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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

PERMIT MODIFICATION APPROVAL  
Vertical / Plugging - 3

GASTAR EXPLORATION INC.  
1331 LAMAR STREET, SUITE 650

HOUSTON, TX 77010

Re: Permit Modification Approval for SMITH A-1  
47-093-00095-00-00

NEW PLUGGING METHOD TO ALLOW FOR NEWLY DISCOVERED STRING OF 4 1/2 " CASING.

GASTAR EXPLORATION INC.

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

  
James A. Martin  
Chief

Operator's Well Number: SMITH A-1  
Farm Name: SMITH, FRED & GLORIA  
U.S. WELL NUMBER: 47-093-00095-00-00  
Vertical / Plugging - 3  
Date Issued: August 9, 2016

Promoting a healthy environment.

08/12/2016

## Smith A1/A2 Plugging Procedure

1. MIRU on well.
2. Load hole with brine to kill well.
3. Pull all 2 3/8" Tubing (XXXX' ?)
4. MIRU wireline. Verify TD of 4 1/2" Casing and TOC with CBL. Verify TOC is above A2 leg.
5. TIH with tubing and set 4 1/2" mechanically set cement retainer at TOC.
6. Pump cement plug from XXXX' (TD) to XXXX' (retainer depth).
7. Trip out of hole.
8. Cut 4 1/2" casing at xxxx' (approximately 100' above retainer).
9. Pull all casing.
10. Trip in hole.
11. Spot cement plug from XXXX' (approximately 200' above retainer) to 5680'.
12. 6% gel spacer from 5680' to 5570'.
13. Cut 7" casing at 5570'.
14. Pull all casing.
15. Trip in hole.
16. Spot cement plug from <sup>5590' to 5470'</sup> 5470' to 5590'.
17. 6% gel spacer from 5470' to 4000'.
18. Free point and cut 9 5/8" casing at 4000'.
19. Pull all casing.
20. Set cement plug at 4626' to 4500'.
21. 6% gel spacer from 4500' to 4020'.
22. Set cement plug from 4020' to 3900'.
23. 6% gel spacer from 3900' to 2400'.
24. Set cement plug from 2400' to 2300'.
25. 6% gel spacer from 2300' to 1282'.
26. Set cement plug from 1282' to 1182'.
27. 6% gel spacer from 1182' to 163'.
28. Set cement plug from 163' to surface.
29. Install 7" X 4' monument with API number 47-093-00095.

OK

JNM

8/19/16

**McLaughlin, Jeffrey W**

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**From:** Mike McCown <mike.mccown@outlook.com>  
**Sent:** Sunday, August 07, 2016 5:54 PM  
**To:** McLaughlin, Jeffrey W  
**Subject:** Smith P&A  
**Attachments:** New Smith A1 Plugging procedures.docx; ATT00001.htm

Jeff  
 Friday we started pulling tubing on this well.  
 Discovered there is a string on 4 1/2" at the surface not identified in well recorded.  
 Please see our proposed modified plugging prognosis for your approval. Tom Rowan has also provided to the local inspector.  
 Thanks Jeff,  
 Mike

Sent from my iPhone

Begin forwarded message:

**From:** Tom Rowan <[tomrowan13@gmail.com](mailto:tomrowan13@gmail.com)>  
**Date:** August 6, 2016 at 2:55:05 PM EDT  
**To:** Mike McCown <[mike.mccown@outlook.com](mailto:mike.mccown@outlook.com)>  
**Cc:** Bill Blagrove <[bblagrove@gastar.com](mailto:bblagrove@gastar.com)>, Rick Johnson <[RJohnson@gastar.com](mailto:RJohnson@gastar.com)>, "John O'Dowd" <[jodowd@gastar.com](mailto:jodowd@gastar.com)>  
**Subject: Re: Copy of CBL in Well File**

Here's a new plugging procedure for the Smith well. See if I missed anything.

On Sat, Aug 6, 2016 at 1:59 PM, Mike McCown <[mike.mccown@outlook.com](mailto:mike.mccown@outlook.com)> wrote:  
 Problem is we don't know anything about 4 1/2" cement.

