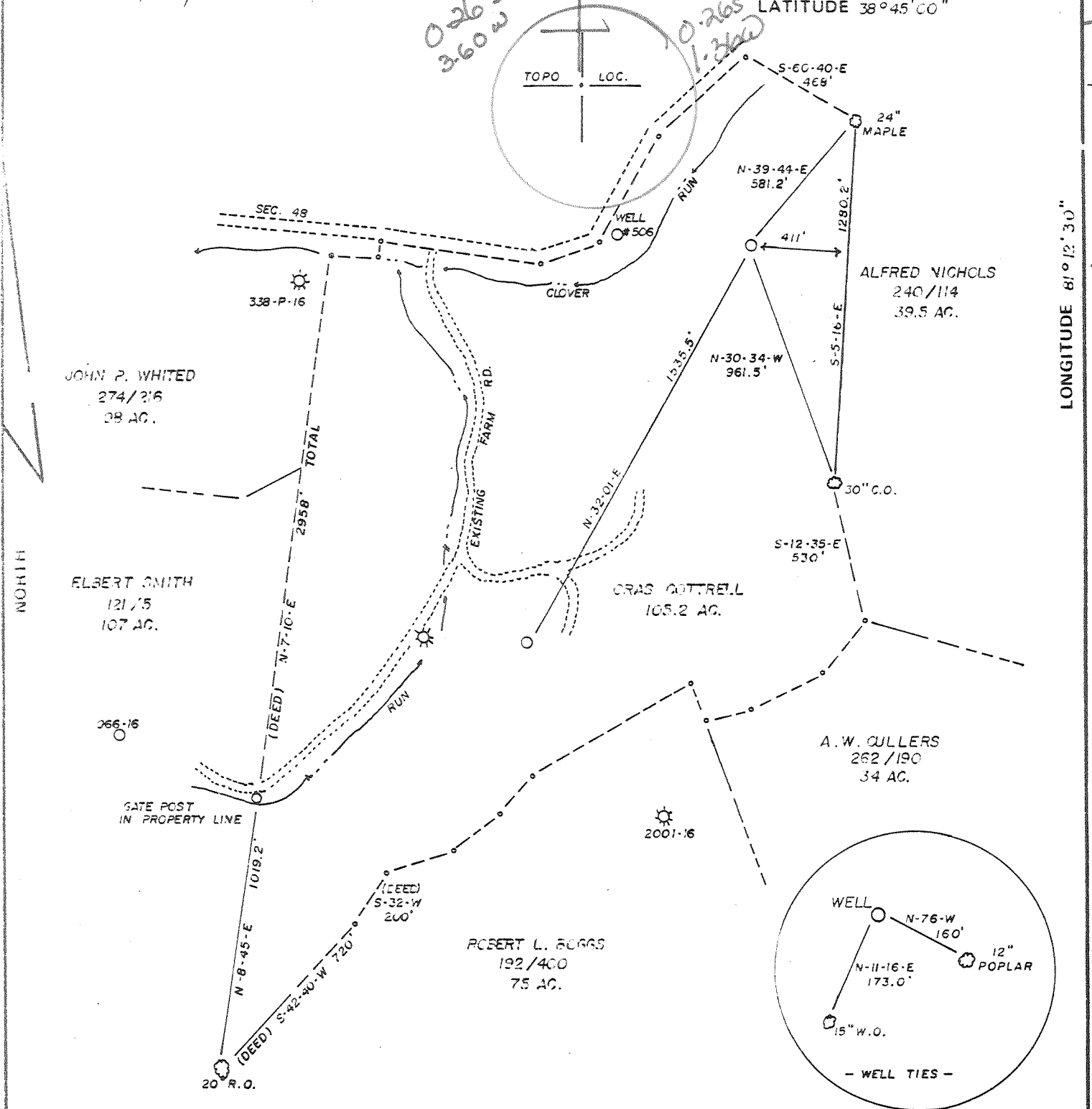


7.225'

LATITUDE 38°45'00"

LONGITUDE 81°12'30"



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 500'  
 MINIMUM DEGREE OF ACCURACY 1 IN 200  
 PROVEN SOURCE OF ELEVATION INTER. OF CLOVER RUN RD. AND FARM RD. ELV. 754

