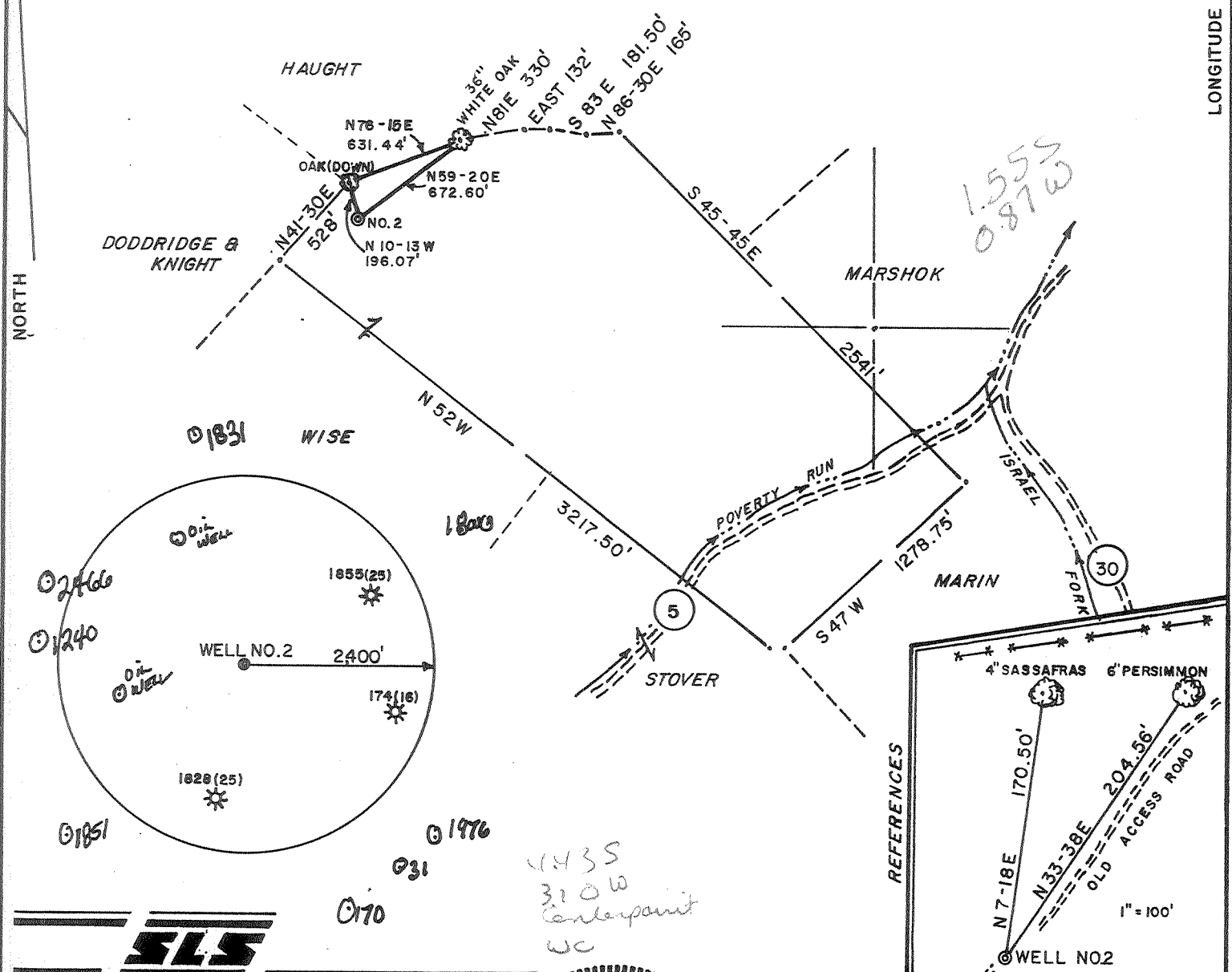


Jamie 11/1/90

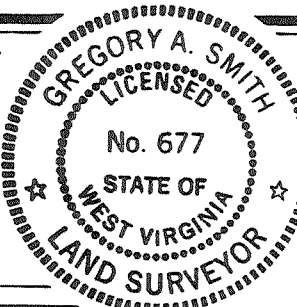
# F. H. UNDERWOOD LEASE

## WELL NO. 2 102 ACRES ±

LONGITUDE 80°42'30"  
8,150



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 AUGUST 15, 1990  
 OPERATORS WELL NO. UNDERWOOD NO. 2  
 API WELL NO. 47 - 017 - 3862  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 2392 (32-44)  
 PROVEN SOURCE OF ELEVATION TOP OF KNOB ELEV. 1,281' SCALE 1" = 800'

