

Minimum Error of Closure 1 in 200

Source of Elevation Elevation taken from well no. 1-A = 1050

- Fracture.....
- New Location.....
- Drill Deeper.....
- Abandonment.....

I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia.

Signed: Walter G. Gilbertson

Map No. \_\_\_\_\_ Squares: N S E W

Carnegie Natural Gas Company  
 800 Regis Avenue  
 Pittsburgh, Pennsylvania 15236  
 Surface: Virgil D. Zinn

Tract \_\_\_\_\_ Acres 100.0 Lease No. 6042  
 Well (Farm) No. 2 Serial No. 1839  
 Elevation (Spirit Level) 1060  
 Quadrangle PULLMAN 7 1/2'  
 County RITCHIE District UNION  
 Engineer Walter G. Gilbertson  
 Engineer's Registration No. 5112  
 File No. \_\_\_\_\_ Drawing No. \_\_\_\_\_  
 Date JUNE 20, 1980 Scale 1" = 500'

WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS  
 #10 McJUNKIN ROAD  
 NITRO, WEST VIRGINIA 25143-2506

**WELL LOCATION MAP**

Ord Well No. 47-085-04872-7  
 Well was drilled in 1980 by Carnegie  
 TP. 6501' Production from Shale.  
 Set temporary plug free Berea, then  
 & Unjam remove plug commingle  
 with shale.

