



**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

July 30, 2014

**WELL WORK PERMIT**  
**Horizontal 6A Well**

This permit, API Well Number: 47-5101766, 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: BLAKE NO. U-7H  
Farm Name: BLAKE, RUSSELL ET AL  
**API Well Number: 47-5101766**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 07/30/2014

**Promoting a healthy environment.**

**08/01/2014**

## 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.

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### CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street, SE Charleston, WV 25304  
(304)926-0499, Ext 1656

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

July 30, 2014

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-01766

COMPANY: Gastar Exploration, Inc.

FARM: Russell Blake – Blake #U-7H

COUNTY: Marshall      DISTRICT: Franklin      QUAD: Powhatan Point

The deep well review of the application for the above company is **APPROVED FOR TRENTON – for Point Pleasant completion.** If operator wishes to drill deeper than the Trenton, additional approval must be obtained from the OGCC.

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Notice of Deviation comments filed? Three objections received and have been withdrawn.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; none
4. Provided a plat showing that the proposed location is a distance of 400 feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines  
Executive Assistant

51-01766

WW-6B  
(9/13)

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

51 3 558

1) Well Operator: Gatar Exploration Inc. 494487685 Marshall Franklin Powhatan Point 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: U-7H Well Pad Name: Blake

3) Farm Name/Surface Owner: Russell Blake, et ux Public Road Access: Burch Ridge Co. Rt. 29

4) Elevation, current ground: 1342' Elevation, proposed post-construction: 1326'

5) Well Type (a) Gas  Oil  Underground Storage   
Other

(b) If Gas Shallow  Deep   
Horizontal

6) Existing Pad: Yes or No No

*JH 6/5/14*

*✓ 10K BOP*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
The Point Pleasant is the target formation at at depth of 10,931' (top of formation), an anticipated thickness of 100' and an estimated pressure of 7000 psi.

8) Proposed Total Vertical Depth: 11,131'

9) Formation at Total Vertical Depth: Trenton Limestone

10) Proposed Total Measured Depth: 18,008'

11) Proposed Horizontal Leg Length: 6600'

12) Approximate Fresh Water Strata Depths: 60'

13) Method to Determine Fresh Water Depths: Gatar has drilled several wells in this area

14) Approximate Saltwater Depths: 2000'

15) Approximate Coal Seam Depths: 900' & 1150'

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

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

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

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(9/13)

18)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	26"	New	P/E	85.68 #/ft		120'	Cement to Surface
Fresh Water	20"	New	J-55	106.5 #/ft		1250'	Cement to Surface
Coal	13 3/8"	New	J-55	61 #/ft		2750'	Cement to Surface
Intermediate	9 5/8"	New	HCP-110	47 #/ft		9000'	Cement to Surface
Production	5 1/2"	New	P-110	23 #/ft		18,008'	2433 cuft
Tubing	2 3/8"	New	N-80	4.7 #/ft		10,850'	
Liners							

*gh 6/5/14*

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	26"	30"	.312"	740 psi	See #24	1.2
Fresh Water	20"	24"	.33"	2410 psi	See #24	1.2
Coal	13 3/8"	17 1/2"	.4285"	3090 psi	See #24	1.2
Intermediate	9 5/8"	12 1/4"	.472"	9440 psi	See #24	1.2
Production	5 1/2"	8 1/2"	.4775"	13,580 psi	See #24	1.21
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 Point Pleasant tagging less than One Hundred (100') feet from the top of the Trenton Limestone to get depths and log data. Then plug the well back to proposed kick off point (10,000'). Drill the curve and horizontal section to planned and proposed TD (18,008'). Run casing and cement back to 1500' inside the 9 5/8" casing. Run a bond log on part of the curve and vertical section, pressure test casing and set a master valve. Pressure test the casing and perforate then stimulate. Plug Back Procedure: Blake U-7H Cement plug procedure  
Once vertical hole is drilled to 11,131' we will TOOH. RIH with 1000' of open ended tubing to 11,130'. Pump a solid cement plug from TD (11,131') to 10,000' (KOP). Pull Tubing to 9500' and circulate and clean top of plug off. TOOH and wait 24 hrs for cement to set.

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 7000bbls of water and 400,000 lbs of sand per stage. There will be approximately 33 stages on the fracturing job.