STATE OF WEST VIRGINIA  
 DEPARTMENT OF ENERGY  
 OIL AND GAS DIVISION



WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
 LOCATION: ELEVATION 1,204' WATERSHED POVERTY RUN  
 DISTRICT GRANT COUNTY DODDRIDGE QUADRANGLE SMITHBURG 7.5'  
 SURFACE OWNER BERVA WISE ACREAGE 138.25  
 ROYALTY OWNER F. H. UNDERWOOD LEASE ACREAGE 102 OF 138.25  
 PROPOSED WORK: LEASE NO. \_\_\_\_\_  
 DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ OTHER  
 PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION BENSON  
 ESTIMATED DEPTH 5500'

WELL OPERATOR QUAKER STATE CORPORATION 721 DESIGNATED AGENT FRANK ROTUNDA  
 ADDRESS 1226 PUTNAM-HOWE DR. BELPRE, OH 45714 ADDRESS P.O. BOX 823 PARKERSBURG, WV 26102

COUNTY NAME PERMIT

State of West Virginia  
DEPARTMENT OF ENERGY  
Division of Oil and Gas

Reviewed Tmg  
Recorded \_\_\_\_\_

RECEIVED

MAR 04 91

Well Operator's Report of Well Work

Division of Energy

Farm name: WISE, BERVA Operator Well No.: UNDERWOOD 2

LOCATION: Elevation: 1204.00 Quadrangle: SMITHBURG

District: GRANT County: DODDRIDGE  
Latitude: 8150 Feet South of 39 Deg. 22Min. 30 Sec.  
Longitude 4610 Feet West of 80 Deg. 42 Min. 30 Sec.

Company: QUAKER STATE CORPORATION  
P.O. BOX 189/1226 PUTNAM HOWE  
BELPRE, OH 45714-0189

Agent: FRANK R. ROTUNDA

Inspector: MIKE UNDERWOOD  
Permit Issued: 11/13/90  
Well work Commenced: 11/27/90  
Well work Completed: 12/05/90  
Verbal Plugging  
Permission granted on: N/A  
Rotary X Cable Rig  
Total Depth (feet) 5396  
Fresh water depths (ft) 190

Salt water depths (ft) 1540

Is coal being mined in area (Y/N)? N  
Coal Depths (ft): N/A

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
9 5/8"	266'	266'	C.T.S. 100 sx.
7"	1690'	1690'	C.T.S. 260 sx.
4 1/2"	5381'	5381'	175 sx.

OPEN FLOW DATA

Producing formation Benson Pay zone depth (ft) 5248-5252  
Gas: Initial open flow 75 MCF/d Oil: Initial open flow 0 Bbl/d  
Final open flow 75 MCF/d Final open flow 0 Bbl/d  
Time of open flow between initial and final tests --- Hours  
Static rock Pressure 1650 psig (surface pressure) after 24 Hours

Second producing formation Riley Pay zone depth (ft) 4773-4806  
Gas: Initial open flow comingle 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.

For: Frank Rotunda  
QUAKER STATE CORPORATION  
By: Frank Rotunda, Designated Agent  
Date: 1-15-91

MAR 08 1991

PERF INFORMATION:

1st stage: perforated in the Benson from 5248' - 5252' with 17 holes

2nd stage: perforated in the Riley from 4773' - 4806' with 21 holes

FRAC INFORMATION:

1st stage: Frac'd with 780 bbl. water, 378 sx. sand, and 142,000 SCF N2.

Average rate: 20.6 BPM, average pressure: 2460, breakdown at 2000 PSI, ISIP: 1512

2nd stage: Frac'd with 560 bbl. water, 250 sx. sand, and 456,000 SCF N2.

Average rate: 23 BPM, average pressure: 3352, breakdown at 1658 PSI, ISIP: 2013

LOG INFORMATION:

Feet

surface	0 - 20
silt/shale	20 - 150
sand	150 - 160
shale	160 - 180
sand	180 - 200
shale	200 - 505
sand	505 - 710
shale	710 - 845
sand	845 - 880
shale	880 - 925
sand	925 - 1000
shale	1000 - 1270
sand	1270 - 1305
shale	1305 - 1535
sand	1535 - 1565
shale	1565 - 1660
sand	1660 - 1758
shale	1758 - 1850
sand	1850 - 1940
shale	1940 - 1972
sand	1972 - 1982
sand/shale	1982 - 2158
Big Lime	2158 - 2228
Big Injun	2228 - 2350
shale	2350 - 2500
Weir	2500 - 2574
shale	2574 - 2910
sand	2910 - 2948
shale/silt	2948 - 5396

