



west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, November 14, 2018
WELL WORK PLUGGING PERMIT
Vertical Plugging

ARSENAL RESOURCES LLC
6031 WALLACE ROAD EXTENSION
SUITE 603
WEXFORD, PA 15090

Re: Permit approval for WALDMAN 4
47-001-03013-00-00

This well work permit 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 any additional specific 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. Please be advised that form WR-38, Affidavit of Plugging and Filling Well, is to be submitted to this office within 90 days of 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.

Per 35 CSR 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- 0450.

James A. Martin
Chief

Operator's Well Number: WALDMAN 4
Farm Name: SMITH, JOANNE V.
U.S. WELL NUMBER: 47-001-03013-00-00
Vertical Plugging
Date Issued: 11/14/2018

I

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.

CONDITIONS

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 21, 2018 **11/16/2018**
2) Operator's Well No. Waldman #4
3) API Well No. 47-001-03013

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 ___ / Gas **X** ___ / Liquid injection ___ / Waste disposal ___ /
(If "Gas, Production ___ or Underground storage ___) Deep ___ / Shallow ___

5) Location: Elevation 1370.67' Watershed Bartlett Run
District Pleasant County Barbour Quadrangle Brownnton

6) Well Operator: Arsenal Resources 7) Designated Agent William Veigel
Address 6031 WALLACE RD. EXT STE 300 Address 65 PROFESSIONAL PLACE STE 200
WEXFORD, PA 15090 BRIDGEPORT, WV 26330

8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name Kenneth Greynolds Name Patchwork Oil & Gas, LLC
Address 613 Broad Run Road Address PO Box 168
Jane Lew WV 26378 Davisville, WV 26142

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

Work order attached.

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Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector *Kenneth Greynolds* Date 10-3-18

Work Order Attachment

47-001-03013

Waldman #4H

Run Bond log when necessary to find cement top. Gel spacers in between all cement plugs.

1. Prepare plugging permit application.
2. Certify to surface and coal owners as necessary.
3. Certify and/or email to designated State inspector for signature.
4. Once all signatures are obtained, copy for our records and certify at the state level for approval.
5. Receive plugging permit good for 2 years.
6. Notify the designated State inspector 24 hours prior to commencing operations.
7. Move rig and equipment to location.
8. Verify total depth of 7883'.
9. Attempt to clean out well bore, pull rods and tubing, if necessary.
10. Run gel
11. Run tubing to 50' below the bottom of the first set of perforations (7806'-7826' & 7720'-7740') and 50' above the second set of perforations. Set bottom plug with Class A cement with no more than 3% CaCl₂ and no other additives from 7670' to TD'. (7670' - 7976')
12. Pull tubing back, wait for cement to set.
13. Run in and tag plug, add additional cement if needed.
14. Run 6% Bentonite gel
15. Run bond log and shoot casing at free point.
16. Cut and place the second plug through the 5.5" (minimum 100') across the casing with Class A cement with no more than 3% CaCl₂ and no other additives.
17. Pull 5.5" to 50' below the bottom of the 8 5/8 set third plug with Class A cement with no more than 3% CaCl₂ and no other additives covering the 8 5/8 casing shoe and elevation from 1309' to 1422'.

IGA. & IGB

BEWSON HAD A GAS SHOW @ 4522' - 4568'. SET A 100'
CLASS A CEMENT PLUG FROM 4550' - 4450'.

GARTZ HAD A SHOW OF GAS FROM 2066' - 2076'. SET A 100'
CLASS A CEMENT PLUG FROM 2070' - 1970'.

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JMM

18. Pull 5.5" back to 100 ' and place a surface plug with Class A cement with no more than 3% CaCl₂ and no other additives covering the coal depth and fresh water zones and remove plugging string.
19. Set 3' high x 7" casing with concrete; add API for identification.
20. RDMO
21. Reclaim location.
22. Prepare WR-34 & WR-35 for permit release

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47-001-03013 11/16/2018

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 10/16/2012
API #: 47-001-03013

Farm name: Smith, Joanne V. Operator Well No.: Waldman 4

LOCATION: Elevation: 1370' GL / 1380' KB Quadrangle: Brownston 7.5

District: Pleasant County: Barbour
Latitude: 6,580 Feet South of 39 Deg. 15 Min. 00 Sec.
Longitude 1,240 Feet West of 80 Deg. 10 Min. 00 Sec.

