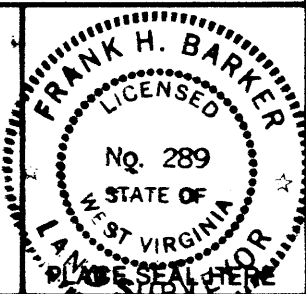


(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

DETAIL REFERENCE  
SCALE 1" = 200'

FILE NO. \_\_\_\_\_  
DRAWING NO. \_\_\_\_\_  
SCALE 1" = 1000 FT  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION Rd. Intersection  
EL. 612

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) Frank H. Barker  
R.P.E. \_\_\_\_\_ L.L.S. 289



**STATE OF WEST VIRGINIA**  
DEPARTMENT OF MINES  
**OIL AND GAS DIVISION**

DATE Oct 20 1984  
OPERATOR'S WELL NO. TOWNSEND NS 1  
API WELL NO. 47-107-1379  
STATE COUNTY PERMIT

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS,") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW \_\_\_  
LOCATION: ELEVATION 392 WATERSHED POND CREEK  
DISTRICT HARRIS 2 COUNTY WOOD  
QUADRANGLE POND CREEK 553 009' WOC 4 Belleville  
SURFACE OWNER LEO TOWNSEND ACREAGE 212.20  
OIL & GAS ROYALTY OWNER LEO TOWNSEND LEASE ACREAGE 212.20  
LEASE NO. \_\_\_\_\_

PROPOSED WORK: DRILL X 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 \_\_\_

TARGET FORMATION DEVONIAN SHALE ESTIMATED DEPTH 4500'  
WELL OPERATOR N.W. WELLS OIL & GAS EXP. & DEV. INC. DESIGNATED AGENT H.D. WELLS III  
ADDRESS P.O. Box 1785 ADDRESS \_\_\_\_\_  
CHARLESTON, W.VA. 25326 6-6 Neptune (255)

FORM IV-6 (8-78)  
H.T. HALL

COUNTY NAME  
 PERMIT  
 LONGITUDE 81° 40' 00"  
 13150

# RECEIVED

OCT 15 1985

(Rev. 8-81)  
DIVISION OF OIL & GAS  
DEPT. OF ENERGY



State of West Virginia  
Department of Mines  
Oil and Gas Division

Date October 14, 1985  
Operator's  
Well No. Townsend No. 1  
Farm Leo Townsend  
API No. 47 - 107 - 1379

WELL OPERATOR'S REPORT  
OF  
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

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

LOCATION: Elevation: 592 ft. (602 K) Watershed Pond Creek  
District: Harris County Wood Quadrangle Pond Creek 7.5'

COMPANY H. D. Wells Oil & Gas Exp. & Dev. Inc.

ADDRESS P.O. Box 1785, Charleston, WV 25326

DESIGNATED AGENT H. D. Wells, III

ADDRESS same as above

SURFACE OWNER Leo Townsend

ADDRESS Murraysville, WV 26153

MINERAL RIGHTS OWNER Leo Townsend

ADDRESS same

OIL AND GAS INSPECTOR FOR THIS WORK Glenn

Robinson ADDRESS Mineral Wells, WV 26150

PERMIT ISSUED 09/18/85

DRILLING COMMENCED 09/24/85

DRILLING COMPLETED 09/29/85

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.			
13-10"			
9 5/8	321.63'	321.63'	105 sks
8 5/8			
7	1841.42'	1841.42'	130 sks.
5 1/2			
4 1/2		3619.07'	170 sks.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale (Huron) Depth 3550 feet

Depth of completed well 3647 feet Rotary  / Cable Tools

Water strata depth: Fresh 55 feet; Salt 756 feet

Coal seam depths: n/a Is coal being mined in the area? no

OPEN FLOW DATA

Producing formation Devonian Shale Pay zone depth 2838-3526 feet

Gas: Initial open flow --- Mcf/d Oil: Initial open flow --- Bbl/d

Final open flow 115 Mcf/d Final open flow --- Bbl/d

Time of open flow between initial and final tests 8 hours

Static rock pressure 360 psig (surface measurement) after 4 hours shut in

(If applicable due to multiple completion--)

Second producing formation Berea/Gordon Pay zone depth 1942-1945 feet

Gas: Initial open flow --- Mcf/d Oil: Initial open flow --- Bbl/d

Final open flow 280 Mcf/d Oil: Final open flow --- Bbl/d

Time of open flow between initial and final tests 8 hours

Static rock pressure 250 psig (surface measurement) after 4 hours shut in

OCT 28 1985  
(Continue on reverse side)

