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**west virginia** department of environmental protection

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

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

October 21, 2013

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-9501078, 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.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: M. W. SPENCER NO. 23  
Farm Name: SPENCER, ALVA D. ., ESTATE  
**API Well Number: 47-9501078**  
**Permit Type: Plugging**  
Date Issued: 10/21/2013

## PERMIT CONDITIONS

West Virginia Code § 22-6-11 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. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.

1) Date: September 6, 2013  
2) Operator's Well Number M.W. Spencer No.23  
3) API Well No: 47 - 095 - 1078  
State County Permit

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) WELL TYPE: Oil X Gas X Liquid Injection \_\_\_\_\_ Waste Disposal \_\_\_\_\_  
(If "Gas", Production \_\_\_\_\_ Underground Storage \_\_\_\_\_ ) Deep \_\_\_\_\_ Shallow X  
5) LOCATION: Elevation: 781' Watershed: Indian Creek  
District: McElroy 05 County: Tyler 95 Quadrangle Shirley 7.5' 607  
6) WELL OPERATOR: Gastar Exploration, Ltd. 494487685 7) DESIGNATED AGENT Mike McCown  
Address 229 W. Main St., Suite 301 Address 229 W. Main St., Suite 301  
Clarksburg, WV 26301 Clarksburg, WV 26301  
8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) PLUGGING CONTRACTOR  
Name Joe Taylor Name \_\_\_\_\_  
Address 497 Claylick Road Address \_\_\_\_\_  
Ripley, WV 25271

10) WORK ORDER: The work order for the manner of plugging this well is as follows:

CASING	
8 5/8"	453'
4 1/2"	1,722'
TOC Est. - 1164'	
LINERS	

TD-1,906' Coal: NA  
Gel 1906 - 1800  
Plug No. 1 1800 - 1700 *8 1/4"*  
Freepoint, Cut & Pull 4 1/2" Casing at 1,150' (Est.)  
Plug No. 2 1200 - 1100 *casing cut*  
Plug No. 3 800 - 700 *- 2 1/2"*  
Plug No. 4 500 - 400 *8 7/8"*  
Plug No. 5 100 - Surface

*ELEV. 781'*

**NOTES:**

Free point, cut and pull all casing strings present. Place 100 ft. cement plug at bottom of any casing left in well.  
Fill Well Bore with 6% Gel Between all Cement Plugs  
Erect Monument with API No.

Inspector 24 hours before permitted work can commence.

Work order approved by Inspector



Received *[Signature]*  
Date 9/27/13

OCT 2 2013

9501078P

DEC 6 1984  
OFFICE COPY.



RECEIVED

IV-35  
(Rev 8-81)

NOV 2 - 1984

OIL & GAS DIVISION

DEPT. OF MINES State of West Virginia  
Department of Mines  
Oil and Gas Division

Date October 31, 1984  
Operator's  
Well No. #23  
Farm M.W. Spencer  
API No. 47 - 095 - 1078

WELL OPERATOR'S REPORT  
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil XX / Gas      / Liquid Injection      / Waste Disposal      /  
(If "Gas," Production      / Underground Storage      / Deep      / Shallow    /)

LOCATION: Elevation: 780.8' Watershed Indian Creek of Middle Island Creek  
District: McElroy County Tyler Quadrangle Shirley 7.5'