Company: Petroleum Development Corporation

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>120 Genesis Boulevard</u> <u>Bridgeport, WV 26330</u>	<u>11 3/4"</u>	<u>72'</u>	<u>72'</u>	<u>Sanded In</u>
Agent: <u>Bob Williamson</u>	<u>8 7/8"</u>	<u>1354'</u>	<u>1354'</u>	<u>448</u>
Inspector: <u>Bryan Harris</u>	<u>5 1/2"</u>	<u>7898'</u>	<u>7898'</u>	<u>297</u>
Date Permit Issued: <u>01/30/2009</u>				
Date Well Work Commenced: <u>07/15/2009</u>	<u>2 3/8"</u>	<u>7709'</u>	<u>7709'</u>	<u>---</u>
Date Well Work Completed: <u>11/18/2009</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft.): <u>7908'</u>				
Total Measured Depth (ft.): <u>7908'</u>				
Fresh Water Depth (ft.): <u>31', 111'</u>				
Salt Water Depth (ft.): <u>None Reported</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>142', 433', 519'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7720'
Gas: Initial open flow NA MCF/d Oil: Initial open flow Bbl/d
Final open flow 200 MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure 2300 psig (surface pressure) after 24 Hours

Second producing formation Pay zone depth (ft)
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
Final open flow MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.


Signature

10/16/2012
Date

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Were core samples taken? Yes _____ No **XX**

Were cuttings caught during drilling? Yes **XX** No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Mud Log, Weatherford Triple Combo, Compact Monopole/Cross Dipole Seisblance, Protechnics SpectraScan, Hotwell GR/CCL, Weatherford GR/CCL/CBL

NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

8/21/2009: MIRU Hotwell & run GR/CCL log from 7876' - 7240'. Perf from 7806-7826 (80 holes) & from 7720-7740 (80 holes).

10/1/2009 60 bbls of fluid was pumped at a rate of 15 bpm and an ISIP of 2389 was obtained. 5 minutes later, the stimulation was continued with starting pressure at 2340 psi.

The pressure "rolled over" at 4829 psi at a rate of 35 bpm. The rate was increased to 69 bpm with a treating pressure of 5032 psi. The pad was pumped as designed. Introduction of sand began with

100 mesh at 0.5 ppa. The rate was 69 bpm at a TP of 4910. The 100 mesh was continued as designed with increases to concentration as follows: 0.5, 0.75, 1, 1.25, 1.5, 2, 2.5. This sequence was performed

twice giving a total of 1021 sacks of 100 mesh. Once the 100 mesh was completed, 40/70 mesh sand was utilized. The 40/70 began to be pumped at a rate of 70 bpm and a TP of 4715 psi.

The concentration was as follows: 1, 1.5, 2, 2.5, 3, 4. The total 40/70 proppant pumped was 1980 sacks. The maximum pressure recorded was 5329 psi near the flush.

Plug Back Details Including Plug Type and Depth(s): The maximum rate was 71 bpm. The average treating pressure was 4830 psi and the

average rate was 69 bpm. The ISIP after stimulation was 4070 psi, 5 minute equal to 3366 psi, 10 minutes equal to 3249 psi, and the 15 minute equal to 3093 psi.

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
L Lime	1554	1570
B Lime	1594	1782
Gantz	2066	2076 Show Gas
Fifty Foot	2134	2202
Gordon Stray	2270	2279
4th Sand	2454	2532
5th Sand	2572	2616
Benson	4522	4568 Show Gas
Sycamore	6878	6914
Tully	7545	7597
Marcellus	7750	7842 Show Gas
Tioga Ash	7842	7848
Onondaga LS	7848	7852
Huntersville CH	7852	7990

