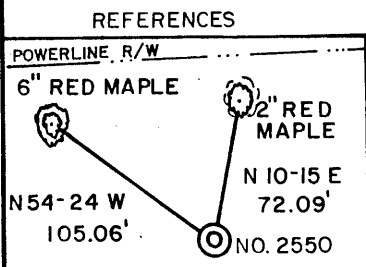
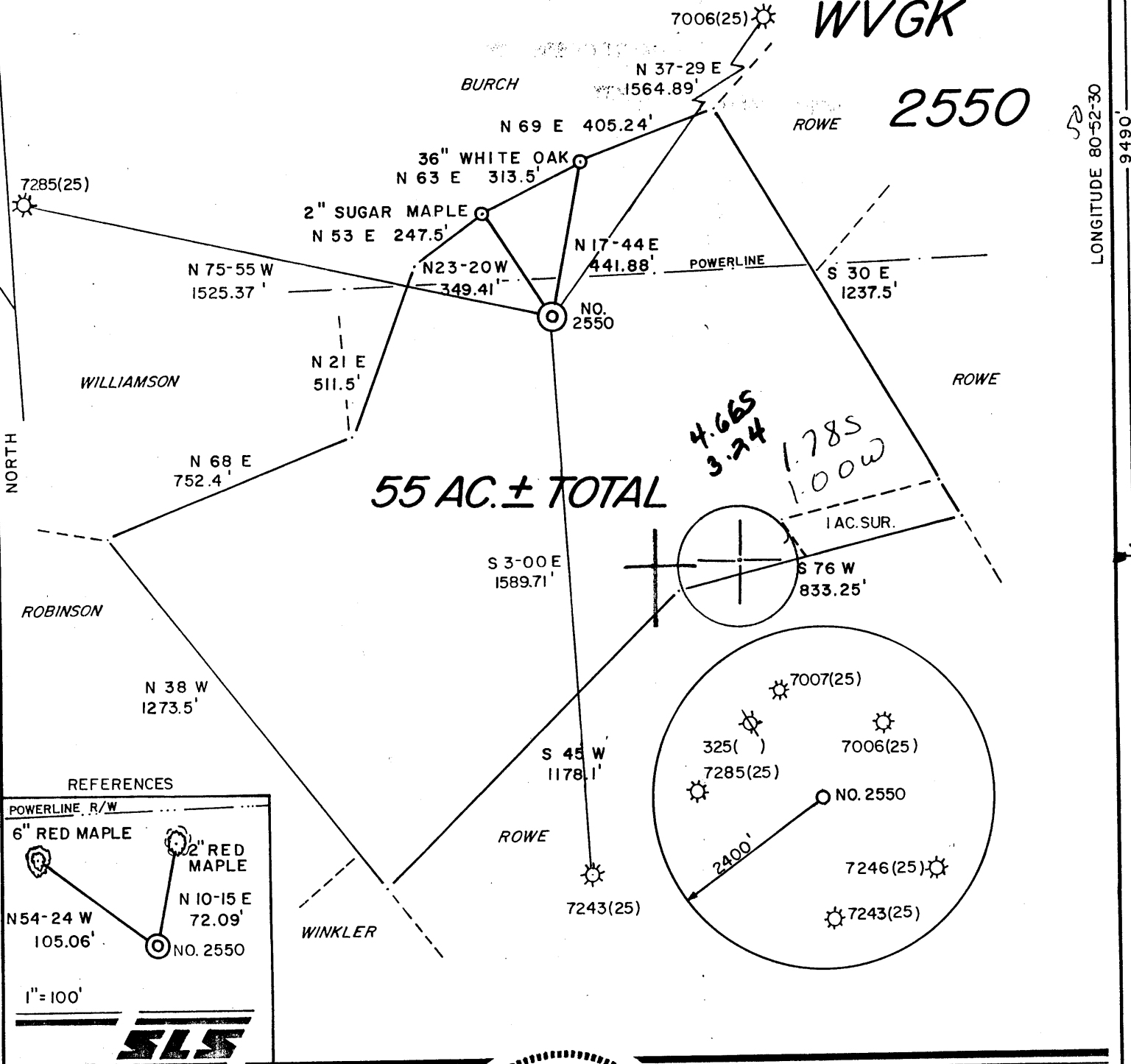