MAY 23 1997

DEEP WELL

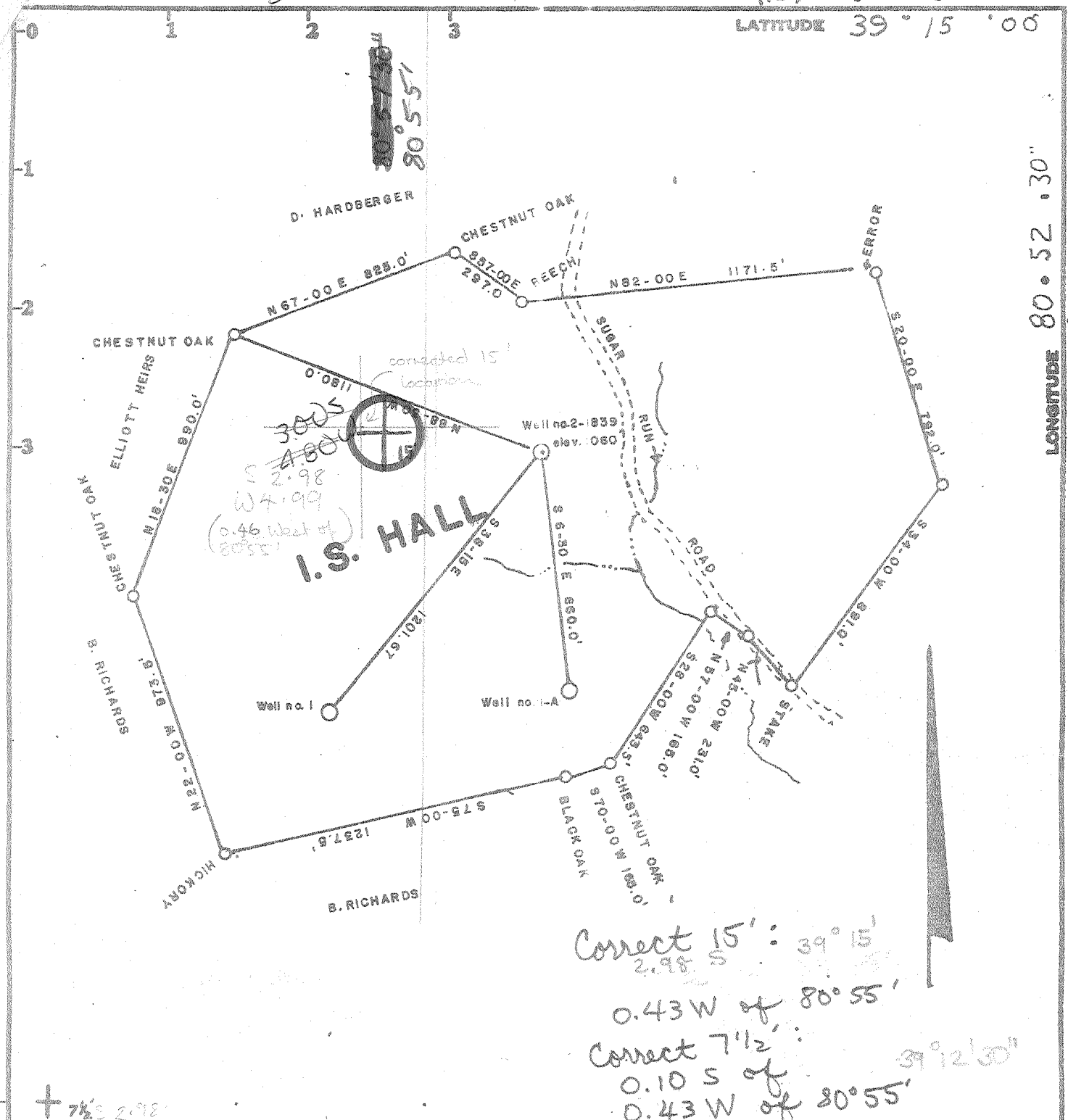
6500' DEVONIAN SHALE

1 - 35 plot

7-15-80

(15') 39° 15'

LATITUDE 39° 15' 00"



LONGITUDE 80° 52' 30" (15') 80° 50'

+ 7 1/2' 2.98' 2.76

Minimum Error of Closure 1 in 200  
Source of Elevation Elevation taken from well no. 1-A = 1050

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- Fracture.....
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- Abandonment.....

Signed: Walter P. Gilbertson  
Squares: N S E W

Map No. \_\_\_\_\_

Company CARNEGIE NATURAL GAS

Address MUNHALL, PENN.

Farm I. S. HALL

Tract \_\_\_\_\_ Acres 100.0 Lease No. 6042

Well (Farm) No. 2 Serial No. 1839

Elevation (Spirit Level) 1060 HOLBROOK 15'

Quadrangle PULLMAN 7 1/2' NW

County RITCHIE District UNION

Engineer Walter P. Gilbertson

Engineer's Registration No. 5112

File No. \_\_\_\_\_ Drawing No. \_\_\_\_\_

Date JUNE 20, 1980 Scale 1" = 500'

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

**WELL LOCATION MAP**  
**085-4872**

FILE NO. \_\_\_\_\_

+ Denotes location of well on United States Topographic Maps, scale 1 to \_\_\_\_\_, latitude and longitude lines being represented by border lines as shown.

- Denotes one inch spaces on border line of original tracing.

TRASCO MC475  
3-3 BEASON RUN

6500' DEVONIAN SHALE  
DEEP WELL 129



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES

RECEIVED

JUL 14 1980

Oil and Gas Division

OIL & GAS DIVISION  
DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,  
Charleston, W. Va.

DATE July 11, 1980

Surface Owner Virgil Ann et al.

Company Carnegie Natural Gas Company

Address Pullman, West Va. 26121

Address 3901 Main Street, Monhall, Pa. 15120

Mineral Owner Virgil Ann et al.

Farm I. S. Hall Acres 100

Address Pullman, West Va. 26121

Location (waters) Sugar Run

Coal Owner \_\_\_\_\_

Well No. 2-1839 Elevation 1000'

Address \_\_\_\_\_

District Union County Ritchie

Coal Operator \_\_\_\_\_

Quadrangle Holbrook N.W.

Address \_\_\_\_\_

THIS PERMIT MUST BE POSTED AT THE WELL SITE

All provisions being in accordance with Chapter 22, of the W. Va. Code, the location is hereby approved for drilling. This permit shall expire if operations have not commenced by 3-15-81.

INSPECTOR TO BE NOTIFIED Goodnight

ADDRESS \_\_\_\_\_

PHONE 477-3660

John K. Kerstall  
Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated March 1, 1907 19   by I. S. & Mattie I. Hall made to T. P. Foley and recorded on the August 27, day of    19  , in Ritchie County, Book 31 Page 511

NEW WELL \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE  
\_\_\_\_\_ OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days. \*

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address \_\_\_\_\_ day \_\_\_\_\_ before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY  
P. O. BOX 879  
MORGANTOWN, WEST VIRGINIA 26505  
AC-304 - 292-6331

Address of Well Operator

Very truly yours, Carnegie Natural Gas Company  
(Sign Name) W. S. Yoho  
Well Operator

3901 Main Street,  
Street  
Monhall,  
City or Town  
Pennsylvania, 15120  
State

\*SECTION 3 . . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that the same is approved and the well operator authorized to proceed.

