

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

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Silt & Shale			0	70	
Sand			70	84	
Shale & Silt			84	432	
Sand			432	446	
Shale			446	616	
Sand, Shale, Silt			616	1598	
Salt Sand			1598	1824	
Shale			1824	1876	
Little Lime			1876	1935	
Blue Monday			1935	1942	
Pencil Cave			1942	1958	
Big Lime			1958	2067	
Keener			2067	2078	
Big Injun			2078	2100	
Pocono Shale			2100	2122	
Total Depth				2122	

(Attach separate sheets as necessary)

Pennzoil Company
Well Operator

By: Curtis A. Berman

Date: 12-4-84

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."

- 1) Date: April 12, 1984
 2) Operator's Well No. W. M. Looney #41
 3) SIC Code _____
 4) API Well NO. 47 - 087 - 3880-LI
 State County Permit
 5. UIC Permit No. _____

STATE OF WEST VIRGINIA
 NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
 for the
 OFFICE OF OIL AND GAS, DEPARTMENT OF MINES, AND FOR
 (CLASS II WELLS ONLY)
THE DIVISION OF WATER RESOURCES, DEPARTMENT OF NATURAL RESOURCES

RECEIVED
 APR 17 1984
 OIL & GAS DIVISION
 DEPT. OF MINES

- 6) WELL TYPE: Liquid injection / Gas injection (not storage) _____ / Waste disposal _____
 7) LOCATION: Elevation: 1046.36 Watershed: Trace Fork
 District: Smithfield County: Roane Quadrangle: Tariff 7.5'
 8) WELL OPERATOR Pennzoil Company 9) DESIGNATED AGENT James A. Crews
 Address P. O. Box 1588 Address P. O. Box 1588
Parkersburg, W. Va. 26101 Parkersburg, WV 26101
 10) OIL & GAS INSPECTOR TO BE NOTIFIED
 Name Homer Dougherty 11) DRILLING CONTRACTOR:
 Address Linden Rt., Box 3-A Name _____
Looneyville, WV Address _____
 12) PROPOSED WELL WORK: Drill / Drill deeper _____ / Redrill _____ / Stimulate _____
 Plug off old formation _____ / Perforate new formation _____ / Convert _____
 Other physical change in well (specify) _____
 13) GEOLOGICAL TARGET FORMATION, Big Injun Depth 2060 feet (top) to 2085 feet (bottom)
 14) Estimated depth of completed well, (or actual depth of existing well) 2140 ft.
 15) Approximate water strata depths; Fresh, 346 feet; salt, _____ feet.
 16) Approximate coal seam depths: _____
 17) Is coal being mined in the area? Yes _____ / No /
 18) Virgin reservoir pressure in target formation 80 psig. Source Estimated
 19) Estimated reservoir fracture pressure 2655 psig (BHFP)
 20) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour: 25 Bottom hole pressure 2000
 21) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES: Fresh Water
Bactericides
 22) FILTERS (IF ANY): Coal Filters
 23) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL: _____

24) 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									Kinds
Fresh water	<u>7</u>				<input checked="" type="checkbox"/>	<u>400' 300</u>	<u>400' 300</u>	<u>Cement to surface</u>	Sizes
Coal									
Intermediate									
Production	<u>4-1/2</u>	<u>K55</u>	<u>9.5</u>	<input checked="" type="checkbox"/>		<u>2138</u>	<u>2138</u>	<u>Over Lower Salt Sand</u>	Depths set
Tubing									
Liners									Perforations: Top Bottom

- 25) APPLICANT'S OPERATING RIGHTS were acquired from W. M. & Anna Looney
 by deed _____ / lease / other contract _____ / dated Dec. 13 1899, of record in the
Roane County Clerk's office in Lease Book 3 at page 390

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

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-087-3880-LI

May 11 19 84
Date

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 (if required) construction and reclamation plan, subject to any modifications and conditions specified below.

Permit expires May 11, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: US \$ 100,000	Agent: <i>[Signature]</i>	Plat: <i>[Signature]</i>	Casing: <i>[Signature]</i>	Fee: 17461
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[Signature: Michael J. Lewis]
Administrator, Office of Oil and Gas

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

PERMIT MODIFICATIONS AND CONDITIONS (IF ANY) TO THE PROPOSED WELL WORK

OFFICE USE ONLY

This part of Form IV-3(b) is to record the dates of certain occurrences and any follow-up inspections.

	Date	Follow-up inspection(s)	Date(s)
Application received			
Well work started		" "	
Total depth reached		" "	
Well Record received		" "	
Reclamation completed		" "	
OTHER INSPECTIONS			

Reason: _____

Reason: _____