# ROWE LEASE

# WELL NO.

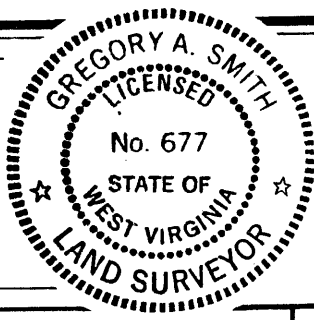
## WVGK

## 2550



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 ENERGY.

L.L.S. Gregory A. Smith  
677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE SEPTEMBER 8, 19 87  
OPERATORS WELL NO. WVGK 2550  
API WELL NO. 47 - 085 - 7691  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 1445 (19-14)  
PROVEN SOURCE OF ELEVATION BEARD 1351' SCALE 1" = 400'

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY  
OIL AND GAS DIVISION

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1127' WATERSHED MARSH RUN COUNTY RITCHIE QUADRANGLE PENNSBORO 7.5  
DISTRICT CLAY COUNTY RITCHIE ACREAGE 51.41 Ac.  
SURFACE OWNER HADSEL ROWE et al. LEASE ACREAGE 51.41 OF 56.34 Ac.  
ROYALTY OWNER HADSEL ROWE et al LEASE NO. JJ-2237

PROPOSED WORK:  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION ALEXANDER  
ESTIMATED DEPTH 5700'

WELL OPERATOR UNION DRILLING, INC. DESIGNATED AGENT JOSEPH C. PETTEY  
ADDRESS P.O. DRAWER 40 BUCKHANNON, WV 26201 ADDRESS P.O. DRAWER 40 BUCKHANNON, WV 26201

LONGITUDE 80-52-30  
9490

COUNTY NAME  
PERMIT

893

(20)

SEP 28 1987



IV-35  
(Rev 8-81)

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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

State of West Virginia  
Department of Mines  
Oil and Gas Division

WELL OPERATOR'S REPORT  
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

Date November 20, 1987

Operator's Well No. 2550

Farm Orlan Rowe #1

API No. 47 - 085 - 7691

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

LOCATION: Elevation: 1127 Watershed Marsh Run  
District: Clay County Ritchie Quadrangle Pennsboro

COMPANY Union Drilling, Inc.  
ADDRESS P.O. Drawer 40, Buckhannon, WV 26201  
DESIGNATED AGENT Joseph C. Pettey  
ADDRESS P.O. Drawer 40, Buckhannon, WV 26201  
SURFACE OWNER Hadsel Rowe, et al  
ADDRESS Route 2, Box 206, Pennsboro, WV 26415  
MINERAL RIGHTS OWNER same as surface  
ADDRESS \_\_\_\_\_  
OIL AND GAS INSPECTOR FOR THIS WORK Samuel Hersman ADDRESS Rt. 1, Box 240, Harrisville, WV 26362  
PERMIT ISSUED 9-22-87  
DRILLING COMMENCED 9-26-87  
DRILLING COMPLETED 10-3-87

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cord.			
13-10"	24'	0	
9 5/8			
8 5/8		1299.55	383.5
7			
5 1/2			
4 1/2		5382.65	384
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Alexander Depth 5700 feet  
Depth of completed well 5520 feet Rotary XXX / Cable Tools \_\_\_\_\_  
Water strata depth: Fresh 57' feet; Salt 1610' feet  
Coal seam depths: none Is coal being mined in the area? no

OPEN FLOW DATA

Producing formation Benson, Alexander Pay zone depth 5012 feet  
Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow (919) Mcf/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests 2 hours  
Static rock pressure 1350 psig (surface measurement) after 24 hours shut in  
(If applicable due to multiple completion--)  
Second producing formation \_\_\_\_\_ Pay zone depth \_\_\_\_\_ feet  
Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ Mcf/d Oil: Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ hours  
Static rock pressure \_\_\_\_\_ psig (surface measurement) after \_\_\_\_\_ hours shut in

