well Type: (a) Gas Oil
Other
(b) If Gas: Shallow Deep
Horizontal

SDW
9/18/2013

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Marcellus Shale is the target formation at a TVD of 7390 ft, a thickness of 58 ft, and a reservoir pressure of 3800 psi.
The well was drilled by PetroEdge to a depth 13,220' MD/7368' TVD. The well has been transferred to Statoil. This permit is requesting approval to complete/frac the well.

7) Proposed Total Vertical Depth: 7368 ft

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 13220 ft

10) Approximate Fresh Water Strata Depths: 45 ft

11) Method to Determine Fresh Water Depth: Offset wells

12) Approximate Saltwater Depths: 1630 ft

13) Approximate Coal Seam Depths: 535 ft

14) Approximate Depth to Possible Void (coal mine, karst, other): N/A

15) Does land contain coal seams tributary or adjacent to, active mine? No

16) Describe proposed well work: Frac 17 separate stages on a previously drilled Marcellus well.
Complete the well in the Marcellus formation in order for to Statoil to produce natural gas.

17) Describe fracturing/stimulating methods in detail:
Perforate and fracture 17 separate stages utilizing 6,100,000 gal of water and 6,247,500 lbs of sand.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 2.9 acres

19) Area to be disturbed for well pad only, less access road (acres): 2.4 acres

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WW - 6B
(1/12)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20	New	H-40	51	120	120	Cement to surface
Fresh Water	13 3/8	New	H-40	54	337	323.7	Cement to surface
Coal							
Intermediate	9 5/8	New	J-55	36	2345	2340.88	Cement to surface
Production	5 1/2	New	P-110	20	13220	13206.43	Cement to surface
Tubing	2 3/8	New	J-55	4.7		7200	Production Tubing
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20	24"	0.438"	1530	Class A	1.20
Fresh Water	13 3/8	17 1/2"	0.33"	1730	Class A	1.20
Coal						
Intermediate	9 5/8	12 1/4"	0.352"	3520	Class A	1.19
Production	5 1/2	8 1/2"	0.361	12,640	Class A / 50/50 Poz	1.79 / 1.3
Tubing	2 3/8		0.19	7700		
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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- 21) Describe centralizer placement for each casing string. 13 3/8" - one 5' above guide shoe, one per joint for the next three joints. One per every other joint after that.
9 5/8" - one 5' above guide shoe, one per joint for 5 joints. One per every third joint after that.
5 1/2" - one 5' above the float shoe, one on the 3rd joint, one on every other joint thru curve to vertical.
One per every 4th joint to surface.

NOTE - WELL HAS BEEN DRILLED

- 22) Describe all cement additives associated with each cement type. _____
13 3/8" - Class A with 3% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
9 5/8" - Lead - Class A with 1% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
Tail - Class A with 2% Calcium Chloride (accelerator), and 0.25 lb/sk flake (lost circulation material)
5 1/2" - Lead - 50:50 Poz:Class A with 10% Salt (accelerator), 4% Bentonite (extender)
Tail - Class A with 5% Salt (accelerator), 50% Super Acid Soluble (acid soluble additive), 0.55% Super CR-1 (retarder),
0.5% Super FL-350 (non gelling fluid loss), 0.25% AG-350 (anti-gelling additive), 5 lb/sk Gilsonite (low density extender),
and 0.2% Cement Stabilizer 1 (anti-settling/stabilizing agent)

NOTE - WELL HAS BEEN DRILLED

- 23) Proposed borehole conditioning procedures. The surface and intermediate sections will be drilled with air.
Once the sections are at the proposed casing points, prior to tripping the drill pipe the hole will be circulated
with air for 3 hole volumes while rotating the drill pipe in order to clean the hole of cuttings. A water based gel spacer will be
pumped prior to cementing in order to wet the pipe and wellbore. The curve and horizontal section
will be drilled with a 12.0 lb/gal synthetic oil based mud. If an excessive amount of sliding is required to control inclination, slides
will be performed in short intervals to eliminate a dune of cuttings behind the BHA. Pump rates will be maintained between
475-500 gpm. The drill pipe will be rotated at 65-75 rpm in order to assist transporting the cuttings out of the hole. Drag values will be recorded every 160 ft with pumps off before and after
a clean up cycle. Once TD is reached clean up cycle will be performed. Bottoms up will be pumped 3 times or until hole cleans up. A clean up cycle will also be performed
at the bottom of the curve for 3 bottoms up. A 50 bbl spacer will be ran prior to the cement in order to prevent cement contamination. (NOTE: Well has been drilled)

*Note: Attach additional sheets as needed.