Anticipated maximum surface pressure while fracing will be approximately 12,500 psi with an anticipated maximum rate of 90 bbls/min.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 20.67

22) Area to be disturbed for well pad only, less access road (acres): 5.37

23) Describe centralizer placement for each casing string:

Gastar will run 3 Centralizers on the Surface casing at an equal distance apart. The Intermediate casing will have 7 Centralizers at 300' spacing. The production casing will have one centralizer every joint in the lateral, one centralizer per joint through the curve and one centralizer every third joint in the the vertical section to 2000' inside the 9 5/8" casing.

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

See attached.

25) Proposed borehole conditioning procedures:

Gastar will circulate the hole a minimum 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.

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\*Note: Attach additional sheets as needed.

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WW6B Attachment (2<sup>nd</sup> Revision for #24)

#24. Conductor and Surface Casing Cement: Class A + 2% CaCl ✓

-CaCl – Calcium Chloride

Intermediate Casing: Class A + 1% EC-1 + .5% SMS + .55%BA-10A + .25#/sack Cello Flake + .75 gals/100 sacks FP-12L.

-EC-1 – Bonding Agent

-SMS – Sodium Metasilicate

-BA-10A – Bonding Agent

-Cello Flake – Cellophane Flakes

-FP-12L – Foam Preventer

Intermediate Casing #2: Lead Cement – 50:50 (Poz:Class A) + .15% R-3 + 3.9% KCl + 1.5% FL-25 + .2% ASA-301 + .75 gals/100 sack FP-12L

-R-3 – Retarder

-KCl – Potassium Chloride

-FL-25 – Fluid Loss

-ASA-301 – Free Water Additive

-FP-12L – Foam Preventer

Intermediate #2 Tail Cement – 50:50 (Poz:ClassH) + .1% R-3 + .2% CD-32 + 1.2% FL-62 + .1% ASA-301 + .4% SMS

-R-3 – Retarder

-CD-32 – Cement Dispersant

-FL-62 – Fluid Loss

-ASA-301 – Free Water Additive

-SMS – Sodium Metasilicate

Kick Off Plug Cement: Class H + .3% R-3 + .7% SMS + 1% CD-32

-R-3 – Retarder

-SMS – Sodium Metasilicate

-CD-32 – Cement Dispersant

Production Casing Cement: 50:50 (Poz:Class H) + .25% MPA-170 + 3 #/sack BA-90 + .35% R-3 + .75 gal/100 sacks FP-12L

