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

March 10, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101757, issued to GASTAR EXPLORATION 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: GREER 1H
Farm Name: PPG INDUSTRIES, INC.
API Well Number: 47-5101757
Permit Type: Horizontal 6A Well
Date Issued: 03/10/2015

Promoting a healthy environment.

IR - 26
(REV 08)

API No. 47-5101757

INSPECTORS PERMIT SUMMARY FORM

GPS YES [ ] NO [ ]

DATE STARTED/LOCATION: _____ OPERATOR: GASTAR EXPLORATION INC.

DRILLING COMMENCED: _____ FARM: PPG INDUSTRIES, INC.

TO DATE: _____ DEPTHS: _____ Well No: GREER 1H

WATER DEPTHS: _____ COAL DEPTHS _____

QUESTIONS FOR THIS REPORT ARE IN ACCORDANCE OF WV CODE 22-6-30 AND REGULATIONS 35CSR 4-12.1 AND 35CSR 4-16 AND THE GENERAL WATER POLLUTION CONTROL PERMIT.

POINTS ARE TO BE GIVEN UP TO MAXIMUM AS SHOWN BASED ON PERFORMANCE.

1. DID OPERATOR GIVE PROPER NOTICE TO INSPECTOR BEFORE THE FOLLOWING:
   A. CONSTRUCTION YES [ ] NO [ ] (2_PTS) **(4_PTS)** ____
   B. DRILLING YES [ ] NO [ ] (2_PTS)

2. WAS THE TIMBER CUT, STACKED, AND BRUSH USED FOR SEDIMENT BARRIERS BEFORE DIRT WORK STARTED? YES [ ] NO [ ] (2_PTS) **(4_PTS)** ____

3. ARE ALL LOCATION AND/OR ROAD BANKS BEING SLOPED? YES [ ] NO [ ] (4_PTS) **(4_PTS)**____

4. CONSTRUCTIONS:
   WERE THE FOLLOWING SEDIMENT CONTROL STRUCTURES PROPERLY INSTALLED/MAINTAINED?
   A. ROAD DITCHES (1)_(2)_(3)_(4)_(PTS) B. CROSS DRAINS (1)_(2)_(3)_(4)_(5)_(PTS)
   C. CULVERTS (1)_(2)_(3)_(4)_(5)_(PTS) D. CREEK CROSSINGS (1)_(2)_(3)_(PTS)
   E. DIVERSION DITCHES (1)_(2)_(3)_(PTS) F. BARRIERS (1)_(2)_(3)_(PTS)
   G. TEMPORARY SEEDING YES[ ] NO[ ] (10_PTS)

   POINTS AVAILABLE FOR QUESTION 4: (33_PTS)____

5. HAS TOP SOIL (IF ANY) BEEN STOCKED PILED? YES [ ] NO [ ] (2_PTS) **(2_PTS)**____

6. IS THE PIT PROPERLY INSTALLED AND MAINTAINED? YES [ ] NO [ ] (9_PTS) **(9_PTS)** ____

7. RECLAMATION:
   A. ROADWAY (1)_(2)_(3)_(PTS) B. LOCATION (1)_(2)_(3)_(PTS)
   C. PITS (1)_(2)_(3)_(PTS) D. PIPELINES (1)_(2)_(3)_(PTS)
   E. TANK DIKES (1)_(2)_(3)_(PTS) F. API INSTALLED YES [ ] NO [ ] (3_PTS)
   G. ADEQUATE SEEDING MATERIALS (1)_(2)_(3)_(PTS)
   H. WAS SEED BED ADEQUATE (1)_(2)_(3)_(PTS)

   POINTS AVAILABLE FOR QUESTION 7: (24_PTS)____

8. WAS RECLAMATION COMPLETED WITHIN:
   6 MTHS OF TD 6_PTS ONLY; 4 MTHS OF TD 12_PTS ONLY; 2 MTHS OF TD 19_PTS ONLY;

   POINTS AVAILABLE FOR QUESTION 8: (19_PTS)____

TOTAL MAXIMUM POSSIBLE SCORE OF 99.

TOTAL RECLAMATION SCORE: _____

_____ DATE RELEASED

_____ INSPECTOR'S SIGNATURE

RECORD INSPECTIONS TO THIS WELL ON PAGE 2

API No. 47-5101757

INSPECTIONS:

API Number: 4705101757

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. Gastar shall not conduct any fracturing operations in such a manner as to adversely impact Eagle Natrium, LLC's brine field operation.

2. Gastar shall coordinate with Eagle Natrium, LLC to ensure that they are sharing information with regard to monitoring of both Eagle Natrium, LLC's brine field wells and Gastar's natural gas well during the fracturing process of the natural gas well that is the subject of the instant permit.

3. Gastar shall immediately terminate fracturing operations and initiate emergency flowback procedures to immediately relieve any pressure, fluid, or gas influences on the brine field, should Gastar or Eagle Natrium, LLC observe any communications with Eagle Natium, LLC's brine field, including the brine field wells. Gastar shall notify the Office of Oil and Gas immediately of any potential or actual communications between Gastar's natural gas well and Eagle Natrium, LLC's brine field, including the brine field wells.

4. As a means of identification of a possible geologic feature such as a fault or fracture that could create a communications conduit, prior to initiating any fracturing operations, Gastar shall establish a minimum pressure threshold. Gastar shall shut down operations immediately should the pressure go below the set threshold (i.e. if Gastar experiences a "soft frac"). In that event, Gastar shall immediately notify the Office of Oil and Gas and initiate emergency flow-back procedures.

5. Gastar shall provide to OOG a report detailing the fracturing treatment within 90 days of such operations.

6. Gastar shall notify the OOG inspector and Eagle Natrium, LLC of the date on which fracturing operations will be initiated. Such notice shall be at least 24 hours in advance of initiation of fracturing operations.

7. 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.

8. 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.

9. 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.

10. 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.

API Number: 4705101757

PERMIT CONDITIONS

11. 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.

12. 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.

13. 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.

14. 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.

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

WW-6B
(9/13)

4705101757

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

51 3 558

1) Well Operator: Gastar Exploration Inc.

494487685	Marshall	Franklin	Powhatan Point 7.5'
Operator ID	County	District	Quadrangle

2) Operator's Well Number: Greer 1H Well Pad Name: Greer

3) Farm Name/Surface Owner: PPG Industries Inc. Public Road Access: Waynes Ridge County Route 78

4) Elevation, current ground: 1271' Elevation, proposed post-construction: 1251'

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

JW 4/7/14

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
The Marcellus is the target formation at a depth of 6376', thickness of 46' and an anticipated pressure of approx. 3200 psi.

8) Proposed Total Vertical Depth: 6522'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 12,802'

11) Proposed Horizontal Leg Length: 5,700'

12) Approximate Fresh Water Strata Depths: Shallowest at 70' and deepest at 1190'

13) Method to Determine Fresh Water Depths: Noticeable flow at the flowline or when needed to start soaping

14) Approximate Saltwater Depths: 1740'

15) Approximate Coal Seam Depths: Sewickley Coal - 815' & Pittsburg Coal - 1160'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

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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18) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	PE	54.5 #/ft		120'	61 ft^3 (CTS)
Fresh Water	13 3/8"	New	H-40	48 #/ft		1250'	870 ft^3 (CTS)
Coal	13 3/8"	New	H-40	48 #/ft		1250'	870 ft^3 (CTS)
Intermediate	9 5/8"	New	J-55	36 #/ft		2700'	845 ft^3 (CTS)
Production	5 1/2"	New	P-110	20 #/ft		12,802'	3242 ft^3 (CTS)
Tubing	2 3/8"	New	N-80	4.7 #/ft		6910'	
Liners							

4/3/14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	.25"	880 psi	Class A	1.2 cuft/sack
Fresh Water	13 3/8"	17"	.33"	1730 psi	See # 22	1.2 cuft/sack
Coal	13 3/8"	17"	.33"	1730 psi	See # 22	1.2 cuft/sack
Intermediate	9 5/8"	12 1/4"	.352	3520	See # 22	1.2 cuft/sack
Production	5 1/2"	8 7/8" & 8 3/4"	.361	12,640 psi	See # 22	1.18 cuft/sack
Tubing	2 3/8"		.19	11,200 psi		
Liners						

PACKERS

Kind:	n/a			
Sizes:	n/a			
Depths Set:	n/a			

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

Drill through the Marcellus tagging less than one hundred (100') feet from the top of the Onondaga to get depths and log data. Then plug the well back to proposed kick off point (TBD). Drill the horizontal section to planned and proposed TD. Run casing and cement back to surface. Run a bond log from approximately 60 degrees back to surface, pressure test casing and set a master valve. Make a clean out run on the casing and perforate then stimulate.