47-085-4872

BLANKET BOND

PERMIT NUMBER

*January*

THIS IS AN ESTIMATE ONLY  
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO \_\_\_\_\_ DRILL  DEEPEN \_\_\_\_\_ FRACTURE-STIMULATE \_\_\_\_\_  
 DRILLING CONTRACTOR: (If Known) \_\_\_\_\_ RESPONSIBLE AGENT: \_\_\_\_\_  
 NAME \_\_\_\_\_ NAME \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ ADDRESS \_\_\_\_\_  
 TELEPHONE \_\_\_\_\_ TELEPHONE \_\_\_\_\_  
 ESTIMATED DEPTH OF COMPLETED WELL: 6500' ROTARY  CABLE TOOLS \_\_\_\_\_  
 PROPOSED GEOLOGICAL FORMATION: Devonian shale  
 TYPE OF WELL: OIL \_\_\_\_\_ GAS  COMB. \_\_\_\_\_ STORAGE \_\_\_\_\_ DISPOSAL \_\_\_\_\_  
 RECYCLING \_\_\_\_\_ WATER FLOOD \_\_\_\_\_ OTHER \_\_\_\_\_

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16			
<del>13 - 10</del> <u>11-3/4"</u>	<u>30'</u>		
9 - 5/8			
8 - 5/8	<u>1900'</u>	<u>1900'</u>	<u>To surface</u>
7			
5 1/2			
4 1/2	<u>6500'</u>	<u>6500'</u>	<u>1000'</u>
3			Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS \_\_\_\_\_ FEET SALT WATER \_\_\_\_\_ FEET  
 APPROXIMATE COAL DEPTHS \_\_\_\_\_  
 IS COAL BEING MINED IN THE AREA? No BY WHOM? \_\_\_\_\_

TO DRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, \$100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAT.

TO DRILL DEEPER OR REDRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND. ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAT AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE:

OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAT AND ORIGINAL WELL RECORD.

OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.

Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty-four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt thereof.

WAIVER: I the undersigned, Agent for \_\_\_\_\_ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

We the \_\_\_\_\_ Coal Company have no objections to said well being drilled at this location, providing operator has complied with all rules and regulations in Articles 4, 5, and 7, Chapter 22 of the West Virginia Code.

\_\_\_\_\_  
For Coal Company

\_\_\_\_\_  
Official Title

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

Date: April 16, 1981

FORM IV-35  
(Obverse)

Operator's Well No. 2-1839

[08-78]

WELL OPERATOR'S REPORT / 3  
OF  
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

API Well No. 47 - 085 - 4872  
State County Permit

WELL TYPE: Oil \_\_\_ / Gas X / Liquid Injection \_\_\_ / Waste Disposal \_\_\_ /  
(If "Gas", Production X / Underground storage \_\_\_ / Deep X / Shallow \_\_\_ /)  
LOCATION: Elevation: 1060' Watershed: Sugar Run  
District: Union County: Ritchie Quadrangle: Holbrook N.W.

WELL OPERATOR Carnegie Natural Gas Company DESIGNATED AGENT W. L. Yoho  
Address 3904 Main Street Murhall, PA 15120 Address Toll Gate, WV 26142

PERMITTED WORK: Drill X / Convert \_\_\_ / Drill deeper \_\_\_ / Redrill \_\_\_ / Fracture or stimulate \_\_\_  
Plug off old formation \_\_\_ / Perforate new formation \_\_\_  
Other physical change in well (specify) \_\_\_\_\_

PERMIT ISSUED ON July 15, 19 80 OIL & GAS INSPECTOR FOR THIS WORK:  
(IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED) Name Paul Goodnight  
Address Smithville, WV 26178

GEOLOGICAL TARGET FORMATION: Devonian Shale Depth 6500 feet  
Depth of completed well, 6483 feet Rotary X / Cable Tools \_\_\_  
Water strata depth: Fresh, 70 feet; salt, \_\_\_ feet.  
Coal seam depths: \_\_\_\_\_ Is coal being mined in the area? No  
Work was commenced 8/21, 19 80, and completed 10/24, 19 80

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		
Conductor	11-3/4			X			31'	Kinds NONE
Fresh water								
Coal								Sizes
Intermediate	8-5/8			X			1946'	600 sks.
Production	4-1/2			X			6483'	700 sks.
Tubing								Deaths set
Liners								Perforations:
								Top Bottom

OPEN FLOW DATA

Producing formation: Devonian Shale-Alexander-Benson Pay zone depth 4731-6382 feet  
Gas: Initial open flow, see below Mcf/d Oil: Initial open flow, \_\_\_ Mbl/d  
Final open flow, \_\_\_ Mcf/d Final open flow, \_\_\_ Mbl/d  
Time of open flow between initial and final tests, \_\_\_ hours  
Static rock pressure, \_\_\_ psig (surface measurement) after \_\_\_ hours shut in

