



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

April 15, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101616, issued to GASTAR EXPLORATION USA, 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: ARMSTRONG NO. 4H
Farm Name: CNX GAS COMPANY, LLC

API Well Number: 47-5101616

Permit Type: Horizontal 6A Well

Date Issued: 04/15/2013

Promoting a healthy environment.

INSPECTORS PERMIT SUMMARY FORM

GPS YES [] NO []

DATE STARTED/LOCATION: _____ OPERATOR: GASTAR EXPLORATION USA, INC.
 DRILLING COMMENCED: _____ FARM: CNX GAS COMPANY, LLC
 TO DATE: _____ DEPTHS: _____ Well No: ARMSTRONG NO. 4H
 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

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. 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.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. 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.
3. 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.
4. 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.
5. 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.

51-01616

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

51 03 551 558

1) Well Operator: Gastar Exploration USA, Inc. 494487685 Marshall Franklin Powhatan Pt. 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Armstrong No. 4H Well Pad Name: Armstrong

3 Elevation, current ground: 1301' Elevation, proposed post-construction: 1278'

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

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
The Marcellus is the target formation at a depth of 6458' (top of formation), an anticipated thickness of 50' and a pressure of 3000 psi.

7) Proposed Total Vertical Depth: 6608'

8) Formation at Total Vertical Depth: Marcellus Onondaga

9) Proposed Total Measured Depth: 12,644'

10) Approximate Fresh Water Strata Depths: 50'

11) Method to Determine Fresh Water Depth: Gastar has drilled several wells in this area and we note where we pick up water.

12) Approximate Saltwater Depths: 1600'

13) Approximate Coal Seam Depths: 1000' & 1100'

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

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

16) Describe proposed well work: 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 on part of the curve and vertical section, pressure test casing and set a master valve. Make a clean out run on the casing and perforate then stimulate.

17) Describe fracturing/stimulating methods in detail:
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 20 stages on the fracturing job.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 16.32 Acres

19) Area to be disturbed for well pad only, less access road (acres): 5.66 Acres

DMH
1-25-17
CONE
1-25-17

COALITION
JAN 29 2017

SI-01616

20)

CASING AND TUBING PROGRAM

TYPE	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20"	New	PE	54.5 #/ft		110'	Cement to Surface
Fresh Water	13 3/8"	New	H-40	48 #/ft		1150'	Cement to Surface
Coal							
Intermediate	9 5/8"	New	J-55	36 #/ft		2550'	Cement to Surface
Production	5 1/2"	New	P-110	20 #/ft		12644'	Cement to Surface
Tubing	2 3/8"	New	N-80	4.7 #/ft		6625'	
Liners							

DmH 1-25-13 COWE C-26-12

TYPE	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	26"	.25"	880 psi	Type I + 3% CaCl	1.2 cuft/sack
Fresh Water	13 3/8"	17"	.33"	1730 psi	See # 22	1.2 cuft/sack
Coal						
Intermediate	9 5/8"	12 1/4"	.352"	3520 psi	See # 22	1.2 Cuft/sack
Production	5 1/2"	8 7/8" & 8 3/4"	.361"	12,644 psi	See #22	1.18 Cuft/sack
Tubing	2 3/8"		.19"	11,200 psi		
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

Stamp: Department of Environmental Protection, JAN 29 2013

SI-01616

21) 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 other joint in the lateral, one centralizer per joint through the curve and one centralizer every other joint in the the vertical section

22) Describe all cement additives associated with each cement type.

Type I + 2% CaCl₂ + 1/4# Flake - Surface Cement mixed at 15.6 ppg

CaCl₂ (calcium chloride), Flake (cellophane flake)

Type I + 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 mixed at 14.5 ppg.

-R3 (Retarder), FL62 (fluid loss), CD32 (cement dispersant), ASA (minimizes free fluid)

23) 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.

*Note: Attach additional sheets as needed.

DMH
1-25-13

Case
1-25-13

RECEIVED
CIVIL ENGINEERING
JAN 29 2013
MEMBER OF
ENVIRONMENTAL ASSOCIATION

51-01616



GASTAR EXPLORATION USA, INC.