Sent from my iPad

> On Aug 6, 2016, at 12:27 PM, Bill Blagrove <[bblagrove@gastar.com](mailto:bblagrove@gastar.com)> wrote:  
 >  
 > Mike and Tom:  
 >  
 > Attached is a copy of the Cement Bond Log: Date 8/12/03 of 7" Csg's Cement Job.  
 >  
 > William H. Blagrove  
 > Gastar Exploration, Inc.  
 > Production Engineer  
 > 3030 NW Expressway, Suite 500  
 > Oklahoma City, OK 73112  
 > Office: [405-772-1500](tel:405-772-1500)  
 > Fax: [405-945-9664](tel:405-945-9664)  
 > Dir: [405-772-1514](tel:405-772-1514)  
 > Cell: [620-482-0886](tel:620-482-0886)

> Email [bblagrave@gastar.com](mailto:bblagrave@gastar.com)  
>  
> -----Original Message-----  
> From: Bill Blagrave [mailto:[bblagrave@gastar.com](mailto:bblagrave@gastar.com)]  
> Sent: Saturday, August 06, 2016 10:34 AM  
> To: Bill Blagrave <[bblagrave@gastar.com](mailto:bblagrave@gastar.com)>  
> Subject: Message from "RNP002673611B88"  
>  
> This E-mail was sent from "RNP002673611B88" (MP C6502).  
>  
> Scan Date: 08.06.2016 11:33:36 (-0400)  
> Queries to: [OKC\\_Scan@gastar.com](mailto:OKC_Scan@gastar.com)  
>  
> <20160806113336113.pdf>

State of West Virginia  
Department of Environmental Protection  
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Leslie N. & Gloria J. Smith Operator Well No.: Smith A-1/A-2

LOCATION: Elevation: 2404' Quadrangle: Leadmine 7.5'

District: Saint George County: Tucker  
Latitude: 13400 Feet South of 39 Deg. 15 Min. 0 Sec.  
Longitude 1600 Feet West of -79 Deg. 35 Min. 0 Sec.

Company: MegaEnergy Operating, Inc.

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: <u>9085 E. Mineral Cir, Ste 270</u>	<u>26" csg</u>	<u>22'</u>	<u>22'</u>	<u>10 sxs</u>
<u>Englewood, CO 80112</u>	<u>20" H40 csg</u>	<u>163'</u>	<u>163'</u>	<u>80 sxs</u>
Agent: <u>Paul Smith</u>	<u>13-3/8" J55</u>	<u>1232'</u>	<u>1232'</u>	<u>935 sxs</u>
Inspector: <u>Craig Duckworth</u>	<u>9-5/8 J55 &amp;</u>	<u>5794'</u>	<u>5794'</u>	<u>405 sxs</u>
Date Permit Issued: <u>5-31-2005</u>	<u>N80</u>			
Date Well Work Commenced: <u>5-18-2005</u>	<u>7" P-110</u>	<u>7550'</u>	<u>7550'</u>	<u>290 sxs</u>
Date Well Work Completed: <u>6-9-2005</u>	<u>4-1/2" L80</u>	<u>Liner</u>	<u>1823'</u>	<u>105 sxs</u>
Verbal Plugging: <u>N/A</u>	<u>(A-2 lat)</u>			
Date Permission granted on: <u>N/A</u>	<u>2-3/8" L80</u>	<u>Tubing</u>	<u>7304'</u>	
Rig: <u>Key Energy service unit</u>				
Total Depth (feet): <u>A-1: 7550 / A-2: 7750</u>				
Fresh Water Depth (ft.): <u>277</u>				
Salt Water Depth (ft.): <u>N/A</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): _____				

OPEN FLOW DATA

Producing formation Tuscarora Pay zone depth (ft) 7325-7352' (A-1)  
Gas: Initial open flow 3,000 MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow no flow MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests N/A Hours  
Static rock Pressure 100 psig (surface pressure) after N/A Hours

Second producing formation Tuscarora Pay zone depth (ft) 7684-7750' (A-2)  
Gas: Initial open flow 10,000 MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 1,300 MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests N/A Hours  
Static rock Pressure 2,250 psig (surface pressure) after \_\_\_\_\_ Hours

Received

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: \_\_\_\_\_  
By: J. Scott Hornafius  
Date: September 27, 2005