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11/16/2018

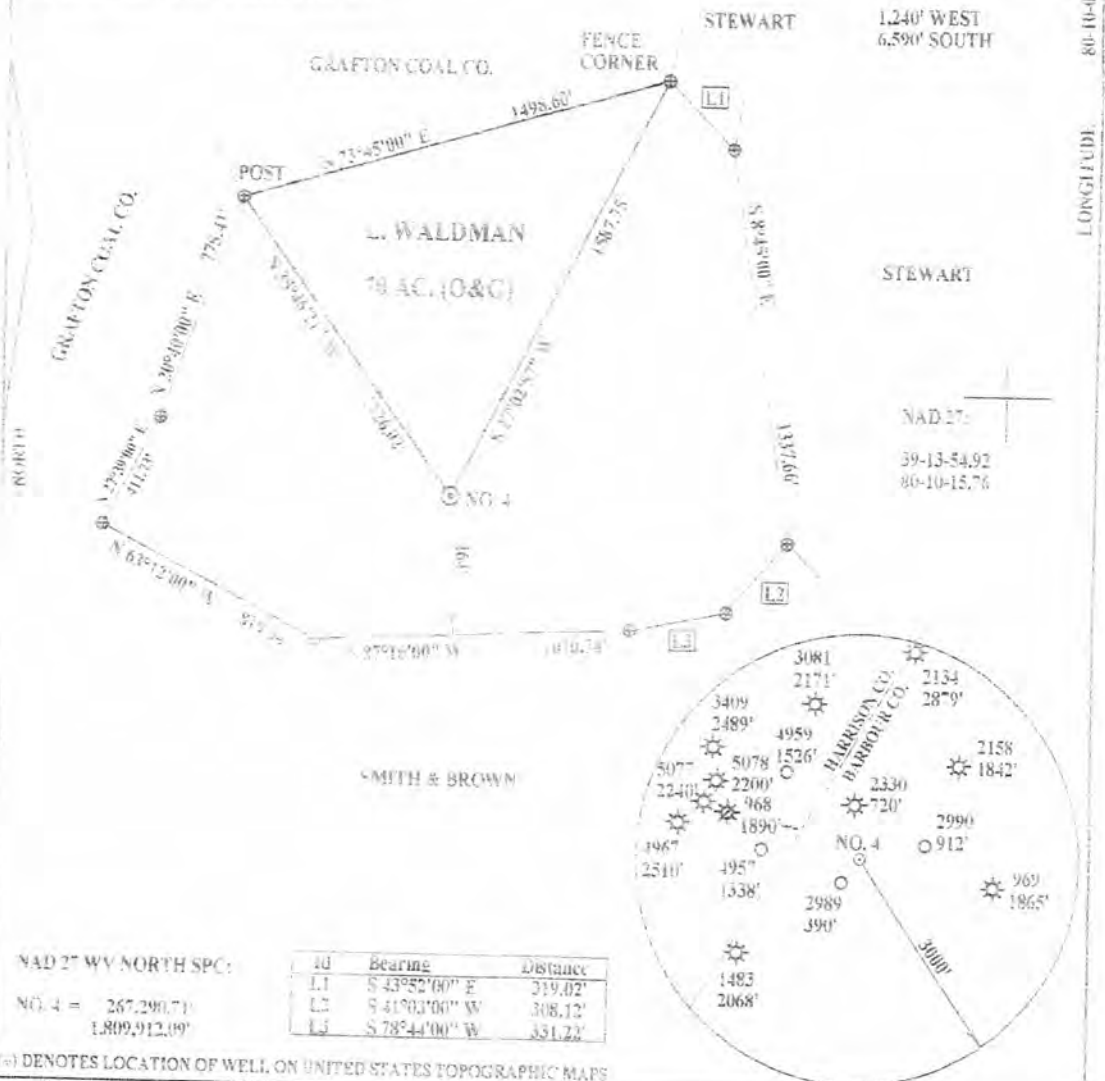
WELL REFERENCES:

LATITUDE 39-15-40

70-30W, 168.00' TO 3" FORKED CHERRY
N35-30W, 191.00' TO 3" FORKED CHERRY

SCALED COOR:

1.240' WEST
6.590' SOUTH



NAD 27 WV NORTH SPC:

NO. 4 = 267,290.71
1,809,912.09

ID	Bearing	Distance
L1	S 43°52'00" E	319.02'
L2	S 41°03'00" W	308.12'
L3	S 78°44'00" W	331.23'

(L) DENOTES LOCATION OF WELL, ON UNITED STATES TOPOGRAPHIC MAPS

FILE NUMBER: _____
 DRAWING NUMBER: PDCWALOMAN4.PCS
 SCALE: 1" = 500'
 MINIMUM DEGREE OF ACCURACY: SUBMETER
 PROVEN SOURCE OF ELEVATION: DGPS SURVEY
 SUBMETER SYSTEM

I 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 ENERGY.

