



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

February 18, 2014

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-8101328, issued to GEOMET OPERATING COMPANY 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: SOUTHERN DICKINSON #4 (SD-4

Farm Name: SOUTHERN LAND COMPANY

API Well Number: 47-8101328

Permit Type: Plugging

Date Issued: 02/18/2014

Promoting a healthy environment.

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.

8101328P

WW-4B
Rev. 2/01

1) Date November 15th, 2013
2) Operator's
Well No. SD-4
3) API Well No. 47-081 - 1328C

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 X or Underground storage ___) Deep ___ / Shallow X

5) Location: Elevation 2303.69 Watershed Harper Branch SandLick Creek
District Clear Fork County Raleigh Quadrangle Eccles

6) Well Operator GeoMet, Birmingham 7) Designated Agent Eric Vance
Address 5336 Stadium Trace Pkwy, Ste 206 Address 149 Fire Trail Drive
Birmingham, AL 35244 Daniels, WV 25832

8) Oil and Gas Inspector to be notified Name Gary Kennedy
Address Box 268
Nimitz WV, 25978
9) Plugging Contractor Name Universal Well Services
Address 5252 RT 1428
Allen, KY 41601

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

GeoMet proposes that the borehole be cleaned up to the TD of 1245' or lowest achievable point below the bottom coal zone.
Once the hole is cleaned to bottom, a Class A cement plug with 3% or less CaCl will be set from TD to 921'(200' above the second coal seam).
This cement plug will be allowed to set for a minimum of 4 hours and will then be tagged to make sure that it is at least 1021' (100' above the second coal seam).
If it is not, another plug will be spotted from the tag depth to 921'.
This plug will be tagged after at least 4 hours and the process continued until a cement plug is in place to at least 1021'
Once the lower section is cemented, a cement plug will be set from the top of the lower plug to the surface.
An expanding cement will be used, consisting of 50/50 Class A PozMix with 10% Salt & 2% Bentonite gel. A permanent marker will be installed and the site reclaimed

6" Cell Between Plugs

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

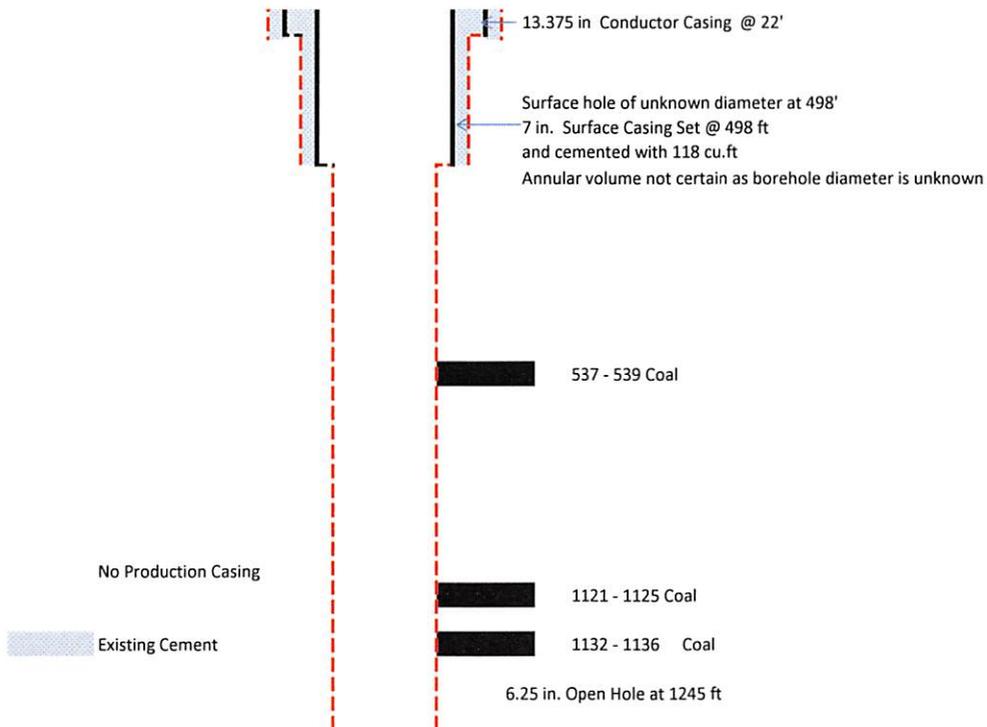
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Work order approved by inspector Gary Kennedy Date 12/27/13

