



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

August 29, 2013

WELL WORK PERMIT
Secondary Recovery Well

This permit, API Well Number: 47-10302654, issued to HG ENERGY, LLC, 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: E. MILLER 7
Farm Name: HALL, PATSY, . ET AL
API Well Number: 47-10302654
Permit Type: Secondary Recovery Well
Date Issued: 08/29/2013

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. 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 § 22-6-20, 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. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. 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.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.

103026545

WW-3B
10/07



1) Date July 11, 2013
2) Operator's Well No. Elizabeth Miller No. 7
3) API Well No. 47 - 103 - 2654
State County Permit
4) UIC Permit No. UIC2R09501AP

STATE OF WEST VIRGINIA
NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

5) WELL TYPE: Liquid Injection X Gas Injection (not storage) Waste Disposal
6) LOCATION: Elevation 1105' Watershed Fluharty Fork of Piney Fork
District Green 05 County Wetzel 103 Quadrangle Pine Grove 7.5' 548
7) WELL OPERATOR: HG Energy, LLC 494497948 8) DESIGNATED AGENT: Mike Kirsch
5260 Dupont Road 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101
9) OIL & GAS INSPECTOR TO BE NOTIFIED: 10) DRILLING CONTRACTOR:
Name Derek Haught Name To be Determined Upon Approval of Permit
Address PO Box 85 Address
Smithville, WV 26178
11) PROPOSED WELL WORK: Drill Drill Deeper Redrill Stimulate
Plug Off Old Formation Perforate New Formation Convert X
Other Physical Change in Well (specify)
12) Geological target formation Gordon Depth 2,917 Ft. (Top) to 2,918 Ft. (Bottom)
13) Estimated depth of completed well (or actual depth of existing well) 3080' Ft.
14) Approximate water strata depths: Fresh 100' Ft. Salt NA Ft.
15) Approximate coal seam depths: 848' - 858' Ft.
16) Is coal being mined in the area? Yes X No
17) Virgin reservoir pressure in target formation: 1,250 psig. Source Estimated
18) Estimated reservoir fracture pressure: 2,650 psig.
19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 BBL Bottom Hole Pressure 2,400 psi
20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES Fresh water, produced water, bactericides
and other chemicals as needed to maintain water quality and improve oil recovery.
21) FILTERS (IF ANY) Cartridge filters and/or coal bed filters
22) SPECIFICATION FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

DmH
7-25-13

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILLUP OR SACKS (CU. FT.)	PACKERS
	Size	Grade	Weight	New	Used	For Drilling	Left in Well		
Conductor									Kinds
Fresh Water	7"	L.S.	17#	X		1062'	1062'	Existing Casing	Tension
Coal									Sizes
Intermediate									2 3/8" x 4 1/2"
Production	4 1/2"	J-55	10.5#	X		3021'	3021'	Existing Casing	Depths Set
Tubing	2 3/8"	J-55	4.6#	X		2800'	2800'		2700'
Liners									Perforations
									Top Bottom

24) APPLICANTS OPERATING RIGHTS were acquired from R. H. Miller
by Deed Lease X Other Contract Dated January 11, 1896
Wetzel County Clerk's Office in Lease Book 53 at Page 245

Received

JUL 30 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

**State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work**

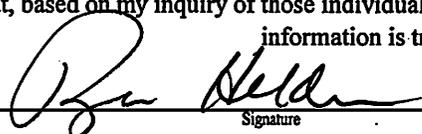
Farm name: HALL, AUSTIN JR. Operator Well No.: ELIZABETH MILLER 7
 LOCATION: Elevation: 1,105' Quadrangle: PINE GROVE 7.5'
 District: GREEN County: WETZEL
 Latitude: 11,920 Feet south of 39 Deg 32 Min 30 Sec.
 Longitude: 9,350 Feet west of 80 Deg 40 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Derek Haught				
Date Permit Issued:	5/26/2011				
Date Well Work Commenced:	8/4/2011				
Date Well Work Completed:	9/1/2011				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		7"	1062'	1062'	270 sks
Total vertical Depth (ft):	3080'				
Total Measured Depth (ft):	3080'				
Fresh Water Depth (ft):	100'	4 1/2"	3021'	3021'	150 sks
Salt Water Depth (ft):	None				
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	848'-858'				
Void(s) encountered (Y/N) depth(s):	NONE				

OPEN FLOW DATA * Waterflood Producer

Producing formation	Gordon	Pay zone depth (ft)	2910'-2916' 2917'-2918'
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
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

3/14/12
Date

WV Dept. of Oil and Gas
Office of Environmental Protection
2013

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

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.