-BA-90 – Bonding Agent

-R-3 – Retarder

-FP-12L – Foam Preventer

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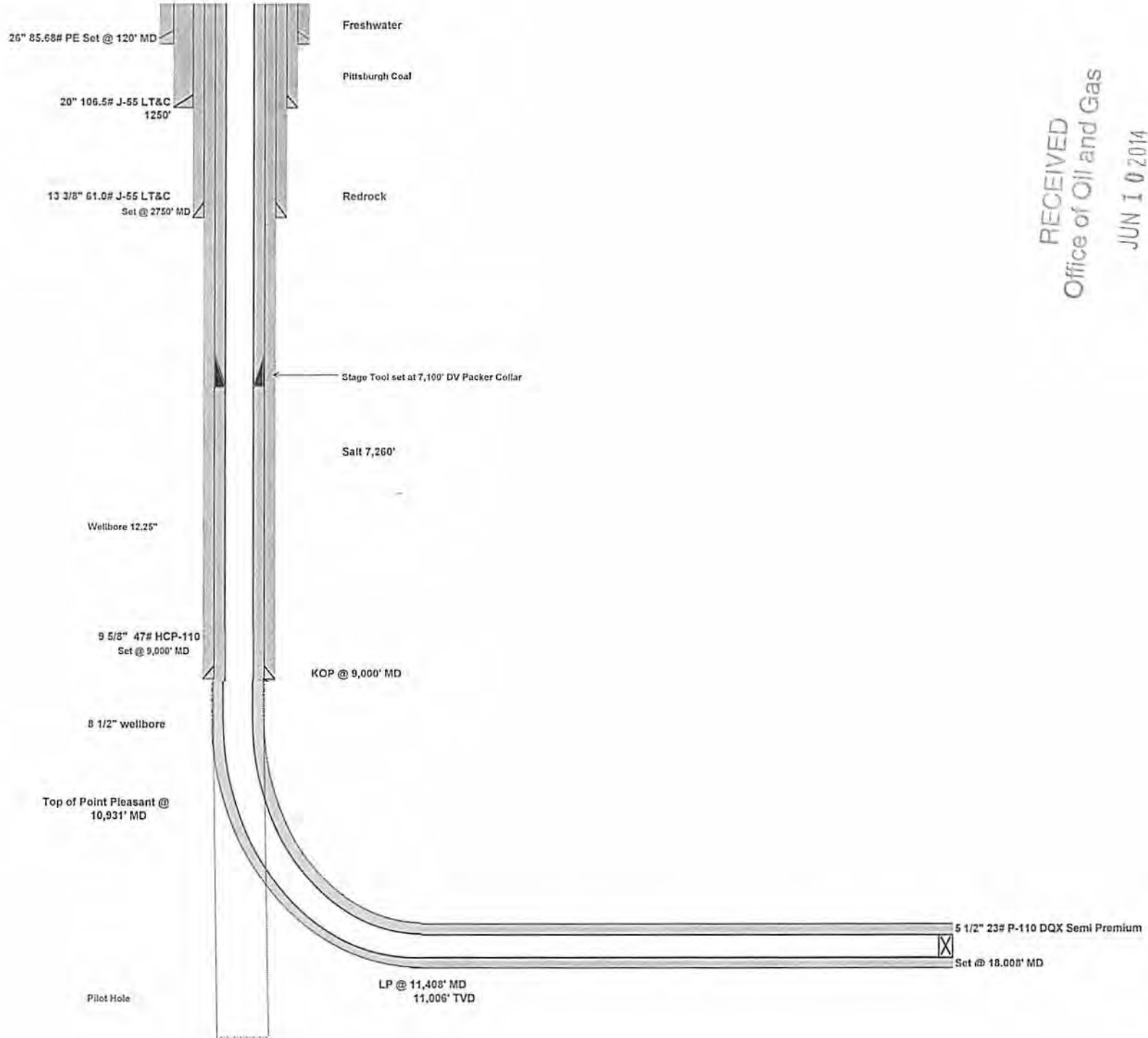
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08/01/2014

51-01766

**BLAKE # U-7H**  
Marshall County, WV



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Environmental Protection



SI-01766



# GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV  
 Field: Marshall  
 Facility: Blake Unit

Slot: Slot #U-7  
 Well: Blake U-7H  
 Wellbore: Blake U-7H PWB



## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
Blake Unit	1695207.000	14440891.700	39°45'50.735"N	80°48'18.091"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #U-7	-93.10	-36.56	1695170.450	14440798.640	39°45'49.817"N	80°48'18.562"W

Rig on Slot #07 (RT) to Mud line (At Slot: Slot #U-7) **OR**  
 Mean Sea Level to Mud line (At Slot: Slot #U-7) **-1326ft**  
 Rig on Slot #07 (RT) to Mean Sea Level **1326ft**