WV Department of
Environmental Protection

SD-4 Plug and Abandon Schematic

API# 47-081-01328-C



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WV Department of
Environmental Protection

Beckly

Beckly

GEOMET WELL PROFILE

Well Number ~~000000~~ 5D-4 Date of Job 1-26-12

Reason for Job _____ Completion Work Over _____ Check Pit Preventative _____

Conditions Found (sand, coal fines, scale, etc.) Pumps stuck together

Rig number and operator Largo Rig # 2 Josh Dotson

PRODUCTION CASING 4 1/2 OD Set @ _____

PLUG DETAIL

@ _____
@ _____
@ _____
@ _____
@ _____
@ _____
@ _____
@ _____
@ _____
@ _____

TUBING DETAIL

0 Subs
42 Joints
0 Barrel
1 Seat Nipple
0 Tail Joint
43 Total
~~1183.35~~ EOT
1183.35

Size 2 3/8 Thread Encl

1182.40

.95

1183.35

PUMP DESCRIPTION (OUT)

1 1/2" Insert _____ Other _____
 1 25/32" Split Ring _____ PAP

PERFORATION DETAIL

@ SPF
@ SPF

PUMP DESCRIPTION (IN)

1 1/2" Insert _____ Other _____
 1 25/32" Split Ring _____ PAP

Comments Pump # QGMV-086

RODS Size 5/8 # Rods 46 Ponies (2.6)(1.4)(1.4 on pump)
RODS Size _____ # Rods _____ Ponies _____

REMARKS 22ft of steel Mud Anchor on top of hole.
Put new polish rod on.

TD ?
PBDT 1204
Bottom Perf _____

SCALE DETAIL
Joints 0
Thickness _____
Rods 0

LAST SERVICE DATE ?

SERVICE FREQUENCY _____

Signature ME DB

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Office of Oil and Gas

JAN 03 2012

WV Department of Environmental Protection

8101328P

WR-35
Rev (5-01)

DATE: March 11, 2005
API #: 47-081-01328C

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

Well Operator's Report of Well Work

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Office of Oil & Gas
MAR 15 2005
WV Department of
Environmental Protection

Farm name: Southern Land Company Operator Well No.: SD-4
LOCATION: Elevation: 2303.63 Quadrangle: Eccles
District: Clear Fork County: Raleigh
Latitude: 0 Feet South of 37 Deg. 48 Min. 58.63 Sec.
Longitude 0 Feet West of 81 Deg. 17 Min. 05.14 Sec.

Company: AMVEST Oil and Gas, Inc.

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: <u>One Bear's Head Pointe</u>	<u>13 3/8"</u>	<u>22'</u>	<u>22'</u>	<u>N/A</u>
<u>Charlottesville, Virginia 22905</u>	<u>7"</u>	<u>498'</u>	<u>498'</u>	<u>118</u>
Agent: <u>Anthony A. Wilhite</u>				
Inspector: <u>Richard Campbell</u>				
Date Permit Issued: <u>June 10, 2004</u>				
Date Well Work Commenced: <u>9/21/2004</u>				
Date Well Work Completed: <u>9/23/2004</u>				
Verbal Logging:				
Date Permission granted on:				
Rotary x Cable <u>Rig Union 839</u>				
Total Depth (feet): <u>1245</u>				
Fresh Water Depth (ft.): <u>N/A</u>				
Salt Water Depth (ft.): <u>N/A</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>523-524, 537-539, 1121-1125</u> <u>1132-1136</u>				