33-05712

Statoil										Marcellus - Drilling Well Schematic									
Well Name: Goodwin 3-2H					GLE (ft): 1,096					Hole depth: TVD(ft): 7,369 Casing depth: 7,369									
Field Name: Marcellus					RKB (ft): 19' (Pioneer 59)					TMD(ft): 13,220									
County: Harrison County, Sardis					BHL: X = 1,774,296 Y = 14,290,806					Profile: Horizontal									
API #: 47-033-05712					SHL: X = 1,772,841 Y = 14,296,882					AFE No.: 47-033-05642 (PetroEdge)									
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	97	97	-97	-	-	-	-	97		20" Conductor									
										17 1/2" Surface									
Casing Point	320	320	-320	65	-	-	Air/ Mist	337											
Approximate fresh water strata																			
Red Rock		1,100		-	-	-													
Saltwater Red Rock		1,650 1,750		-	-	-													
Casing Point	2,341	2,336	-2,336	82	-	>15	Air/ Mist	2,345											
KOP	6,002	5,994	-5,994	105	-	-	12.0												
Geneseo Shale		7,157	-7,157	117	-	-	12.0												
Marcellus		7,343	-7,343	118	-	-	12.0												
Target Top		7,341	-7,341	118	-	-	12.0												
Landing point	7,853	7,344								TMD: 13,220 TVD: 7,369									
Target Btm		7,441	-7,441	119	-	-	-												
Onondaga		7,470	-7,470	-	-	-	-												

20" Conductor

17 1/2" Surface

Profile: Vertical
 Bit Type: Flat bottom hammer bit
 BHA: Air Hammer
 Mud: Air
 Surveys: Singel shot
 Logging: none
 Casing: 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD
 1 every joint

Centralizers:

Cement: 15.6 ppg single slurry

Potential Drilling Problems:

12 1/4" Intermediate

FIT/LOT: N/A EMW

Profile: Nudge for anticollision
 Bit Type: Hammer bit / PDC from 1550'
 BHA: Hammer down to 1550'
 Mud: Air/ 10.0 ppg SOBM from 1550'
 Surveys: Single shot
 Logging:
 Casing/Liner: 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD.
 Liner Hanger: N/A
 1 every 3 joints

Centralizers:

Cement: 15.6 ppg single slurry

Potential Drilling Problems:

8 1/2" Production

FIT/LOT: N/A ppg EMW

Profile: Horizontal; KOP@ 6002 with a 10 deg/100 ft curve
 Bit Type: 8 1/2" PDC
 BHA: Directional Assembly (Steerable Motor) + MWD w/ GR
 Mud: Air to KOP and SOBM to TD
 Surveys: MWD + GR
 Logging: Mud Logging the whole interval
 Casing/Liner: 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD

Marker Joints: 10' @ '6059' and 4541'
 Centralizers: 70% stand-off in OH section

Cement: Lead: 14.5 ppg to Surface'
 Tail: 15.6 ppg to ~7,000'

Potential Drilling Problems:

Notes / Comments: Stimshot valve at 13,078'. Float at 13,123'.
 Rig Released 5/4/2013 @ 0600am

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Last Revision Date: 6/07/13
Revised by: KGL

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

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 Marcellus - Completion Well Schematic - Pre-Frac		
Well Name: Goodwin 3-2H	GLE (ft): 1,096	Completion: Lateral Length 5,225 ft MD
Field Name: Marcellus	RKB (ft): 19' (Pioneer 59)	Average Lateral TVD 7,375 ft TVD
County: Harrison County, Sardis	BHL X = 1,774,296.04	Y = 14,290,805.54
API #: 47-033-05712	SHL X = 1,772,841.00	Y = 14,296,882.00
		Profile: Horizontal
		AFE No.: 47-033-05712 (PetroEdge)

Formations & Csg Points	Depth, ft			Form. Temp. (F)	Measure Depth (ft)	Drilling Hole Size, Casing, and Cement
	MD	TVD	SS			
Conductor	97	97	-97	-	#	Surface Interval: 17 1/2" Surface 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 15.6 ppg single slurry Intermediate Interval: 12 1/4" Intermediate 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. 15.6 ppg single slurry Production Interval: 8 1/2" Production 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD OD: 5.5 ID: 4.778 Drift ID: 4.653 Lead: 14.5 ppg to Surface Tail: 15.6 ppg to ~7,000' Plug Bump Pressure: 2900-3400 psi Floats Held (Y/N) Yes Marker Joints: #1 4541 ft MD top set depth #2 6059 ft MD top set depth
Casing Point	320	320	-320	65	#	Wellhead Casing Head: 11"-5M TOP Tubing Head: 11" 5M BTM x 7-1/16" 10M TOP - Installed and p-test to 5k psi Prod Tree: 7-1/16" 10M x 2-1/16" 5M Run & Wings - not installed Chronology Rig Release Date: 5/5/2013 Open Hole Logging: MWD+GR
Approximate fresh water strata						
Big Injun (Base)	0					Proposed Completion Frac Design: Slickwater, 8,250 bbl clean, 85% 40/70, 15% 30/50 Perforation Design: 18- 300' stages; 5 clusters/stg x 60' spacing Final Completion: 2-3/8" L80 Tubing with 5.5" PLT Packer at 30 deg Inc.
Casing Point	2,341	2,336	-2,336	82	#	
KOP1	0	0				
KOP2	6,002	5,994	-5,994	105		
Geneseo Shale		7,157	-7,157	117		
Marcellus		7,343	-7,343	118		
Target Top		7,341	-7,341	118		
Landing point	7,853	7,344				Current PBSD (ft MD) 13,078 Toe Sleeve Depth (ft MD): 13,078 Float Collar Depth (ft MD): 13,123 Shoe Depth (ft MD): 13,206 Drilled Hole Depth: TMD (ft) 13,220 TVD (ft) 7,369
Target Btm		7,441	-7,441	119		
Onondaga		7,470	-7,470	-		

