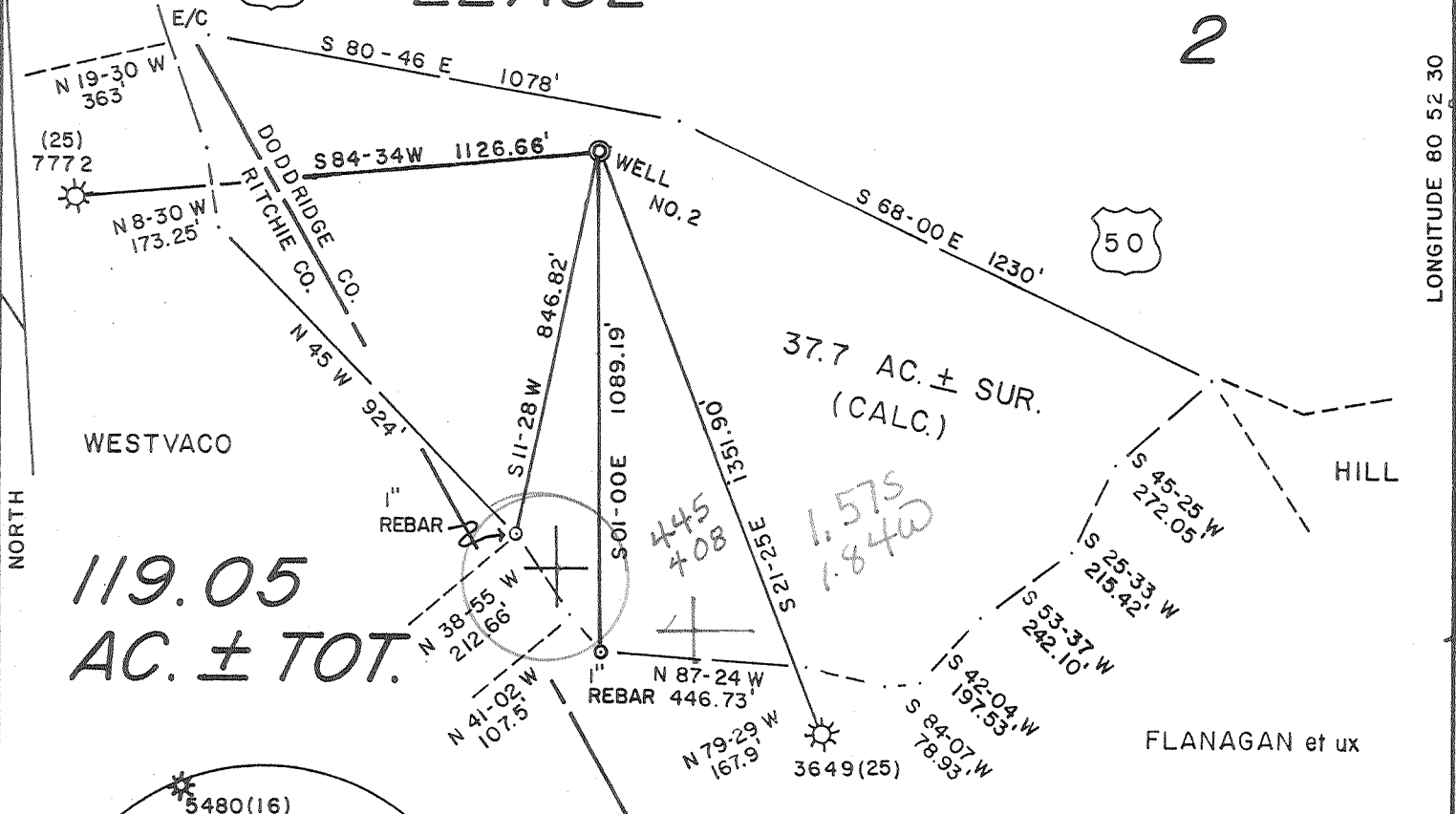


Jamie 3/24/89

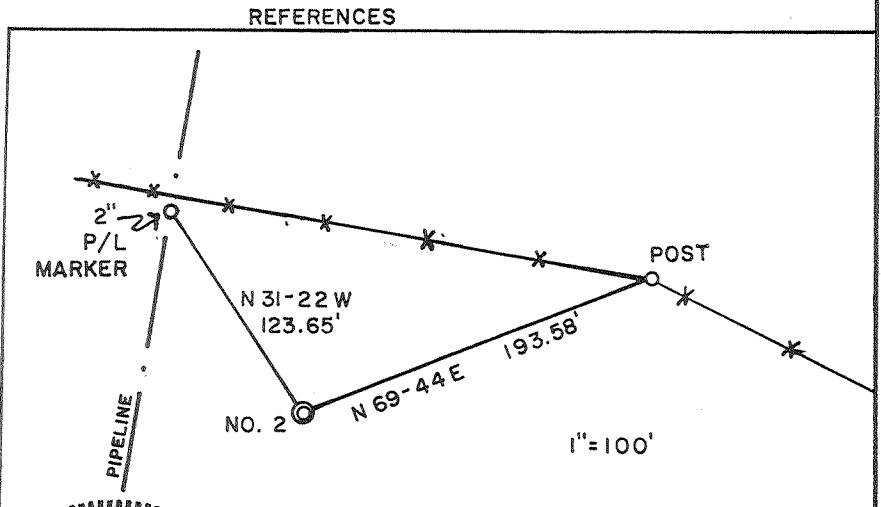
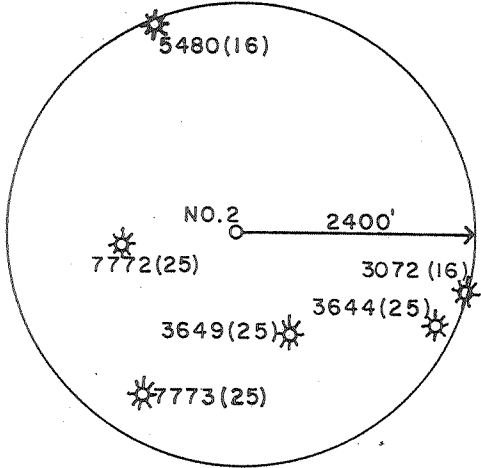
DAUGHERTY LEASE

WELL NO. 2



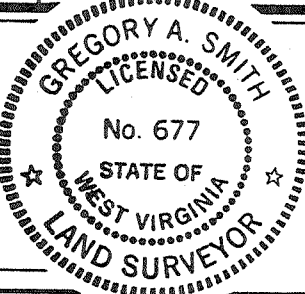
119.05 AC. ± TOT.

37.7 AC. ± SUR. (CALC.)



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.


L.L.S. Gregory A. Smith
677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MARCH 14, 19 89
OPERATORS WELL NO. DAUGHERTY NO. 2
API WELL NO. 47 - 017 - 3708
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 2040 (26-65)
PROVEN SOURCE OF ELEVATION TOP OF KNOB 1090' SCALE 1" = 400'

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 885' WATERSHED DOTSON RUN OF NORTH FORK HUGHES RIVER West Union SC
DISTRICT CENTRAL COUNTY DODDRIDGE QUADRANGLE PENNSBORO 7.5' 539
SURFACE OWNER WESTVACO ACREAGE 37.7 AC. ± (CALC) 133
ROYALTY OWNER PHYLLIS MCKOWN ET. AL. LEASE ACREAGE 119.05 8
PROPOSED WORK: LEASE NO. _____
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 5200'

WELL OPERATOR APPALACHIAN ENERGY DEVELOPMENT DESIGNATED AGENT GEORGE WILLIAMS MAR 24 1989
ADDRESS RT. 2 BOX 499 GRAFTON, WV. ADDRESS RT. 2 BOX 499 GRAFTON, WV.