Second producing formation: Balltown-Bradford-Riley-Warren Pay zone depth 3284-4510 feet  
Gas: Initial open flow, 29 Mcf/d Oil: Initial open flow, \_\_\_ Mbl/d  
Final open flow, 355 Mcf/d Final open flow, \_\_\_ Mbl/d  
Time of open flow between initial and final tests, \_\_\_ hours  
Static rock pressure, 680 psig (surface measurement) after 17 hours shut in

MAY 12 1981

[08-78]

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

~~Huntersville~~  
 Devonian Shale 219bbl.; 3,000 # Sand; 500 gal. 15% acid; 6128-6382  
 w/19 holes  
 Benson & Alexander 768bbl.; 80,000 # Sand; 500 gal. 15% acid; 4731-5175  
 w/20 holes  
 Balltown-Bradford  
 & Riley 550bbl.; 55,000 # Sand; 600 gal. 15% acid; 3840-4510  
 w/16 holes  
 Warren & Speechley 540bbl.; 60,000 # Sand; 500 gal. 15% acid 3284-3461  
 w/23 holes

WELL LOG

FORMATION	Color	Hard or Soft	Top Feet	Bottom Feet	Remarks Including indication of all fresh and salt water, coal, oil and gas
Clay			0	7	
Shale			7	35	
Sand			35	275	
Sandy Shale			275	350	
Sand			350	385	
Red Shale			385	395	
Red Rock			395	410	
Sand			420	440	
Shale			440	450	
Red Rock			450	465	
Sandy Shale			465	725	
Shale			725	730	
Shale			730	985	
Red Rock			985	1045	
Sand			1045	1095	
Shale			1095	1260	
Red Rock			1260	1405	
Sand			1405	1420	
Red Rock			1420	1450	
Shale			1450	1465	
Sand			1465	1500	
Sandy Shale			1500	1725	
Sand			1725	1839	
Shale			1839	1909	
Little Lime			1909	1939	
Pencil Cave			1939	1948	
Big Lime			1948	2013	
Big Injun			2013	2066	
Shale			2066	2280	
Sand			2280	2400	
Shale			2400	2565	
Sand			2565	2580	
Shale			2580	2850	
Shale			2850	3360	
Shale & Sand			3360	3460	
Shale			3460	3800	
Shale & Sand			3800	6350	
Shale			6350	6445	
Line HUNTERSVILLE			6445	6501	

(Attach separate sheets to complete as necessary.)  
6501 L.T.D.

Carnegie Natural Gas Company

Well Operator

6501  
5175  
1226 expl. ft.

By Herbert J. Duvall  
Geologist

NOTE: Regulation 2.01(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."



HALL WELL 1839

1. Set Plug at 2440'
2. Perforate at 2430'
3. Squeeze from 2430' to 1700'
4. Run Bond Log
5. Drill Out Cement and Plugs
6. Set Plug at 2500'
7. Perforate and Fracture Berea and Weir Sands, 350 sks.  
EW/Crosslink
8. Set Plug at 2400'
9. Perforate and Fracture Big Injun, 400 sks. EW/Crosslink

Top Of Existing Cement @ 2440'

Top Existing Perforation - 3285'

RECEIVED  
MAY 13 1997  
Office of Oil & Gas

47-085-04812-7



1) Date: MAY 12, 1997  
2) Operator's well number  
HALL 1839  
3) API Well No: 47 - 085 - 4872  
State County Permit

STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT  
DIVISION OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

RECEIVED  
MAY 12 1997  
Office of Oil & Gas

- 4) Surface Owner(s) to be served: 5) (a) Coal Operator:
- (a) Name VIRGIL D. ZINN Name NO COAL  
Address RT #1 BOX 51 Address \_\_\_\_\_  
PULLMAN, WV 26421
- (b) Name \_\_\_\_\_ (b) Coal Owner(s) with Declaration  
Address \_\_\_\_\_ Name \_\_\_\_\_  
Address \_\_\_\_\_
- (c) Name \_\_\_\_\_ Name \_\_\_\_\_  
Address \_\_\_\_\_ Address \_\_\_\_\_
- 6) Inspector SAMUEL HERSMAN (c) Coal Lessee with Declaration  
Address RT #1 BOX 240 Name \_\_\_\_\_  
HARRISVILLE, WV 26362-0240 Address \_\_\_\_\_  
Telephone (304)- 628-3185

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**

  x   Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22 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:

- x   Personal Service (Affidavit attached)
- Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 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.