Last Revision Date: 8/1/2013
 Revised by: JSG

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

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 Cement Outside Casing

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Marcellus - Completion Well Schematic - Pre-Frac

Well Name: Goodwin 3-2H	GLE (ft): 1,096	Completion: Lateral Length 5,225 ft MD
Field Name: Marcellus	RKB (ft): 19' (Pioneer 59)	Average Lateral TVD 7,375 ft TVD
County: Harrison County, Sardis	BHL: X = 1,774,296.04 Y = 14,290,805.54	Profile: Horizontal
API #: 47-033-05712	SHL: X = 1,772,841.00 Y = 14,296,882.00	AFE No.: 47-033-05712 (PetroEdge)

Formations & Csg Points	Depth. ft			Form. Temp. (F)	Measure Depth (ft)	Drilling Hole Size, Casing, and Cement
	MD	TVD	SS			
Conductor	97	97	-97	-	#	Surface Interval: 17 1/2" Surface 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 15.6 ppg single slurry Intermediate Interval: 12 1/4" Intermediate 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. 15.6 ppg single slurry Production Interval: 8 1/2" Production 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD OD: 5.5 ID: 4.778 Drift ID: 4.653 Lead: 14.5 ppg to Surface/Tail: 15.6 ppg to ~7,000' Plug Bump Pressure: 2900-3400 psi Floats Held (Y/N) Yes Marker Joints: #1 4541 ft MD top set depth #2 6059 ft MD top set depth
Casing Point	320	320	-320	65	#	Wellhead
Approximate fresh water strata						
Big Injun (Base)	0				#	Casing Head: 11"-5M TOP Tubing Head: 11" 5M BTM x 7-1/16" 10M TOP - Installed and p-test to 5k psi Prod Tree: 7-1/16" 10M x 2-1/16" 5M Run & Wings - not installed
Casing Point	2,341	2,336	-2,336	82	#	Chronology Rig Release Date: 5/5/2013 Open Hole Logging: MWD+GR
KOP1	0	0				Proposed Completion
KOP2	6,002	5,994	-5,994	105		Frac Design: Slickwater, 8,250 bbl clean, 85% 40/70, 15% 30/50 Perforation Design: 18- 300' stages; 5 clusters/stg x 60' spacing Final Completion: 2-3/8" L80 Tubing with 5.5" PLT Packer at 30 deg Inc.
Geneseo Shale		7,157	-7,157	117		
Marcellus		7,343	-7,343	118		
Target Top		7,341	-7,341	118		
Landing point	7,853	7,344				Current PBTD (ft MD) 13,078 Drilled Hole Depth: Toe Sleeve Depth (ft MD): 13,078 TMD (ft) 13,220 Float Collar Depth (ft MD): 13,123 TVD (ft) 7,369 Shoe Depth (ft MD): 13,206
Target Btm		7,441	-7,441	119		
Onondaga		7,470	-7,470	-		

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Last Revision Date: 8/1/2013
Revised by: JSG
Note: Depths are referenced to RKB
Note: Not Drawn to Scale

WV Department of Environmental Protection

11/01/2013



Marcellus - Drilling Well Schematic

Well Name: <u>Goodwin 3-2H</u>	GLE (ft): <u>1,096</u>	Hole depth: TVD(ft): <u>7,369</u>	Casing depth: <u>7,369</u>
Field Name: <u>Marcellus</u>	RKB (ft): <u>19' (Pioneer 59)</u>	TMD(ft): <u>13,220</u>	<u>13,206</u>
County: <u>Harrison County, Sardis</u>	BHL: X = <u>1,774,296</u> Y = <u>14,290,806</u>	Profile: <u>Horizontal</u>	
API #: <u>47-033-05712</u>	SHL: X = <u>1,772,841</u> Y = <u>14,296,882</u>	AFE No.: <u>47-033-05642 (PetroEdge)</u>	