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

Gastar Exploration plans to fracture the well using a typical slickwater fracture design. Gastar will pump roughly 8000 bbls of water and 325,000 lbs of sand per stage. There will be approximately 29 stages.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 24.42 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.38 acres

23) Describe centralizer placement for each casing string:

Gastar will run 3 centralizers on the surface casing at an equal distance. The intermediate casing will have 7 centralizers at 300' spacing. The production casing will have one centralizer every other joint in the lateral, one centralizer per joint through the curve and one centralizer every other joint in the vertical section.

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

Class A + 2% CaCl2 + 1/4# Flake - Surface Cement mixed at 15.6 ppg. CaCl2 (calcium chloride), Flake (cellophane flake) Class A + 1% CaCl2 + 1/4# Flake - Intermediate Cement mixed at 15.6 ppg. 50:50 Class H .2%CD32 1.2%FL62 .1% ASA301 .4%SMS - Long String Lead mixed 14.5 ppg. CD32 (cement dispersant), FL 62 (fluid loss), SMS (sodium metasilicate), ASA (minimizes free fluid). 50:50 TYPE 1 .4% R3 1%FL62 .15%ASA301 .3%CD32-Long String Tail-14.5ppg

25) Proposed borehole conditioning procedures:

Gastar will circulate the hole a minnimum of 3 hours upon TD. We will then pull out to the bottom of the curve and circulate for another 2 hours. Then come out of the hole.

*Note: Attach additional sheets as needed.

Greer 1H
Marshall County, WV

4705101757

GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV
Field: Marshall
Facility: Greer Unit Pad

Slot: Slot #1
Well: Greer Unit 1H
Wellbore: Greer Unit 1H (PWB)

BAKER HUGHES

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Greer Unit Pad			1686396.960	14438281.590	39°45'25.105"N	80°50'11.015"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #1	0.00	0.00	1686396.960	14438281.590	39°45'25.105"N	80°50'11.015"W

NoahHorn 777 (RT) to Mud line (At Slot: Slot #1)	10ft
Mean Sea Level to Mud line (At Slot: Slot #1)	-1251ft
NoahHorn 777 (RT) to Mean Sea Level	1261ft

Well Profile Data

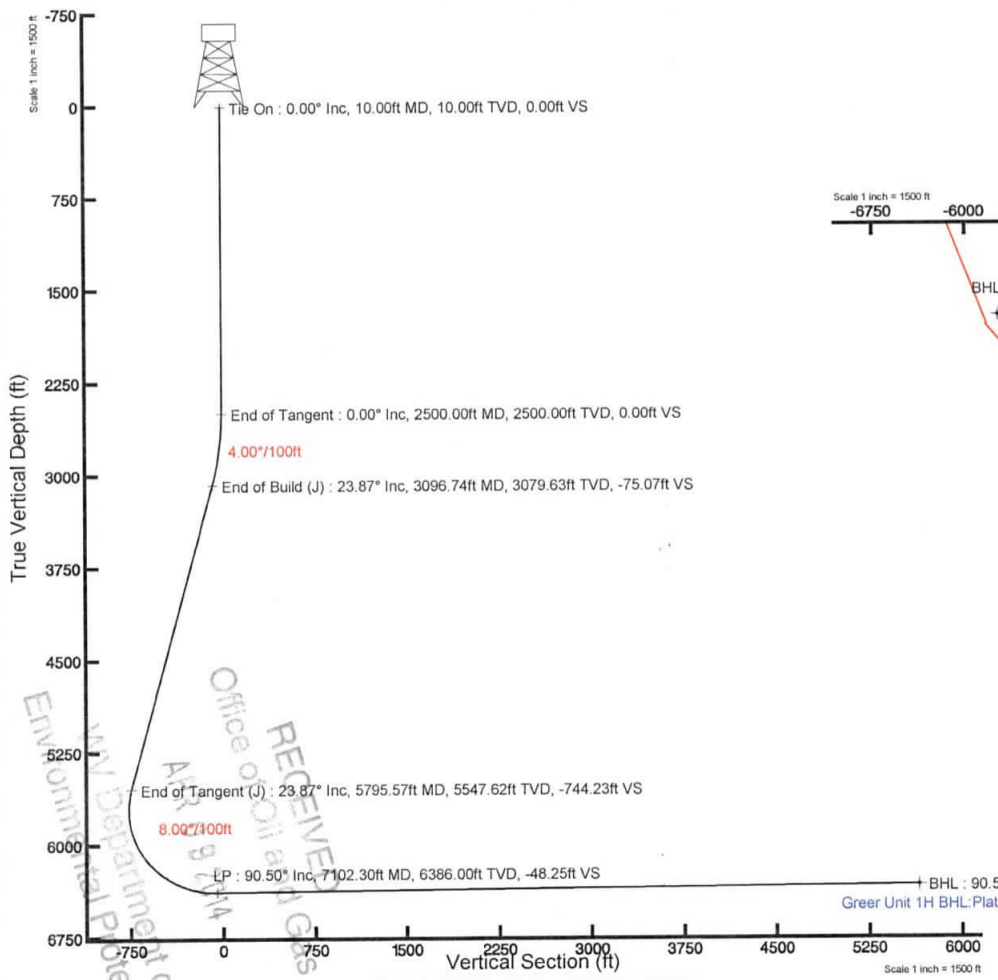
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	10.00	0.000	165.083	10.00	0.00	0.00	0.00	0.00
End of Tangent	2500.00	0.000	165.083	2500.00	0.00	0.00	0.00	0.00
End of Build (J)	3096.74	23.870	165.083	3079.63	-118.39	31.54	4.00	-75.07
End of Tangent (J)	5795.57	23.870	165.083	5547.62	-1173.68	312.67	0.00	-744.23
LP	7102.30	90.500	292.000	6386.00	-1188.89	-449.10	8.00	-48.25
BHL	12802.30	90.500	292.000	6336.26	946.29	-5733.85	0.00	5650.87

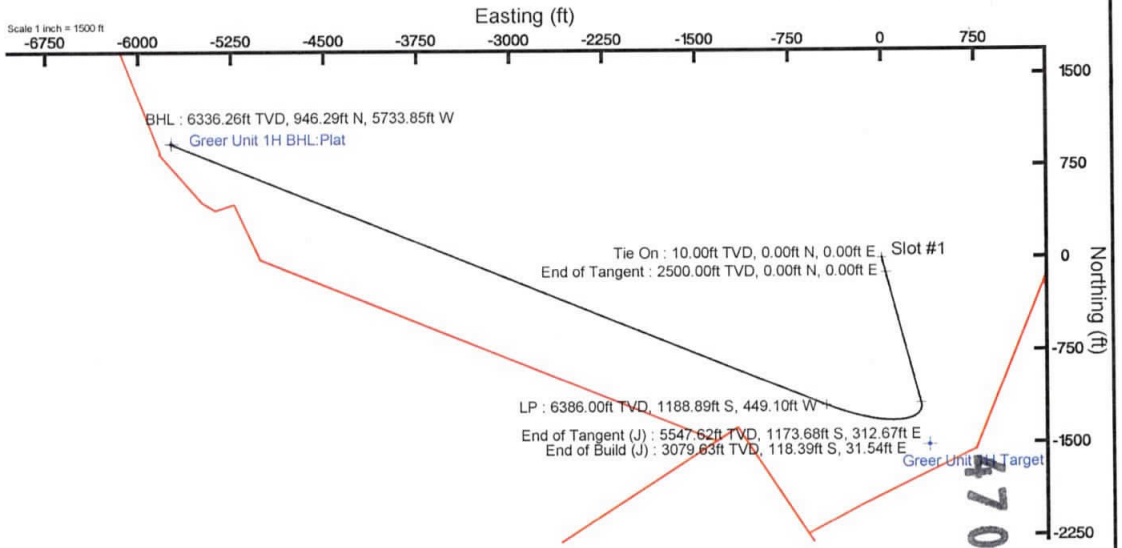
Targets

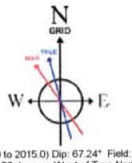
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Greer Unit 1H BHL:Plat	12802.30	6336.26	946.29	-5733.85	1680665.40	14439227.50	39°45'34.554"N	80°51'24.414"W
Greer Unit 1H Target		6386.00	-1513.29	381.09	1686777.90	14436768.90	39°45'10.143"N	80°50'06.171"W