COMPANY QUAKER STATE OIL REFINING CORPORATION

ADDRESS P.O. Box 1327; Parkersburg, WV 26101

DESIGNATED AGENT Carl J. Carlson

ADDRESS P.O. Box 1327; Parkersburg, WV 26101

SURFACE OWNER Alva D. Spencer Est., et al

ADDRESS c/o Dennis G. Spencer, Box 59; Alma, WV

MINERAL RIGHTS OWNER M.W. Spencer Heirs c/o <sup>26320</sup>

ADDRESS John Kern; P.O. Box 2330; Clarksburg, WV <sup>26301</sup>

OIL AND GAS INSPECTOR FOR THIS WORK <sup>26301</sup>

Robert Lowther ADDRESS General Delivery; Middleboro, WV <sup>26149</sup>

PERMIT ISSUED June 4, 1984

DRILLING COMMENCED July 30, 1984

DRILLING COMPLETED August 17, 1984

IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON         

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	453'	453'	130 sx
7			
5 1/2			
4 1/2	1722'	1722'	100 sx
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Big Injun Depth 1756-1893 feet  
Depth of completed well 1906' feet Rotary XX / Cable Tools XX  
Water strata depth: Fresh N/A feet; Salt N/A feet  
Coal seam depths: N/A Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Big Injun Pay zone depth 1758-1846 feet  
Gas: Initial open flow --- Mcf/d Oil: Initial open flow --- Bbl/d  
Final open flow --- Mcf/d Final open flow 2 Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure Vacuum psig (surface measurement) after -- hours shut in  
(If applicable due to multiple completion--)

Second producing formation    Pay zone depth                          feet  
Gas: Initial open flow                          Mcf/d Oil: Initial open flow                          Bbl/d  
Final open flow                          Mcf/d Oil: Final open flow                          Bbl/d

Time of open flow between initial and final tests                          hours

Static rock pressure                          psig (surface measurement) after                          hours shut in

10/25/2013

TYLER 1078

95 010 78P

FORM IV-35  
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Shot with 120 qts. nitroglycerine from 1800-1845'

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Sandstone			0	542	
Shale and siltstoe			542	968	
Sandstone and shale			968	1422	
Sandstone			1422	1465	
Shale			1465	1633	
Little Lime			1633	1646	
Pencil Cave			1646	1664	
Big Lime			1664	1756	
Big Injun			1756	1893	
Shale			1893	1906	T.D.

(Attach separate sheets as necessary)

QUAKER STATE OIL REFINING CORPORATION  
Well Operator

By: Michael C. Brannock Michael C. Brannock  
 Date: October 31, 1984 Senior Geologist

10/25/2013

Note: Regulation 2.02(i) provides as follows:  
 "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

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CL# 050231  
\$400.00 = 4

WW-4A  
Revised 6-07  
Surface Owner Copy

1) Date: September 6, 2013  
2) Operator's Well Number M.W. Spencer No.23  
3) API Well No: 47 - 095 - 1078  
State County Permit

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:  
(a) Name Alva D. Spencer Estate *W*  
Address C/O Marcia Mronzinski  
3471 Maradee Ct.  
(b) Name Farwell, MI 48622  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
6) Inspector Joe Taylor  
Address 497 Claylick Road  
Ripley, WV 25271 *SDJ*  
Telephone 304-380-7469

5) (a) Coal Operator:  
Name NA  
Address \_\_\_\_\_  
(b) Coal Owner(s) with Declaration  
Name NA  
Address \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
NA  
(c) Coal Lessee with Declaration  
Name \_\_\_\_\_  
Address \_\_\_\_\_

**TO THE PERSON(S) NAMED ABOVE:** You should have received this Form and the following documents:

- 1) The Application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work, and describes the well and its location and the plugging work order; and
- 2) The plat (surveyor's map) showing the well location on Form WW-6

The reason you have received these documents is that you have rights regarding the application which are summarized in the instructions on the reverse side. However, you are not required to take any action at all.

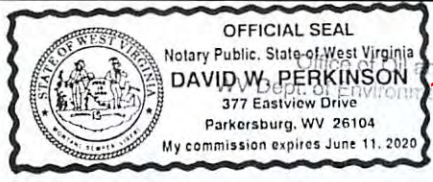
Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator Gastar Exploration, Ltd.  
By: Michael McCown Mike McCown  
Its: COO & Designated Agent  
Address 229 W. Main St., Suite 301  
Clarksburg, WV 26301  
Telephone (304) 622-4796

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

Received  
Notary Public

OCT 2 2013



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9501078P

**SURFACE OWNER WAIVER**

Operator's Well  
Number

M.W. Spencer No.23  
47- 095- 1078

**INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A**

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.  
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

**Time Limits and methods for filing comments.** The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) 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.