(SIGNED) *[Signature]*
 STEPHEN D. LOSH, P.S. #674

DATE: NOVEMBER 18, 2008
 OPERATORS WELL NO. WALDMAN NO. 4
 PERMITS WELL NO. 47-001-03013
 STATE COUNTY PERMIT

WELL TYPE: _____
 DEPTH: _____
 PRODUCTION: _____
 WATER-SHED: BARTLETT RUN
 DISTRICT: PLEASANT COUNTY: BARBOUR
 OPERATOR: BROWNTON LEASE NUMBER: 399600
 SURVEY OWNER: JOANNE V. SMITH & GARY MICHAEL BROWN, JR. ACREAGE: 70.00
 OIL & GAS ROYALTY OWNER: MICHAEL STEIN, TRUSTEE FOR LINDA WALDMAN LEASE ACREAGE: 70.00
 PROPOSED WORK DRILL: CONDUCT DRILL DEEPER REGRIND OR STIM LATE PLUG OFF OLD FORMATION
 REGRIND NEW FORMATION OTHER (PLEASE SPECIFY): _____
 PLUG & ABANDON CLEAN OUT & REPLUG _____
 ESTIMATED DEPTH: 7,500'
 PROJECT DIRECTOR: *Marcus H. us* DESIGNATED AGENT: ALAN SMITH
 ADDRESS: 120 GENESIS BLVD., BRIDGEPORT, WV 26330 ADDRESS: 120 GENESIS BLVD., BRIDGEPORT, WV 26330

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WW-4A
Revised 6-07

1) Date: September 21st, 2018
2) Operator's Well Number
Waldman #4
3) API Well No.: 47 - 001 - 03013

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

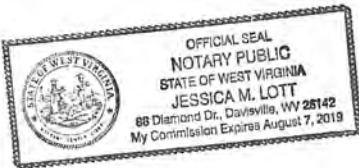
4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Joanne V. Smith</u>	Name _____
Address <u>2371 E Veterans Memorial Hwy</u>	Address _____
<u>Flemington, WV 26347</u>	
(b) Name <u>Gary M. Brown Jr.</u>	(b) Coal Owner(s) with Declaration
Address <u>2371 E. Veterans Memorial Hwy</u>	Name <u>Consolidated Coal Co.</u>
<u>Flemington, WV 26347</u>	Address <u>1800 Washington Rd.</u>
	<u>Pittsburgh, PA 15241</u>
(c) Name _____	Name <u>Coalquest Development LLC</u>
Address _____	Address <u>300 Corporation Dr.</u>
	<u>Scott Depot, WV 25560</u>
6) Inspector <u>Kenneth Greynolds</u>	(c) Coal Lessee with Declaration
Address <u>613 Broad Run Rd.</u>	Name _____
<u>Jane Lew, WV 26378</u>	Address _____
Telephone <u>1-304-206-6613</u>	

TO THE PERSONS 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 its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you 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 Arsenal Resources
 By: [Signature] William Veigel
 Its: Designated Agent
 Address 65 Professional Place Ste. 200
Bridgeport, WV 26330
 Telephone 724-940-1117

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Subscribed and sworn before me this 24 day of September
[Signature] Notary Public

My Commission Expires Aug. 7, 2019

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a 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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WW-9
(5/16)

API Number 47 - 001 - 03013
Operator's Well No. Waldman #4

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Arsenal Resources OP Code 494519412
Watershed (HUC 10) Bartlett Run Quadrangle Brownton

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: _____

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Vac truck will be used for any fluids, no pit will be used. Fluids will be disposed of properly. OFF-SITE. gmn)

Will closed loop system be used? If so, describe: n/a

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

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

Additives to be used in drilling medium? n/a

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. n/a

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

-Landfill or offsite name/permit number? n/a

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, 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.

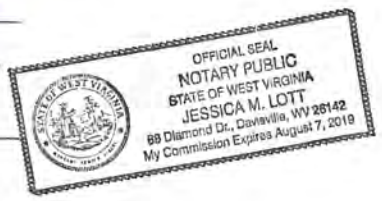
Company Official Signature [Signature]
Company Official (Typed Name) William Veigel
Company Official Title Designated Agent, Sr. Director of Production

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Subscribed and sworn before me this 24 day of September, 20 18