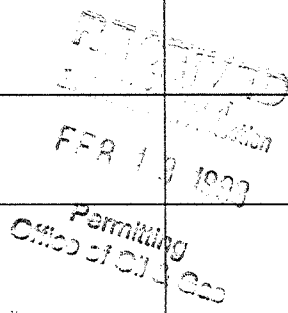
Well Operator CARNEGIE NATURAL GAS COMPANY  
By: *Douglas R. May*  
Its: MANAGER OF PRODUCTION  
Address P. O. BOX 387  
MANNINGTON, WV 26582  
Telephone 304-986-2060

Subscribed and sworn before me this 12TH day of MAY, 1997

*D. Wayne Jones* Notary Public  
My commission expires OCTOBER 26, 2001

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas  
Well Operator's Report of Well Work

FARM NAME Zinn, Virgil D. OPERATOR WELL NO. Hall 1839  
LOCATION: ELEVATION 1,060.00 QUADRANGLE Pullman  
DISTRICT: Union COUNTY Ritchie  
LATITUDE: 560 Feet South of 39 Deg. 12 Min. 30 Sec.  
LONGITUD:E 2700 Feet West of 80 Deg. 55 Min. 0 Sec.

COMPANY:	CARNEGIE NATURAL GAS CO. 800 REGIS AVENUE PITTSBURGH, PA 15236	CASING/ TUBING SIZE	USED IN DRILLING	LEFT IN WELL	CEMENT FILL UP CU. FT.
AGENT:	DOUGLAS R. NAY				
INSPECTOR:	Sam Hersman	No Additional Pipe Run			
PERMIT ISSUED:	5/21/97				
WELL WORK COMMENCED:	5/30/97	Refer to Original Report			
WELL WORK COMPLETED:	7/7/97				
VERBAL PLUGGING PERMISSION GRANTED ON: ROTARY _____ CABLE _____ RIG _____					
TOTAL DEPTH (FEET):	6483'				
FRESH WATER DEPTHS (FT):					
SALT WATER DEPTHS (FT):					
IS COAL BEING MINED IN AREA (Y/N)					
COAL DEPTHS (FT):					

OPEN FLOW DATA

\* Squeeze Cement existing 4.5" csg. See Treatment

PRODUCING FORMATION Berea, Weir PAY ZONE DEPTH (FT) 2335-2426'  
GAS INITIAL OPEN FLOW - MCF/d OIL INITIAL OPEN FLOW \_\_\_\_\_ Bbl/d  
FINAL OPEN FLOW Co-mingled 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

SECOND PRODUCING FORMATION Big Injun PAY ZONE DEPTH (FT) 2033-2060'  
GAS INITIAL OPEN FLOW - MCF/d OIL INITIAL OPEN FLOW \_\_\_\_\_ Bbl/d  
FINAL OPEN FLOW 179 MCF/d FINAL OPEN FLOW \_\_\_\_\_ Bbl/d  
TIME OF OPEN FLOW BETWEEN INITIAL AND FINAL TESTS \_\_\_\_\_ HOURS  
STATIC ROCK PRESSURE 150 Psig (SURFACE PRESSURE) AFTER 16 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: CARNEGIE NATURAL GAS COMPANY  
BY: Douglas R. Nay  
DATE: 2/9/98

REC 20 1111

Squeeze Cement Data:

Set Bridge Plug @ 2627' Original 4.5 Cmt. top @ 2442'.

Perforated 4.5" csg. @ 2403', Squeeze cemented with 125 sks. of 50/50 POZ, 4.5" cement top @ 1750'. Drilled wiper plug and cmt. out to 2627'.

Well Treatment:

First Stage

Perforated Berea & Weir (2335-2426') 12 holes, Treated with Energized XLink Frac, 500 gal 15 % HCL, 300 sks. 20/40 sand and 72,000 SCF N<sub>2</sub>, BD 1758 psi, MTP 2318 psi, ATP 1847 psi @ 20 BPM rate, ISIP 1271 psi.

Set Big Mouth Frac Plug @ 2110'

Second Stage

Perforated Big Injun (2033-2060'), 12 holes, Treated with Energized XLink Frac, 500 gal 15 % HCL, 400 sks. 20/40 sand and 55,000 SCF N<sub>2</sub>, BD 1140 psi, MTP 4077 psi, ATP 2560 psi @ 19 BPM rate, ISIP 2853 psi.

Flowed well back and drilled out all cement and plugs to T.D. 6483'.