Treatment : Treated perfs 2910'-2916', and 2917'-2918' w/ 300 gals. 15% HCL, 338 bbls cross linked gel, and 20,500# 20/40 sand.**Well Log :** All depths are measured relative to KB (8' AGL).

	Shale w/ sand streaks	0	-	848
	Coal	848	-	858
Well	Shale	858	-	1256
	Sand	1256	-	1281
Well	shale	1281	-	1324
	sand	1324	-	1350
	shale	1350	-	1360
	sand	1360	-	1374
	shale	1374	-	1380
Well	sand	1380	-	1408
	shale	1408	-	1443
	sand	1443	-	1478
Well	shale	1478	-	1516
	sand	1516	-	1526
	shale	1526	-	1605
	sand	1605	-	1623
Well	shale	1623	-	1658
	sand	1658	-	1677
Well	shale	1677	-	1723
	sand	1723	-	1759
	shale	1759	-	1828
	sand	1828	-	1868
	shale	1868	-	1994
	sand	1994	-	2017
	shale	2017	-	2029
	sand	2029	-	2052
Well	Big Lime	2052	-	2120
	Big Injun	2120	-	2306
	shale	2306	-	2877
	Gordon Stray	2877	-	2894
	shale	2894	-	2906
Well	Gordon	2906	-	2918
	shale	2918	-	3080
Well	TD	3080		

T.D. -Logger 3070 KB

T.D. -Driller 3080 KB

10302654

WW-3A
10/07



1) Date: July 11, 2013

2) Operator's Well No. Elizabeth Miller No. 7

3) API Well No. 47 103 - 2654

State County Permit

4) UIC Permit No. UIC2R09501AP

STATE OF WEST VIRGINIA
NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

5) Surface Owner(s) To Be Served

(a) Name Austin Hall, Jr. ✓
 Address HC 60, Box 291
Reader, WV 26167

(b) Name Elizabeth Miller Heirs ✓
 Address Box 508
Wellsburg, WV 26097

(c) Name _____
 Address _____

6) Inspector Derek Haught
 Address PO Box 85
Smithville, WV 26178
 Telephone 304-206-7613

7 (a) Coal Operator
 Name NA
 Address _____

7 (b) Coal Owner(s) With Declaration Of Record
 Name NA
 Address _____

Name _____
 Address _____

7(c) Coal Lessee With Declaration Of Record

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

- (1) The Application for a Liquid Injection or Waste Disposal Well Work Permit on Form WW-3(B), which sets out the parties involved in the drilling or other work;
- (2) The plat (surveyor's map) showing the well location on Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is only to plug a well), which sets out the plan for erosion and sediment control and for reclamation for the site and access road.

The date proposed for the first injection or waste disposal is September 1, 2013

THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON FORM WW-3(A) DESIGNATED TO YOU. 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 Well Work Permit with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to a well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, the plat, and the Construction and Reclamation Plan 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 the mailing or delivery to the Chief.

The person signing this document shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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 HG Energy, LLC
 Address 5260 Dupont Road
Parkersburg, WV 26101

