



---

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](http://www.dep.wv.gov)

## PERMIT MODIFICATION APPROVAL

November 12, 2013

ENERVEST OPERATING L. L. C.  
300 CAPITOL STREET, SUITE 200  
CHARLESTON, WV 25301

Re: Permit Modification Approval for API Number 10901093, Well #: Y&O COAL #107 (WYO)  
**PARTIAL PLUGGING FOR REWORK**

Oil and Gas Operator:

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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Gene Smith". To the right of the signature, there are small initials "J W M".

Gene Smith  
Regulatory/Compliance Manager  
Office of Oil and Gas

**McLaughlin, Jeffrey W**

---

**From:** Schaffer, Trevor <tschaffer@enervest.net>  
**Sent:** Tuesday, November 12, 2013 2:05 PM  
**To:** McLaughlin, Jeffrey W  
**Subject:** RE: Y & O Coal 107 (API 10901093) Rework Modification

I accept these changes.

Thanks

---

**From:** McLaughlin, Jeffrey W [<mailto:Jeffrey.W.McLaughlin@wv.gov>]  
**Sent:** Tuesday, November 12, 2013 1:55 PM  
**To:** Schaffer, Trevor  
**Subject:** Y & O Coal 107 (API 10901093) Rework Modification

Trevor,

If you have accepted the changes I made to your recent Rework Modification (referenced above), please acknowledge with a return email. Thank you.

PLEASE PROVIDE THE API # AND THE WELL NAME IN THE SUBJECT OF ANY EMAIL INQUIRY YOU MAKE.

Regards,

Jeff McLaughlin, WV DEP  
Office of Oil & Gas  
Phone 304-926-0499 ext. 1614

Y&O Coal #107  
API# 47-109-01093  
Wyoming County, WV

RECEIVED  
Office of Oil and Gas

NOV 12 2013

WV Department of  
Environmental Protection

Well Data

Casing: 4-1/2", 11.6# set at 6,548'  
Tubing: 2-3/8" with Arrow I-X packer set at 5,691'  
Disposal Perfs: 5,710' to 6,210' (Lower Devonian Shale)  
Prod. Perfs: 4,380' to 4,890' (Upper Devonian Shale) & 5,060' to 5,400' (Middle Devonian Shale)

Proposed new zones: Lower Gordon (3,677' to 3,687')  
Upper Gordon (3,607' to 3,617')  
Ravencliff (1,362' to 1,374' & 1,400' to 1,410')

Procedure:

1. Attempted to release packer but it will not release.
2. Release from packer at On/Off tool and attempt to circulate hole.
3. Pump 10 BBI 6% gel, 15 sks Class A w/ 2% CaCl<sub>2</sub>.
4. Displace cement w/ 3 BBI 3% gel, followed by FW to place cement plug F/ 5,475' T/ 5,675' KB.
5. POOH to 5300' & reverse circulate to clean up hole. Spot 10 BBI 6 % gel at bottom of hole.
6. Wait additional time for total of 4 hrs after plug was set.
7. Continue POOH to 5050'.
8. Pump 10 BBI 6% gel, 15 sks Class A w/ 2% CaCl<sub>2</sub>.
9. Displace cement w/ 3 BBI 3% gel, followed by FW to place cement plug F/ 4,850' T/ 5,050' KB.
10. POOH to 4700' & reverse circulate to clean up hole. Spot 10 BBI 6 % gel at bottom of hole.
11. Wait additional time for total of 4 hrs after plug was set.
12. Continue POOH to 4380'.
13. Pump 10 BBI 6% gel, 15 sks Class A w/ 2% CaCl<sub>2</sub>.
14. Displace cement w/ 3 BBI 3% gel, followed by FW to place cement plug F/ 4,180' T/ 4,380' KB.
15. POOH to 4000' & reverse circulate to clean up hole. Wait additional time for total of 4 hrs after plug was set. Let plugs set overnight.
16. Pressure test casing to 4,000 psi.
17. Run new CBL log under pressure
18. If bond log allows perform 3 stage foam frac completion for proposed zones
19. Flow back frac and clean up N2
20. Run tubing in well to  $\pm 3,600'$
21. Turn well in line.