OPEN FLOW DATA

Producing formation Pocahontas #2 and #3 Seams Pay zone depth (ft) 1121-1136
Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
Final open flow 60 MCF/d Final open flow N/A Bbl/d
Time of open flow between initial and final tests N/A Hours
Static rock Pressure 220 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

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: [Signature]
By: John F. Savelle
Date: 3/14/05

Eccles 6

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Stx
72/27/13
Office of Oil and Gas

JAN 09 2011

WV Department of
Environmental Protection

8101328A

Well: SD-4 01328A
 Permit Number: 47-081-04328A
 District: Clear Fork
 County: Raleigh

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

Date: 9/23/2004

Well encountered a show of gas in the Pocahontas #2 and #3 seams and has been completed open hole without stimulation.

Item Planned Actual Treatment Remarks

Formation	Top	Bottom	Remarks
Clay	7	18	
Sand	18	183	
Sand and Shale	183	217	
Sand	217	335	
Sand and Shale	335	404	
Sand	404	475	
Shale	475	523	
Coal	523	524	
Shale	524	537	
Coal	537	539	
Shale	539	580	
Sand and Shale	580	622	
Salt Sand	622	720	
Shale	720	725	
Sand and Shale	725	985	
Shale	985	1038	
Salt Sand	1038	1076	
Shale	1076	1121	
Coal	1121	1125	show gas
Shale	1125	1132	
Coal	1132	1136	show gas
Sand and Shale	1136	1193	
Red Shale	1193		

LESS THAN 20"

Handwritten signature
12/27/13

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 Office of Oil and Gas
 JAN 02 2014
 WV Department of
 Environmental Protection

8101328A

WW-4A
Revised 6-07

1) Date: 11/15/13
2) Operator's Well Number
SD-4

3) API Well No.: 47 - 081 - 1328C

**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>Southern Land Company LP</u> ✓	Name <u>Black King Mine Development</u> ✓
Address <u>300 Capitol Street Suite 1401</u>	Address <u>PO Box 271 300 Running Right Way</u>
<u>Charleston, WV 25301</u>	<u>Julian WV 25529</u>
(b) Name <u>Daniel McMillion</u> ✓	(b) Coal Owner(s) with Declaration
Address <u>300 Arlington Road</u>	Name <u>Southern Land Company LP</u> ✓
<u>PO Box 214 Harper WV 258510214</u>	Address <u>300 Capitol Street Suite 1401</u>
(c) Name _____	<u>Charleston, WV 25301</u>
Address _____	Name _____
_____	Address _____
6) Inspector <u>Gary Kennedy</u> ✓	(c) Coal Lessee with Declaration
Address <u>PO Box 268 Nimitz Wv 25978</u>	Name <u>Black King Mine Development</u> ✓
_____	Address <u>Po Box 271 300 Running Right Way</u>
Telephone <u>304-382-8402</u>	<u>Julian WV 25529</u>

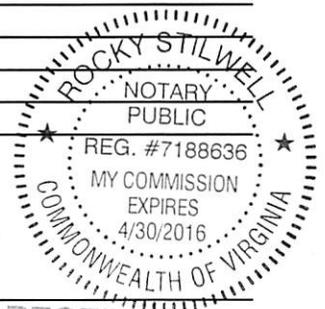
TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (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 reverses 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 GeoMet Operating Company
 By: Jeff Cooper
 Its: Production Manager
 Address GeoMet Operating Co. Inc
5336 Stadium Trace Pkwy, 206 Birmingham, AL 35244
 Telephone _____



Subscribed and sworn before me this 17th day of December
Rocky Stilwell Notary Public
 My Commission Expires 4/30/2016

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 depprivacyoffier@wv.gov.