By: Diane C. White
 Its: Accountant

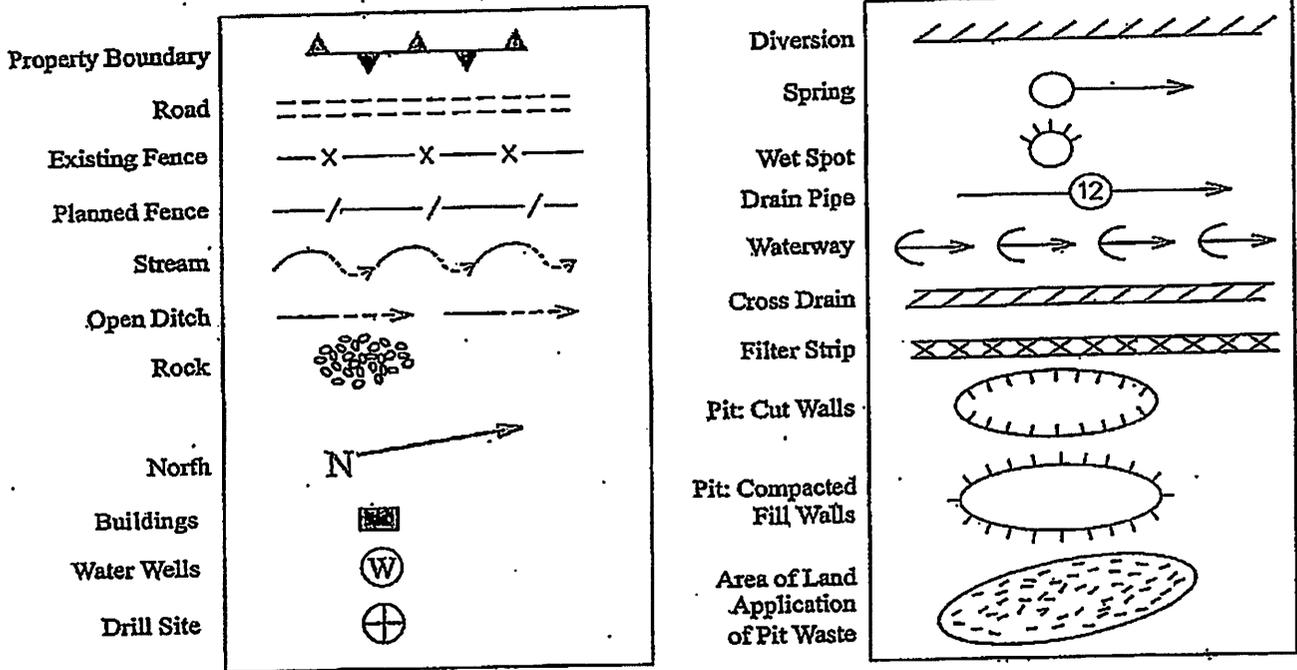
Signature Diane C White

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 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: deprivacyofficer@wv.gov

Received
JUL 30 2013
WV Dept. of Environmental Protection
Office of Oil and Gas

Legend



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

Area II
Approx. 0.5 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>		<u>Area II (Road)</u>	
Seed Type	Lbs./Ac.	Seed Type	Lbs./Ac.
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	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: _____
Comments: _____

Title: Oil + Gas Inspector Date: 7-25-73

Field Reviewed? () Yes () No

103 026545

Reclamation Plan For:

Elizabeth Miller No.7

47-103-2654

1695
F-27

EXISTING WATERFLOOD ACCESS ROAD
USE 1.0 MI. OF EXISTING ROAD
TO COUNTY ROAD No. 56.
MAINTAIN IN PRESENT CONDITION
(SEE PAGE 2)

2389
5



*Elizabeth Miller Heirs
- Surface*

NOTE
REFER TO THE WVDEP
EROSION AND SEDIMENT CONTROL
FIELD MANUAL VER. MAY 2012 FOR
BMPs CONTROLLING EROSION AND
SEDIMENT FROM SOIL-DISTURBING
OPERATIONS.

Existing
Access Road

(A)

125' of 10% Grade

105' of 8% Grade

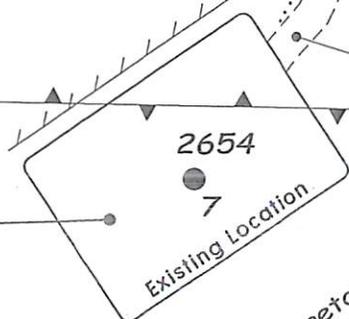
110' of 10% Grade

50' of 8% Grade

ELIZABETH MILLER LEASE

GEORGE WILEY LEASE

NOTE:
Use existing well location.
Only minimal earthwork will
be required for conversion.
Any disturbed areas will be
revegetated as per Form WW-9.