Plot reference wellpath is Greer Unit 1H EX-01

True vertical depths are referenced to NoahHorn 777 (RT)	Grid System: NAD83 / UTM Zone 17 North, US feet
Measured depths are referenced to NoahHorn 777 (RT)	North Reference: Grid north
NoahHorn 777 (RT) to Mean Sea Level: 1261 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #1): -1251 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: frisjesl on 3/19/2014







BGGM (1945.0 to 2015.0) Dip: 67.24° Field: 52527.9 nT
Magnetic North is 8.56 degrees West of True North (at 2/24/2014)
Grid North is 0.10 degrees East of True North
To correct azimuth from True to Grid subtract 0.10 degrees
To correct azimuth from Magnetic to Grid subtract 8.66 degrees

4705101757

WW-9
(9/13)

API Number 47 - 051 - _____
Operator's Well No. 1H

4705101757

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Gastar Exploration Inc. OP Code 494487685

Watershed (HUC 10) French Creek - Ohio River (undefined) Quadrangle Powhatan Point 7.5'

Elevation 1251' County Marshall District Franklin

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: Fresh water for frac and flow back water

Will a synthetic liner be used in the pit? Yes ☑ No ☐ If so, what ml.? 60

Proposed Disposal Method For Treated Pit Wastes:

- ____ Land Application
- ■ Underground Injection (UIC Permit Number UIC 359; UIC 2D0732540; UIC 2D0732523)
- ____ 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 - For Vertical and Horizontal Drilling

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air for vertical / Oil for Horizontal

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

Additives to be used in drilling medium? Barite for weight

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings will be disposed of in Wetzel County Sanitary Landfill

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF - 1021 / WV0109185)

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 Michael McCown

Company Official (Typed Name) Michael McCown

Company Official Title Senior VP & COO

RECEIVED
Office of Oil and Gas
APR 09 2014
WV Department of
Environmental Protection

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

David W. Perkinson
Notary Public

OFFICIAL SEAL
Notary Public, State of West Virginia
DAVID W. PERKINSON
377 Eastview Drive
Parkersburg, WV 26104
My commission expires June 11, 2020

My commission expires 06/11/2020

4705101757

Form WW-9

Operator's Well No. 1H

Gastar Exploration Inc.

Proposed Revegetation Treatment: Acres Disturbed 24.42 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 1/3 ton lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Fox Tail / Grassy	40
		Perennial Rye	30
		Crown Vetch	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: James Nicholson

Comments:

Title: Oil & Gas Inspector Date: 4/3/14

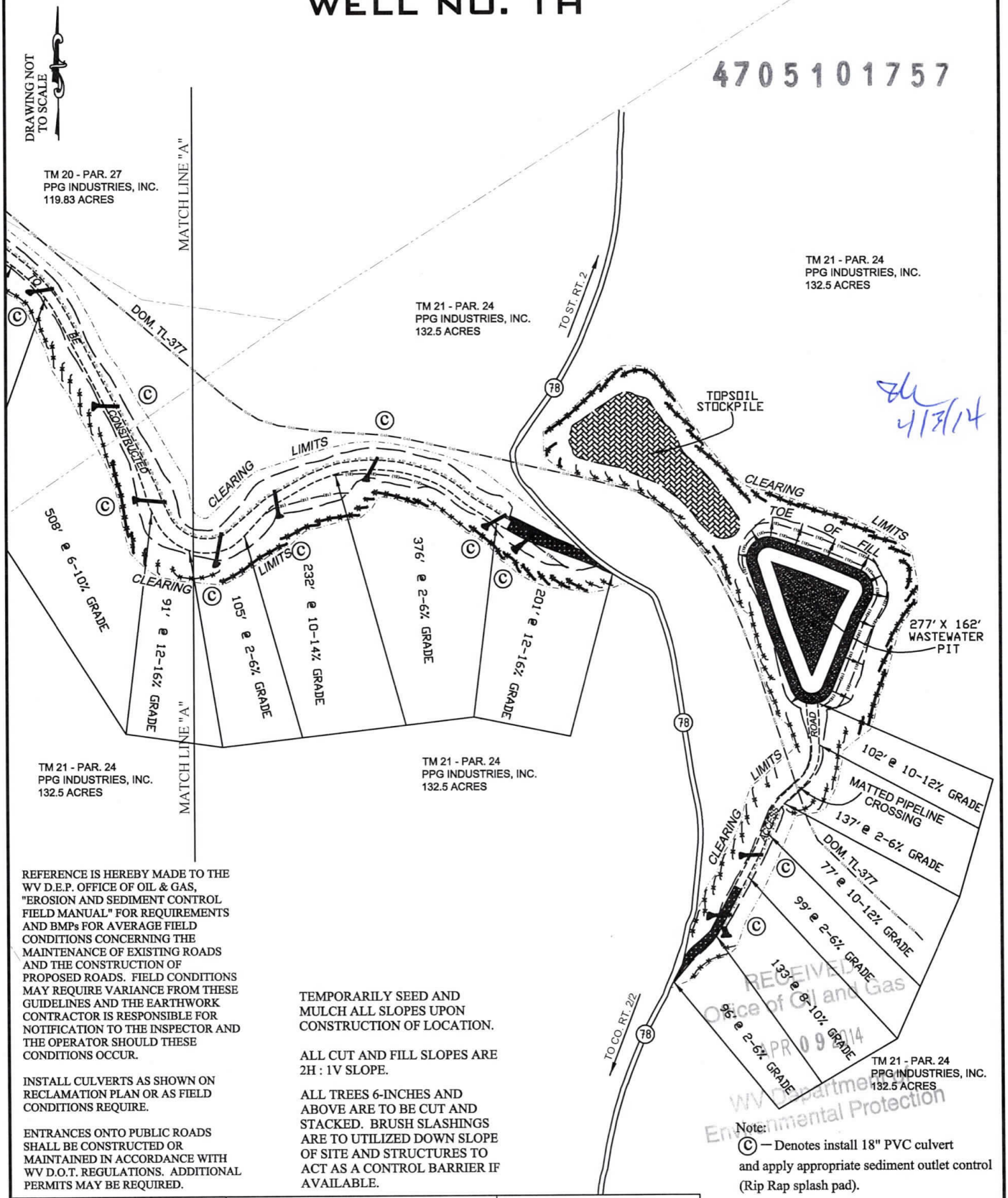
Field Reviewed? (✓) Yes ( ) No

WW-9

PROPOSED GREER WELL NO. 1H

SUPPLEMENT PG 1-A

4705101757



4/7/14

REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.

INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.

Note:

Ⓒ — Denotes install 18" PVC culvert and apply appropriate sediment outlet control (Rip Rap splash pad).

****** Silt Fence and or Sediment and Erosion Control Measure.

DATE: 03/14/14	PROJECT NO: W0120319	DRAWN BY: J.N.W.