## Well Profile Data

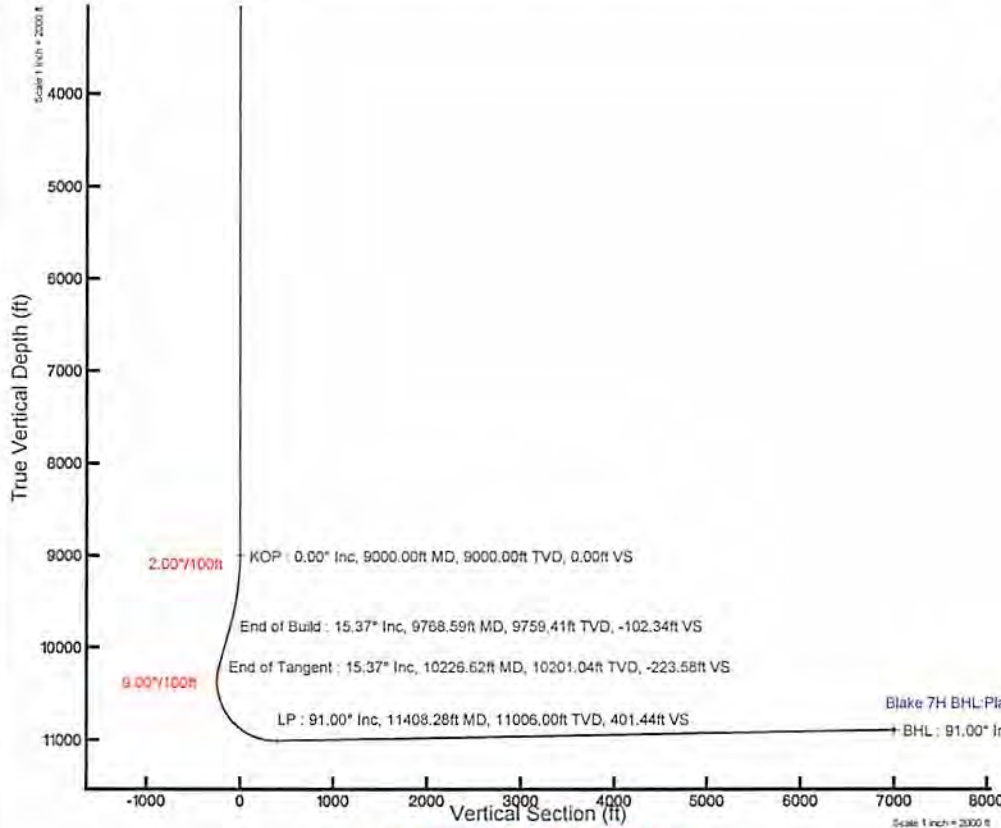
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*/100ft)	VS (ft)
Tie On	0.00	0.000	114.962	0.00	0.00	0.00	0.00	0.00
KOP	9000.00	0.000	114.962	9000.00	0.00	0.00	0.00	0.00
End of Build	9768.59	15.372	114.962	9759.41	-43.25	92.91	2.00	-102.34
End of Tangent	10226.62	15.372	114.962	10201.04	-94.49	202.98	0.00	-223.58
LP	11408.28	91.000	291.920	11006.00	127.74	-381.31	9.00	401.44
BHL	18008.28	91.000	291.920	10890.81	2591.22	-6503.24	0.00	7000.43

## Targets

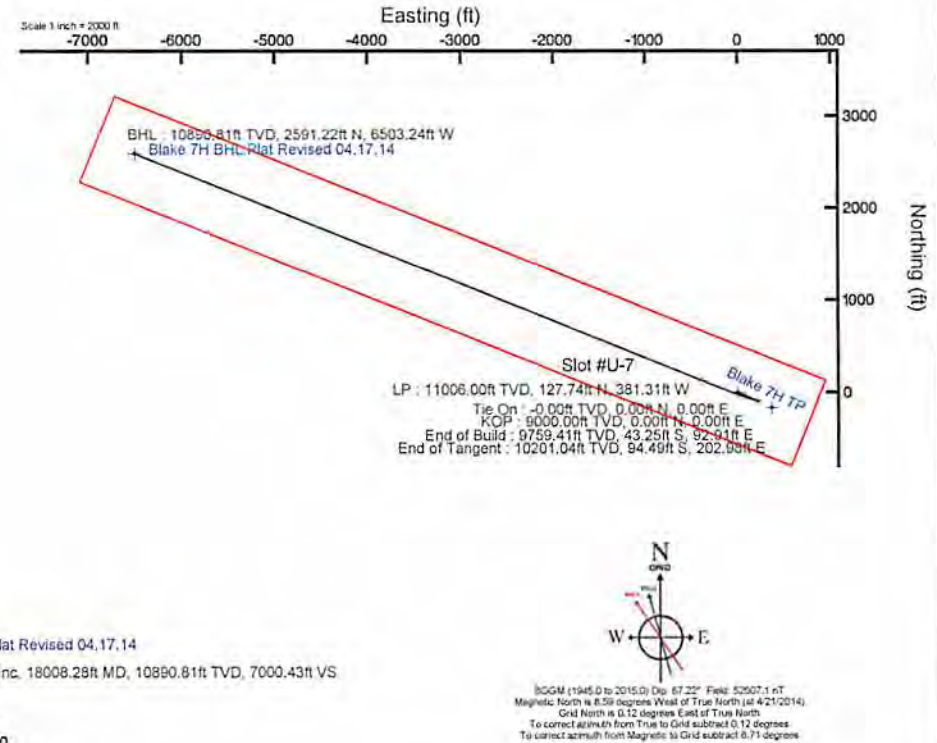
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Blake 7H PWB	6424.00	562.59	568.58	1695738.80	1644381.00	39°45'55.500"N	80°48'11.264"W	
Blake 7H BHL Plat Revised 04.17.14	18008.28	10890.81	2591.22	-6503.24	1695069.80	1444388.33	39°45'50.735"N	80°48'18.091"W
Blake 7H TP	11006.00	-170.35	362.65	1695532.96	1444038.36	39°45'48.125"N	80°48'13.822"W	