**Comments must be in writing.** Your comments must 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.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

**VOLUNTARY STATEMENT OF NO OBJECTION**

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application For A Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

**FOR EXECUTION BY A NATURAL PERSON  
ETC.**

**FOR EXECUTION BY A CORPORATION,**

**Received**

Marcia Mrozinski Date 9/18/2013 Name \_\_\_\_\_  
Signature By \_\_\_\_\_  
Its Date \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
Date

Signature Office of Oil and Gas Date  
WV Dept. of Environmental Protection **10/25/2013**

9501078P

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 Gastar Exploration, Ltd. OP Code 494487685  
Watershed Indian Creek Quadrangle Shirley 7.5'  
Elevation 781' County Tyler District McElroy  
Description of anticipated Pit Waste: Fluids encountered in plugging subject well  
Do you anticipate more than 5,000 bbls of water to complete the proposed well work? Yes        No X  
Will a synthetic liner be used in pit? Yes If so, what mil.? 10 20 mil.

Proposed Disposal Method For Treated Pit Wastes:  
X Land Application  
\_\_\_\_ Underground Injection (UIC Permit Number \_\_\_\_\_ )  
\_\_\_\_ Reuse (at API Number \_\_\_\_\_ )  
\_\_\_\_ Off Site Disposal (Supply Form WW-9 for disposal location)  
\_\_\_\_ Other ( Explain \_\_\_\_\_ )

Drilling medium anticipated for this well? Air, fresh water, oil based, etc. NA  
- If oilbased, what type? Synthetic, petroleum, etc. \_\_\_\_\_  
Additives to be used? \_\_\_\_\_  
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. NA  
- If left in pit and plan to solidify, what medium will be used? Cement, lime, sawdust NA  
- Landfill or offsite name/permit number? \_\_\_\_\_

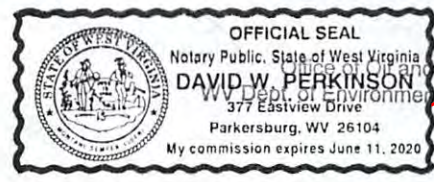
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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) Mike McCown  
Company Official Title COO & Designated Agent

Subscribed and sworn before me this 11th day of September, 2013  
David W. Perkins Notary Public