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	97	97	-97	-	-	-	-	97		20" Conductor 17 1/2" Surface
Casing Point	320	320	-320	65	-	-	Air/ Mist	337		Profile: Vertical Bit Type: Flat bottom hammer bit BHA: Air Hammer Mud: Air Surveys: Singel shot Logging: none Casing: 13 3/8 in 54.5 # J-55 STC set @ ~ 320 MD/320 TVD 1 every joint Centralizers: Cement: 15.6 ppg single slurry Potential Drilling Problems:
Approximate fresh water strata										
Red Rock		1,100		-	-	-				FIT/LOT: N/A EMW Profile: Nudge for anticollission Bit Type: Hammer bit / PDC from 1550' BHA: Hammer down to 1550' Mud: Air/ 10.0 ppg SOBM from 1550' Surveys: Single shot Logging: Casing/Liner: 9 5/8 in 36# J-55 LTC set at 2341ft MD/2336 ft TVD. Liner Hanger: N/A 1 every 3 joints Centralizers: Cement: 15.6 ppg single slurry Potential Drilling Problems:
Saltwater Red Rock		1,650 1,750		-	-	-				
Casing Point	2,341	2,336	-2,336	82	-	>15	Air/ Mist	2,345		FIT/LOT: N/A ppg EMW Profile: Horizontal; KOP@ 6002 with a 10 deg/100 ft curve Bit Type: 8 1/2" PDC BHA: Directional Assembly (Steerable Motor) + MWD w/ GR Mud: Air to KOP and SOBM to TD Surveys: MWD + GR Logging: Mud Logging the whole interval Casing/Liner: 5 1/2 in 20# P-110 TTRS1 to 0' to TD @ 13206 ft MD Marker Joints: 10' @ '6059' and 4541' Centralizers: 70% stand-off in OH section Cement: Lead: 14.5 ppg to Surface' Tail: 15.6 ppg to ~7,000' Potential Drilling Problems: Notes / Comments: Stimshot valve at 13,078'. Float at 13,123'. Rig Released 5/4/2013 @ 0600am
KOP	6,002	5,994	-5,994	105	-	-	12.0			8 1/2" Production
Geneseo Shale		7,157	-7,157	117	-	-	12.0			
Marcellus		7,343	-7,343	118	-	-	12.0			
Target Top		7,341	-7,341	118	-	-	12.0			
Landing point	7,853	7,344								
Target Btm		7,441	-7,441	119	-	-	-			
Onondaga		7,470	-7,470	-	-	-	-			

TMD: 13,220
TVD: 7,369

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SEP 27 2013

Last Revision Date: 6/07/13
Revised by: KGL

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

Cement Outside Casing
WV Department of
Environmental Protection

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

**CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE**

Operator Name Statoil USA Onshore Properties Inc. OP Code 494505083

Watershed Rock Camp Run Quadrangle Salem 7.5'

Elevation 1096 County Harrison District Sardis

Description of anticipated Pit Waste: Closed Loop

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

Will a synthetic liner be used in the pit? Yes . If so, what mil.? 60 mil

*S DW
9/18/2013*

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number 34-167-2-9395/34-167-2-9658/34-167-2-9685)
- Reuse (at API Number)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air/Fresh Water - vert. section / Oil based mud for Horiz sec.
-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used? Emulsifier, food grade oil, barite, surfactant, calcium chloride, calcium carbonate, gilsonite, lubricant, graphite, lime

Will closed loop system be used? Yes

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,

-Landfill or offsite name/permit number? Meadowfill Landfill in Clarksburg, WV

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

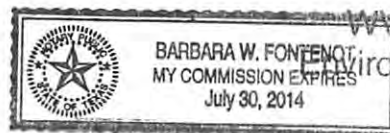
Subscribed and sworn before me this 17th day of September, 2013

Barbara W. Fontenot

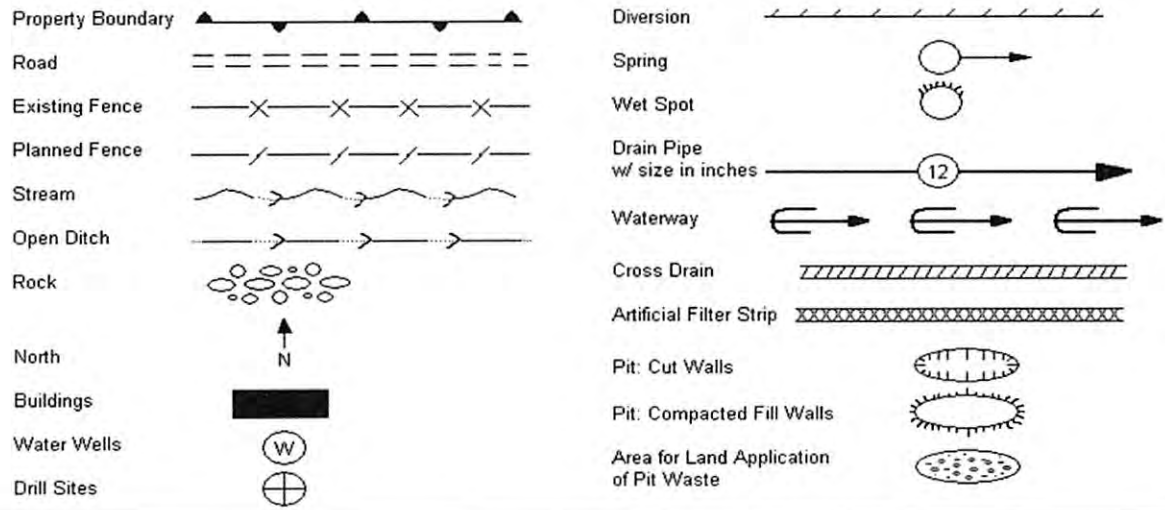
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Notary Public Office of Oil and Gas

My commission expires 7-30-2014

SEP 27 2013



Department of Environmental Protection
11/01/2013



Proposed Revegetation Treatment: Acres Disturbed 2.4 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 90 bales Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Orchard Grass	40	Orchard Grass	40
Landino Clover	5	Landino Clover	5
Meadow Mix	50	Meadow Mix	50

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: S. J. Dwan III

Comments: Upgrade ETS as necessary per WV DEP ETS Manual.