DEC 21 1987

(Continue on reverse side)

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

Dowell - 2 stage Foam Frac - 10-12-87

4616/18 - Benson - 80/100 sand, 5000#, 20/40 sand, 26,250# and 174 bbls  
 4626/27 fluid, and 416.000 SCF nitrogen.  
 4634/37  
 4648/49

5008/12 - Alexander - 80/100 sand 5000#, 20/40 sand, 41,970#, and 254 bbls  
 fluid and 564.000 SCF nitrogen.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Shale & Red Rock			0	48	1/2" fresh stream of water @ 57'
Sand			48	83	1/2" salt water stream @ 1610'
Sand & Shale			83	645	Gas Check @ 2036' - No show
Red Rock & Shale			645	1524	Gas Check @ 2258' - No show
Sand			1524	1613	Gas Check @ 3236' - No show
Sand & Shale			1613	1903	Gas Check @ 4388' - No show
L Lime			1903	1935	Gas Check @ 5049' - No show
Sand & Shale			1935	1966	
Big Lime			1966	2054	
Big Injun			2055	2168	
Gawtz			2169	2203	
Sand & Shale			2203	2356	
Weir			2356	2471	
Sand & Shale			2471	4662	
Riley			4662	4992	
Benson			4993	to T.D.	

TD 5520  
 Alex @ TD

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DIVISION OF OIL & GAS  
 DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator

*Douglas P. Terry*  
 Douglas P. Terry

By: Union Drilling, Inc.

Date: 11-23-87

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 ..., encountered in the drilling of a well."

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1) Date: September 10, 19 87  
 2) Operator's Well No. 2550  
 3) API Well No. 47 State 085 County 7691 Permit

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

DIVISION OF OIL & GAS  
 DEPARTMENT OF ENERGY

- 4) WELL TYPE: A Oil        / Gas X /  
 B (If "Gas", Production X / Underground storage        / Deep        / Shallow X /)
- 5) LOCATION: Elevation: 1127 Watershed: Marsh Run  
 District: Clay County: Ritchie 085 Quadrangle: Pennsboro 538
- 6) WELL OPERATOR Union Drilling, Inc CODE: 50550 7) DESIGNATED AGENT Joseph C. Pettey  
 Address P. O. Drawer 40 Address P. O. Drawer 40  
Buckhannon, WV 26201 Buckhannon, WV 26201
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:  
 Name Samuel Hersman Name Union Drilling, Inc.  
 Address Rt. 1, Box 240 Address P. O. Drawer 40  
Harrisville, WV 26362 Buckhannon, WV 26201
- 10) PROPOSED WELL WORK: Drill X / Drill deeper        / Redrill        / Stimulate X /  
 Plug off old formation        / Perforate new formation         
 Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, Alexander
- 12) Estimated depth of completed well, 5700 feet
- 13) Approximate trata depths: Fresh, 1245, 100, 1037, 705 feet; salt, N/A 1595, 1945 feet.
- 14) Approximate coal seam depths: N/A Is coal being mined in the area? Yes        / No
- 15) CASING AND TUBING PROGRAM From Rit - 325, 7006, 7007, 7243, 7246

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		
Conductor	11 3/4	H-40	42	X		30	0	0 Sacks	Kinds
Fresh water									
Coal									Sizes
Intermediate	8 5/8	ERW	23	X		1277	1277	To Surface by <u>38 CSR18-11.3</u>	
Production	4 1/2	J-55	10.5	X		5700	5600	As Required by <u>38 CSR18-11.1</u>	
Tubing									Perforations:
Liners									Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-085-7691 Date September 22 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 September 22, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <u>[Signature]</u>	Plat: <u>[Signature]</u>	Casing: <u>[Signature]</u>	Fee: <u>231</u>	Well: <u>[Signature]</u>	Other: <u>[Signature]</u>
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10437

John H. Johnston by Margaret J. Hesse  
 Director, Division of Oil and Gas