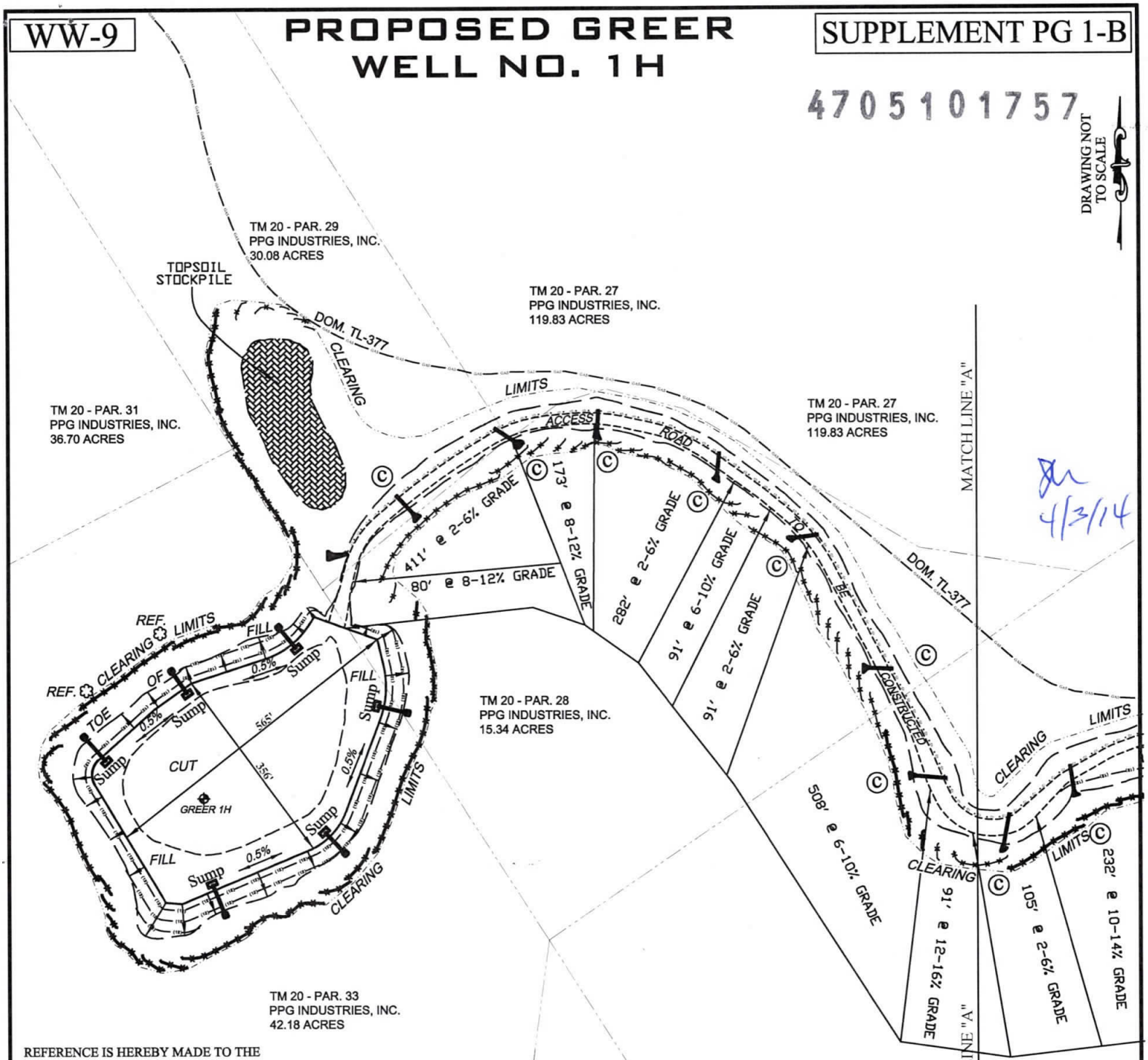
WW-9

PROPOSED GREER WELL NO. 1H

SUPPLEMENT PG 1-B

4705101757

DRAWING NOT TO SCALE



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Ⓒ — Denotes install 18" PVC culvert and apply appropriate sediment outlet control (Rip Rap splash pad).

-x-x-x-x- Silt Fence and or Sediment and Erosion Control Measure.

DATE: 03/14/14	PROJECT NO: W0120319	DRAWN BY: J.N.W.

4/3/14

4705101757

SLR

global environmental solutions

4/3/14

Well Site Safety Plan

Gastar Exploration USA, Inc.

Well Name: Greer 1H

Pad Location: Greer Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:
Northing – 4,400,797.0
Easting – 514,014.8

SLR Ref: 116.01034.00011

March 2014

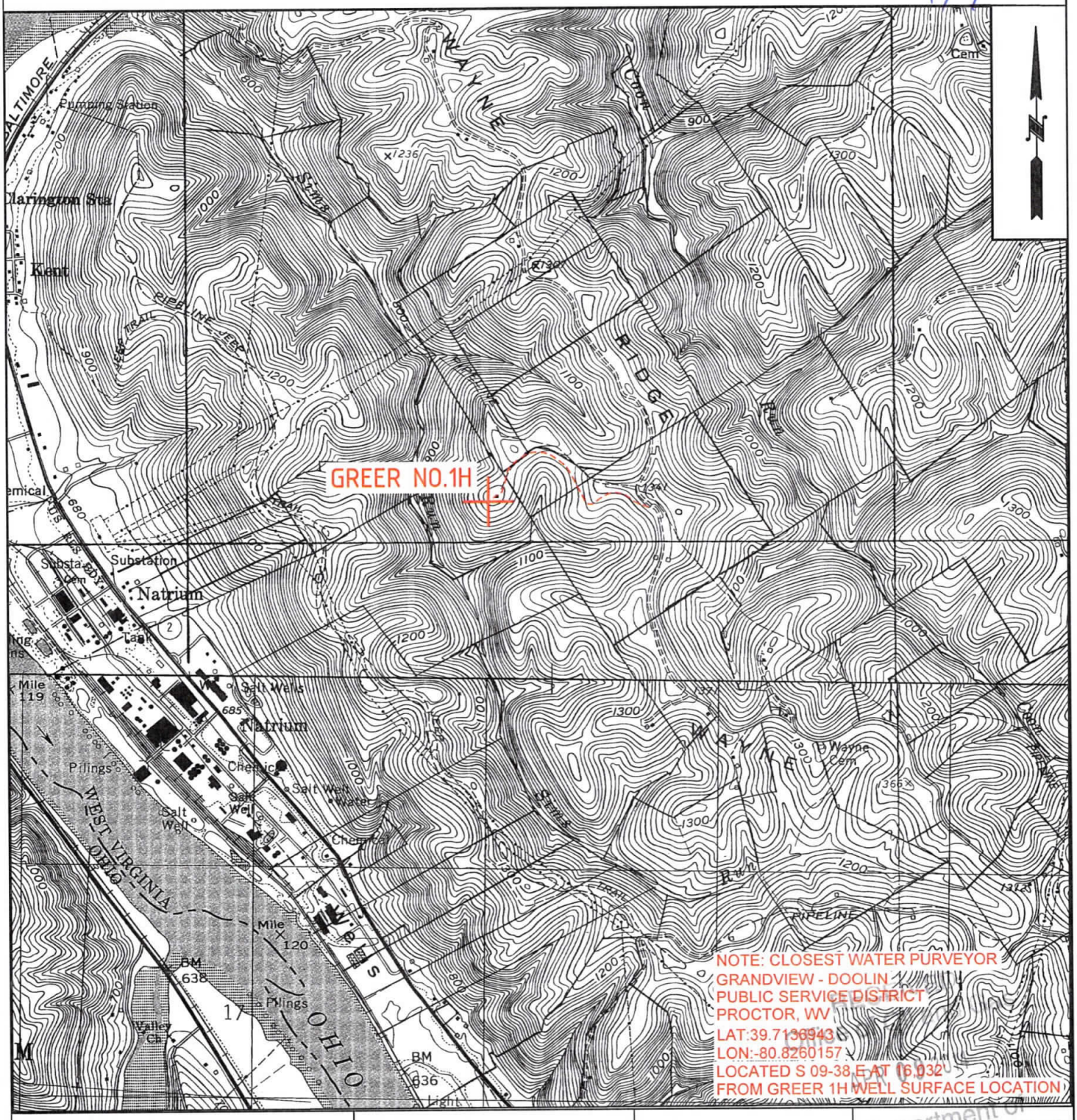
4705101757

WW-9

PROPOSED GREER WELL No. 1H

SUPPLEMENT PG 2

Sh 4/3/14



OPERATOR	TOPO SECTION	LEASE NAME
GASTAR EXPLORATION INC.	POWHATAN POINT 7.5'	GREER
229 W Main Street, Suite 301 Clarksburg, WV 26301	SCALE: 1"=2000'	DATE: DATE: 03/14/14

W0120319

form ww6

GREER LEASE
WELL NO. 1H
574.642± ACRES

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,797.0
E) 514,014.8
UTM. NAD83, ZONE 17
IN FEET
N) 14,438,282
E) 1,686,397

LATITUDE 39° 47' 30"

