

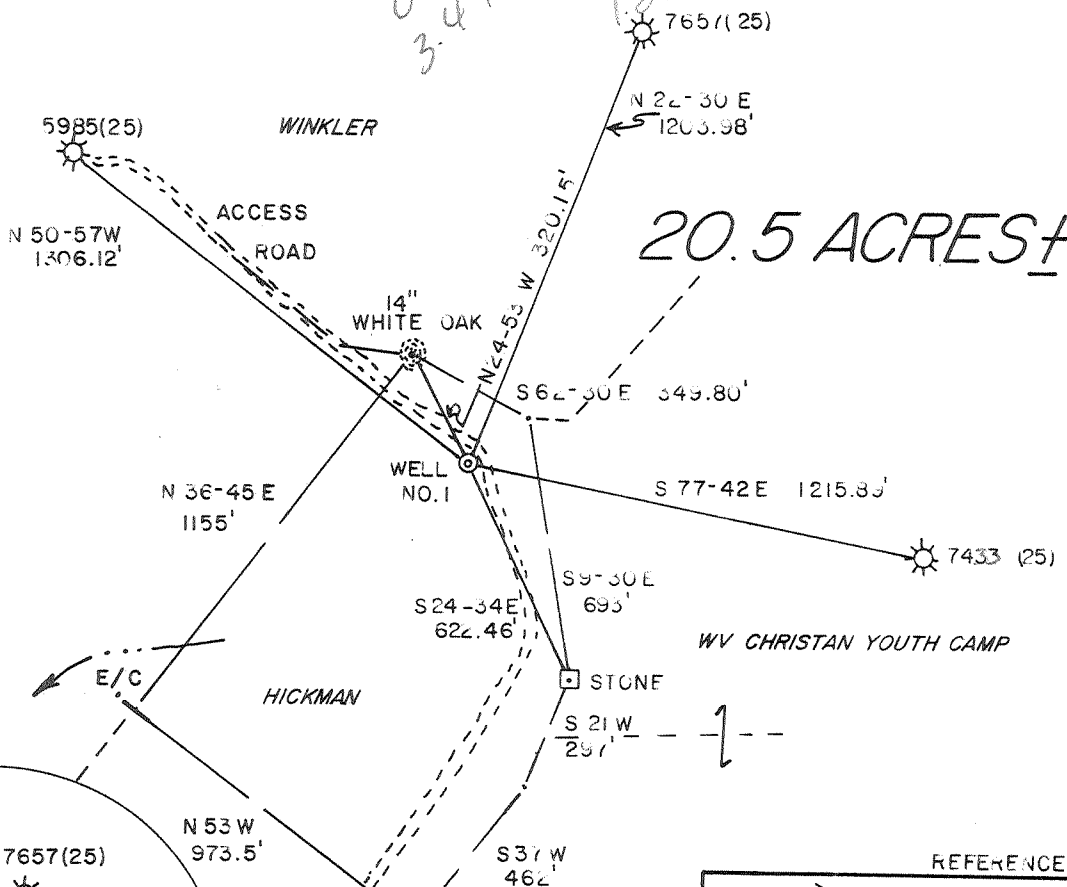
Jamie 7/24/89

HICKMAN LEASE

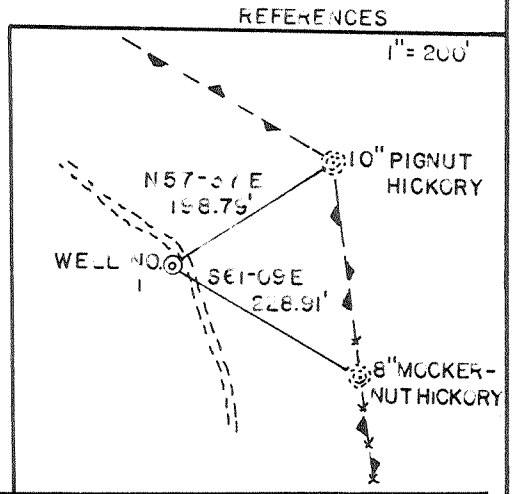
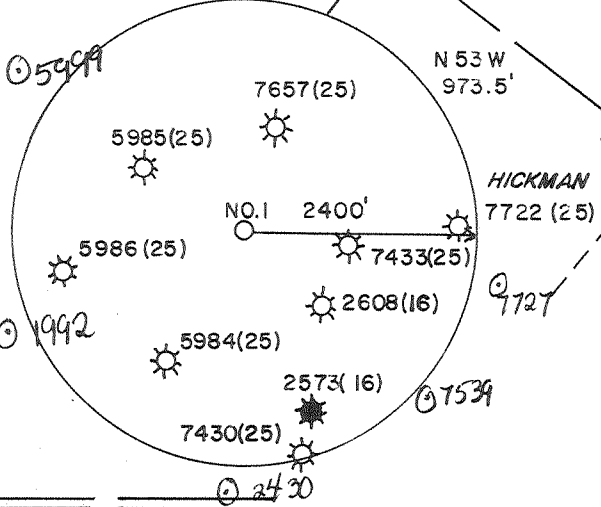
WELL NO. 1

