

*Jamie 6/30/89*

# DAUGHERTY LEASE WELL NO. 4

CARNEGIE

N 89-47 E 2056.4'

N 2-49 W 172.1'

N 48-20 E 118.6'

N 2-38 E 260.0'

S 89-54 W 193.1'

7834 (25)

DAUGHERTY NO. 1

N 37-14 E 647.26'

DAUGHERTY

1" IRON PIN

S 82-05 W 429.6'

DODDRIDGE  
RITCHIE  
CO.

## 62.82 AC. ±

2" REBAR

N 74-25 W 991.11'

N 81-48 W

1241.69'

WELL NO. 4

S 79-31 W 1369.17'

S 7-09 W 418.4'

N 83-52 E 315.6'

S 2-09 E 896.5'

CRANE et. ux.

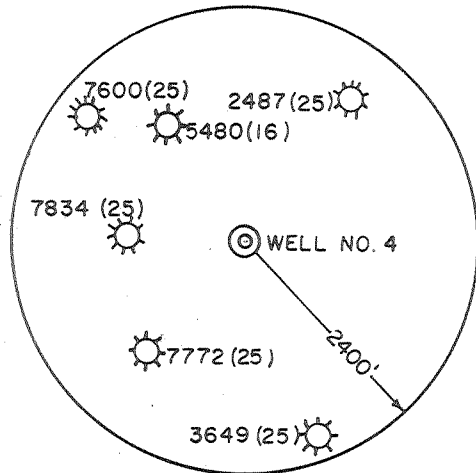
S 6-15 E 304.3'

N 68-47 W 1152.0'

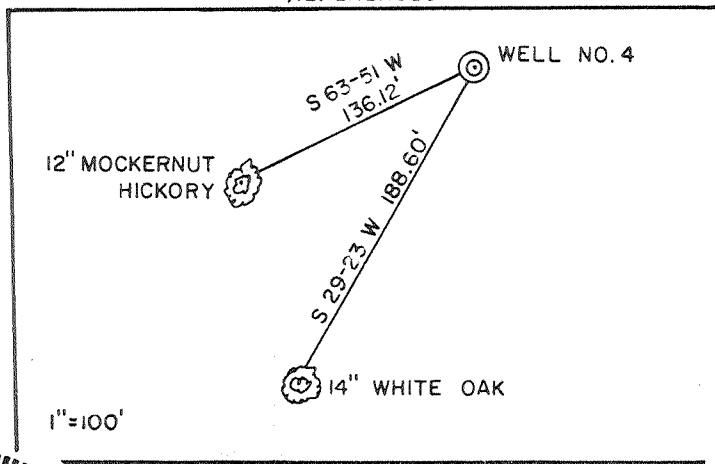


LONGITUDE 80-52-30

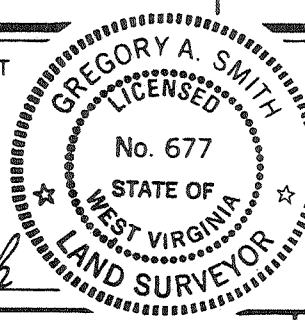
NORTH



### REFERENCES



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.



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

DATE MARCH 29, 1989

OPERATORS WELL NO. DAUGHERTY NO. 4

API WELL NO. 47 - 017 - 3731  
STATE COUNTY PERMIT

L.L.S. Gregory A. Smith  
677

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 2045 (26-73)  
PROVEN SOURCE OF ELEVATION JUNCTION OF ROADS 799' SCALE 1" = 500'

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY  
OIL AND GAS DIVISION



WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 944' WATERSHED DOTSON RUN DISTRICT CENTRAL COUNTY DODDRIDGE QUADRANGLE PENNSBORO 7.5' 539

SURFACE OWNER EARL DAUGHERTY ACREAGE 62.824 ROYALTY OWNER PHYLLIS McKOWN et. al. LEASE ACREAGE 62.824 OF 119.05'