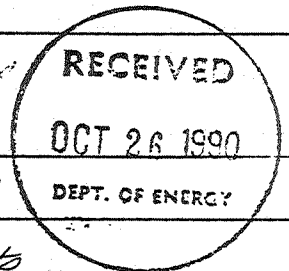
8/11/11

017 3862 Issued 11/13/90  
 Expired 11/13/92  
 Page 3 of 9

FORM WW-2B

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

- 1) Well Operator: <sup>721</sup> Quaker State Corporation 40400 (3) 610
- 2) Operator's Well Number: Underwood #2 3) Elevation: 1204'
- 4) Well type: (a) Oil  / or Gas  /  
 (b) If Gas: Production  / Underground Storage  /  
 Deep  / Shallow  /
- 5) Proposed Target Formation(s): 435 Benson, Riley
- 6) Proposed Total Depth: 5422' feet
- 7) Approximate fresh water strata depths: 350' / 448'
- 8) Approximate salt water depths: 1540'
- 9) Approximate coal seam depths: N/A 696'-692' Pitts Coal Blossom
- 10) Does land contain coal seams tributary to active mine? Yes  / No  /
- 11) Proposed Well Work: Drill and cement new well
- 12)



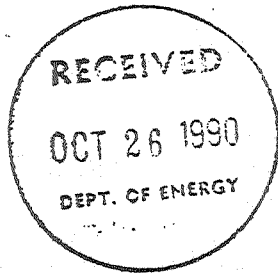
CASING AND TUBING PROGRAM Drill & Stimulate New Well

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor						
Fresh Water	9 5/8"	H40	29#	400'	400'	} C.T.S. 38CSR18-11.3
Coal						
Intermediate	7"	H40	20#	1700'	1700'	} C.T.S. 1200' or as required by 38CSR18 11.1
Production	4 1/2"	J55	10.5#	5422'	5422'	
Tubing						
Liners						

PACKERS : Kind \_\_\_\_\_  
 Sizes \_\_\_\_\_  
 Depths set \_\_\_\_\_

For Division of Oil and Gas Use Only

Fee(s) paid:  Well Work Permit  Reclamation Fund  WPCP  
 Plat  WW-9  WW-2B  Bond Smith Blanket  Agent  
 (Type)



- 1) Date: September 4, 1990
- 2) Operator's well number Underwood #2
- 3) API Well No: 47 - 017 - 3862  
State - County - Permit

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

- 4) Surface Owner(s) to be served:
  - (a) Name Berva Wise  
Address 5733 Kentucky Avenue  
Pittsburgh, PA 15232
  - (b) Name \_\_\_\_\_  
Address \_\_\_\_\_
  - (c) Name \_\_\_\_\_  
Address \_\_\_\_\_
- 5) (a) Coal Operator:
  - Name N/A  
Address \_\_\_\_\_
  - (b) Coal Owner(s) with Declaration  
Name N/A  
Address \_\_\_\_\_
  - Name \_\_\_\_\_  
Address \_\_\_\_\_
  - (c) Coal Lessee with Declaration  
Name N/A  
Address \_\_\_\_\_
- 6) Inspector Harold Mike Underwood  
Address Rt. 2, Box 114  
Salem, WV 26426  
Telephone (304)- 782-1043

TO THE PERSON(S) NAMED ABOVE TAKE NOTICE THAT:

\_\_\_\_\_ Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas OR

XX Included is the information required by Chapter 22B, Article 1, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22B of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through \_\_\_\_\_ on the above named parties, by:

- \_\_\_\_\_ Personal Service (Affidavit attached)
- X Certified Mail (Postmarked postal receipt attached)
- \_\_\_\_\_ Publication (Notice of Publication attached)

I have read and understand Chapter 22B and 38 CSR 11-18, and I agree to the terms and conditions of any permit issued under this application.

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, 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 Quaker State Corporation  
 By: Frank Rotunda  
 Its: Designated Agent  
 Address P.O. Box # 823  
Parkersburg, WV 26102  
 Telephone (614) 423-9543

Subscribed and sworn before me this 23rd day of October, 19 90

My commission expires \_\_\_\_\_  
Tina J. Russell Notary Public

Tina J. Russell  
Notary Public, State Of Ohio  
My Commission Expires June 23, 1995