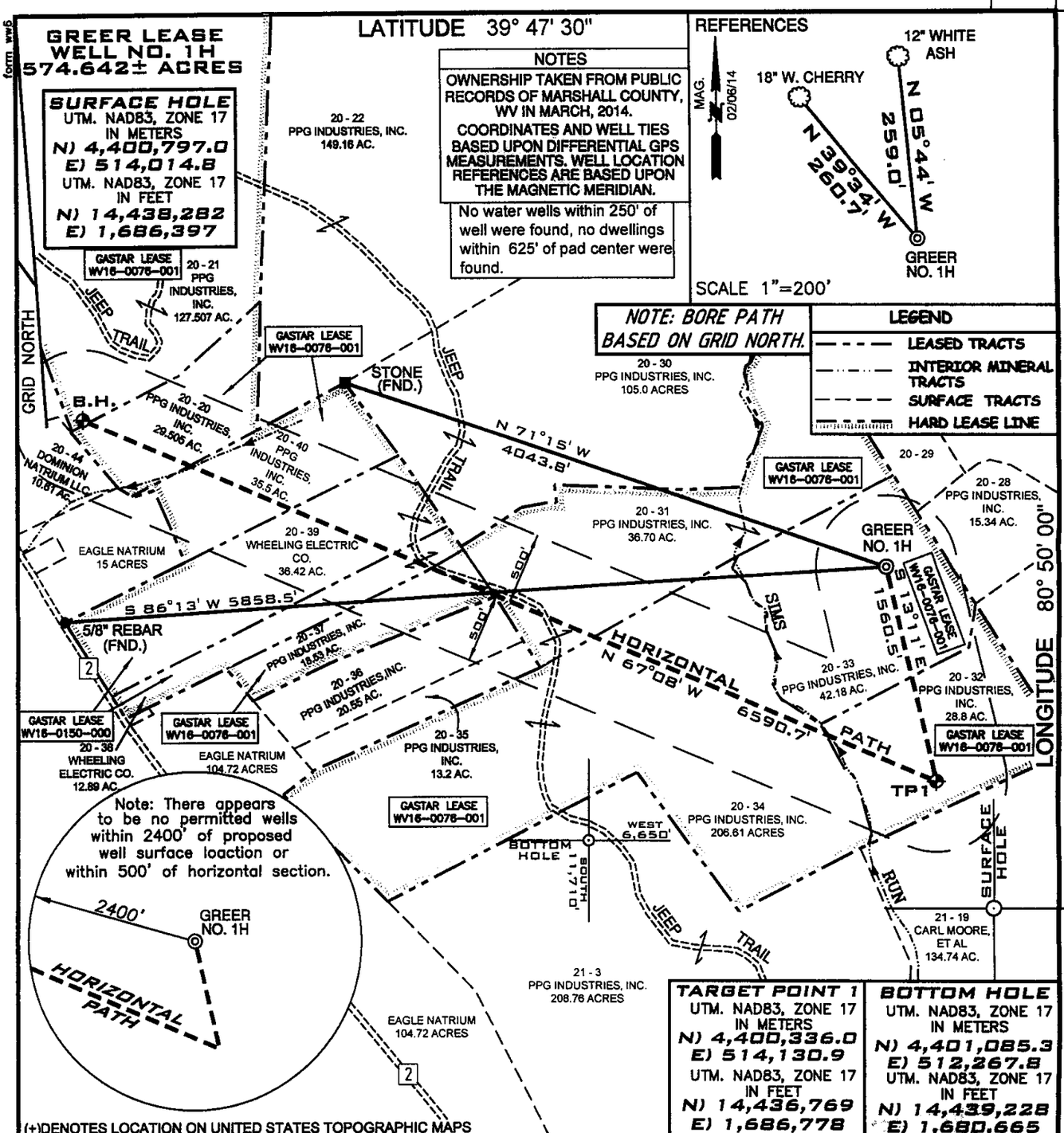
NOTES
OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2014.
COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

No water wells within 250' of well were found, no dwellings within 625' of pad center were found.

REFERENCES
MAG. 02/06/14
18" W. CHERRY — N 39°34' W 260.7'
12" WHITE ASH — N 05°44' W 259.0'
GREER NO. 1H
SCALE 1"=200'

NOTE: BORE PATH BASED ON GRID NORTH.

LEGEND
- LEASED TRACTS
- INTERIOR MINERAL TRACTS
- SURFACE TRACTS
- HARD LEASE LINE



TARGET POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,336.0
E) 514,130.9
UTM. NAD83, ZONE 17
IN FEET
N) 14,436,769
E) 1,686,778

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,401,085.3
E) 512,267.8
UTM. NAD83, ZONE 17
IN FEET
N) 14,439,228
E) 1,680,665

(+)DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

FILE NUMBER W0120319 (WB1-76)
DRAWING NUMBER GREER_WP_1H
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING GRADE GPS

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

P.S. 2122 Jonathan N. White

Jonathan N. White LICENSED PROFESSIONAL SURVEYOR STATE OF WEST VIRGINIA

SEAL

STATE OF WEST VIRGINIA

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

DATE: MARCH 14, 2014
OPERATORS WELL NO. GREER NO. 1H
API WELL NO. 47 — 051 — 01757 H6A
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION ELEVATION 1251' WATERSHED (HUC 10) FRENCH CREEK – OHIO RIVER (UNDEFINDED)
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER WV16-0076-001, WV16-0150-000

COUNTY NAME

SURFACE OWNER PPG INDUSTRIES, INC. ACREAGE 42.18
OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC., ET AL LEASE ACREAGE 574.642
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) ___
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

PERMIT

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6376' + Horizontal Leg
WELL OPERATOR GASTAR EXPLORATION INC. DESIGNATED AGENT MICHAEL McCOWN
ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301 ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301

WW-6AC
(1/12)

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

Date of Notice Certification: 03/21/2014

API No. 47- 051 -
Operator's Well No. 1H
Well Pad Name: Greer

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:	West Virginia	UTM NAD 83	Easting:	514,014.8
County:	Marshall		Northing:	4,400,797.0
District:	Franklin	Public Road Access:		County Route 78 (Wayne Ridge)
Quadrangle:	Powhatan Point 7.5'	Generally used farm name:		PPG Industries, Inc.
Watershed:	French Creek - Ohio River (undefined)			

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.

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: *PLEASE CHECK ALL THAT APPLY	OOG OFFICE USE ONLY
☐ 1. NOTICE OF SEISMIC ACTIVITY or ☒ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	☐ RECEIVED/ NOT REQUIRED
☒ 2. NOTICE OF ENTRY FOR PLAT SURVEY or ☐ NO PLAT SURVEY WAS CONDUCTED	☐ RECEIVED
☐ 3. NOTICE OF INTENT TO DRILL or ☒ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or ☐ WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)	☐ RECEIVED/ NOT REQUIRED
☒ 4. NOTICE OF PLANNED OPERATION	☐ RECEIVED
☒ 5. PUBLIC NOTICE	☐ RECEIVED
☒ 6. NOTICE OF APPLICATION	☐ RECEIVED

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 noticed 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.

WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Michael McCown, 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:	Gastar Exploration Inc.	Address:	229 West Main Street, Suite 301
By:	Michael McCown		Clarksburg, WV 26301
Its:	Senior VP & COO	Facsimile:	304/622-4824
Telephone:	304/622-4796	Email:	mmccown@gastar.com

NOTARY SEAL
OFFICIAL SEAL
Notary Public, State of West Virginia
DAVID W. PERKINSON
377 Eastview Drive
Parkersburg, WV 26104
My commission expires June 11, 2020

Subscribed and sworn before me this 21st day of March, 2014.

Notary Public

My Commission Expires 06/11/2020

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.

RECEIVED
Office of Oil and Gas
APR 09 2014
WV Department of
Environmental Protection

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. 1H
Well Pad Name: Greer

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: 03/21/2014 **Date Permit Application Filed:** 04/01/2014

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: PPG Industries, Inc.
Address: P.O. Box 191
New Martinsville, WV 26155
Name:
Address:

☑ SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Same as above surface owner
Address:
Name:
Address:

☑ SURFACE OWNER(s) (Impoundments or Pits)
Name: Same as above surface owner
Address:

☑ COAL OWNER OR LESSEE
Name: CNX Land Resources, Inc. & Harry W. Moore,Sr.
Address: 1000 CONSOL Energy Drive, Canonsburg, PA 15317 / 1300 Fifth Street, Moundsville, WV 26041

☐ COAL OPERATOR
Name: none
Address:

☐ SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: none
Address:

☐ OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: none
Address:

*Please attach additional forms if necessary

RECEIVED
Office of Oil and Gas
APR 09 2014
WV Department of Environmental Protection

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. 1H
Well Pad Name: Greer

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 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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.**

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. 1H
Well Pad Name: Greer

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.