Plot reference wellpath is Blake U-7H EX-00

True vertical depths are referenced to Rig on Slot #07 (RT)      Grid System: NAD83 / UTM Zone 17 North, US feet  
 Measured depths are referenced to Rig on Slot #07 (RT)      North Reference: Grid north  
 Rig on Slot #07 (RT) to Mean Sea Level: 1326 feet      Scale: True distance  
 Mean Sea Level to Mud line (At Slot: Slot #U-7): -1326 feet      Depths are in feet  
 Coordinates are in feet referenced to Slot      Created by: frisjesl on 4/21/2014



Azimuth 291.92° with reference 0.00 N, 0.00 E



North

W E

ICGM (1945.0 to 2015.0) Dip: 67.22° Field: 52907.1 nT  
 Magnetic North is 8.59 degrees West of True North (at 4/21/2014)  
 Grid North is 0.12 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.12 degrees  
 To correct azimuth from Magnetic to Grid subtract 6.71 degrees

WW-9  
(9/13)

API Number 47 - 051 - 01766  
Operator's Well No. U-7H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Gastar Exploration USA, Inc. OP Code 494487685

Watershed (HUC 10) Fish Creek - Ohio River (Undefined) Quadrangle Powhatan Point 7.5'

Elevation 1342' 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 3416729685 )
- 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  
Note on Vertical \*If a pocket of gas is hit. The gas flow will be diverted to the flare and SOBM (that is previously prepared) will be pumped into the well to kill the well if necessary.

-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 Landfill (Permit SWF-1021)

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

-Landfill or offsite name/permit number? Wetzel County Landfill (SWF-1021) WV0109185, Northwestern Landfill (SWF-1026), Arden Landfill in Washington, PA (SWF-100172)

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

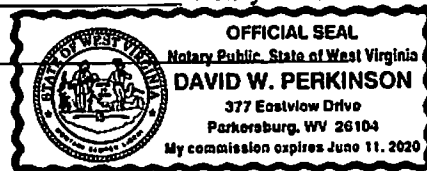
Company Official Title Senior VP & COO

Subscribed and sworn before me this 13th day of May, 2014

David W. Perkinson

Notary Public

My commission expires 06/11/2020



08/01/2014

Form WW-9

Operator's Well No. U-7H

Blake

Proposed Revegetation Treatment: Acres Disturbed 20.67 Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 1/3 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

Or as recommended by a local recognized seed supplier approved by the owners representative.

