



FILE NO. _____
 DRAWING NO. _____
 SCALE **1" = 500'**
 MINIMUM DEGREE OF ACCURACY **1:200**
 PROVEN SOURCE OF ELEVATION **ROAD INT. ELEV. 1089'**

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 R. [Signature]
 R.P.E. _____ L.L.S. **551**

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)



DATE **3 FEBRUARY**, 19 **84**
 OPERATOR'S WELL NO. **21**
 API WELL NO. **47 - 073 - 1798**
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL GAS LIQUID INJECTION _____ WASTE DISPOSAL _____
 (IF "GAS,") PRODUCTION STORAGE _____ DEEP _____ SHALLOW
 LOCATION: ELEVATION **800'** WATER SHED **JAVA RUN**
 DISTRICT **UNION** COUNTY **PLEASANTS**
 QUADRANGLE **RAVEN ROCK 7 1/2' QUAD ST. MARY'S 15' NC**
 SURFACE OWNER **H.L. BARNHART** ACREAGE **32 116 2**
 OIL & GAS ROYALTY OWNER **TECHWELL, INC.** LEASE ACREAGE **32**
 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 _____
 TARGET FORMATION **MARCELUS SHALE** ESTIMATED DEPTH **5990'**
 WELL OPERATOR **TECHWELL, INC.** DESIGNATED AGENT **DARUS ZEHRBACH**
 ADDRESS **P.O. BOX 796 MORGANTOWN, W.VA. 26505** ADDRESS **P.O. BOX 796 MORGANTOWN, W.VA. 26505**

Darius Zehrbach
598-2103



State of West Virginia
Department of Mines
Oil and Gas Division

Date Oct. 24, 1984
Operator's
Well No. Barnhart # 1
Farm
API No. 47 - 073 - 1798

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

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

LOCATION: Elevation: 800' Watershed Java Run
District: Union County Pleasants Quadrangle Raven Rock

COMPANY Techwell, Inc.
ADDRESS P.O. Box 796 Morgantown, WV 26505
DESIGNATED AGENT Darus H. Zehrbach
ADDRESS same
SURFACE OWNER H.L. Barnhart
ADDRESS Raven Rock, West Virginia
MINERAL RIGHTS OWNER Techwell, Inc.
ADDRESS BX 796 Morgantown, WV
OIL AND GAS INSPECTOR FOR THIS WORK Bob
Lowther ADDRESS Middlebourne, WV
PERMIT ISSUED March 1, 1984
DRILLING COMMENCED March 19, 1984
DRILLING COMPLETED March 31, 1984
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"	220	220	cement to the top
9 5/8			
8 5/8	1430	1430	
7			
5 1/2			
4 1/2	5350	5350	
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Shale Depth 5990 feet
Depth of completed well 5570 feet Rotary x / Cable Tools _____
Water strata depth: Fresh 190 feet; Salt 1465 feet
Coal seam depths: NA 1200' Is coal being mined in the area? no

OPEN FLOW DATA

Producing formation Dev. Shales Pay zone depth 5460 feet
Gas: Initial open flow none Mcf/d Oil: Initial open flow none Bbl/d
Final open flow 80.00 Mcf/d Final open flow none Bbl/d
Time of open flow between initial and final tests _____ hours
Static rock pressure 2265 psig (surface measurement) after 48 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 17 1984

(Continue on reverse side)

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

5464-5540 Rhinestreet

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of oil and salt water, coal, oil an
Overburden			0	20	
Shale & Sandstone			20	450	
Shale & Siltstone			450	500	
Shale & Sandstone			500	800	
Siltstone			800	820	
Shale			820	910	
Siltstone			910	980	
Sandstone			980	1050	
Shale & Siltstone			1050	1110	
Coal & Shale			1110	1130	
Sandstone & Shale			1130	1190	
Coal & Shale			1190	1200	
Coal			1200	1210	Kittaning?
Shale			1210	1240	
Sandstone			1240	1280	
Shale & Siltstone			1280	1340	
Sandstone			1340	1400	
Shale			1400	1440	
Limestone			1440	1520	Big Lime
Sandstone			1520	1551	
Limestone			1551	1570	
Sandstone			1570	1720	Big Injun
Shale			1720	2000	gas show 1690-1760
Siltstone & Shale			2000	2160	
Shale			2160	2320	
Sandstone			2320	2350	30 Foot
Shale			2350	2470	
Shale & Siltstone			2470	2550	
Shale			2550	2800	Devonian Shales
Shale & Siltstone			2800	3000	
Shale			3000	3440	
Shale & Siltstone			3440	3560	
Shale			3560	3770	
Shale & Siltstone			3770	4000	
Shale			4000	5540	producing zone 5464-5540
Siltstone			5540	5570	TD

Techwell, Inc.

Well Operator

By: E. Ray Garton-Geologist

Date: Oct. 24, 1984

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 any encountered in the drilling of a well."



1) Date: December 22, 19 83
 2) Operator's Well No. Barnhart #1
 3) API Well No. 47 - 73 - 1798
 State County Permit

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

- 4) WELL TYPE: A Oil / Gas
 B (If "Gas", Production / Underground storage Deep Shallow)
- 5) LOCATION: Elevation: 800' Watershed: Java Run
 District: Union County: Pleasants Quadrangle: Raven Rock
- 6) WELL OPERATOR Techwell, Inc. 7) DESIGNATED AGENT Darus H. Zehrbach
 Address P.O. Box 796 Address same
Morgantown, WV 26505
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:
 Name Mr. Bob Lowther Name _____
 Address General Delivery Address _____
Middlebourne, WV 26149
- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate
 Plug off old formation / Perforate new formation
 Other physical change in well (specify) _____
- 11) GEOLOGICAL TARGET FORMATION, Marcellus Shale
 12) Estimated depth of completed well, 5990 feet
 13) Approximate strata depths: Fresh, 190 feet; salt, 1465 feet.
 14) Approximate coal seam depths: none Is coal being mined in the area? Yes / No

RECEIVED
 FEB 11 1984
 OIL & GAS DIVISION
 DEPT. OF MINES

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	13			X		20	0		Kinds
Fresh water	11.75			X		220	220	CTS 15.05	
Coal									Sizes
Intermediate	8.625			X		1430	1430	CTS	
Production	4.5			X		5350	5350	CTS or 15.0	Depths set
Tubing									
Liners									Perforations: Top Bottom

OFFICE USE ONLY
 DRILLING PERMIT

Permit number 47-073-1798 Date March 1, 19 84

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 March 1, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u>ANKET</u>	Agent: <u>lo</u>	Plat: <u>MA</u>	Casing: <u>MH</u>	Fee: <u>7574</u> <u>758</u>
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Margaret J. Hassel
 Administrator, Office of Oil and Gas

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