Office of Oil and Gas  
WV Dept. of Environmental Protection

08/12/2016



# Smith A-1 & A-2: 47-093-0095

**Location:**  
 Township: Saint George  
 County: Tucker  
 Quadrangle: Leadmine

**Elevation**    **GL: 2404'**  
                   **KB: 2419'**

**Spud date:**            7-9-2003  
**Drilling complete:** 8-25-2003

**A-1 Straight Hole Formation Tops:**

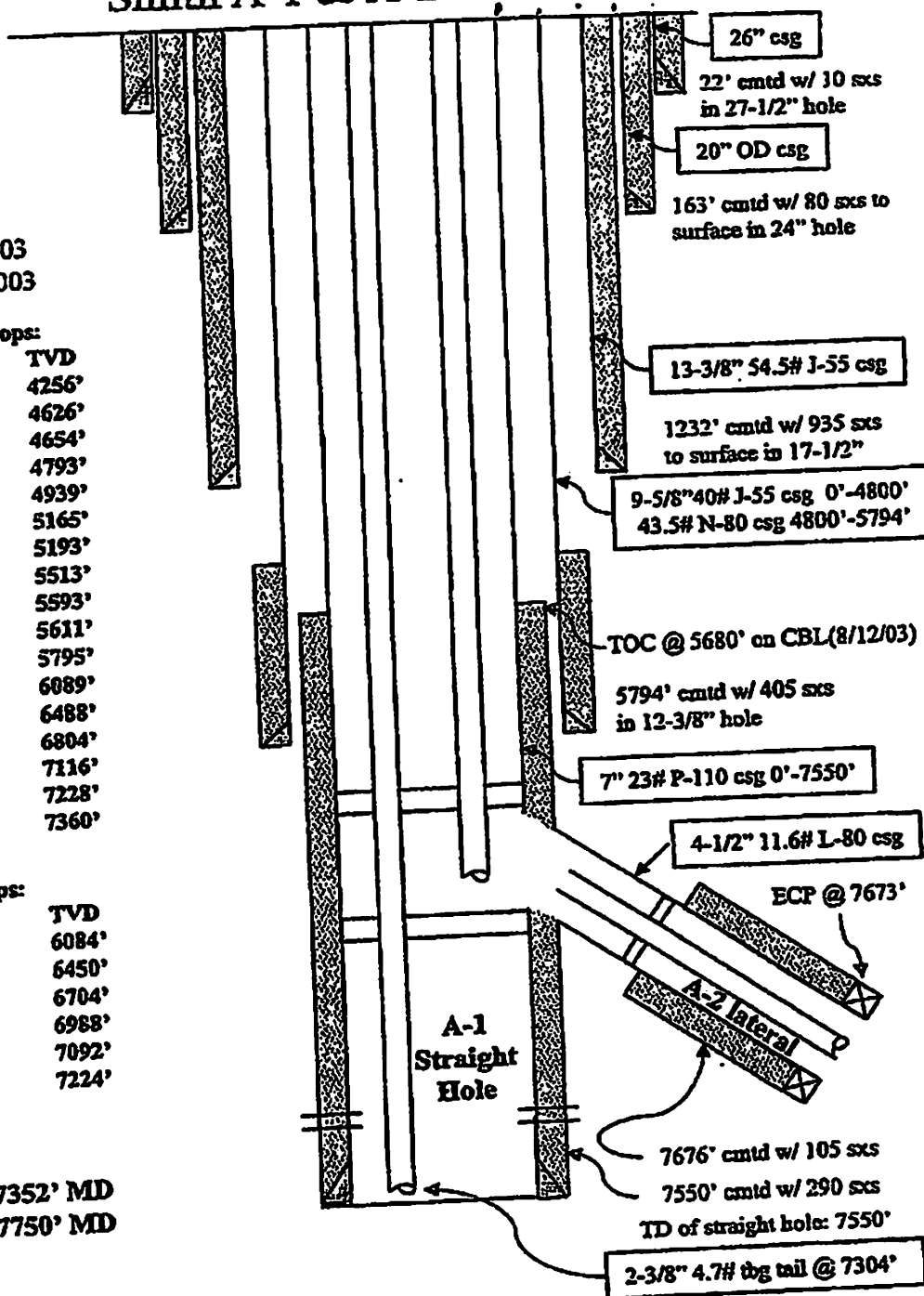
	MD	TVD
T/Tully:	4266'	4256'
T/Onondaga:	4636'	4626'
T/Huntersville:	4664'	4654'
T/Oriokany:	4804'	4793'
T/Helderberg:	4950'	4939'
T/Mandata:	5176'	5165'
T/Corriganville:	5204'	5193'
T/Tonoloway:	5524'	5513'
T/Salt:	5604'	5593'
B/Salt:	5622'	5611'
T/Wills Creek:	5806'	5795'
T/Lockport:	6100'	6089'
T/Williamsport:	6500'	6488'
T/Rose Hill:	6816'	6804'
T/Clinton:	7128'	7116'
T/Medlnia:	7240'	7228'
T/Tuscarora:	7372'	7360'

**A-2 Sidetrack Formation Tops:**

	MD	TVD
T/Lockport:	6100'	6084'
T/Williamsport:	6582'	6450'
T/Rose Hill:	6944'	6704'
T/Clinton:	7350'	6988'
T/Medlnia:	7500'	7092'
T/Tuscarora:	7680'	7224'

**Completions**

A-1: Perforated 7325-7352' MD  
 A-2: Open-Hole 7684-7750' MD



**RECEIVED**  
 Office of Oil & Gas

MAY 26 2005

WV Department of  
 Environmental Protection