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) *William J. Boyd*  
 R.P.E. \_\_\_\_\_ L.L.S. 526

PLACE SEAL HERE

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION



DATE MAY 11, 19 37  
 OPERATOR'S WELL NO. \_\_\_\_\_  
 API WELL NO. 47 - 087 - 4050  
 STATE COUNTY PERMIT

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_  
 (IF "GAS,") PRODUCTION  STORAGE \_\_\_\_\_ DEEP  SHALLOW \_\_\_\_\_  
 LOCATION: ELEVATION 910 WATER SHED CLOVER RUN  
 DISTRICT SMITHFIELD COUNTY ROANE  
 QUADRANGLE TARIFF 7.5 635 096, Otter NW  
 SURFACE OWNER ORAS M. COTTRELL ACREAGE 105.2  
 OIL & GAS ROYALTY OWNER JOSEPH COTTON ETAL LEASE ACREAGE 648  
 LEASE NO. \_\_\_\_\_  
 PROPOSED WORK: DRILL  CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE \_\_\_\_\_ PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION \_\_\_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_ - DEEPWELL -  
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 5800 3-3 AMM JUN 1 1987  
 WELL OPERATOR BOGGS NATURAL GAS DESIGNATED AGENT HARRY BOGGS Newton (198)  
 ADDRESS P.O. BOX 148 ADDRESS P.O. BOX 148  
SPENCER W.V. 25276 103 SPENCER W.V. 25276 DPD-Onondaga

FORM IV-6 (8-78)



Date July 1 1987  
 Operator's Well No. Kauffman # 2  
 Farm Cottrell  
 API No. 47 - 087 - 4050

**RECEIVED**  
 OCT 09 1987

State of West Virginia  
 DEPARTMENT OF ENERGY  
 Oil and Gas Division

DIVISION OF OIL & GAS  
 DEPARTMENT OF ENERGY  
 WELL OPERATOR'S REPORT  
 OF  
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil \_\_\_ / Gas x / Liquid Injection \_\_\_ / Waste Disposal \_\_\_ /  
 (If "Gas," Production \_\_\_ / Underground Storage \_\_\_ / Deep x / Shallow x /)

LOCATION: Elevation: 920 Watershed Clover Run  
 District: Smithfield County Roane Quadrangle Tarriff

COMPANY Boggs Natural Gas  
 ADDRESS P.O. 148 Spencer WV 25276  
 DESIGNATED AGENT Harry C. Boggs  
 ADDRESS P.O. 148 Spencer WV 25276  
 SURFACE OWNER Oras Cottrell  
 ADDRESS Spencer WV  
 MINERAL RIGHTS OWNER Joseph Kauffman et  
 ADDRESS \_\_\_\_\_  
 OIL AND GAS INSPECTOR FOR THIS WORK Homer  
Dougherty ADDRESS Looneyville  
 PERMIT ISSUED 5/18/87  
 DRILLING COMMENCED 5/24/87  
 DRILLING COMPLETED 6/5/87  
 IF APPLICABLE: PLUGGING OF DRY HOLE ON  
 CONTINUOUS PROGRESSION FROM DRILLING OR  
 REWORKING. VERBAL PERMISSION OBTAINED  
 ON \_\_\_\_\_

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			linear
13-10"	350'	350'	surface
9 5/8			
8 5/8			
7	1800'	1800'	200sks
5 1/2			
4 1/2	5810	5810	4000'
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Depth 5950 feet  
 Depth of completed well 5810 feet Rotary x / Cable Tools \_\_\_\_\_  
 Water strata depth: Fresh 100 feet; Salt 5950 feet  
 Coal seam depths: \_\_\_\_\_ Is coal being mined in the area? no

OPEN FLOW DATA

Producing formation Devonian Shale Pay zone depth 3540-5810 feet  
 Gas: Initial open flow 50 Mcf/d Oil: Initial open flow 0 Bbl/d  
 Final open flow 500 Mcf/d Final open flow 0 Bbl/d  
 Time of open flow between initial and final tests 24 hours