NORTH

03-79-08 LONGITUDE

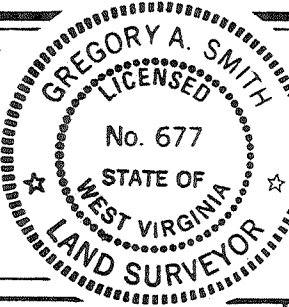


20.5 ACRES



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 JANUARY 20, 19 89
OPERATORS WELL NO. HICKMAN NO. 1
API WELL NO. 47 - 085 - 7874
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 1987 (27-24)
PROVEN SOURCE OF ELEVATION TOP OF KNOB SCALE 1" = 500'
ELEV. 1231'

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 1092' WATERSHED BURTON RUN West Union SC
DISTRICT CLAY 1 COUNTY RITCHIE QUADRANGLE PENNSBURG 1.5 539
SURFACE OWNER DOLPH HICKMAN ACREAGE 20.5
ROYALTY OWNER DOLPH HICKMAN LEASE ACREAGE 20.5

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 5200'

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

COUNTY NAME PERMIT

575

6-6 Stanley (090) (090)

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DIVISION OF OIL & GAS State of West Virginia
DEPT. OF ENERGY DEPARTMENT OF ENERGY
Oil and Gas Division

Date 10/31/89
Operator's #1
Well No. _____
Farm Hickman
API No. 47 - 085 - 7874

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: 1092 Watershed Burton Run
District: Clay County Ritchie 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 Dolph Hickman
ADDRESS Pennsboro, WV
MINERAL RIGHTS OWNER Dolph Hickman
ADDRESS Pennsboro, WV
OIL AND GAS INSPECTOR FOR THIS WORK Sam
Hershman ADDRESS Harrisville, WV 26362
PERMIT ISSUED 7/25/89
DRILLING COMMENCED 9/20/89
DRILLING COMPLETED 10/30/89
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"	30'	0	none
9 5/8			
8 5/8	1592	1592	surface
7			
5 1/2			
4 1/2	5345	5345	310 sxs
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Alexander/Benson/Riley Depth 5227 feet
Depth of completed well 5412 feet Rotary X / Cable Tools
Water strata depth: Fresh 85 feet; Salt 1510 feet
Coal seam depths: Is coal being mined in the area? no

OPEN FLOW DATA

NOTE: These zones are downhole commingled. See perf.

Producing formation Alexander/Benson/Riley Pay zone depth detail feet
Gas: Initial open flow 45 Mcf/d Oil: Initial open flow 0 Bbl/d
Final open flow 820 Mcf/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 1725 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

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

- 1) Alexander - perf 5228-36 w/18 holes. Frac w/30,000# 20/40 sand in 313 bbls. water, using 49,000 SCF N₂. Avg. rate - 27.8 Bpm, Avg. Pr-2533, ISDP-1620.
- 2) Benson - perf 4935-41 w/18 holes. Frac w/30,000# 20/40 sand in 313 bbls. water, using 44,000 SCF N₂. Avg. rate - 27.7 Bpm, Avg. Pr-1954, ISDP-1150.
- 3) Riley - perf 4546-78 w/19 holes. Foam frac w/30,000# 20/40 sand in 636 bbls. 75 quality foam, using 480,000 SCF N₂. Avg. Rate - 24 BPM, Avg. Pr-2800, ISDP-1455.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas hole damp @ 85'
Sand & Shale			0	220	
Sand			220	265	1/2"stream water @ 1510'
Sand & Shale			265	910	
Red Rock			910	925	
Sand & Shale			925	1918	
Big Lime			1918	2026	
Big Injun			2026	2113	
Sand & Shale			2113	2290	
Weir			2290	2405	
Shale			2405	2607	
Berea			2607	2610	
Sand & Shale			2610	2720	
Gordon			2720	2729	
Shale			2729	4539	
Riley			4539	4582	
Shale			4582	4936	
Benson			4936	4941	
Shale			4941	5226	
Alexander			5226	5250	
Shale			5250	5412	
			TOTAL DEPTH	5412	

Note: Gas tests not accurate (Attach separate sheets as necessary) due to soaping of hole

Appalachian Energy Dev., Inc.

Well Operator

By: _____

Date: 10/31/89

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."

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

Issued 7/25/89
Expires 7/25/91

- 1) Well Operator: Appalachian Energy Development, Inc. 2325 (1) 535
- 2) Operator's Well Number: HICKMAN WELL NO. 1 3) Elevation: 1092'
- 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: 120'
- 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'	30'	0 Sacks
Fresh Water	8-5/8"			1192'	1192'	By Rule 38 CSR 18-11.3
Coal						
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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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 WW-9 WW-2B Bond Benchmark Agent
 (Type)

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DIVISION OF OIL & GAS 3)
DEPARTMENT OF ENERGY

Date: July 14th, 1989
Operator's well number
HICKMAN WELL NO. 1
API Well No: 47 - 085 - 7874
State - County - Permit

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

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

4) Surface Owner(s) to be served:
(a) Name Dolph Hickman
Address 220 Collins Avenue
Pennsboro, WV 26415
(b) Name _____
Address _____
(c) Name _____
Address _____
6) Inspector Samuel Hersman
Address Route 1, Box 240
Harrisville, WV 26362
Telephone (304)- 628 - 3185

5) (a) Coal Operator:
Name N/A
Address _____
(b) Coal Owner(s) with Declaration
Name N/A
Address _____
Name _____
Address _____
(c) Coal Lessee with Declaration
Name N/A
Address _____

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:

- Personal Service (Affidavit attached) ..
- XX 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, Inc.
By: George Bullions
Its: President
Address Route 2, Box 499
Grafton, WV 26354
Telephone 265 - 4147

Subscribed and sworn before me this 14th day of July, 19 89

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