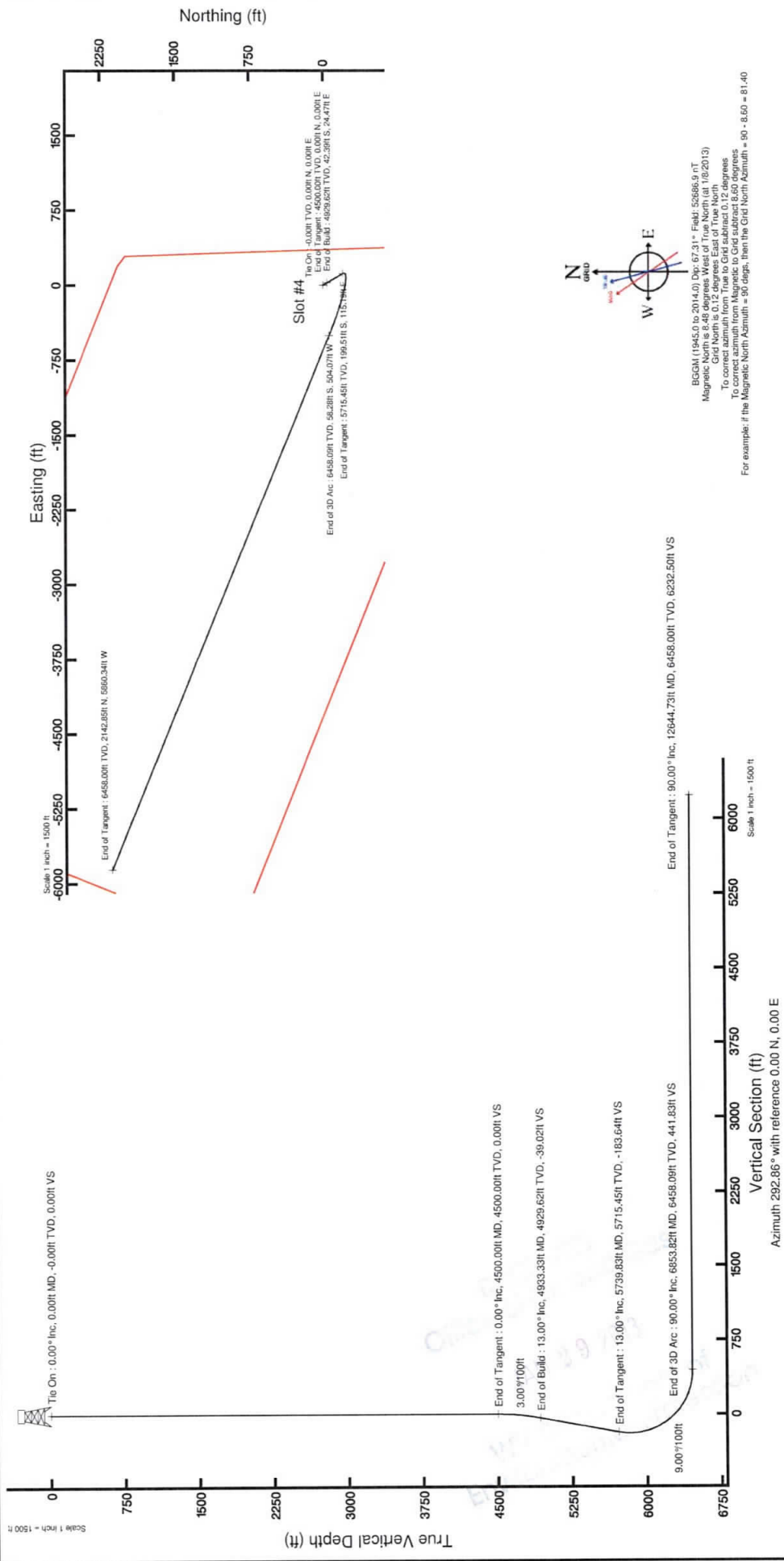
Slot: Slot #4
 Well: Armstrong 4H
 Wellbore: Armstrong 4H (PWB)

Location: Marshall County, WV
 Field: Marshall
 Facility: Armstrong

Well Profile Data							Location Information						
Design Comment	MD (ft)	Inc. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)	Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Tie On	0.00	0.000	150.000	0.00	0.00	0.00	0.00	0.00	Armstrong	1694263.000	14437151.000	39°45'13.773"N	80°48'30.287"W
End of Tangent	4500.00	0.000	150.000	4500.00	0.00	0.00	0.00	0.00	Slot #4	1694263.000	14437151.000	39°45'13.773"N	80°48'30.287"W
End of Build	4933.33	13.000	150.000	4929.82	-42.39	24.47	3.00	-39.02	Slot #4 (RT) to Mud line (At Slot: Slot #4)	0.00	0.00	0.00	0.00
End of Tangent	5739.83	13.000	150.000	5715.45	-199.51	115.19	0.00	-183.64	Mean Sea Level to Mud line (At Slot: Slot #4)				
End of 3D Arc	6853.82	90.001	292.340	6458.09	-58.28	-504.07	9.00	441.83	Rig on Slot #4 (RT) to Mean Sea Level			-1278ft	
End of Tangent	12644.73	90.001	292.340	6458.00	2142.85	-5860.34	0.00	6232.50				1278ft	

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Armstrong 4H PWB, Rev.	12644.73	6458.00	2142.85	-5860.34	14436693.00	14436693.00	39°45'25.067"N	80°48'45.208"W



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

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

Operator Name Gastar Exploration USA, Inc. OP Code 494487685

Watershed Tributary of Coon Run Quadrangle Powhatan Point 7.5'

Elevation 1278' County Marshall District Franklin

Description of anticipated Pit Waste: Various formation cuttings

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

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

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)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air for vertical / oil for horizontal

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

Additives to be used? Barite for weight

Will closed loop system be used ? Yes, for everything drilled with synthetic oil base

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,

-Landfill or offsite name/permit number? Wetzel County Landfill SWF-1021/WV0109185, Northwestern Landfill SWF-1025, Meadowfill Landfill SWF-1032 and Arden Landfill SWF-100172 in Washington County, PA

*DMH
1-25-13
COWE
1-25-13*

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

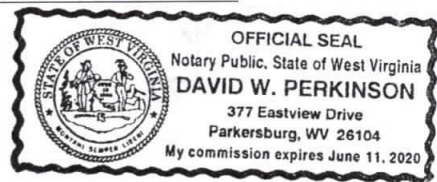
Company Official (Typed Name) Michael McCown