Title: Oil & Gas Inspector

Date: 9/18/2013

Field Reviewed? Yes No

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SEP 27 2013



Water Management Plan: Primary Water Sources



WMP- 01523

API/ID Number: 047-033-05712

Operator: Statoil USA Onshore Properties Inc.

Goodwin 3-2H

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED OCT 25 2013

11/01/2013

Source Summary

WMP- 01523

API Number:

047-033-05712

Operator:

tatoil USA Onshore Properties Inc

Goodwin 3-2H

Stream/River

● Source **McIntyre Fork** Harrison Owner: **Tina J. Moore Swiger**

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude:

Intake Longitude:

1/11/2014

1/11/2015

7,600,000

39.370285

-80.516536

Regulated Stream?

Ref. Gauge ID:

3061500

BUFFALO CREEK AT BARRACKVILLE, WV

Max. Pump rate (gpm):

500

Min. Gauge Reading (cfs):

23.61

Min. Passby (cfs)

0.39

DEP Comments:

● Source **Rock Camp Run** Harrison Owner: **Coastal Forest Resources Co.**

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude:

Intake Longitude:

1/11/2014

1/11/2015

7,600,000

39.36948

-80.52567

Regulated Stream?

Ref. Gauge ID:

3061500

BUFFALO CREEK AT BARRACKVILLE, WV

Max. Pump rate (gpm):

500

Min. Gauge Reading (cfs):

23.61

Min. Passby (cfs)

0.10

DEP Comments:

11/01/2013

Source Detail

WMP- 01523

API/ID Number: 047-033-05712

Operator: tatoil USA Onshore Properties Inc

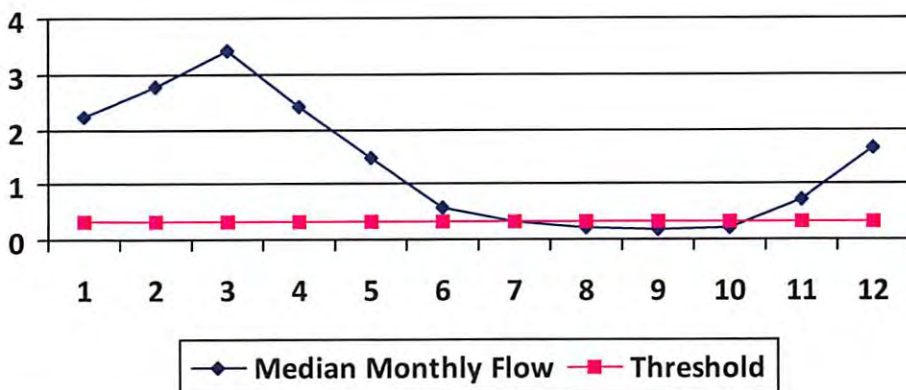
Goodwin 3-2H

Source ID: 27169	Source Name: McIntyre Fork Tina J. Moore Swiger	Source Latitude: 39.370285	Source Longitude: -80.516536
HUC-8 Code: 5020002	Drainage Area (sq. mi.): 2	County: Harrison	Anticipated withdrawal start date: 1/11/2014
<input type="checkbox"/> Endangered Species?	<input type="checkbox"/> Mussel Stream?		Anticipated withdrawal end date: 1/11/2015
<input type="checkbox"/> Trout Stream?	<input type="checkbox"/> Tier 3?		Total Volume from Source (gal): 7,600,000
<input type="checkbox"/> Regulated Stream?			Max. Pump rate (gpm): 500
<input type="checkbox"/> Proximate PSD?			Max. Simultaneous Trucks: 1
<input type="checkbox"/> Gauged Stream?			Max. Truck pump rate (gpm): 500

Reference Gaug: 3061500	BUFFALO CREEK AT BARRACKVILLE, WV
Drainage Area (sq. mi.): 116.00	Gauge Threshold (cfs): 15

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	2.24	1.50	0.85
2	2.76	1.50	1.37
3	3.42	1.50	2.02
4	2.43	1.50	1.03
5	1.46	1.50	0.07
6	0.58	1.50	-0.82
7	0.32	1.50	-1.07
8	0.22	1.50	-1.17
9	0.17	1.50	-1.23
10	0.21	1.50	-1.18
11	0.74	1.50	-0.65
12	1.66	1.50	0.26

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	0.26
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	1.11
Headwater Safety (cfs):	0.06
Ungauged Stream Safety (cfs):	0.06
Min. Gauge Reading (cfs):	23.61
Passby at Location (cfs):	0.39

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/01/2013

Source Detail

WMP- 01523

API/ID Number: 047-033-05712

Operator: tatoil USA Onshore Properties Inc

Goodwin 3-2H

Source ID: 27170 Source Name: Rock Camp Run Source Latitude: 39.36948
 Coastal Forest Resources Co. Source Longitude: -80.52567

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 0.5 County: Harrison

Anticipated withdrawal start date: 1/11/2014

Anticipated withdrawal end date: 1/11/2015

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 7,600,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 500

Regulated Stream?

Max. Simultaneous Trucks: 1

Proximate PSD?