Existing Vegetative
Filter Strip

Received

JUL 30 2013

DmH

Office of Oil and Gas
WV Dept. of Environmental Protection

*Patsy Hall
- Surface*

Notes:

- Requested permit is for conversion of existing well.
- All disturbed areas will be re-vegetated as outlined on Form WW-9.
- Maintain sediment barriers and drainage structures.
- All road grades <5% except as noted.
- No pit will be constructed for requested well work.

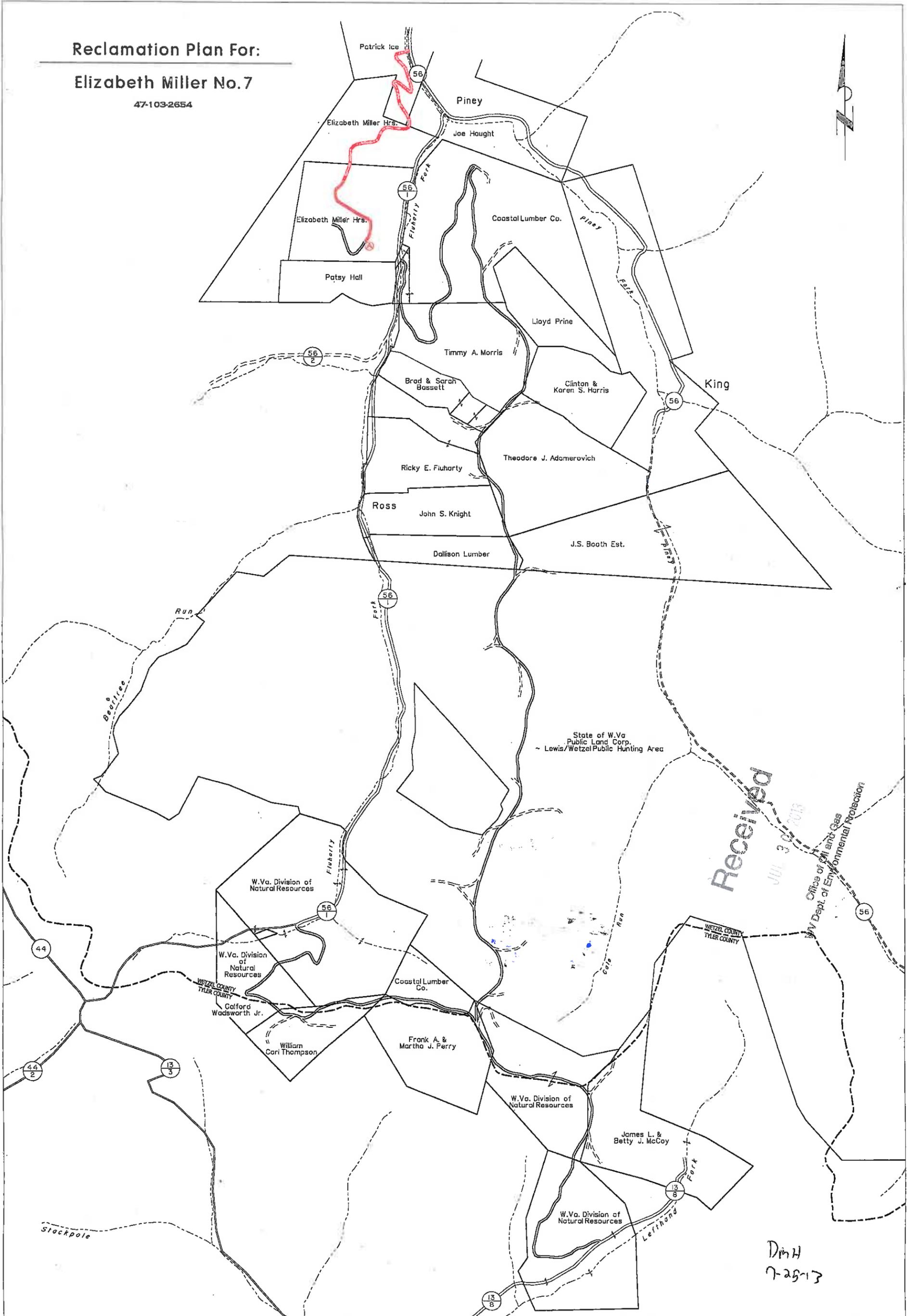
Note: Drawing not to Scale

103-026545

Reclamation Plan For:

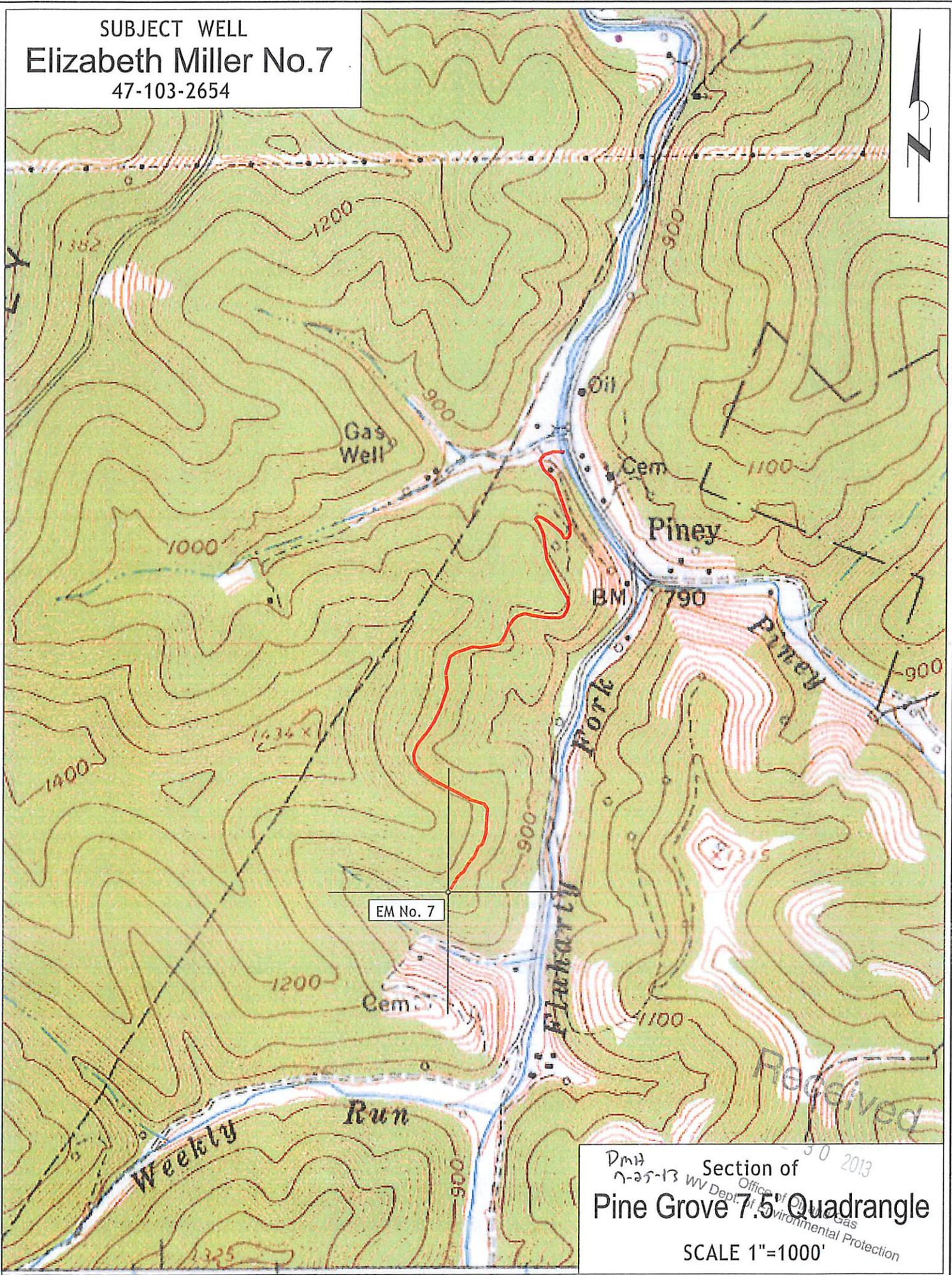
Elizabeth Miller No. 7

47-103-2654



	<p>STRINGTOWN WATERFLOOD Wetzel & Tyler Co., W.Va.</p> <p>RECLAMATION PLAN SHOWING MAIN WATERFLOOD ROAD SYSTEM TO BE USED FOR REQUESTED WELL WORK</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. REFER TO THE WVDEP EROSION AND SEDIMENTATION CONTROL MANUAL (VER. MAY 20, 2013) FOR BMP'S CONTROLLING EROSION AND SEDIMENTATION FROM ALL SOIL-DISTURBING OPERATIONS. 2. SEE PAGE ONE OF RECLAMATION PLAN FOR DETAILS OF NEW ROAD CONSTRUCTION AND ROAD UPGRADES FROM POINT (A) TO DRILL SITE LOCATION. 3. EXISTING WATERFLOOD ACCESS ROADS WILL BE MAINTAINED IN PRESENT CONDITION. THESE ROADS WERE CONSTRUCTED UNDER CONDITIONS SET FORTH IN VARIOUS DRILLING PERMITS ISSUED BY WVDEP-OGG. SEE PERMITS ON FILE FOR MORE DETAIL. 	<p>LEGEND</p> <ul style="list-style-type: none"> EXISTING WATERFLOOD ROADS EXISTING LEASE OR FARM ROADS TO BE UPGRADED. NEW ROADS TO BE CONSTRUCTED
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SUBJECT WELL
Elizabeth Miller No.7
47-103-2654