[Signature] Notary Public

My commission expires August 7, 2019



11/16/2018

Form WW-9

Operator's Well No. Waldman #4

Proposed Revegetation Treatment: Acres Disturbed ONE +/- Prevegetation pH 5.5

Lime One-Two Tons/acre or to correct to pH 6.5

Fertilizer type Agland 5-10-10

Fertilizer amount 500 lbs/acre

Mulch Straw Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre

Seed Type lbs/acre

Pasture mix 200

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

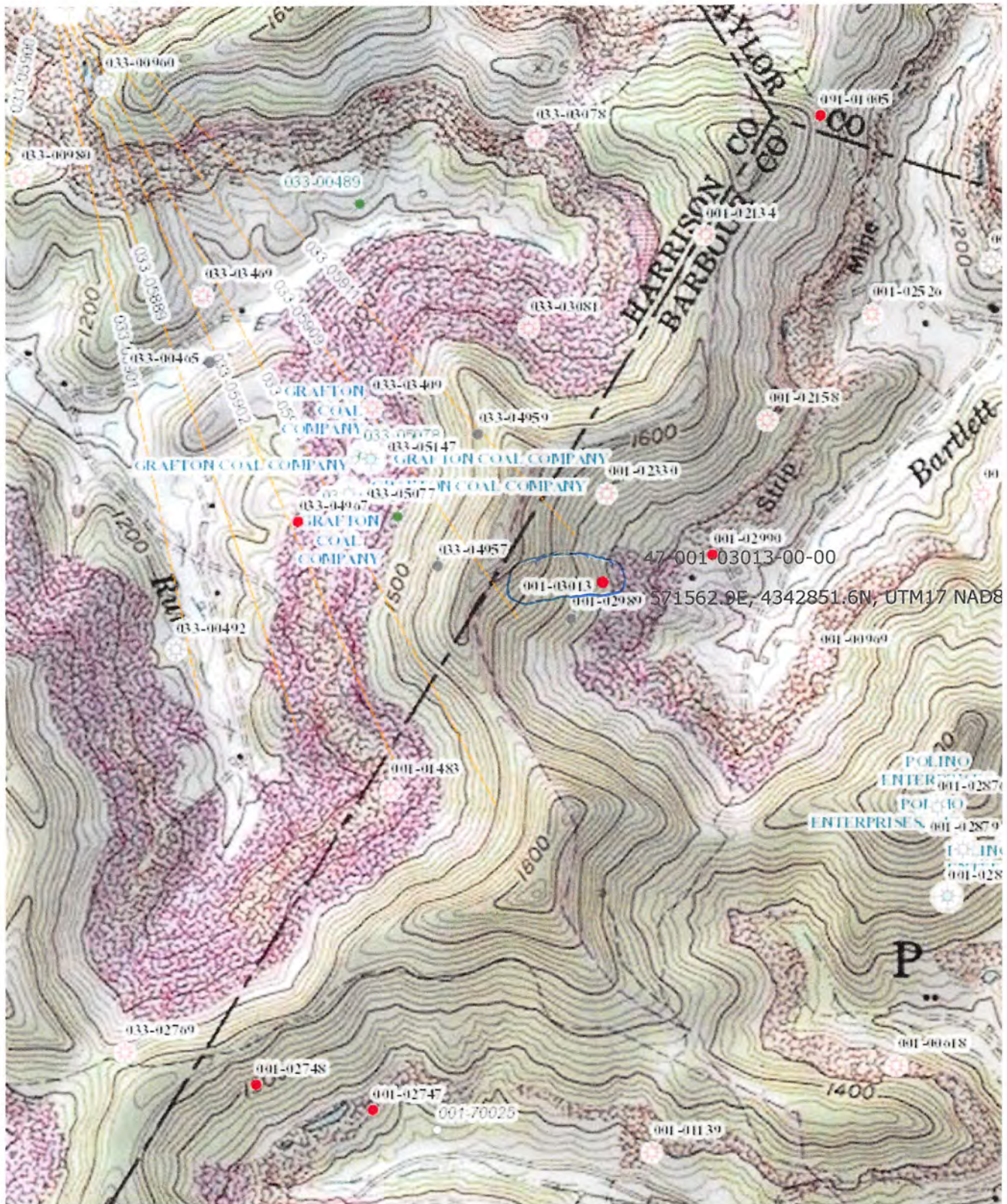
Plan Approved by: [Signature]

Comments: RECLAIM, RESEED AND MULCH ASAP

Title OIL & GAS INSPECTOR Date: 10-3-18

Field Reviewed? Yes No

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WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 47-001-03013 WELL NO.: Waldman #4

FARM NAME: Smith, Joanne V.

RESPONSIBLE PARTY NAME: Arsenal Resources

COUNTY: Barbour DISTRICT: Pleasant

QUADRANGLE: Brownton

SURFACE OWNER: Joann V. Smith & Gary M. Brown Jr.

ROYALTY OWNER: See list attached.

UTM GPS NORTHING: 4342851.6

UTM GPS EASTING: 571562.9 GPS ELEVATION: 1370.67'

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and 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 : Post Processed Differential

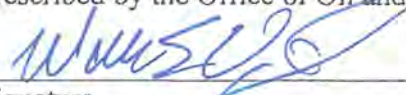
Real-Time Differential

Mapping Grade GPS : Post Processed Differential

Real-Time Differential

4. Letter size copy of the topography map showing the well location.

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.


Signature

Designated Agent
Title

9-24-18
Date

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