Max. Truck pump rate (gpm): 500

Gauged Stream?

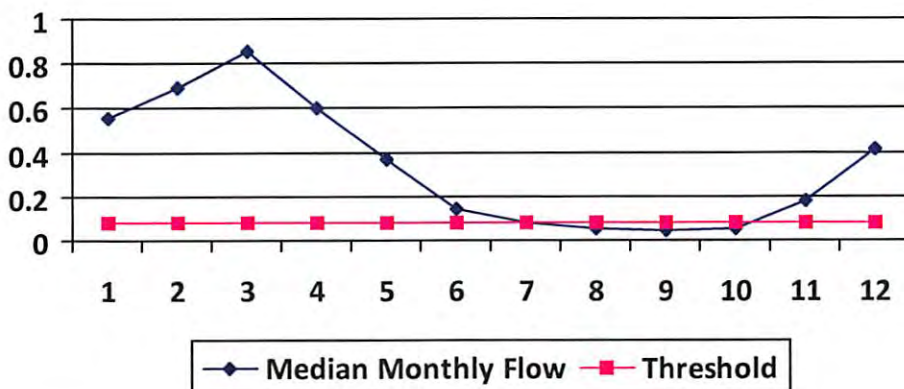
Reference Gaug: 3061500 BUFFALO CREEK AT BARRACKVILLE, WV

Drainage Area (sq. mi.): 116.00

Gauge Threshold (cfs): 15

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	0.56	1.21	-0.59
2	0.69	1.21	-0.46
3	0.85	1.21	-0.29
4	0.61	1.21	-0.54
5	0.37	1.21	-0.78
6	0.14	1.21	-1.00
7	0.08	1.21	-1.07
8	0.06	1.21	-1.09
9	0.04	1.21	-1.11
10	0.05	1.21	-1.09
11	0.18	1.21	-0.96
12	0.41	1.21	-0.73

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.06

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 1.11

Headwater Safety (cfs): 0.02

Ungauged Stream Safety (cfs): 0.02

Min. Gauge Reading (cfs): 23.61

Passby at Location (cfs): 0.10

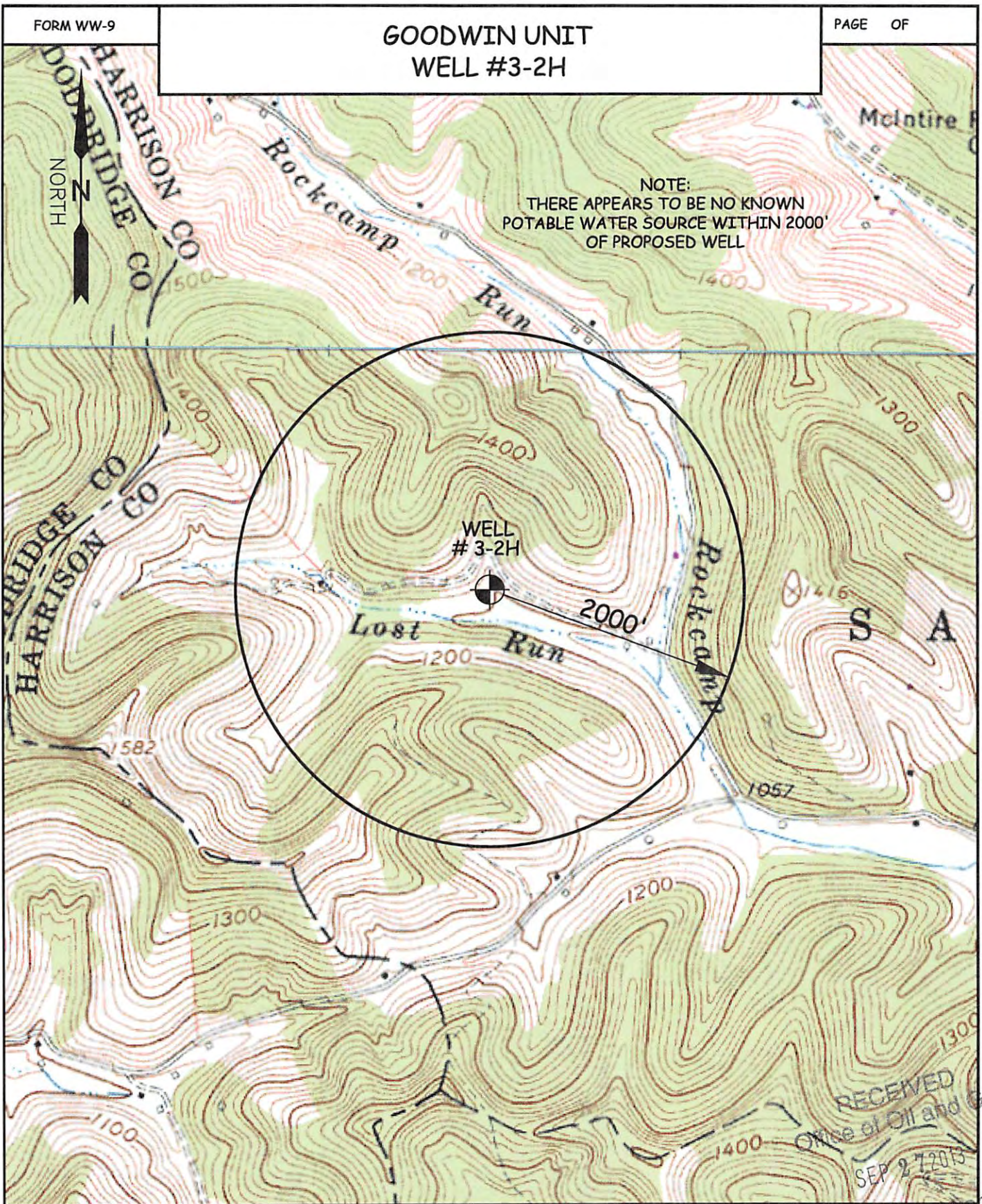
"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/01/2013