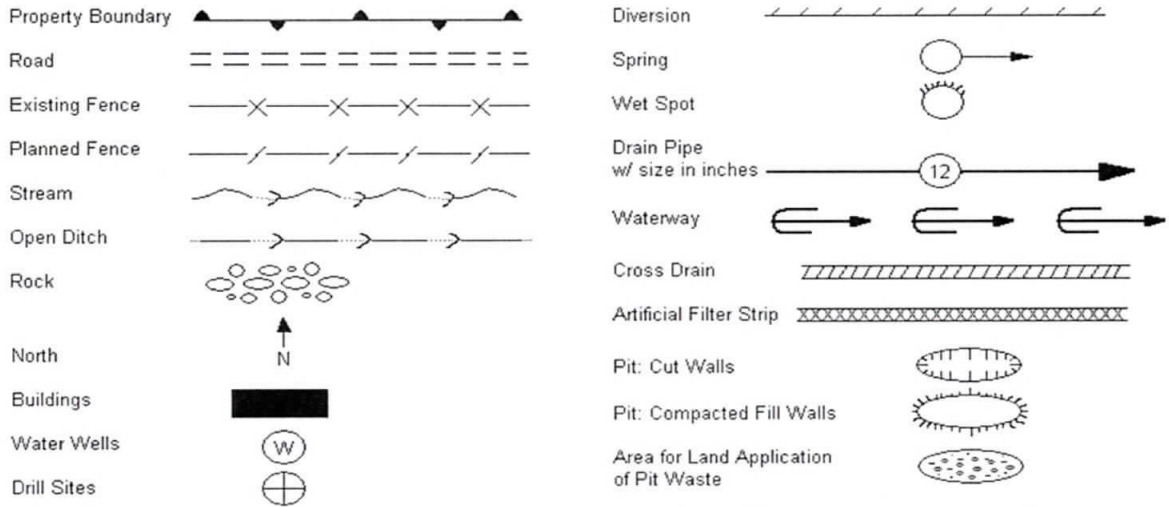
Company Official Title Vice President

Subscribed and sworn before me this 14th day of January, 2013

David W. Perkinson Notary Public

My commission expires 06/11/2020





Proposed Revegetation Treatment: Acres Disturbed 16.32 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 1/3 ton lbs/acre (500 lbs minimum)

Mulch Hay 2 Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Meadow Mix	<u>40</u>	Orchard Grass	<u>15</u>
Alsike Clover	<u>5</u>	Alsike Clover	<u>5</u>
Annual Rye	<u>15</u>		

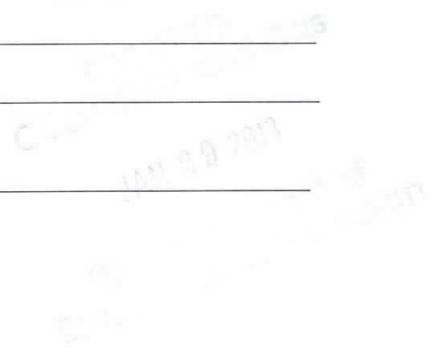
Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]
Comments: _____