Static rock pressure 1000 psig (surface measurement) after 24 hours shut in  
 (If applicable due to multiple completion--)

Second producing formation Corniferous Lime Pay zone depth 5700-5720 feet  
 Gas: Initial open flow 10 Mcf/d Oil: Initial open flow 0 Bbl/d  
 Final open flow 100 Mcf/d Oil: Final open flow 0 Bbl/d  
 Time of open flow between initial and final tests 24 hours

000 mcf  
 500  
 for well

OCT 10 1987

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

Drugged Back to 5810 ←

- 1<sup>ST</sup> stage - 5700-5720 10 shots 4000 gal HCl
- 2<sup>ND</sup> stage 5565-4550 30 shots 40,000 # sand, 650,000 scf N<sub>2</sub>,
- 3<sup>RD</sup> stage 4500-3500 30 shots 40,000 # sand , 480,000 scfN<sub>2</sub>
- 4<sup>TH</sup> stage 1890-1900 10 shots Screened Off

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fres and salt water, coal, oil and ga
Big Lime			1810	1850	
Big Injun			1850	1940	
Berea			2310	2326	
Shale			2326	5650	Gas
Marcellus			5650	5700	
Corniferous Lime			5700	5890	Gas
✓Oriskany			5890	<u>5920 TD</u>	Salt water ✓

5920  
5700  
220 expl ftg.

Plug set @ 5810'

404 2300  
 813 3400  
 822 4400  
 825 4600  
 830 4900  
 835 5400

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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary).

Boggs Natural Gas  
Well Operator

By: Jeffery C. Boggs

Date: July 1 1987

*Jeffery C. Boggs*

Note: Regulation 2.02(i) provides as follows:  
 "The term 'log' or 'well log' shall mean a systematic  
 detailed geological record of all formations, including

(Obverse)  
7/85  
**RECEIVED**  
MAY 14 1987



1) Date: May 13, 19 87  
 2) Operator's Well No. Kauffman # 2  
 3) API Well No. 47 087 4050  
 State County Permit  
4050

STATE OF WEST VIRGINIA  
 DEPARTMENT OF ENERGY, OIL AND GAS DIVISION  
 DIVISION OF OIL & GAS DEPARTMENT OF ENERGY  
 APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil        / Gas XX /  
 B (If "Gas", Production        / Underground storage        / Deep XX / Shallow       )
- 5) LOCATION: Elevation: 920 Watershed: Clover Run  
 District: Smithfield 5 County: Roane 087 Quadrangle: Tarriff 7.5 634
- 6) WELL OPERATOR Boggs Natural Gas CODE: 6455 7) DESIGNATED AGENT Harry C. Boggs  
 Address P.O. 148 Address P.O. 149  
Spencer WV 25276 Spencer WV 25276
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:  
 Name Homer Daugherty Name Boggs Natural Gas Co.  
 Address Looneyville Address P.O. 148  
Spencer WV 25276
- 10) PROPOSED WELL WORK: Drill XX / Drill deeper        / Redrill        / Stimulate X /  
 Plug off old formation        / Perforate new formation         
 Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, Oriskany  
 12) Estimated depth of completed well, 5800 feet  
 13) Approximate trata depths: Fresh, 150 feet; salt,        feet.  
 14) Approximate coal seam depths:        Is coal being mined in the area? Yes        / No XX

15) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS	
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		Kinds	Sizes
Conductor										
Fresh water	10"					350'	350'	Surface		Per Rule 15.05
Coal										
Intermediate	7"					2100'	2100'	300'		
Production	4.5"					5800'	5800'	3500'		Depths set
Tubing										580 SACKS OR AS REQUIRED
Liners										Per Rule 15.05
										Perforations:
										Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-087-4050 Date May 29 19 87

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector, (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.  
 Permit expires May 29, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Plat: <u>AS</u>	Casing: <u>AS</u>	Fee: <u>13971</u> <u>204</u>	WCCB: <u>AS</u>	S&F: <u>AS</u>	Other: <u>      </u>
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NOTE: Keep one copy of this permit posted at the drilling location. Joseph H. Stender Director, Division of Oil and Gas File

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.