My commission expires June 11, 2020



Received

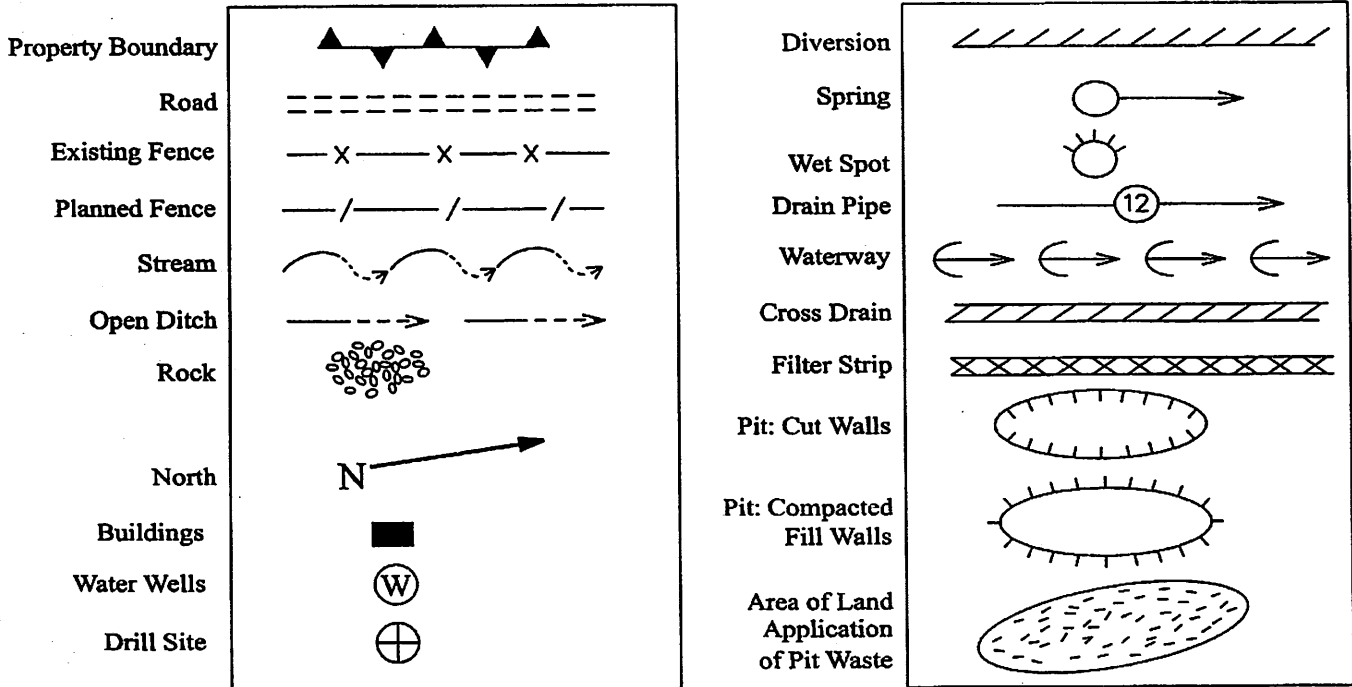
OCT 2 2013

10/25/2013

*[Handwritten signature]*  
9-27-13



Legend



Proposed Revegetation Treatment: Acres Disturbed Area I Approx. 0.2 Ac. Prevegetation pH \_\_\_\_\_

Area II  
Approx. 0.1 Ac.

Lime 2 Tons/Acre or Correct to pH 6.5  
Fertilizer (10-20-20 or Equivalent) 500 Lbs./Acre (500 lbs. Minimum)  
Mulch Straw 2 Tons/Acre

SEED MIXTURES

<u>Area I (Location)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

<u>Area II (Road)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

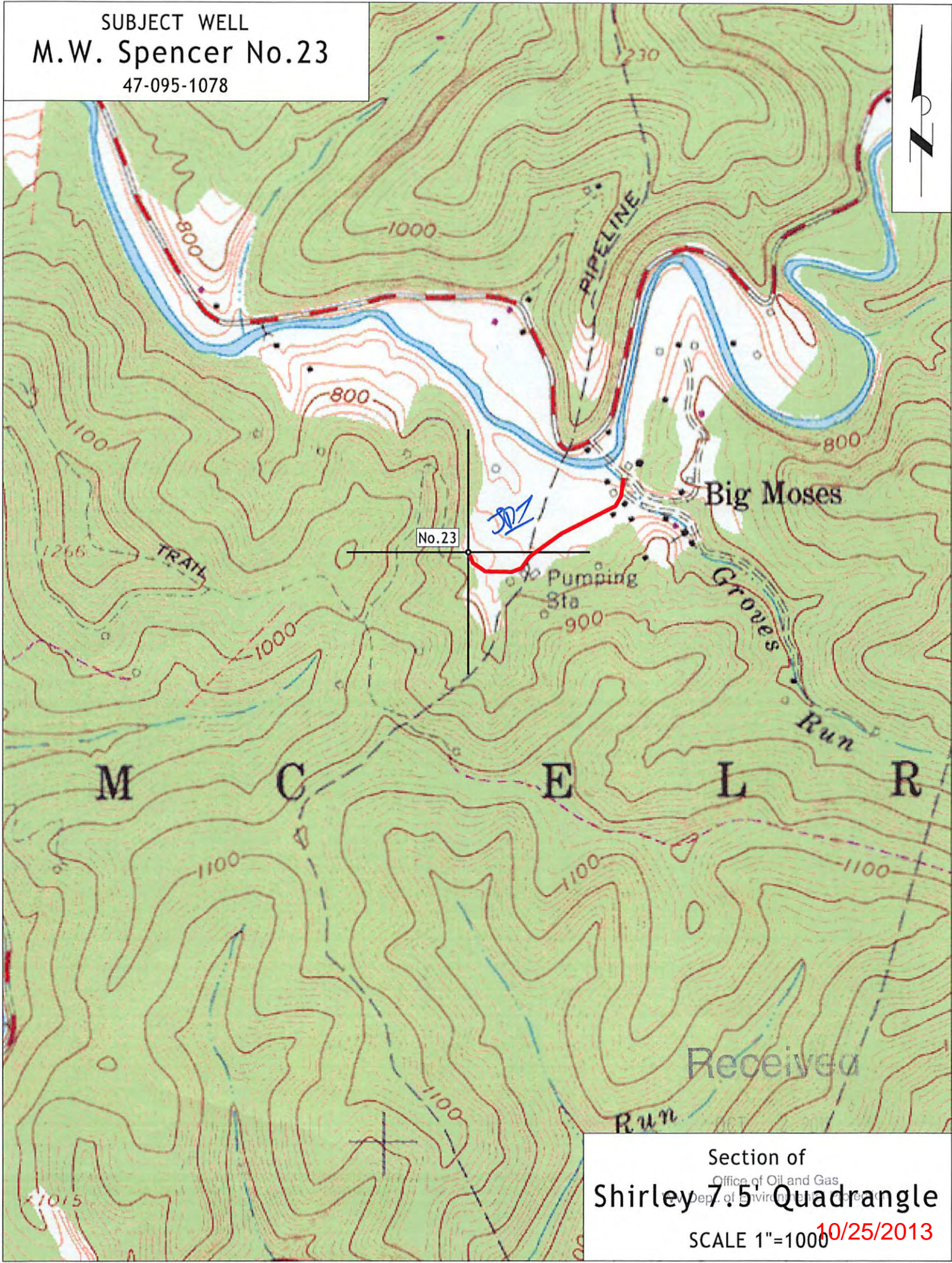
Attach:  
Drawing(s) of road, location, pit and proposed area for land application  
Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]  
Comments: \_\_\_\_\_