FORM WW-9

GOODWIN UNIT WELL #3-2H

PAGE OF



WILLOW LAND SURVEYING PLLC
 P.O. BOX 17, PENNSBORO, WV 26415
 (304) 659-1717

TOPO SECTION(S) OF :

SALEM 7.5' QUAD
 FOLSOM 7.5' QUAD

SCALE : 1-INCH = 1000 FEET

0' 1000' 2000' 3000'

DATE: 5/31/12

DRAWN BY: TBS



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 SEP 27 2013

Department of Environmental Protection

- Lease road entrance – Lat.: 39.36872, Long.: -80.52592
- Lease road entrance is 0.5 miles northwest of Co Route 5/1 on Lost Run

11/01/2013

GOODWIN 3-2H (47-033-05712)

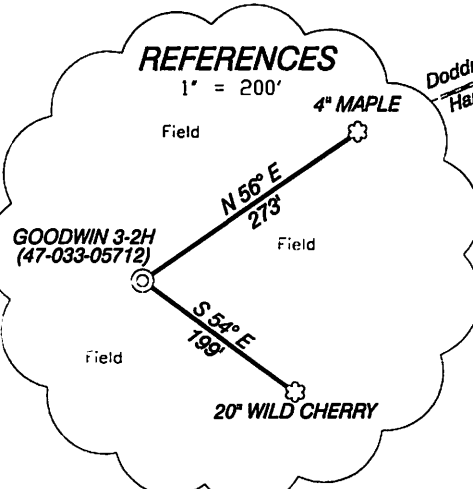
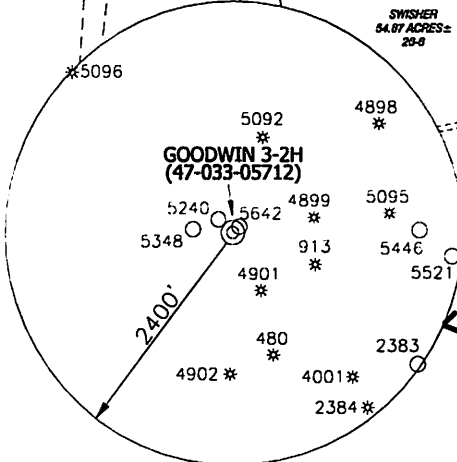
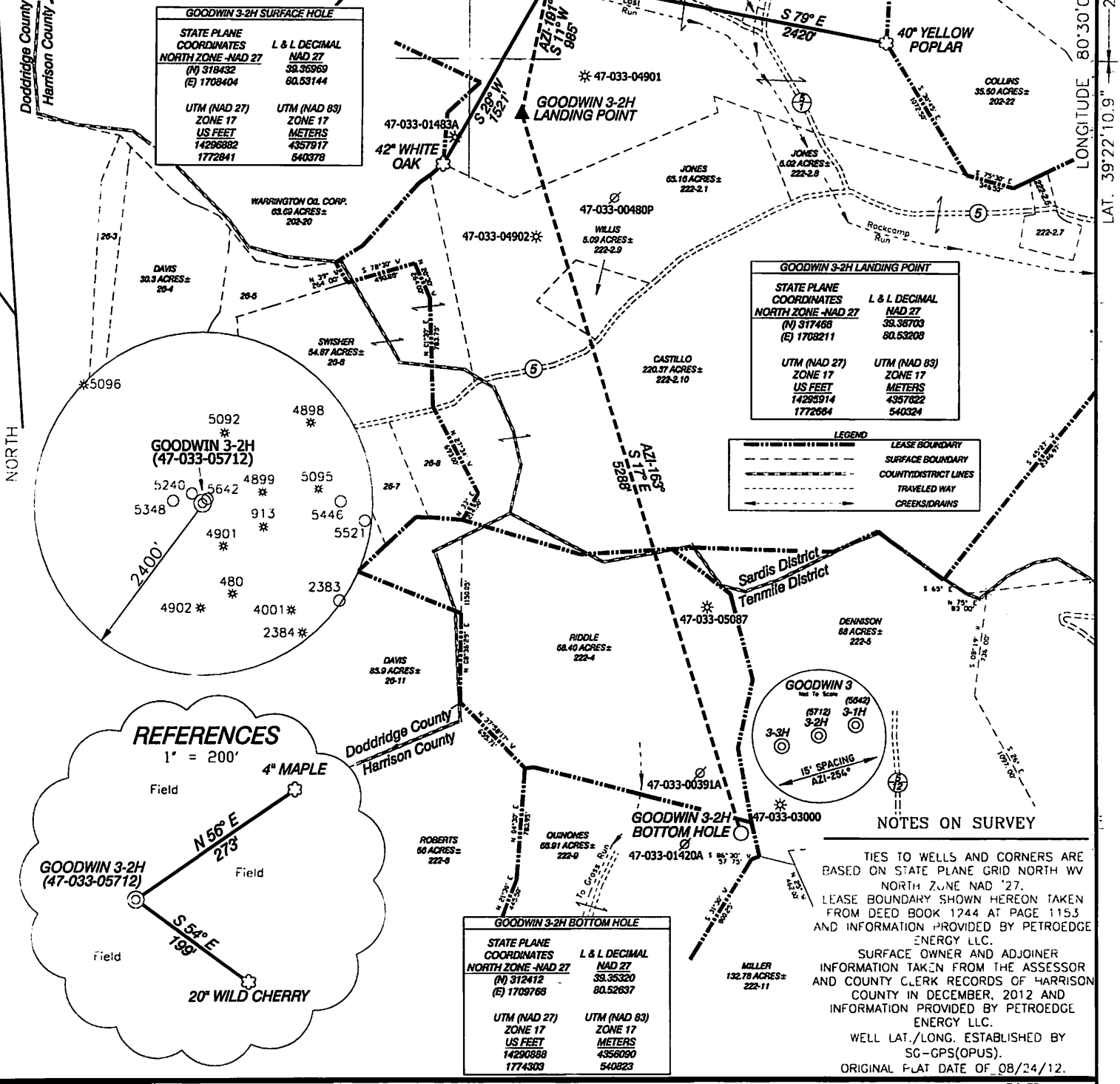
GOODWIN 3-2H SURFACE HOLE	
STATE PLANE COORDINATES	L & L DECIMAL
NORTH ZONE -NAD 27	NAD 27
(N) 318432	38.36969
(E) 1708404	80.63144
UTM (NAD 27)	UTM (NAD 83)
ZONE 17	ZONE 17
US FEET	METERS
1429882	4357817
1772841	840378