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 WV Department of
 Environmental Protection

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Restricted Delivery Fee (Endorsement Required)	\$0.00	Postmark Here
Total Postage & Fees	\$ 17.17	12/17/2013



Sent To: **BACK KING Mine Development** ✓
 Street, Apt. No.: **PO Box 271 Beckoning Ridge Way**
 or PO Box No.:
 City, State, ZIP+4: **SULLY WV 25529**

PS Form 3800, August 2006 See Reverse for Instructions

7012 2210 0002 5521 8512

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Restricted Delivery Fee (Endorsement Required)	\$0.00	Postmark Here
Total Postage & Fees	\$ 17.17	12/17/2013



Sent To: **Sutphen Land Company** ✓
 Street, Apt. No.: **306 Capitol Street Suite 1401**
 or PO Box No.:
 City, State, ZIP+4: **Charleston WV 25301**

PS Form 3800, August 2006 See Reverse for Instructions

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Total Postage & Fees	\$ 17.17	12/17/2013



Sent To: **Daniel McMillion** ✓
 Street, Apt. No.: **PO Box 214 300 Arlington Road**
 or PO Box No.:
 City, State, ZIP+4: **HAPER WV 258510214**

PS Form 3800, August 2006 See Reverse for Instructions

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WV Department of
Environmental Protection

8101328f

WW-9
Rev. 5/08

Page _____ of _____
API Number 47 - 081 - 01328-C
Operator's Well No. SD-4

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 GeoMet Operating Company, Inc. OP Code _____

Watershed Harper Branch Sandlick Creek Quadrangle Eccles

Elevation 2303.63 County Raleigh District Clear Fork

Description of anticipated Pit Waste: Fresh Water, Produced Water, Bentonite, Cement

Will a synthetic liner be used in the pit? Open Top Tank *JK*

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain _____)
- Swabbing
- Plugging

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.

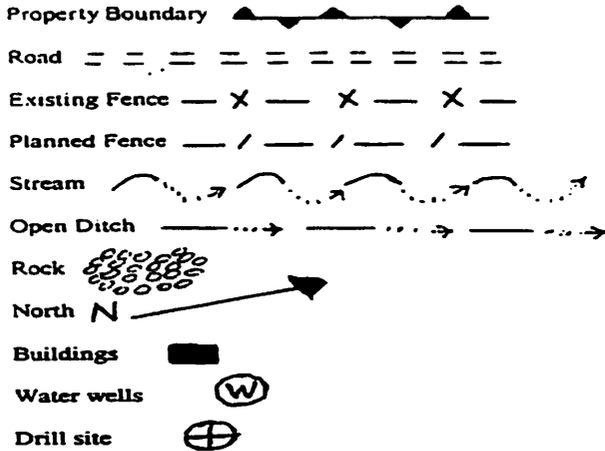
Company Official Signature *Jeff Cooper*
Company Official (Typed Name) Jeff Cooper
Company Official Title Production Manager

Subscribed and sworn before me this 17th day of December, 2013

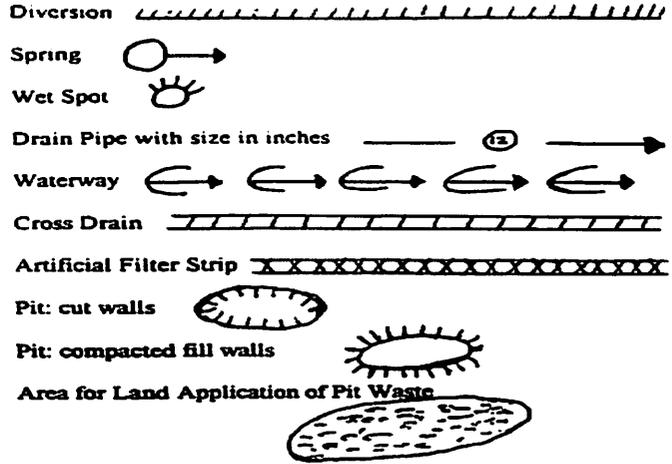
Rocky Stilwell Notary Public

My commission expires 4/30/2016





LEGEND



Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation pH 5-6.5

Lime 2 Tons/acre or to correct to pH 6

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

Mulch Hay/Straw Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue or Orchard grass	40		
Annual Ryegrass	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: _____