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION ALEXANDER ESTIMATED DEPTH 5600

WELL OPERATOR APPALACHIAN ENERGY DEVELOPMENT DESIGNATED AGENT GEORGE WILLIAMS  
ADDRESS RT. 2 BOX 499 GRAFTON, WV. 26354 397 ADDRESS RT. 2 BOX 499 GRAFTON, WV 26354

COUNTY NAME PERMIT



Date September 11, 1989  
Operator's  
Well No. #4  
Farm E. Daugherty  
API No. 47 - 017 - 3731

**RECEIVED**  
SEP 25 1989

State of West Virginia  
DEPARTMENT OF ENERGY  
Oil and Gas Division

DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

WELL OPERATOR'S REPORT  
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

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

LOCATION: Elevation: 944' Watershed Dotson Run  
District: Central County Doddridge Quadrangle Pennsboro 7.5'

COMPANY Appalachian Energy Development, Inc.

ADDRESS Rt. 2, Box 499 Grafton, WV 26354

DESIGNATED AGENT George R. Williams

ADDRESS Rt. 2, Box 499 Grafton, WV 26354

SURFACE OWNER Earl Daugherty

ADDRESS 402 Church St., West Union, WV 26456

MINERAL RIGHTS OWNER Phyllis McKown et al

ADDRESS 322 Westside Dr. Wichita Falls, TX

OIL AND GAS INSPECTOR FOR THIS WORK Mike

Underwood ADDRESS Rt. 2, Box 135 Salem, WV

PERMIT ISSUED 7/3/89

DRILLING COMMENCED 8/1/89

DRILLING COMPLETED 8/8/89

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"	162	162	90 sks
9 5/8			
8 5/8	1447	1447	325 sks
7			
5 1/2			
4 1/2	5171	5171	490 sks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Alexander Depth 5300 feet

Depth of completed well 5219 feet Rotary X / Cable Tools    

Water strata depth: Fresh 100 feet; Salt 1390 feet

Coal seam depths: 858-864' Is coal being mined in the area? No

OPEN FLOW DATA  
Producing formation Alexander, Benson & Riley Pay zone depth 4618-4621 feet  
Gas: Initial open flow 47 Mcf/d Oil: Initial open flow show Bbl/d  
combined Final open flow 915 Mcf/d Final open flow 3 Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1490 psig (surface measurement) after 24 hours shut in  
(If applicable due to multiple completion--)

Second producing formation Balltown, Bradford & Warren Pay zone depth 3242-3283 feet

Gas: Initial open flow 47 Mcf/d Oil: Initial open flow show Bbl/d

combined Final open flow 915 Mcf/d Oil: Final open flow 3 Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1490 psig (surface measurement) after 24 hours shut in

SEP 29 1989

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

1st Stage Alexander & Benson	5-.39 holes 5050-5058	Fraced with 75 Quality Form
	5-.39 holes 4762-4766	47600#Sand, 500 HCL, 251 Bbl H2O, 532,000 Scf N2
2nd Stage 3rd Riley & Riley	3-.39 holes 4618-4621	Fraced with 75 Quality Foam
	5-.39 holes 4382-4397	31200#Sand, 500 HCL, 221 Bbl H2O 412,900 Scf N2
3rd State Balltown, Bradford Warren	3-.39 holes 3968-3972	Fraced with 75 Quality Foam
	3-.39 holes 3724-3726	30600#Sand, 500 HCL, 191 Bbl H2O
	9-.39 holes 3242-3283	248,600 Scf N2