Title: Oil & Gas Inspector Date: 1-25-13

Field Reviewed? Yes No





12/27/2012

GASTAR EXPLORATION USA

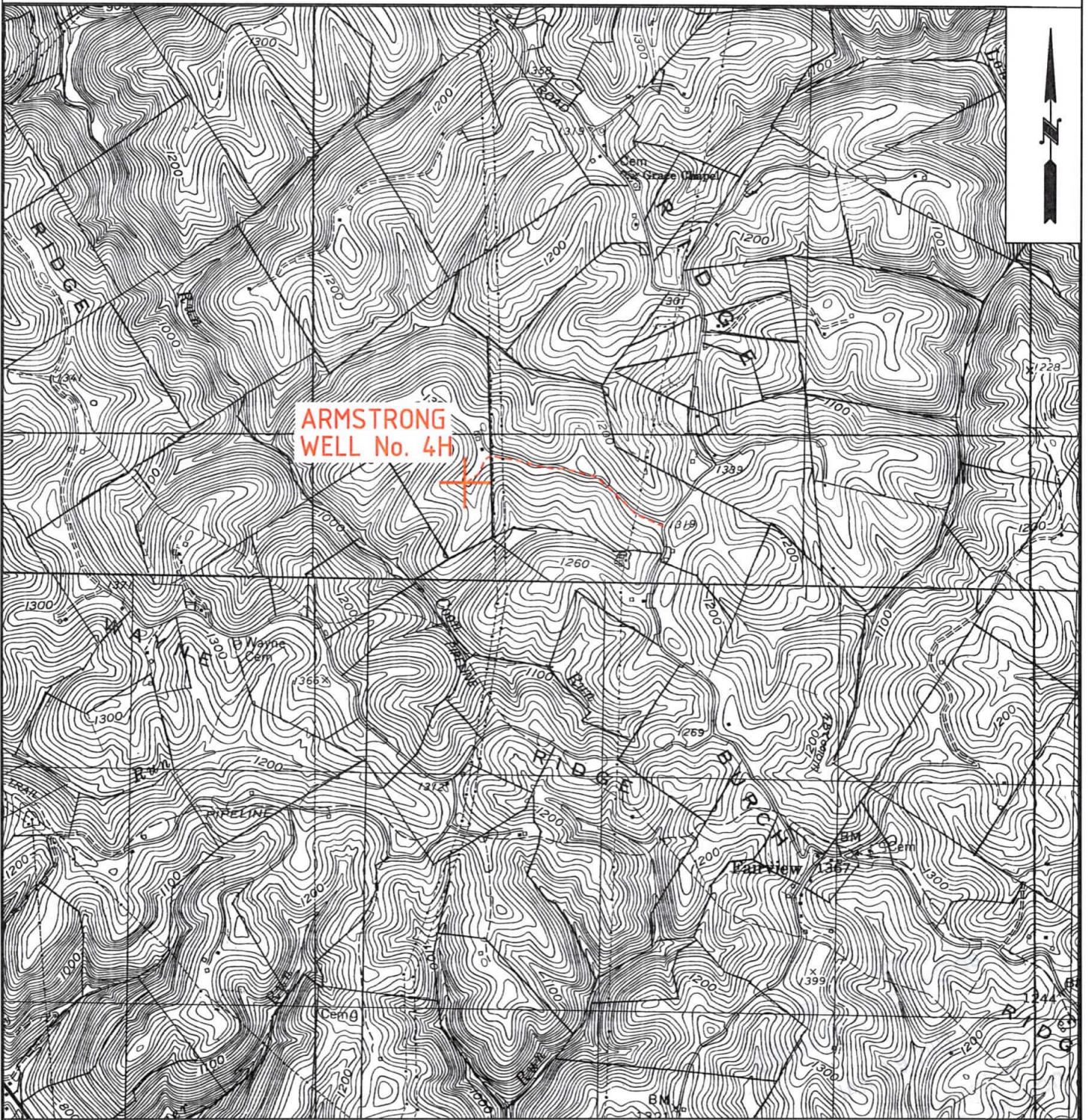
ARMSTRONG WELL No. 4H

Dmit
1-25-13

Case
1-25-13

WELL SITE SAFETY PLAN

PROPOSED ARMSTRONG WELL No. 4H

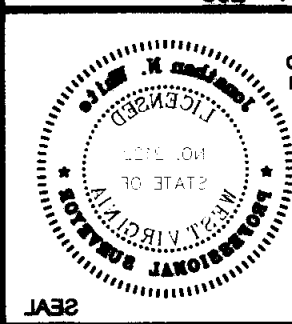


cone
1-25-13

DMH
1-25-13

	OPERATOR	TOPO SECTION	LEASE NAME
	GASTAR EXPLORATION USA, Inc. 229 W Main Street, Suite 301 Clarksburg, WV 26301	POWATAN POINT 7.5'	ARMSTRONG
W0120316		SCALE:	DATE:
		1"=2000'	DATE: 12/27/12

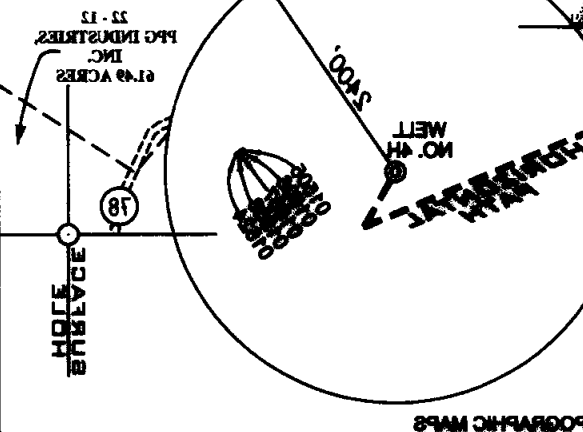
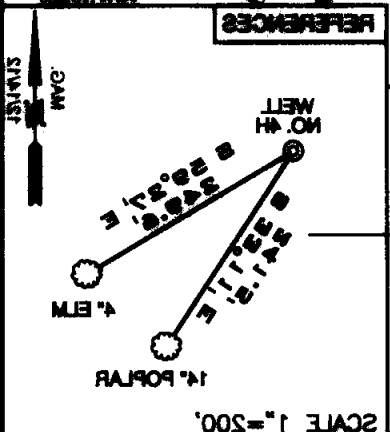
WELL OPERATOR GASTAR EXPLORATION USA, INC.
 ADDRESS 529 W MAIN STREET, SUITE 301
 CLARKSBURG WV, 26301
 DESIGNATED AGENT MICHAEL McCOWN
 ESTIMATED DEPTH 6458 + Horizontal Led
 PLUG & ABANDON CLEAN OUT & REPLUG
 PERMIT OTHER PHYSICAL CHANGE (SPECIFY)
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 SURFACE OWNER CNX GAS COMPANY, LLC
 ACRES 158.05
 LEASE ACRES 258.01
 QUADRANGLE POWHATAN POINT 7.5'
 LEASE NUMBER W18-010-001 W18-008-001 W18-008-000
 DISTRICT FRANKLIN
 COUNTY MARSHALL
 LOCATION ELEVATION 1578' WATERSHED TRIBUTARY OF COON RUN
 (IF GAS) PRODUCTION STORAGE DEEP SHALLOW
 WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 OPERATORS WELL NO. ARMSTRONG NO. 4H
 API WELL NO. 47-051-016 H2A
 DATE: DECEMBER 27, 2015
 WDEP
 OFFICE OF OIL & GAS
 601 8TH STREET
 CHARLESTON WV 25301



I, the undersigned, hereby certify that this map 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