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. 1H
Well Pad Name: Greer

Notice is hereby given by:

Well Operator: Gastar Exploration Inc. Michael McCown
Address: 229 West Main Street, Suite 301
Clarksburg, WV 26301
Telephone: 304/966-0362
Email: dperkinson@gastar.com
Facsimile: 304/622-4824

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.

OFFICIAL SEAL
Notary Public, State of West Virginia
DAVID W. PERKINSON
377 Eastview Drive
Parkersburg, WV 26104
My commission expires June 11, 2020

Subscribed and sworn before me this 21st day of March, 2014.

David W. Perkinson Notary Public

My Commission Expires 06/11/2020

RECEIVED
Office of Oil and Gas
APR 09 2014
WV Department of
Environmental Protection

WW-6A1
(5/13)

Operator's Well No. 1H

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
WV16-0076-001	PPG Industries, Inc.	Gastar Exploration USA, Inc.	21.00%	725/123
WV16-0150-000	Wheeling Power Company, aka Wheeling Electric Company	Gastar Exploration USA, Inc.	18.00%	786/383

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

RECEIVED
Office of Oil and Gas
APR 08 2014
WV Department of
Environmental Protection

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: Gastar Exploration Inc.
By: Michael McCown Michael McCown
Its: Senior VP & COO

WW-6A5
(1/12)

Operator Well No. 1H

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: 03/21/2014 **Date Permit Application Filed:** 04/01/2014

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

☒ CERTIFIED MAIL RETURN RECEIPT REQUESTED ☐ HAND 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: PPG Industries, Inc.
Address: P.O. Box 191
New Martinsville, WV 26155

Name:
Address:

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

State: West Virginia
County: Marshall
District: Franklin
Quadrangle: Powhatan Point 7.5'
Watershed: French Creek - Ohio River (undefined)

UTM NAD 83 Easting: 514,014.8
Northing: 4,400,797.0
Public Road Access: County Route 78 (Wayne Ridge)
Generally used farm name: PPG Industries, Inc.

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: Gastar Exploration Inc.
Telephone: 304/622-4796
Email: mmccown@gastar.com

Address: 229 West Main Street, Suite 301
Clarksburg, WV 26301
Facsimile: 304/622-4824

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.

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

April 1, 2014

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

Subject: DOH Permits for the Greer Well Pad, Marshall County
Greer 1H Well

Dear Mr. Martin,

This well site will be accessed from Permit #06-2014-0151 issued to Gastar Exploration USA, Inc. for access to the State Road for a well site located off of Marshall County Route 78 SLS.

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

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: David W. Perkinson
Gastar Exploration USA, Inc.
CH, OM, D-6
File

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Greer No. 1H

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT
GBW-20C	Hemicellulase Breaker	Breaker – Water	None
ALPHA 1427		Biocide	Glutaraldehyde - CAS#000111-30-8 Quatemary ammonium chloride CAS # 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16)-CAS#068424-85-1 Ethanol – CAS # 000064-17-5 Water – CAS # 007732-18-5
FRAC SAND	Silica Sand (various mesh sizes)	Proppant	Crystalline silica (quartz) CAS # 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS # 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS # 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS # 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS#000107-21-1 Diethylene glycol – CAS#000111-46-6

Gastar Exploration LTD.
229 West Main Street, Suite 301 · Clarksburg, WV 26301
Phone: (304) 622-4796 · Fax: (304) 622-4824

Project Site	Sheet 1 of 19
Greer Site Design	
District	County	State
Franklin	Marshall	W. V.

API#5101757
API#5101758

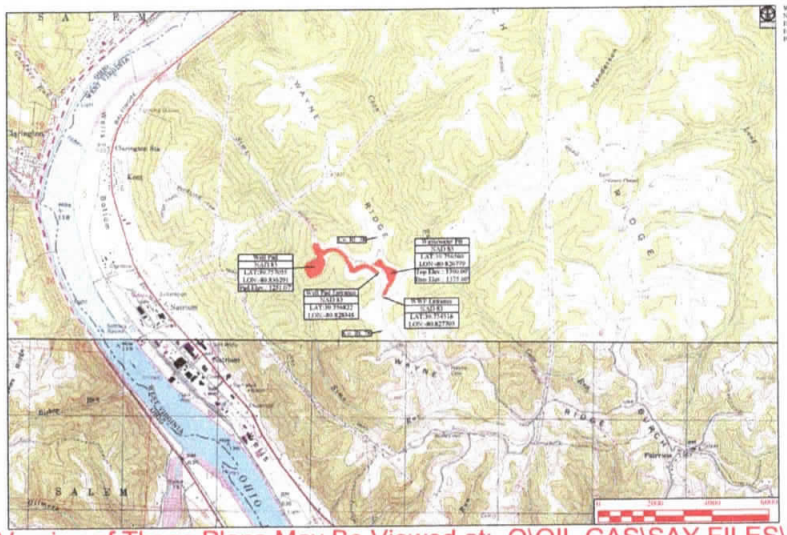
Greer Site Design

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Gastar Exploration, Inc.
Marshall County
Franklin District
Latitude 39.757055°
Longitude -80.836291°

Well Pad Entrance	Center of Well Pad	Wastewater Pit Entrance	Center of Wastewater Pit
WV-N NAD 83 N: 460534.30 WV-N NAD 83 E: 1593964.80 WV-N NAD 27 N: 460408.25 WV-N NAD 27 E: 1626951.88 Lat. NAD 83: 39.756422 Long. NAD 83: -80.828348 UTM 17 NAD 83 N: 4405781.53 UTM 17 NAD 83 E: 514794.01	WV-N NAD 83 N: 460611.90 WV-N NAD 83 E: 1593262.49 WV-N NAD 27 N: 460616.09 WV-N NAD 27 E: 1626270.37 Lat. NAD 83: 39.757055 Long. NAD 83: -80.836291 UTM 17 NAD 83 N: 4408036.16 UTM 17 NAD 83 E: 514023.55 Pad Elev.: 1251.07'	WV-N NAD 83 N: 459991.33 WV-N NAD 83 E: 1595210.99 WV-N NAD 27 N: 459615.68 WV-N NAD 27 E: 1628041.50 Lat. NAD 83: 39.754116 Long. NAD 83: -80.827701 UTM 17 NAD 83 N: 4408723.20 UTM 17 NAD 83 E: 514759.78	WV-N NAD 83 N: 460433.88 WV-N NAD 83 E: 1595310.71 WV-N NAD 27 N: 460396.91 WV-N NAD 27 E: 1628041.50 Lat. NAD 83: 39.756366 Long. NAD 83: -80.826770 UTM 17 NAD 83 N: 4408752.63 UTM 17 NAD 83 E: 514838.49 Top Elev.: 1300.00' Bttm Elev.: 1275.00'