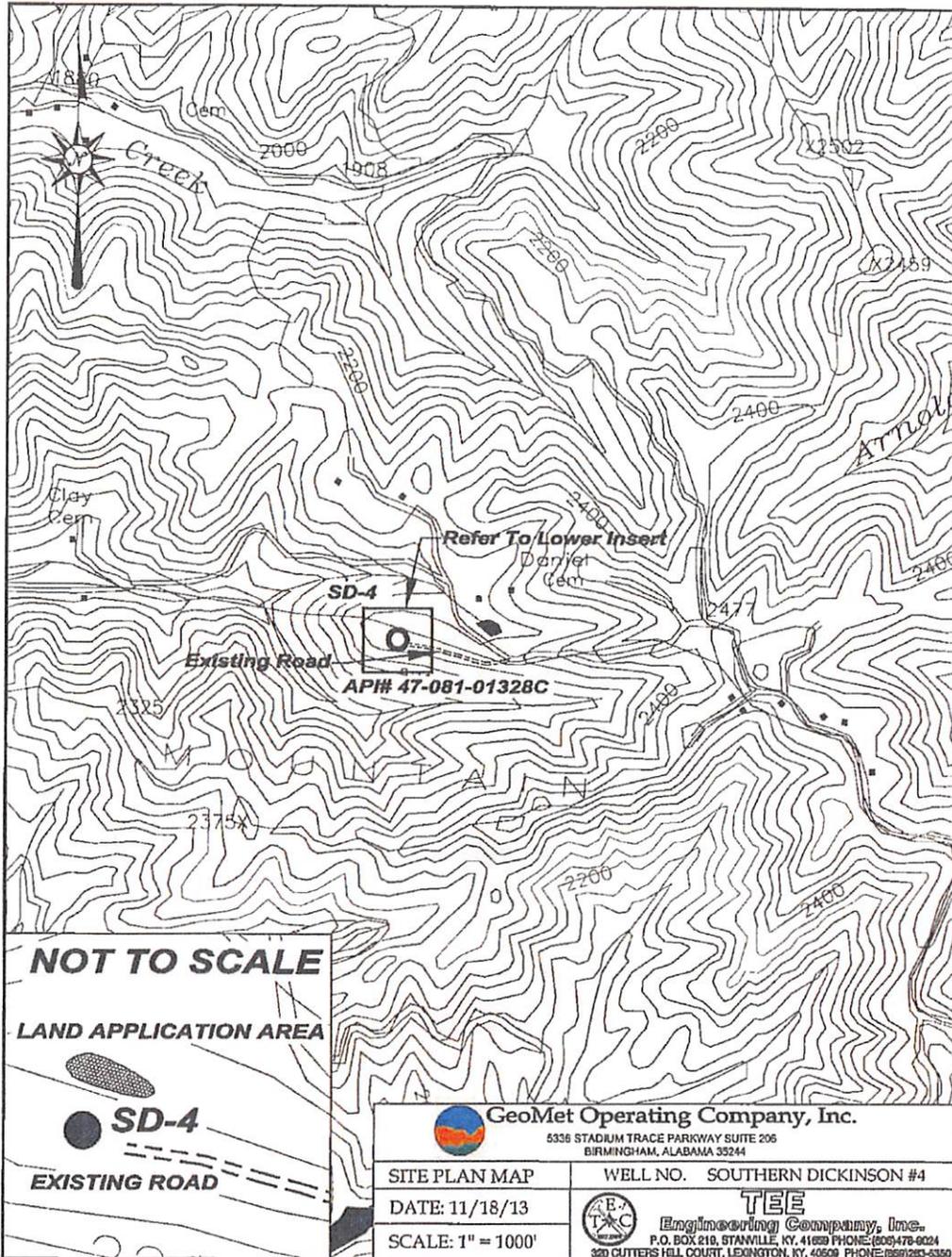
Title: Inspector

Date: 12/27/13

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Field Reviewed? Yes No

JAN 09 2014