WV DEP, Office of Oil and Gas Comments from Jeff McLaughlin, Technical Analyst

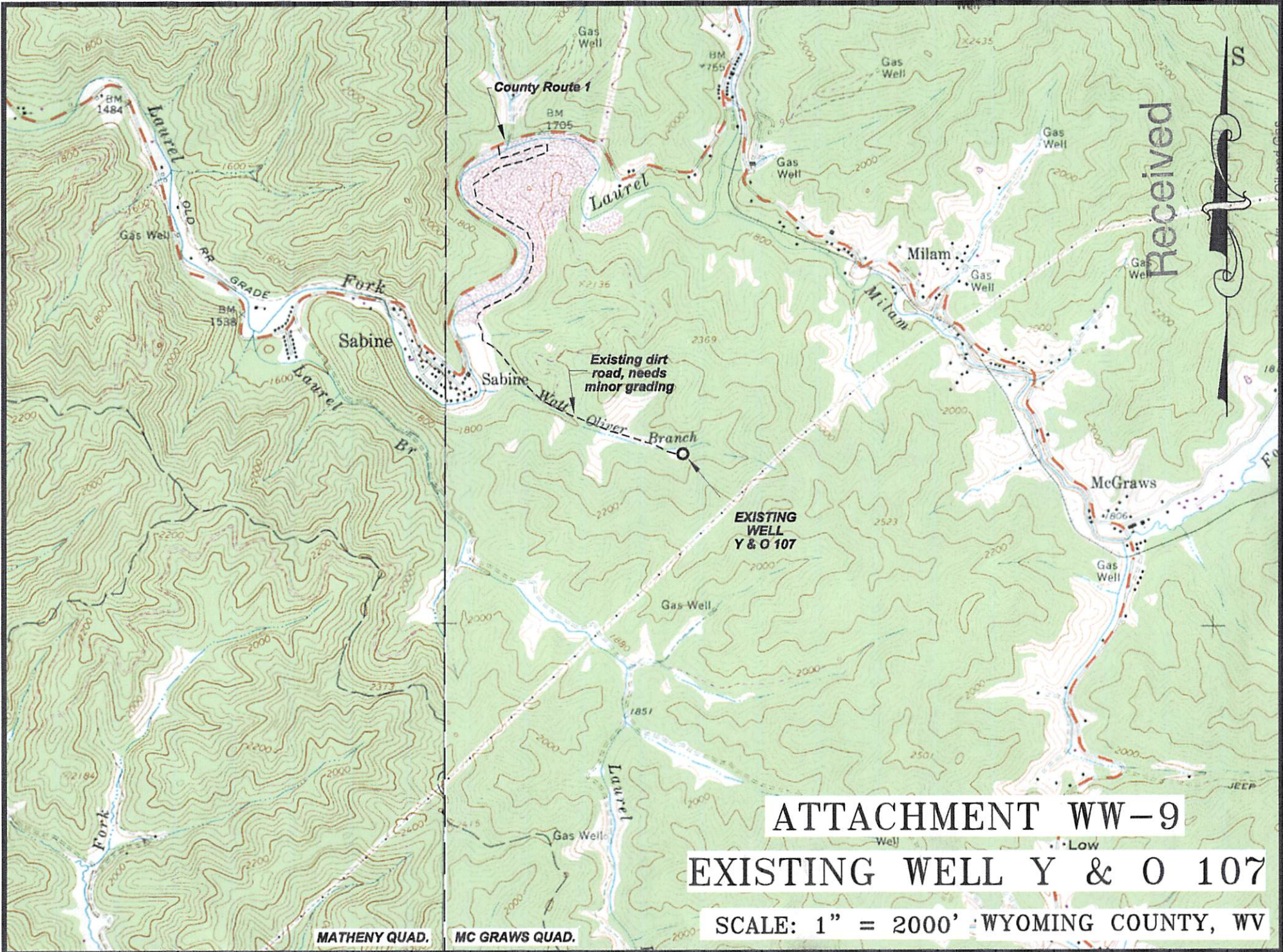
Gel must be fresh water with a minimum of 6 % Bentonite.

Cement plugs must be Class A Cement with no more than 3% CaCl<sub>2</sub> and no other additives.

4a.\*\* After setting first cement plug on top of packer, WOC for eight hours and tag plug to check placement. If plug is set, continue on with rest of procedure.