Well Table

Well #1H	Well #2H	Well #3H	Well #4H	Well #5H
WV-N NAD 83 N: 460622.74 WV-N NAD 83 E: 1592803.36 WV-N NAD 27 N: 460386.43 WV-N NAD 27 E: 1626241.22 Lat. NAD 83: 39.756974 Long. NAD 83: -80.836391 UTM 17 NAD 83 N: 4405795.61 UTM 17 NAD 83 E: 514014.82	WV-N NAD 83 N: 460611.04 WV-N NAD 83 E: 1592820.41 WV-N NAD 27 N: 460597.23 WV-N NAD 27 E: 1626256.37 Lat. NAD 83: 39.757003 Long. NAD 83: -80.836333 UTM 17 NAD 83 N: 4406080.25 UTM 17 NAD 83 E: 514019.99	WV-N NAD 83 N: 460641.33 WV-N NAD 83 E: 1592837.50 WV-N NAD 27 N: 460607.52 WV-N NAD 27 E: 1626272.52 Lat. NAD 83: 39.757032 Long. NAD 83: -80.836272 UTM 17 NAD 83 N: 4406085.48 UTM 17 NAD 83 E: 514025.17	WV-N NAD 83 N: 460653.62 WV-N NAD 83 E: 1592854.74 WV-N NAD 27 N: 460617.81 WV-N NAD 27 E: 1626288.85 Lat. NAD 83: 39.757060 Long. NAD 83: -80.836212 UTM 17 NAD 83 N: 4406086.70 UTM 17 NAD 83 E: 514030.34	WV-N NAD 83 N: 460684.91 WV-N NAD 83 E: 1592871.80 WV-N NAD 27 N: 460628.20 WV-N NAD 27 E: 1626305.81 Lat. NAD 83: 39.757089 Long. NAD 83: -80.836151 UTM 17 NAD 83 N: 4406091.92 UTM 17 NAD 83 E: 514035.51
Well #6H	**Well #7H**	**Well #8H**	**Well #9H**	**Well #10H**
WV-N NAD 83 N: 460636.81 WV-N NAD 83 E: 1592750.66 WV-N NAD 27 N: 460604.08 WV-N NAD 27 E: 1626230.91 Lat. NAD 83: 39.757020 Long. NAD 83: -80.836431 UTM 17 NAD 83 N: 4406082.20 UTM 17 NAD 83 E: 514011.69	WV-N NAD 83 N: 460650.18 WV-N NAD 83 E: 1592027.30 WV-N NAD 27 N: 460614.37 WV-N NAD 27 E: 1626245.23 Lat. NAD 83: 39.757050 Long. NAD 83: -80.836370 UTM 17 NAD 83 N: 4406087.42 UTM 17 NAD 83 E: 514016.77	WV-N NAD 83 N: 460676.77 WV-N NAD 83 E: 1592044.45 WV-N NAD 27 N: 460634.96 WV-N NAD 27 E: 1626262.37 Lat. NAD 83: 39.757107 Long. NAD 83: -80.836249 UTM 17 NAD 83 N: 4406093.87 UTM 17 NAD 83 E: 514027.82	WV-N NAD 83 N: 460681.06 WV-N NAD 83 E: 1592061.60 WV-N NAD 27 N: 460645.23 WV-N NAD 27 E: 1626279.52 Lat. NAD 83: 39.757136 Long. NAD 83: -80.836189 UTM 17 NAD 83 N: 4406093.09 UTM 17 NAD 83 E: 514032.29	



West Virginia State Plane Coordinates System
North Zone, NAD 83
Elevations Based on NAVD88
Established By Survey Grade GPS and DGPS
Post-Processing

Electronic Version of These Plans May Be Viewed at: Q\OIL GAS\SAY FILES\REVIEWS

WHEN SEEDING, 10-20-20 FERTILIZER
SHALL BE APPLIED AT A MINIMUM RATE OF
500 LB./ACRE.

Floodplain Conditions	
On site construction activities take place in a floodplain	NO
Permit needed from county floodplain coordinator	NO
Flood Hazard Zone	N/A
HEC-RAS Study completed	N/A
Floodplain shown on drawings	N/A
FEMA Map Number(s) for site	54095C0140D
Acreages of construction in floodplain	N/A

Topographic Information:

The topographic information shown hereto is based on aerial photography by Blue Mountain Aerial Mapping, Hurton, WV

Note:

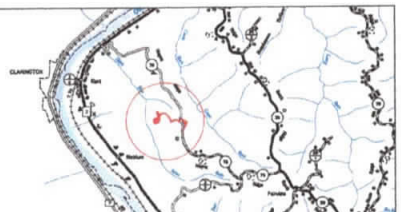
Gastar Exploration, Inc. will obtain an Encroachment Permit (Form MSS-109) from the West Virginia Department of Transportation, Division of Highways, prior to the commencement of construction activities

MISS UTILITY OF WEST VIRGINIA
1-800-245-4848
West Virginia State Law
Section 24V Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW

811 Know what's below. Call before you dig.

Kelly Surveying

District: Franklin
County: Marshall
State: West Virginia



Location Map
Scale: 1" = 1 Mile
USGS 7.5' Quadrangle: Powhatan Point
Watershed: Sailhouse Run - Ohio River

Property Owner Information - Greer Site Design
Franklin District - Marshall County

Owner	Tax Parcel	Well Pad	WWP	Access Road	Topsoil Stock	Soil Stockpile	Total Disturbed
PPG Industries, Inc.	20-24	0.00	1.89	0.20	0.96	1.43	10.48
PPG Industries, Inc.	20-28	0.20	0.00	0.00	0.00	0.12	0.32
PPG Industries, Inc.	20-27	0.00	0.00	0.01	0.00	0.00	0.16
PPG Industries, Inc.	20-25	0.00	0.00	0.80	0.81	1.89	2.90
PPG Industries, Inc.	20-15	7.18	0.00	0.00	0.00	2.22	9.41
	Site Total (Ac)	7.38	1.89	1.01	1.77	11.71	23.27

Access Road

Surface Owner	Tax Parcel	Road Length	Type
PPG Industries, Inc.	20-24	1,910.19'	New Access Road Construction
PPG Industries, Inc.	20-28	1,009.89'	New Access Road Construction
PPG Industries, Inc.	20-27	27.50'	New Access Road Construction
PPG Industries, Inc.	20-25	387.14'	New Access Road Construction
PPG Industries, Inc.	20-15	78.44'	New Access Road Construction

Disturbed Area

Well Pad Construction	7.38 Ac
Wastewater Pit Construction	1.89 Ac
Access Road Construction	1.01 Ac
Topsoil / Frac Material	1.77 Ac
Additional Clearing	11.71 Ac
Total Disturbed Area	23.42 Ac

Additional Information

Total Wooded Area Clearing	20.87 Ac
Total Linear Feet of Access Road	3,322.09'

Greer Site Design Quantities

Description	Cut (C.Y.)	Fill (C.Y.)	Spoil (C.Y.)	Borrow (C.Y.)	Max. Slope	Length of Slope
Well Pad	38,707.00	26,227.00	8,980.00		3:1	50'
Wastewater Pit	17,207.19	7,018.83	10,812.36		N/A	N/A
Well Pad Access Road	1,296.71	5,719.83	80.75		12.00%	350.20'
WWP Access Road	138.53	452.84		369.60	10.25%	70.30'
Topsoil / Frac Material Stockpiles	0.00	20,000.00		20,000.00	N/A	N/A
Totals	56,849.30	59,418.50	19,873.25	20,369.60		
			Total Spoil (C.Y.)	1,132.7	(Excess Spoil Capacity)	

Wastewater Pit Storage Volumes

Water Elev	Storage(AcrFt)	(C.Y.)	(C.F.)	(Gallons)	(Barrels)
1376.00	0.00000	0.0	0.0	0.0	0.00
1378.00	0.0891	528.4	14863.2	129823.5	3091.98
1377.00	0.4118	1306.9	35399.3	264398.1	6294.19
1378.00	1.2632	2336.9	61985.0	411384.7	9794.11
1379.00	1.7432	2812.0	76862.0	486162.0	13627.87
1380.00	2.2519	3698.4	99238.0	734858.9	17496.40
1381.00	2.7892	4513.8	121873.2	911674.9	21706.55
1382.00	3.3727	5440.3	146867.8	1088785.4	25181.82
1383.00	3.9983	6418.9	173038.2	1286443.9	30867.86
1384.00	4.6163	7490.6	201485.7	1504824.1	35829.15
1385.00	5.2912	8538.3	230463.3	1724118.7	41045.67
1386.00	5.9824	9677.2	261263.3	1964634.5	46636.54
1387.00	6.7488	10874.4	293600.6	2198363.5	52294.11
1388.00	7.5140	12128.7	327501.8	2448882.2	58330.53
1389.00	8.3324	13444.3	362995.5	2713288.8	64602.30
1390.00	9.1871	14822.8	400218.5	2993827.4	71281.60

Water Elev	Storage(AcrFt)	(C.Y.)	(C.F.)	(Gallons)	(Barrels)	
1376.00	0.00000	0.0	0.0	0.0	0.00	Btm of WWP
1383.70	4.38889	7080.2	191246.6	1430517.1	34048.93	Included Volume
1390.00	7.61840	12129.7	327501.8	2448882.2	58330.53	2 Freeboard
1390.00	9.1871	14822.8	400218.5	2993827.4	71281.60	Top of WWP

Sheet	Description
1	Cover
2	Schedule of Quantities
3	Construction and E&S Control General Notes
4	Pre-Construction Site Conditions
5	Overall Plan View
6-9	Erosion and Sediment Control Plan View
10-13	Plan View
14	Disturbed Area
15	Cross Sections - Well Pad
16	Cross Sections - Wastewater Pit
17-18	Cross Sections - Well Pad Access Road
19	Cross Sections - Wastewater Pit Access Road
D1-D2	Erosion and Sediment Control Details
R1-R2	Site Reclamation

APPROVED
WVDEP OOG
SAY 6/26/2014

JOHN P. SCOTT
REGISTERED
PROFESSIONAL ENGINEER
No. 19771
STATE OF WEST VIRGINIA

Design Certification

The design, construction notes and reference diagram detailed herein have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas (WVDEP OOG).