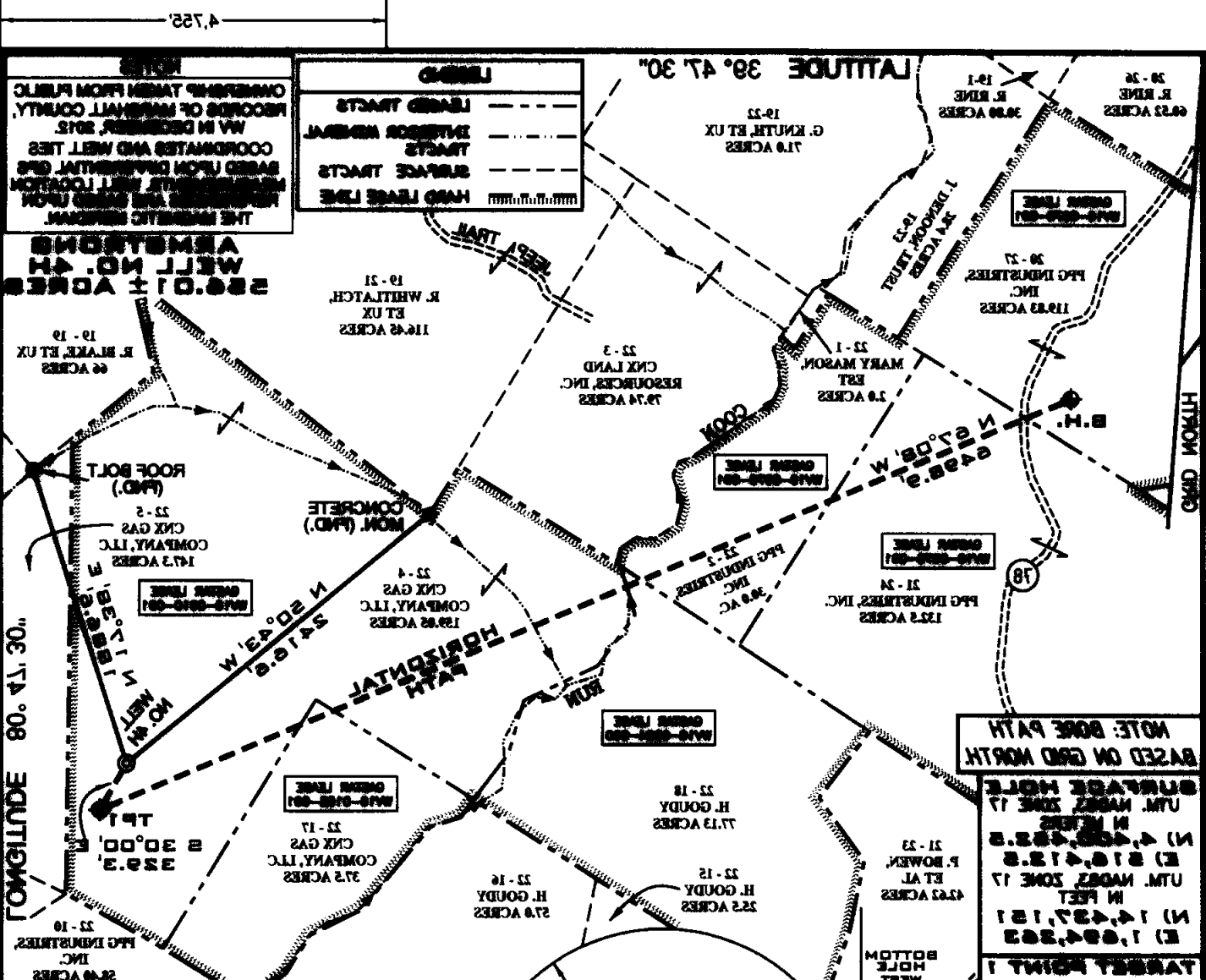
P.S. *James K. White*

FILE NUMBER	W0120318 (W81-58)
DRAWING NUMBER	ARMSTRONG_WP_4H
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1/500
PROVEN SOURCE OF ELEVATION	SUBMETER MAPPING
	GRADE GPS



NOTE: BORE PATH BASED ON GRID NORTH
 SURFACE HOLE UTM. NAZD, ZONE 17 IN METERS
 (N) 4,400,432.5
 (E) 214,428.9
 UTM. NAZD, ZONE 17 IN FEET
 (N) 14,437,151
 (E) 1,004,432

BOTTOM HOLE UTM. NAZD, ZONE 17 IN METERS
 (N) 4,401,108.4
 (E) 214,428.9
 UTM. NAZD, ZONE 17 IN FEET
 (N) 14,437,151
 (E) 1,004,432