397 26354 6-6 Pennsboro-Tollgate (088) 26354

LONGITUDE 80 52 30

COUNTY NAME PERMIT

SLS



WR-35 RECEIVED JUN 05 1989

DIVISION OF OIL & GAS DEPT. OF ENERGY

State of West Virginia

DEPARTMENT OF ENERGY

Oil and Gas Division

Date 6/1/89

Operator's Well No. 2

Farm Daugherty

API No. 47 - 017 - 3708

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 /)

LOCATION: Elevation: 4167 Watershed Dotson Run District: Central County Doddridge Quadrangle Pennsboro

COMPANY Appalachian Energy Dev., Inc.

ADDRESS Rt. 2, Box 499, Grafton, WV 26354

DESIGNATED AGENT George R. Williams

ADDRESS Rt. 2, Box 499, Grafton, WV 26354

SURFACE OWNER Westvaco Corp.

ADDRESS P.O. Box 577, Rupert, WV 25984

MINERAL RIGHTS OWNER Phyllis McKown, et al

ADDRESS Pennsboro, WV

OIL AND GAS INSPECTOR FOR THIS WORK Mike Underwood

ADDRESS Salem, WV

PERMIT ISSUED 3/24/89

DRILLING COMMENCED 4/12/89

DRILLING COMPLETED 4/19/89

IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Table with 4 columns: Casing & Tubing Size, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include sizes 13-10", 9 5/8, 8 5/8, 7, 5 1/2, 4 1/2, 3, 2, and Liners used.