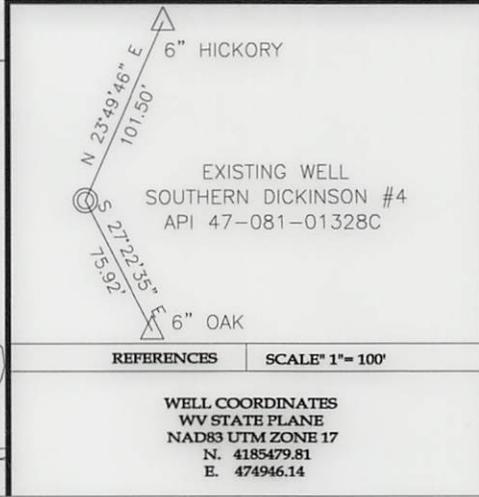
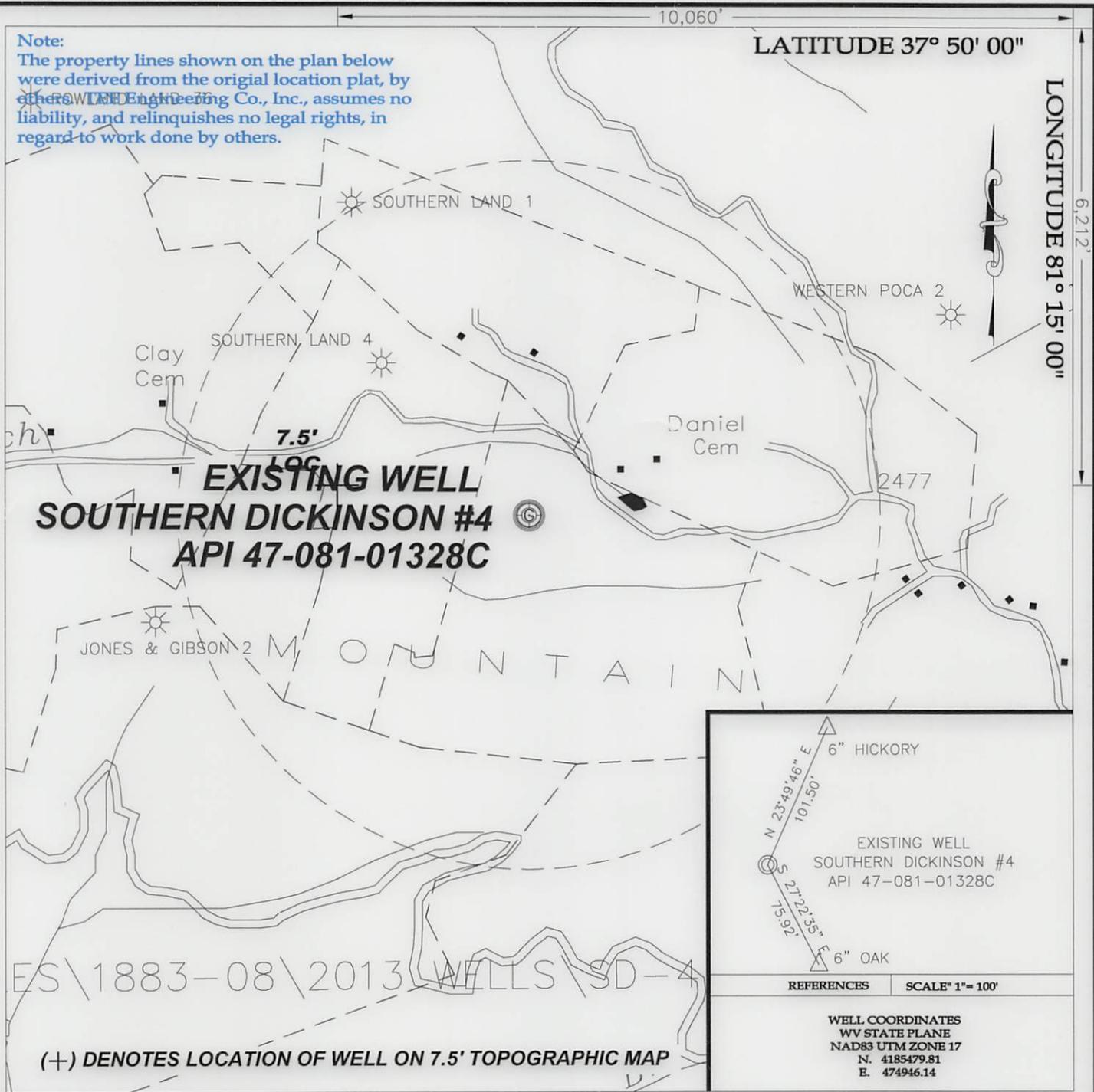
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WV Department of
Environmental Protection