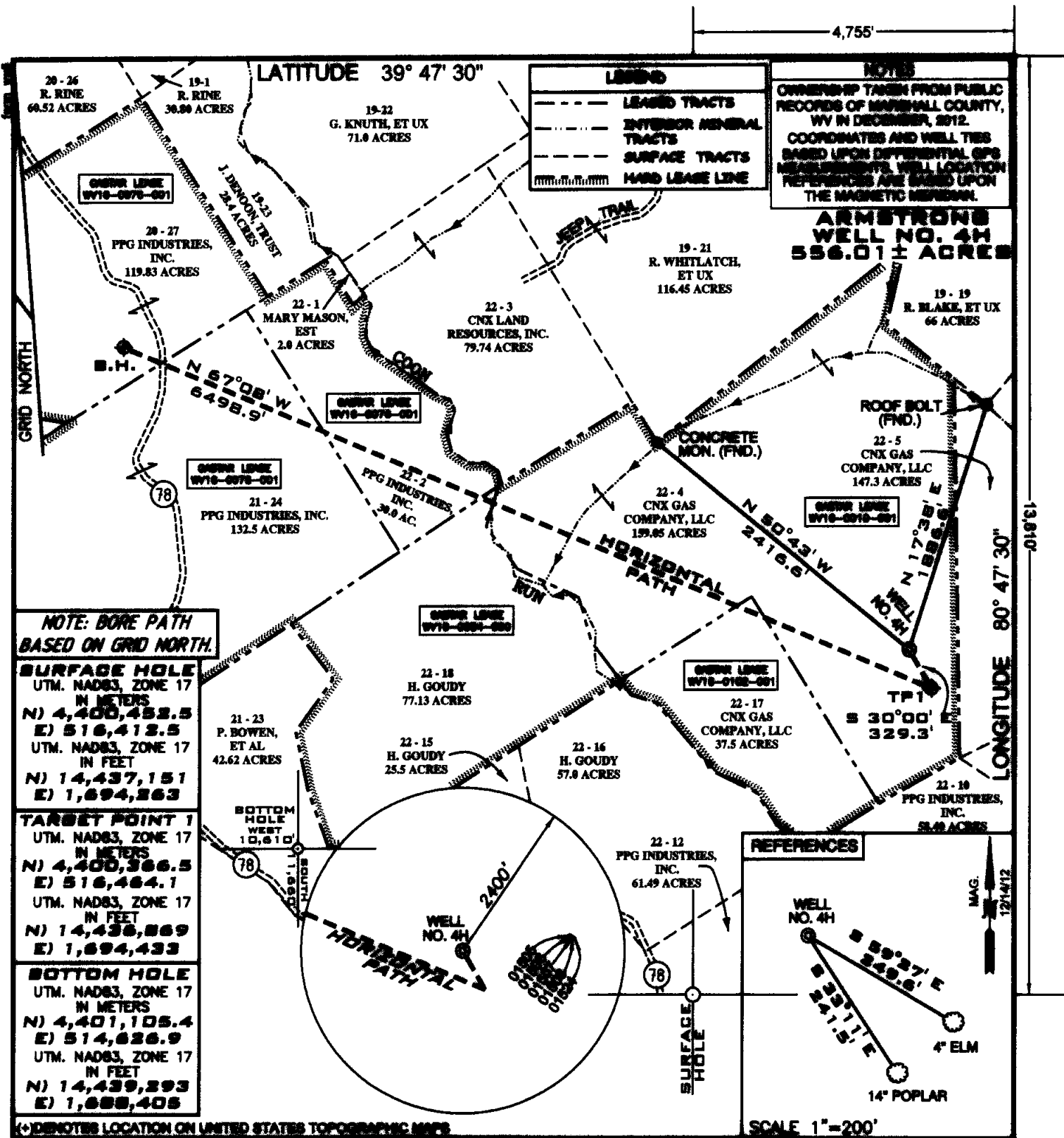


THE INVENTIVE REASONING
 BASED UPON DEPARTMENTAL GPS
 COORDINATES AND WELL TIES
 WY IN DECEMBER, 2015
 RECORD OF MARSHALL COUNTY,
 OWNERSHIP TYPED FROM PUBLIC

LEADS

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

LATITUDE 39° 47' 30"
 LONGITUDE 80° 47' 30"
 19-23 30.83 ACRES
 G. KNUTH, ET UX
 19-21 30.83 ACRES
 R. RINE



NOTE: BORE PATH BASED ON GRID NORTH.

SURFACE HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 N) 4,400,452.5
 E) 516,412.5
 UTM. NAD83, ZONE 17
 IN FEET
 N) 14,437,151
 E) 1,694,263

TARGET POINT 1
 UTM. NAD83, ZONE 17
 IN METERS
 N) 4,400,366.5
 E) 516,464.1
 UTM. NAD83, ZONE 17
 IN FEET
 N) 14,436,869
 E) 1,694,433

BOTTOM HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 N) 4,401,105.4
 E) 514,626.9
 UTM. NAD83, ZONE 17
 IN FEET
 N) 14,439,293
 E) 1,688,405

FILE NUMBER W0120316 (WB1-56)

DRAWING NUMBER ARMSTRONG_WP_4H

SCALE 1" = 1000'

MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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 N. White



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

DATE: DECEMBER 27, 2012

OPERATORS WELL NO. ARMSTRONG NO. 4H

API WELL NO. 47-051-01616 HGA
 STATE COUNTY PERMIT

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

LOCATION ELEVATION 1278' WATERSHED TRIBUTARY OF COON RUN

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER WY18-0102-001
WY18-0010-001, WY18-0076-001, WY18-0084-000

SURFACE OWNER CNX GAS COMPANY, LLC ACREAGE 159.05

OIL & GAS ROYALTY OWNER CNX GAS COMPANY, LLC LEASE ACREAGE 556.01

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

TARGET FORMATION MARCELLUS PLUG & ABANDON CLEAN OUT & REPLUG

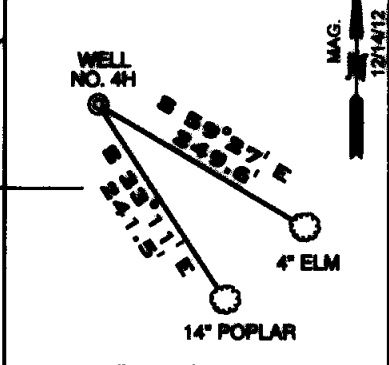
ESTIMATED DEPTH 6458 + Horizontal Leg

WELL OPERATOR GASTAR EXPLORATION USA, INC. DESIGNATED AGENT MICHAEL McCOWN

ADDRESS 229 W MAIN STREET, SUITE 301 ADDRESS 229 W MAIN STREET, SUITE 301
CLARKSBURG WV, 26301 CLARKSBURG WV, 26301

LONGITUDE 80° 47' 30"

REFERENCES

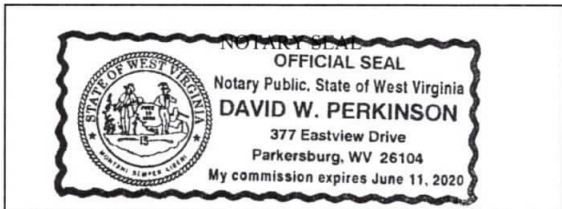


SCALE 1"=200'

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:	<u>Gastar Exploration USA, Inc.</u>	Address:	<u>229 West Main St., Suite 301</u>
By:	<u>Michael McCown <i>Michael McCown</i></u>		<u>Clarksburg, WV 26301</u>
Its:	<u>Vice President</u>	Facsimile:	<u>304-622-4824</u>
Telephone:	<u>304-966-0362</u>	Email:	<u>dperkinson@gastar.com</u>



Subscribed and sworn before me this 16th day of January, 2013.

David W. Perkinson 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.

Faint, illegible text, possibly a stamp or watermark, located in the bottom right corner of the page.

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

Date of Notice Certification: 01/16/2013

API No. 47- 051 - 01616
Operator's Well No. Armstrong No. 4H
Well Pad Name: Armstrong

Notice has been given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>516,412.5 Meters</u>
County:	<u>Marshall</u>		Northing:	<u>4,400,452.5 Meters</u>
District:	<u>Franklin</u>	Public Road Access:	<u>County Route 29</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>CNX Gas Company, LLC</u>	
Watershed:	<u>Tributary of Coon Run</u>			

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

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
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input checked="" type="checkbox"/> RECEIVED
<input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION		<input checked="" type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE		<input checked="" type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		<input checked="" type="checkbox"/> 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.