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 Wolcott*

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: Oil & Gas Inspector

Date: 6/5/14

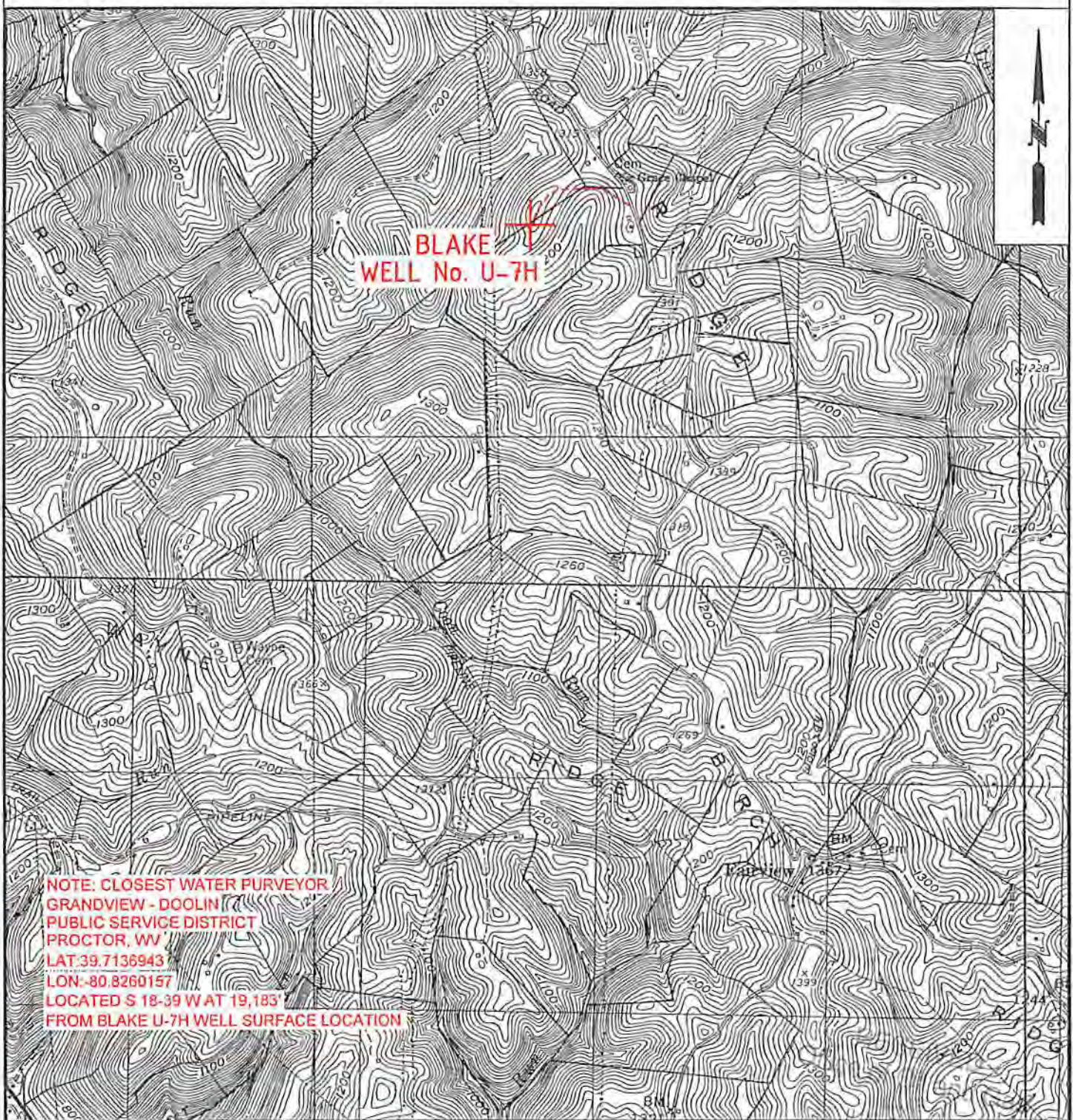
Field Reviewed? (  ) Yes (  ) No

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08/01/2014

WW-9

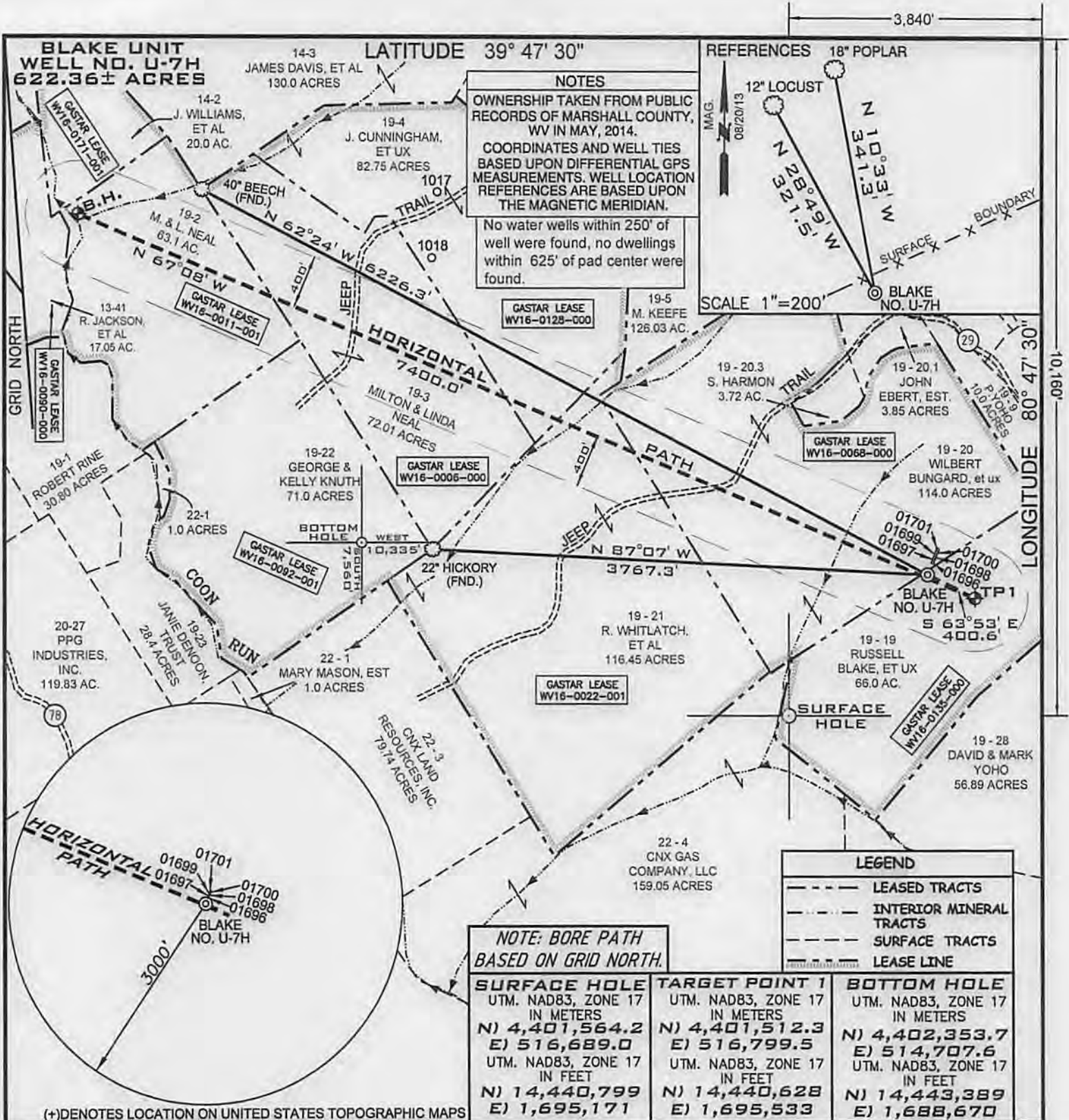
# PROPOSED BLAKE WELL No. U-7H

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR  
 GRANDVIEW - DOOLIN  
 PUBLIC SERVICE DISTRICT  
 PROCTOR, WV  
 LAT: 39.7136943  
 LON: -80.8260157  
 LOCATED S 18-39 W AT 19,183'  
 FROM BLAKE U-7H WELL SURFACE LOCATION

 <b>W0120321</b>	OPERATOR	TOPO SECTION	LEASE NAME
	GASTAR EXPLORATION INC. 229 W Main Street, Suite 301 Clarksburg, WV 26301	POWATAN POINT 7.5' SCALE: 1"=2000'	BLAKE DATE: DATE: 05/01/14



NOTE: BORE PATH BASED ON GRID NORTH.

SURFACE HOLE	TARGET POINT 1	BOTTOM HOLE
UTM. NAD83, ZONE 17 IN METERS	UTM. NAD83, ZONE 17 IN METERS	UTM. NAD83, ZONE 17 IN METERS
N) 4,401,564.2	N) 4,401,512.3	N) 4,402,353.7
E) 516,689.0	E) 516,799.5	E) 514,707.6
UTM. NAD83, ZONE 17 IN FEET	UTM. NAD83, ZONE 17 IN FEET	UTM. NAD83, ZONE 17 IN FEET
N) 14,440,799	N) 14,440,628	N) 14,443,389
E) 1,695,171	E) 1,695,533	E) 1,688,670

FILE NUMBER W0120321 (WB1-70)

DRAWING NUMBER BLAKE\_WP\_U-7H

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. Jonathan R. White  
2122



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

DATE: MAY 03, 2014

OPERATORS WELL NO. BLAKE NO. U-7H

API WELL NO. 47-051-01766 H6A

STATE COUNTY PERMIT

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

LOCATION ELEVATION 1326' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER (UNDEFINED)

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER WV16-0011-001, WV16-0090-000, WV16-0171-001, WV16-0022-001, WV16-0092-001, WV16-0000-000, WV16-0135-000, WV16-0068-000, WV16-0128-000

SURFACE OWNER RUSSELL BLAKE, ET AL ACREAGE 66.0

OIL & GAS ROYALTY OWNER RUSSELL BLAKE, ET AL LEASE ACREAGE 622.36

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION   
PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE (SPECIFY) \_\_\_\_\_

TARGET FORMATION POINT PLEASANT PLUG & ABANDON  CLEAN OUT & REPLUG   
ESTIMATED DEPTH 11,131' + 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

LONGITUDE 80° 47' 30" 10,160'

PERMIT