GOODWIN 3-2H LANDING POINT	
STATE PLANE COORDINATES	L & L DECIMAL
NORTH ZONE -NAD 27	NAD 27
(N) 317465	38.38703
(E) 1708211	80.63208
UTM (NAD 27)	UTM (NAD 83)
ZONE 17	ZONE 17
US FEET	METERS
14295914	4357622
1772864	840324

LEGEND	
	LEASE BOUNDARY
	SURFACE BOUNDARY
	COUNTY/DISTRICT LINES
	TRAVELED WAY
	CREEKS/DRAINS

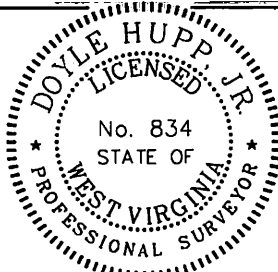
NOTES ON SURVEY

TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 1744 AT PAGE 115.3 AND INFORMATION PROVIDED BY PETROEDGE ENERGY LLC. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN DECEMBER, 2012 AND INFORMATION PROVIDED BY PETROEDGE ENERGY LLC. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS). ORIGINAL P-PLAT DATE 08/24/12.



GOODWIN 3-2H BOTTOM HOLE	
STATE PLANE COORDINATES	L & L DECIMAL
NORTH ZONE -NAD 27	NAD 27
(N) 312412	38.35320
(E) 1709768	80.52637
UTM (NAD 27)	UTM (NAD 83)
ZONE 17	ZONE 17
US FEET	METERS
1429088	4356090
1774303	80.52637

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JULY 3, 2013
 OPERATORS WELL NO. GOODWIN 3-2H
 API NO. 47-033-05712
 WELL NO. 47-033-05712
 STATE COUNTY PERMIT

P.S. 834

HUPP Surveying & Mapping
 P.O. Box 647 Grantsville, WV 26147
 (304) 354-7035 EMAIL: hupp@frontiernet.net

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2207 (BK44-39)
 PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

WELL TYPE : OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW
 LOCATION : ELEVATION 1,096' WATERSHED LOST RUN OF ROCKCAMP RUN
 DISTRICT SARDIS COUNTY HARRISON QUADRANGLE SALEM 7.5'
 SURFACE OWNER COASTAL FOREST RESOURCES CO. ACREAGE 294.5±
 ROYALTY OWNER EARL & WILMA R. GOODWIN, et al LEASE ACREAGE 1,415.31± **11/01/2013**
 PROPOSED WORK : LEASE NO.
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
 PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 7,397' TVL 13,383' MVD

WELL OPERATOR STATOIL USA ONSHORE PROPERTIES INC. DESIGNATED AGENT WILLIAM T. FAHEY II
 ADDRESS 2103 CITYWEST BLVD., SUITE 800 HOUSTON, TX 77042 ADDRESS 2116 PENNSYLVANIA AVENUE WEIRTON, WV 26062

COUNTY NAME
 PERMIT