10901093R

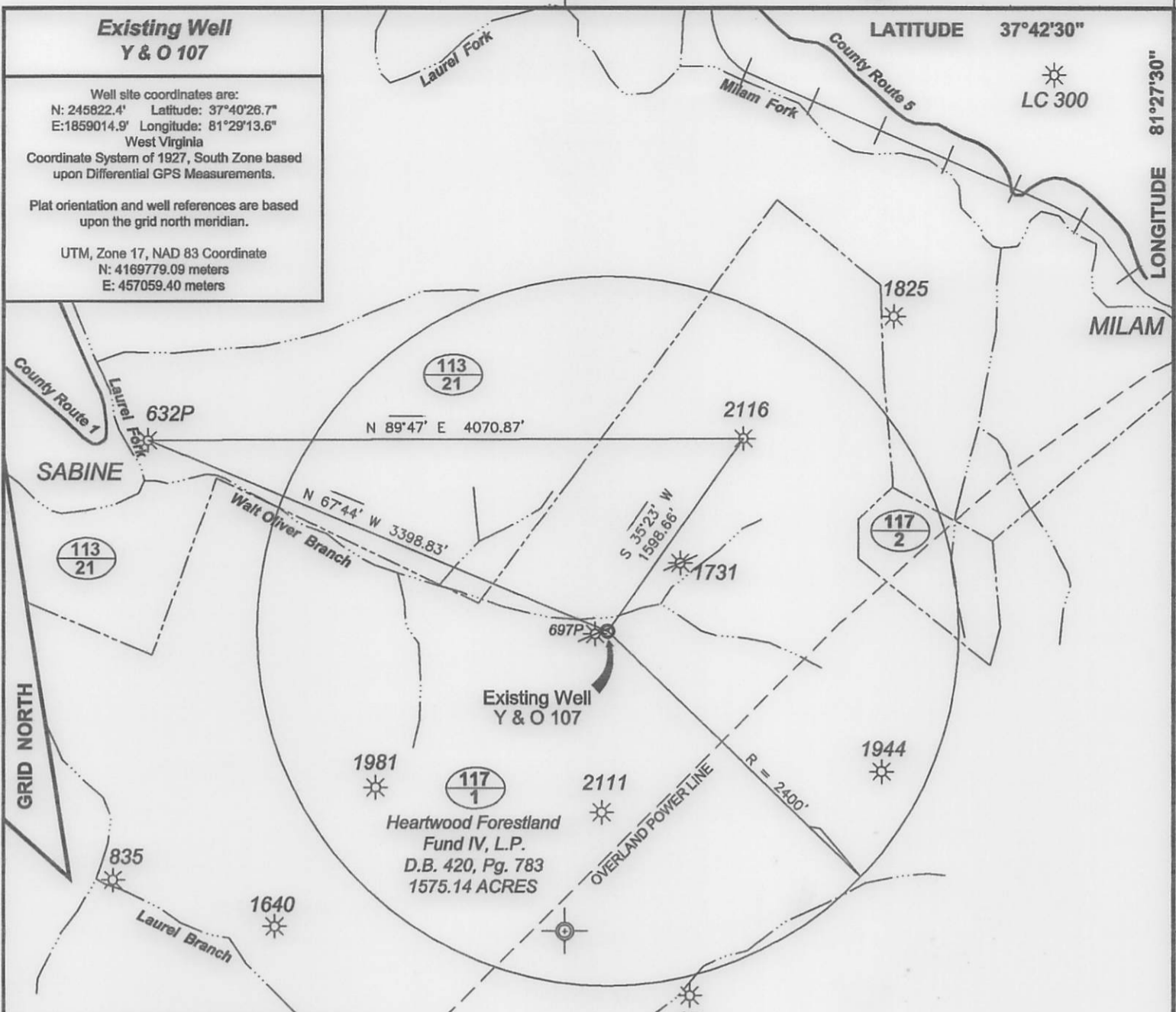


Received

**ATTACHMENT WW-9**  
**EXISTING WELL Y & O 107**  
 SCALE: 1" = 2000' WYOMING COUNTY, WV

MATHENY QUAD.    MC GRAWS QUAD.





<b>Ownership</b>	
Coal Owner - West Virginia Mid. Vol., Inc.	
Coal Lessee - Rockhouse Land, LLC	
<b>Legend</b>	
	Existing Well
	Surface Boundary (Approximate)
	Taxmap/Parcel Number

**Ownership**

Coal Owner - West Virginia Mid. Vol., Inc.  
Coal Lessee - Rockhouse Land, LLC

**Legend**

Existing Well

Surface Boundary (Approximate)

Taxmap/Parcel Number

Denotes location of well on United States topographic maps

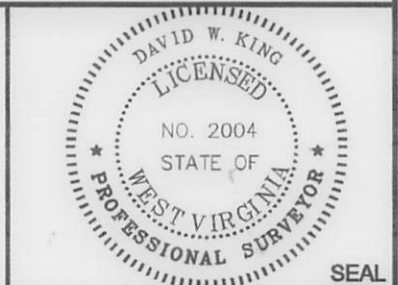
Note: No known water wells within 1500' of gas well Y & O 107



*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 Environmental Protection.*

*David W. King*

P.S. 2004



FILE NO: 246-22-SF-13  
DRAWING NO: YO-107 PLAT.DWG  
SCALE: 1" = 1000'  
MINIMUM DEGREE OF ACCURACY: 1:2500  
PROVEN SOURCE OF ELEVATION: Existing Well

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

DATE: August 12, 2013  
OPERATOR'S WELL NO. Y & O-107  
API WELL NO.  
47 - 109 - 01093 R  
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: 1877' WATERSHED: Walt Oliver Branch of Laurel Fork  
QUADRANGLE: Mc Graws 7 1/2' DISTRICT: Slab Fork COUNTY: Wyoming

SURFACE OWNER: Heartwood Forestland Fund IV, L.P. ACREAGE: 1575.14  
OIL AND GAS ROYALTY OWNER: EnerVest Energy Institutional Fund XII-A, L.P. LEASE NO: ACREAGE: 31559.59

PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Gordon & Ravencriff ESTIMATED DEPTH: 3660'

WELL OPERATOR: EnerVest Operating Company DESIGNATED AGENT: Barry Lay  
ADDRESS: 300 Capitol Street, Suite 200 ADDRESS: 300 Capitol Street, Suite 200  
Charleston, WV 25301 Charleston, WV 25301