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Sand			0	10	
Sand & Shale			10	102	Hole damp at 100'
Shale			102	114	
Sand & Shale			114	136	
Sand			136	176	
Sand & Shale			176	315	
Red Rock			315	321	
Shale & Sand			321	370	
Red Rock			370	383	
Shale & Sand			383	818	
Red Rock			818	833	
Sand & Shale			833	858	
Coal			858	864	
Sand & Shale			864	889	
Red Rock			889	919	
Sand & Shale			919	956	
Shale			956	976	
Sand & Shale			976	1101	
Sandy Shale			1101	1204	
Shale			1204	1218	
Sand			1218	1265	
Sand & Shale			1265	1335	
Sand (white)			1335	1400	
Sand & Shale			1400	1720	
Little Lime			1720	1750	
Shale			1750	1770	
Big Lime			1770	1890	
Big Injun			1890	1960	
Shale			1960	2140	
Weir			2140	2212	
Sand & Shale			2212	3205	
Warren			3205	3285	
Sandy Shale			3285	4360	
Riley			4360	4399	
Sandy Shale			4399	4600	
Third Riley			4600	4623	
Benson			4760	4769	
Alexander			5048	5061	
ID				5129	

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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Appalachian Energy Development, Inc.

Well Operator

By: Meredith Williams

Date: Sept. 12, 1989

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 all encountered in the drilling of a well."

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

Issued 7/3/89

Expires 7/3/91

- 1) Well Operator: Appalachian Energy Development <sup>247</sup> 2325, 1, 538
- 2) Operator's Well Number: Daucherty Well No. 4 3) Elevation: 944'
- 4) Well type: (a) Oil  / or Gas  /  
(b) If Gas: Production  / Underground Storage  /  
Deep  / Shallow  /
- 5) Proposed Target Formation(s): Alexander
- 6) Proposed Total Depth: 5600' feet
- 7) Approximate fresh water strata depths: 50'
- 8) Approximate salt water depths: N/A
- 9) Approximate coal seam depths: N/A
- 10) Does land contain coal seams tributary to active mine? Yes  / No  /
- 11) Proposed Well Work: Drill & Stimulate New Well
- 12)

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	
Conductor	11 3/4"			150'	150'	CTS.
Fresh Water	8 5/8"			1450'	1450'	CTS - 38 CSR 18-11.3
Coal						
Intermediate						
Production	4 1/2"			5600'	5600'	By Rule 38 CSR 18-11.1
Tubing						
Liners						

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

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For Division of Oil and Gas Use Only

DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

Fee(s) paid: 15 Well Work Permit 15 Reclamation Fund 15 WPCP  
Plat 15 WW-9 15 WW-2B 15 Bond 50 Agent

(Type)

9087

2977  
15

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JUN 30 1989

Date: April 11th, 1989  
Operator's well number  
Daugherty Well No. 4  
API Well No: 47 - 017 - 3731  
State - County - Permit

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

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

- |   |   |
|---|---|
| <p>4) Surface Owner(s) to be served:</p> <p>(a) Name <u>Earl Daugherty</u><br/>Address <u>402 Church Street</u><br/><u>West Union, WV 26456</u></p> <p>(b) Name _____<br/>Address _____</p> <p>(c) Name _____<br/>Address _____</p> | <p>5) (a) Coal Operator:</p> <p>Name <u>N/A</u><br/>Address _____</p> <p>(b) Coal Owner(s) with Declaration</p> <p>Name <u>N/A</u><br/>Address _____</p> <p>Name _____<br/>Address _____</p> <p>(c) Coal Lessee with Declaration</p> <p>Name <u>N/A</u><br/>Address _____</p> |
| <p>6) Inspector <u>Mike Underwood</u><br/>Address <u>Rt. 2, Box 135</u><br/><u>Salem, WV 26426</u><br/>Telephone <u>(304)-782-1043</u></p>  |   |

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 7 on the above named parties, by:

- XX Personal Service (Affidavit attached)
- \_\_\_\_\_ 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 Appalachian Energy Development  
By: Gregory A. Smith  
Its: President  
Address Rt. 2, Box 499  
Grafton, WV 26354  
Telephone 265 - 4147

Subscribed and sworn before me this 11th day of April, 1989

Gregory A. Smith Notary Public  
My commission expires 12-7-92