Note:

The property lines shown on the plan below were derived from the original location plat, by others. TEE Engineering Co., Inc., assumes no liability, and relinquishes no legal rights, in regard to work done by others.



ES\1883-08\2013\WELLS\SD-4

(+) DENOTES LOCATION OF WELL ON 7.5' TOPOGRAPHIC MAP



TEE Engineering Company, Inc.
 P.O. BOX 219, STANVILLE, KY. 41659 PHONE: (606)478-9024
 320 CUTTERS HILL COURT, LEXINGTON, KY. 40509 PHONE: (859)263-5350

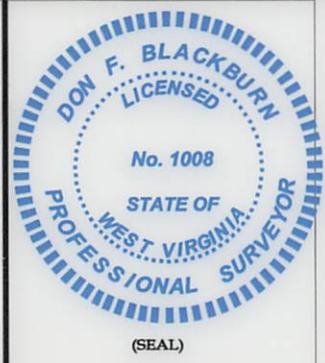
GeoMet Operating Company, Inc.
 Well No. Southern Dickinson #4

FILE NO. 1883-00
 DRAWING NO. SD-4 PLUGGING PLAT
 SCALE: 1" = 1,000'
 MIN. DEGREE OF ACCURACY 1 : 2,500
 PROVEN SOURCE OF ELEVATION
 GPS STATION TEC-1 (ELEV. 2406.60)

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES.

Don F. Blackburn
 (SIGNATURE)

R.P.E. _____ R.P.S. 1008



STATE OF WEST VIRGINIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

DATE NOVEMBER 14, 2013

OPERATOR'S WELL NO. SOUTHERN DICKINSON #4

API WELL NO. 47 - 081 - 01328C P
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION 2,303.74' NORTHING 4185479.81 EASTING 474946.14 ZONE 17 NAD83 UTM
 DISTRICT CLEAR FORK WATER SHED HARPER BRANCH OF SANDLICK CREEK
 QUADRANGLE ECCLES COUNTY RALEIGH

SURFACE OWNER SOUTHERN LAND COMPANY LTD, et al ACREAGE 156.35
 CBM ROYALTY OWNER SOUTHERN LAND COMPANY LTD, et al LEASE ACREAGE 156.35
 LEASE NO. _____

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

PLUG AND ABANDON X CLEAN OUT AND REPLUG _____

TARGET FORMATION POCAHONTAS 2 & 3 ESTIMATED DEPTH 1,350'
 WELL OPERATOR GEOMET OPERATING COMPANY, INC. DESIGNATED AGENT CT CORPORATION SYSTEM
 ADDRESS 5336 STADIUM TRACE PARKWAY SUITE 206 BIRMINGHAM, ALABAMA 35244 ADDRESS 707 VA. STREET EAST CHARLESTON, WV 25301