GEOLOGICAL TARGET FORMATION Alexander / Benson / Riley / Warren Depth 4978 feet

Depth of completed well 5105 feet Rotary X / Cable Tools

Water strata depth: Fresh 37 feet; Salt N/A feet

Coal seam depths: N/A Is coal being mined in the area? No

OPEN FLOW DATA NOTE: These Zones are downhole commingled

Producing formation Alexander/Benson/Riley/Warren Pay zone depth See perf. detail feet

Gas: Initial open flow 85 Mcf/d Oil: Initial open flow 0 Bbl/d

Final open flow 660 Mcf/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests hours

Static rock pressure 1705 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 JUN 12 1989

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

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

- (1) Alexander - perf 4979 - 91 w/18 holes. Frac w/30,000# sand in 415 bbls. water, using 79,000 SCF N₂
- (2) Benson - perf 4543 - 4698 w/16 holes. Frac w/30,000# sand in 430 bbls. water, using 80,000 SCF N₂
- (3) Riley - perf 4312 - 41 w/18 holes, Foam frac w/30,000# 20/40 sand in 620 bbls. 75 Quality foam, using 510,000 SCF N₂.
- (4) Warren - perf 3175 - 3222 w/16 holes. Frac w/30,000# sand in 410 bbls. water, using 68,000 SCF

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 and Shale			0	65	1" water @ 37'
Red Rock			65	140	
Sand and Shale			140	1720	
Big Lime			1720	1815	
Big Injun			1815	1884	
Sand and Shale			1884	2075	
Weir			2075	2189	
Sand and Shale			2189	3170	
Warren Shale			3170	3224	
Shale			3224	4312	
Riley			4312	4341	
Shale			4341	4692	
Benson			4692	4698	
Shale			4698	4928	
Alexander			4928	4991	
Shale			4991	5105	
Total Depth				5105	
					Gas check @ 4448' 10/10 water - 1"

(Attach separate sheets as necessary)

APPALACHIAN ENERGY DEVELOPMENT, INC.

Well Operator

By:

George R. Williams
George R. Williams

Date:

6/1/89

Note: Regulation 2.02(i) provides as follows:

8438 "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."

JUN 12 1989

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

- 1) Well Operator: Appalachian Energy ~~Development~~ Development 23251, 538
- 2) Operator's Well Number: Daugherty Well No. 2 3) Elevation: 885'
- 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: 5200' feet
- 7) Approximate fresh water strata depths: 40'
- 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	Fill-up (cu. ft.)
Conductor	11 3/4"			30'	0'	0 Sks.
Fresh Water	8 5/8"			1370'	1370'	CTS 38 CSR 18-11.3
Coal						3
Intermediate						
Production	4 1/2"			5200'	5200'	By Rule 38 CSR 18-11.1
Tubing						
Liners						

PACKERS : Kind _____
Sizes _____
Depths set _____

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MAR 24 1989

For Division of Oil and Gas Use Only DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

Fee(s) paid: Well Work Permit Reclamation Fund WPCP

Plat 1763 WW-9 WW-2B Bond 50000 Agent

(Type)

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MAR 24 1989

Page 1 of 7
Form WW2-A
(09/87)
File Copy

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

1) Date: March 23, 1989
2) Operator's well number
Daugherty Well No. 2
3) API Well No: 47 - 017 - 3708
State - County - Permit

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>Westvaco Corporation</u>
Address <u>P.O. Box 577</u>
<u>Rupert, WV 25984</u></p> <p>(b) Name _____
Address _____</p> <p>(c) Name _____
Address _____</p> | <p>5) (a) Coal Operator:</p> <p>Name <u>N/A</u>
Address _____</p> <p>(b) Coal Owner(s) with Declaration</p> <p>Name <u>N/A</u>
Address _____</p> <p>Name _____
Address _____</p> <p>(c) Coal Lessee with Declaration</p> <p>Name <u>N/A</u>
Address _____</p> |
| <p>6) Inspector <u>Mike Underwood</u>
Address <u>Rt. 2, Box 135</u>
<u>Salem, WV 26426</u>
Telephone (304)- <u>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

X 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:

X 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: George Williams
Its: President
Address Rt. 2, Box 499
Grafton, WV 26354
Telephone 265 - 4147

Subscribed and sworn before me this 23rd day of March, 19 89

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