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: 01/16/2013 **Date Permit Application Filed:** 01/28/2013 ✓

Notice of:

- | | |
|--|---|
| <input checked="" type="checkbox"/> PERMIT FOR ANY WELL WORK | <input checked="" type="checkbox"/> CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT |
|--|---|

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

- | | | |
|---|---|---|
| <input type="checkbox"/> PERSONAL SERVICE | <input checked="" type="checkbox"/> REGISTERED MAIL | <input type="checkbox"/> 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.

Notice is hereby provided to:

SURFACE OWNER(s)
 Name: CNX Gas Company, LLC
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317
 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: Appalachian Power Company
 Address: 1 Riverside Plaza
Columbus, OH 43215

COAL OPERATOR
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Same as above mentioned Surface Owner
 Address: _____
 Name: _____
 Address: _____

WATER PURVEYOR(s)
 Name: Same as above mentioned Surface Owner
 Address: _____

SURFACE OWNER(s) (Impoundments/Pits)
 Name: Same as above mentioned Surface Owner
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: _____
 Address: _____

*Please attach additional forms if necessary

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 also 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.

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.

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.

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.

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 wellpad 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.

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.**

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.

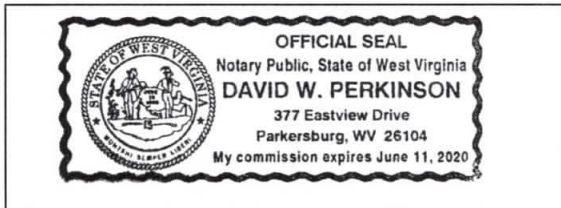
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the 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.

Notice is hereby given by:

Well Operator: Gastar Exploration USA, Inc. *Michael McGowan* Address: 229 West Main Street, Suite 301
Telephone: 304/624-4796 Clarksburg, WV 26301
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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 16th day of Jan, 2013.
David W. Perkinson Notary Public
My Commission Expires June 11, 2020

RECEIVED
Office of Oil and Gas
JAN 29 2013
West Virginia Department of Environmental Protection



WW-6A

Supplement Pg. 1

December 27, 2012
Gastar Exploration USA, INC.
229 W Main Street, Suite 301
Clarksburg, WV 26301

WATER WELL REPORT

Well: Armstrong No. 4H
District: Franklin
County: Marshall
State: WV

There appears to be One (1) possible water sources within 1,500 feet of the above referenced well location.

TM 22 PAR. 4 CNX Gas Company, LLC Phone 724-485-4518 1000 Consol Energy Dr. Canonsburg, PA 15317		

**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: 01/16/2013 **Date Permit Application Filed:** 01/28/2013

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

- | | |
|--|-------------------------------|
| <input checked="" type="checkbox"/> CERTIFIED MAIL | <input type="checkbox"/> HAND |
| RETURN RECEIPT REQUESTED | DELIVERY |

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

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

Name: <u>CNX Gas Company, LLC</u>	Name: _____
Address: <u>1000 Consol Energy Drive</u>	Address: _____
<u>Canonsburg, PA 15317</u>	

Notice is hereby given:

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>516,412.5 Meters</u>
County: <u>Marshall</u>	Northing: <u>4,400,452.5 Meters</u>
District: <u>Franklin</u>	Public Road Access: <u>County Route 29</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>CNX Gas Company, LLC</u>
Watershed: <u>Tributary of Coon Run</u>	

This Notice Shall Include:

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

Well Operator: <u>Gastar Exploration USA, Inc.</u>	Address: <u>229 West Main St., Suite 301</u>
Telephone: <u>304-966-0362</u>	<u>Clarksburg, WV 26301</u>
Email: <u>dperkinson@gastar.com</u>	Facsimile: <u>304-622-4824</u>

Oil and Gas Privacy Notice:

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



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

January 9, 2013

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 Armstrong Well Pad, Marshall County

Armstrong 1H	Armstrong 2H	Armstrong 3H
Armstrong 4H	Armstrong 5H	Armstrong 6H
Armstrong 7H	Armstrong 8H	Armstrong 9H

Dear Dr. Martin,

This well site will be accessed from Permit #06-11-0438 issued to Gastar Exploration USA, Inc. for access to the State Road for a well site located off of Marshall County Route 29 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, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Armstrong # 4H

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT
GBW-20C	Hemicellulase Breaker	Breaker – Water	None
ALPHA 1427		Biocide	Glutaraldehyde - CAS#000111-30-8 Quaternary 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 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 27
 Armstrong Gas Well Site
 District Franklin
 County Marshall
 State W.V.

This Pad is not in a flood zone as scaled from
 FIRAM Insurance Rate Map
 Community Panel No.: 54051C 0145E
 Gas Well

Well 111	◆
Well 211	◆
Well 311	◆
Well 411	◆
Well 511	◆
Well 611	◆
Well 711	◆
Well 811	◆
Well 911	◆