Title: Lispact. Date: 9-27-12

Field Reviewed? X Yes \_\_\_\_\_ No

SUBJECT WELL  
M.W. Spencer No.23  
47-095-1078



Section of  
Office of Oil and Gas  
Shirley 7.5' Quadrangle  
SCALE 1"=1000  
10/25/2013

Received

9501078P

WW-7  
5-02

West Virginia Department of Environmental Protection  
Office of Oil & Gas

**WELL LOCATION FORM: GPS**

API: 47- 095 - 1078 WELL NO: No.23

FARM NAME: M.W. Spencer

RESPONSIBLE PARTY NAME: Gastar Exploration, Ltd.

COUNTY: Tyler DISTRICT: McElroy

QUADRANGLE: Shirley 7.5'

SURFACE OWNER: Alva D. Spencer Estate

ROYALTY OWNER: Alva D. Spencer Estate

UTM GPS NORTHING: 4,364,519 (NAD 83)

UTM GPS EASTING: 518,164 (NAD 83) GPS ELEVATION: 238 m. 781 FT.

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit on the above well. The Office of Oil & Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone:17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) - meters.
2. Accuracy to Datum - 3.05 meters
3. Data Collection Method:

Survey Grade GPS	<input type="checkbox"/>	Post Processed Differential	<input type="checkbox"/>
		Real-Time Differential	<input type="checkbox"/>
Mapping Grade GPS	<input checked="" type="checkbox"/>	Post Processed Differential	<input checked="" type="checkbox"/>
		Real-Time Differential	<input type="checkbox"/>

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

Michael McC Mike McCown  
Signature

COO & Designated Agent  
Title

September 6, 2013  
Date

Received

OCT 2 2013



October 1, 2013

WVDEP-Office of Oil & Gas  
Attn: Mr. Jeff McLaughlin  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

VIA USPS

Subject: Plugging Permit Applications, Tyler County, WV

Dear Jeff:

Enclosed herein for your review and further handling, please find Plugging Permit Applications for the M.W. Spencer well #'s 22 & 23 and the Ben C. Jackman well #'s 1 & 6, along with a check in the amount of \$400.00 for the pits associated with these wells.

If you have any questions or need additional information, please feel free to contact me at 304/966-0362.

Sincerely,

DAVE PERKINSON  
Landman

Received

OCT 2 2013

Office of Oil and Gas  
WV Dept. of Environmental Protection

Gastar Exploration LTD.

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

10/25/2013