The information include appropriate measures for:
Temporary ground cover: Not More Than 7 Days Soil Filing method pursuant to state rules.
Permanent ground cover: Seed mixture pursuant to state rules.

All Plans, Maps, and or Reference Diagrams as used in this design constitute a complete set of plans. A copy of this plan is certified to contain all details in accordance with the design.

John P. Scott
Date 3/13/14

As Built Certification

The undersigned certifies to the best of his knowledge, information and belief that the temporary wastewater pit has been constructed substantially in the manner and in accordance with the design drawings. The attached information shows the actual locations, dimensions and elevations of the temporary wastewater pit as constructed and the design information shows the original locations and dimensions of the temporary wastewater pit as approved by the WVDEP OOG. It is understood that the same indicates the approved and approved by an individual familiar with the manufacturers specifications and requirements prior to the waste filling commence. It is also understood that the temporary wastewater pit is included in the overall comprehensive maintenance and inspection program for temporary wastewater pits in this a comprehensive maintenance and inspection program has been adopted in accordance for the construction under the contracted site operator.

John P. Scott WV 19771 Date _____
Title _____

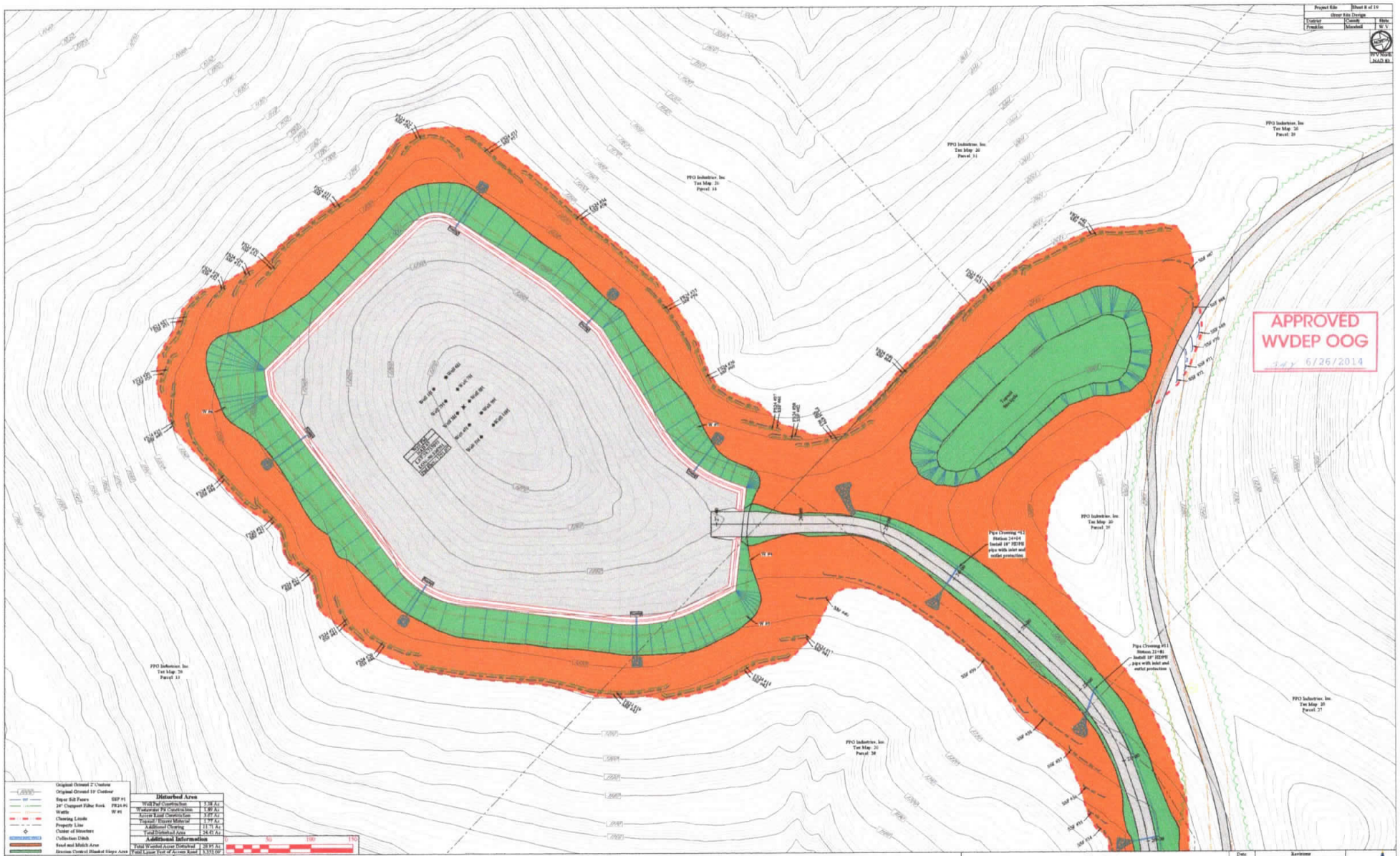
Date	Revisions
03-03-14	Site Design

GASTAR

Greer Site Design

Coversheet

Kelly Surveying Contact Information
Kenneth Kelly
Work: (304) 158-0901
Mobile: (304) 642-7865
Email: kenservice@gmail.com
John Sue
Work: (304) 423-0220
Mobile: (304) 429-4256
Email: johnsue0054@gmail.com
Zack Summerfield
Work: (304) 158-0901
Email: kenservice@gmail.com


Project Site
Sheet 8 of 19
Greer Site Design
District
County
State
Franklin
Marshall
W. V.
WV State NAD 83
PPG Industries, Inc.
Tax Map: 20
Parcel: 39
PPG Industries, Inc.
Tax Map: 20
Parcel: 31
PPG Industries, Inc.
Tax Map: 20
Parcel: 16
PPG Industries, Inc.
Tax Map: 20
Parcel: 30
PPG Industries, Inc.
Tax Map: 20
Parcel: 27
PPG Industries, Inc.
Tax Map: 20
Parcel: 38
PPG Industries, Inc.
Tax Map: 20
Parcel: 33
Pipe Crossing #11
Station: 24+04
Install 18" HDPE pipe with inlet and outlet protection
Pipe Crossing #11
Station: 21+86
Install 18" HDPE pipe with inlet and outlet protection
Lower Sediment Basin
APPROVED
WVDEP OOG
6/26/2014
Original Ground 2' Contour
Original Ground 10' Contour
Super Silt Fence SSF #1
24" Compost Filter Sock FS24 #1
Wattle W #1
Clearing Limits
Property Line
Center of Structure
Collection Ditch
Seed and Mulch Area
Erosion Control Blanket Slope Area
Disturbed Area
Well Pad Construction 1.28 Ac
Watershed Pit Construction 1.89 Ac
Access Road Construction 3.07 Ac
Topsoil / Excess Material 1.79 Ac
Additional Clearing 11.71 Ac
Total Disturbed Area 24.07 Ac
Additional Information
Total Wooded Acres Disturbed 20.97 Ac
Total Linear Feet of Access Road 3,555.09'
0 50 100 150
Kelly Surveying
District: Franklin
County: Marshall
State: West Virginia
Greer Site Design
Erosion and Sediment Control Plan View
Date: 11-12-14
Site Design
GASTAR