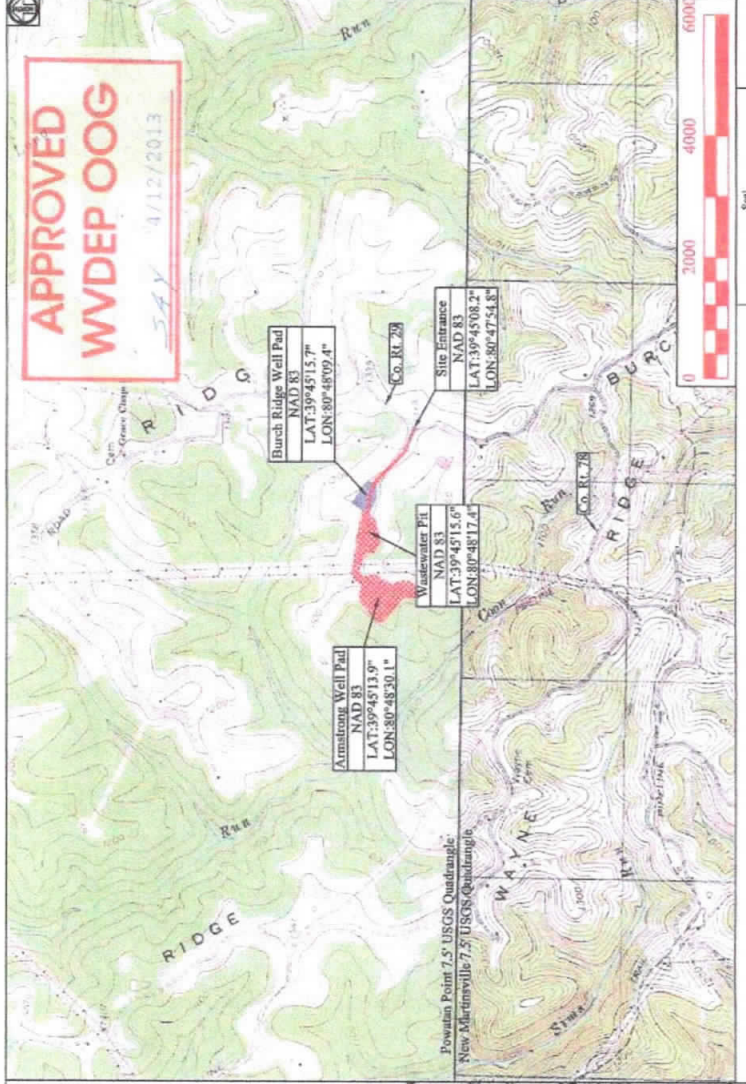
Sheet	Description
1	Cover
2	Specifications
3-4	Erosion and Sediment Control
5	Pre-Construction Site Conditions
6	Overall Plan View
7-9	E&S Plan View
10-12	Well Pad Cross Sections
13-16	Frac Pit Cross Sections
17-19	Access Road Cross Sections
20-21	Access Road Profile
22-23	Frac Pit Reclamation
24	Well Pad Reclamation
25	Disturbed Area
26	Volume Report
27	

Note:
 Dec. 26, 2012 Design
 Mar. 26, 2013 DEP Revision

Design Certification
 The drawings, construction notes and reference diagrams attached hereto have been prepared in
 West Virginia Code of State Rules, Division of Environmental Protection, Office of
 Oil and Gas §35-4-21
 All Plans, Sheets, and/or Reference Diagrams included in this design constitutes a complete set of plans.
 A complete set of plans is necessary to construct the site in accordance with the design.
 John P. See, RIF 6651
 Kelly Surveying LLC
 COA: C04232-00
 Date: 3/27/2013

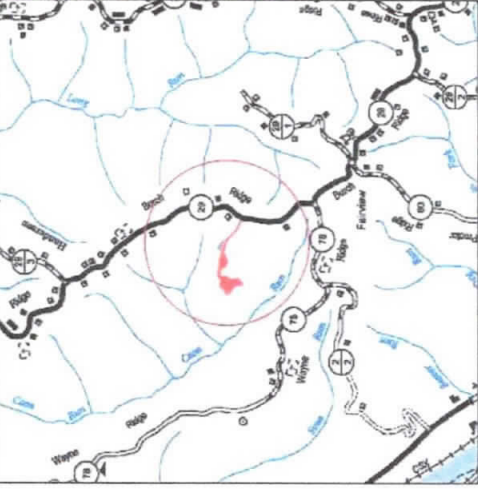
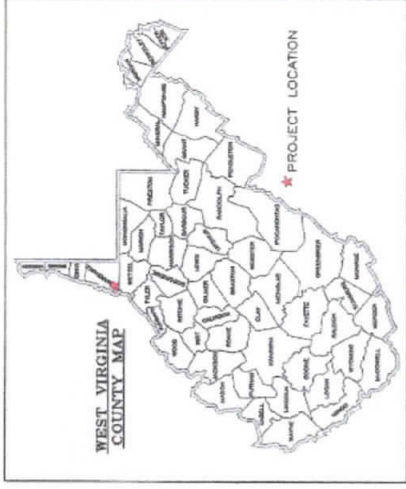
At-Risk Certification
 This at-risk certification certifies that the gas well drilling pad was constructed in reasonable close
 conformance with the design drawings. It is recommended that the gas well drilling pad is included in the
 existing comprehensive maintenance and inspection program for gas well drilling pads or that a
 separate comprehensive maintenance and inspection program be developed to monitor the pad condition to
 ensure the continued safe operation.

John P. See, RIF 6651
 Date: _____



Armstrong Gas Well Site
 Construction Plan and
 Erosion and Sediment Control Plan
 Marshall County
 Franklin District
 Latitude 39°45'13.9"
 Longitude 80°48'30.1"

API#5101613
 API#5101614
 API#5101615
 API#5101616
 API#5101617
 API#5101618
 API#5101619



Location Map
 Scale: 1" = 1 Mile
 USGS 7.5' Quadrangle: New Martinsville
 Watershed: Haynes Run - Ohio River

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 WEST VIRGINIA
 1-800-243-4848
 West Virginia State Law
 (Section XIV, Chapter 24-C requires
 that you call two business days before
 you dig in the state of West Virginia.
 IT'S THE LAW

District: Franklin
 County: Marshall
 State: West Virginia



Electronic Version of Plans Can Be Viewed at: Q:\OIL-GAS\SAY FILES\REVIEWS