115  
280  
395  
MCF  
FOF

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

1st Stage	2nd Stage	3rd Stage	4th Stage	5th Stage
600,000 SCF-N <sub>2</sub>	600,000 SCF-N <sub>2</sub>	700,000 SCF-N <sub>2</sub>	200,000# 20/40	45,000# 20/40
Max. Pres. 2750#	Max. Pres. 3050#	Max. Pres. 3300#	418,000 SCF-N <sub>2</sub>	330,000 SCF-N <sub>2</sub>
Final Pres. 2750#	Final Pres. 2900#	Final Pres. 3300#	Max. Pres. 2400#	Max Pres 1900#
Av. Pres. 1800#	Av. Pres 2650#	Av. Pres. 3100#	Final Pres. 2200#	Final Pres 1700#
250 gal. HCL-15%	250 gal. HCL-15%	250 gal. HCL-15%	Av. Pres. 2050#	Av Pres 1800#
3220'-3526' 8 holes	3043-74' 12 holes	2838'-56' 8 holes	250 Gal. HCL-15%	250 gal HCL-15%
			2211'-15' 12 holes	1942-1945'
Huron	Huron	Huron	Gordon	Berea

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Topsoil			0	15	
Sand			15	58	Fresh Water @ 55'
Shale			58	75	
Sand			75	156	
Shale			156	831	Salt Water @ 756'
Sand & Shale			831	893	
Shale			893	1296	
Sand			1296	1433	
Lime			1433	1478	
Sand (Injun)			1478	1940	
Shale			1940	1944	
Sand (Berea)			1944	1947	
Shale			1947	3650 LTD	
				Huron @ TD.	
<u>Electric Log Tops</u> ✓					
Elev. 592'					
K. B. 602 ✓					
Injun Sand (°°)			1429	1477	
Sunbury (Coffee) Shale			1922	1943	
Berea Sand			1943	1945	
Gordon Sand			2198	2215	
Shale			2215	3647 LTD	
From nearby log: up thickness					
up down dip: 1945 1150					
low dip: 3090					

(Attach separate sheets as necessary)

Well Operator  
By: [Signature]  
Date: 10/14/85

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 coal, encountered in the drilling of a well."

**RECEIVED**  
 SEP 17 1985



1) Date: \_\_\_\_\_, 19\_\_\_\_  
 2) Operator's Well No. TOWNSEND #1  
 3) API Well No. 47-107-1379  
 State \_\_\_\_\_ County \_\_\_\_\_ Permit \_\_\_\_\_

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

- 4) WELL TYPE: A Oil \_\_\_\_\_ / Gas X /  
 B (If "Gas", Production X / Underground storage \_\_\_\_\_ / Deep \_\_\_\_\_ / Shallow X /)
- 5) LOCATION: Elevation: 592' Watershed: Pond Creek  
 District: Harris 943 County: Wood Quadrangle: Pond Creek 7.5'
- 6) WELL OPERATOR H D WELLS OIL & GAS CODE: 52900 7) DESIGNATED AGENT H D WELLS III  
 Address Box 1785 Address Same  
Charleston, W. Va. 25326
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Glen P. Robinson  
 Address Rt 1 #6 Mt. Pleasant Estate  
Mineral Wells, W. Va. 26150
- 9) DRILLING CONTRACTOR:  
 Name \_\_\_\_\_  
 Address \_\_\_\_\_
- 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, Berea Sandstone/Devonian Shale 401  
 12) Estimated depth of completed well, 3600 feet  
 13) Approximate strata depths: Fresh, 52 feet; salt, 1060 feet.  
 14) Approximate coal seam depths: N/A Is coal being mined in the area? Yes \_\_\_\_\_ / No X /

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		
Conductor									
Fresh water	9 5/8	J55	26	X		300'	300'	to surface	Kinds <i>by rule 15.05</i>
Coal									Sizes
Intermediate	7			X		2100'	2100'	1000' fill	to
Production	4 1/2"	K55	10.5	X			3600'	200 ft <sup>3</sup>	Depths set:
Tubing									
Lin...									Perforations:
									Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-107-1379 Date September 18 1985

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 18, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <i>FB</i>	Agent: <i>MW</i>	Plat: <i>MMMN</i>	Casing <i>MMMN</i>	Fee <i>3665</i>	WPCP <input checked="" type="checkbox"/>	S&E <input checked="" type="checkbox"/>	Other
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*Margaret J. Hasse*  
 Director, Division of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.

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

File