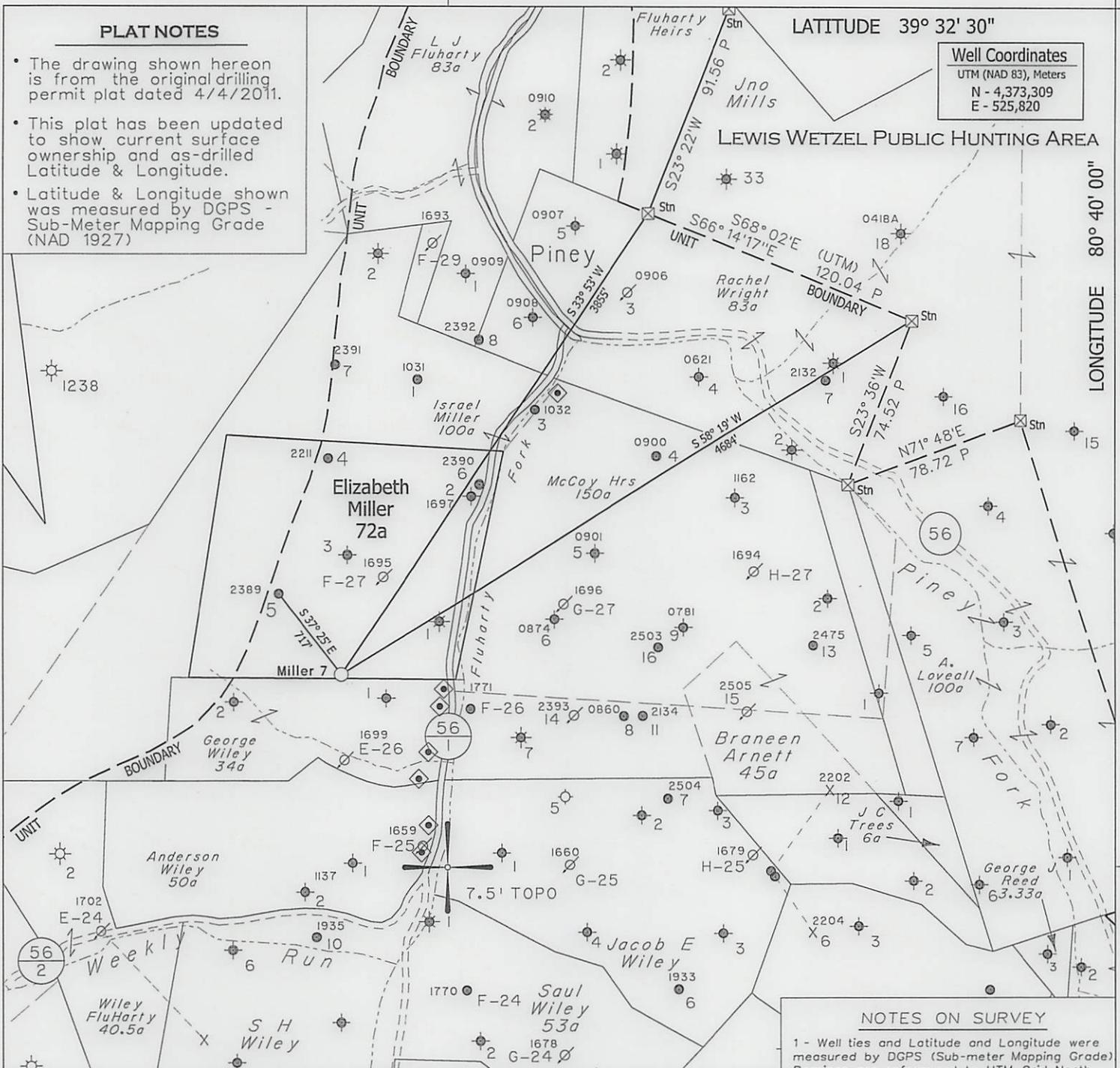


DMH
7-25-13
Section of
Office of Oil & Gas
WV Dept. of Environmental Protection
Pine Grove 7.5 Quadrangle
SCALE 1"=1000'

PLAT NOTES

- The drawing shown hereon is from the original drilling permit plat dated 4/4/2011.
- This plat has been updated to show current surface ownership and as-drilled Latitude & Longitude.
- Latitude & Longitude shown was measured by DGPS - Sub-Meter Mapping Grade (NAD 1927)

Well Coordinates
 UTM (NAD 83), Meters
 N - 4,373,309
 E - 525,820



NOTES ON SURVEY

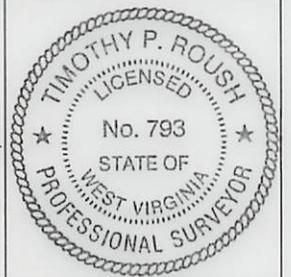
- 1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).
- 2 - Surface owners and adjoiners information obtained from the Wetzel County Assessor's tax records.

◆ - DENOTES A POSSIBLE WATER SUPPLY SOURCE LOCATED FROM CIRCA 2003 AERIAL PHOTOGRAPHY - NOT BY SURVEY. OTHER SOURCES MAY BE PRESENT.
 ┆ - DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

FILE NO. 1045-39
 MAP NO. _____ N _____ S _____ E _____ W _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY Sub-Meter
 PROVEN SOURCE OF ELEVATION DGPS Survey
 (Sub-Meter Mapping Grade)

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.

(SIGNED) *[Signature]*
 TIMOTHY P. ROUSH PS 793



WEST VIRGINIA
 Division of Environmental Protection
 Office of Oil and Gas
 601 57th Street
 Charleston, West Virginia 25301



DATE July 9, 2013
 FARM Elizabeth Miller No.7
 API WELL NO. 47-103-02654 S

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___
 LOCATION: ELEVATION 1105' WATERSHED Fluharty Fork of Piney Fork
 DISTRICT Green COUNTY Wetzel
 QUADRANGLE Pine Grove 7.5'
 SURFACE OWNER Patsy Hall, et al. ACREAGE 31.474 Ac.
 OIL & GAS ROYALTY OWNER HG Energy LLC., et al. LEASE ACREAGE 73 Ac
 LEASE NO. 26804-50
 PROPOSED WORK: DRILL ___ CONVERT DRILL DEEPER ___ REDRILL ___ FRACTURE OR
 STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW
 FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Convert well to liquid injection
 PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION Gordon ESTIMATED DEPTH 3,080'
 WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Mike Kirsch
 ADDRESS 5260 Dupont Road ADDRESS 5260 Dupont Road
 Parkersburg, WV 26101 Parkersburg, WV 26101