

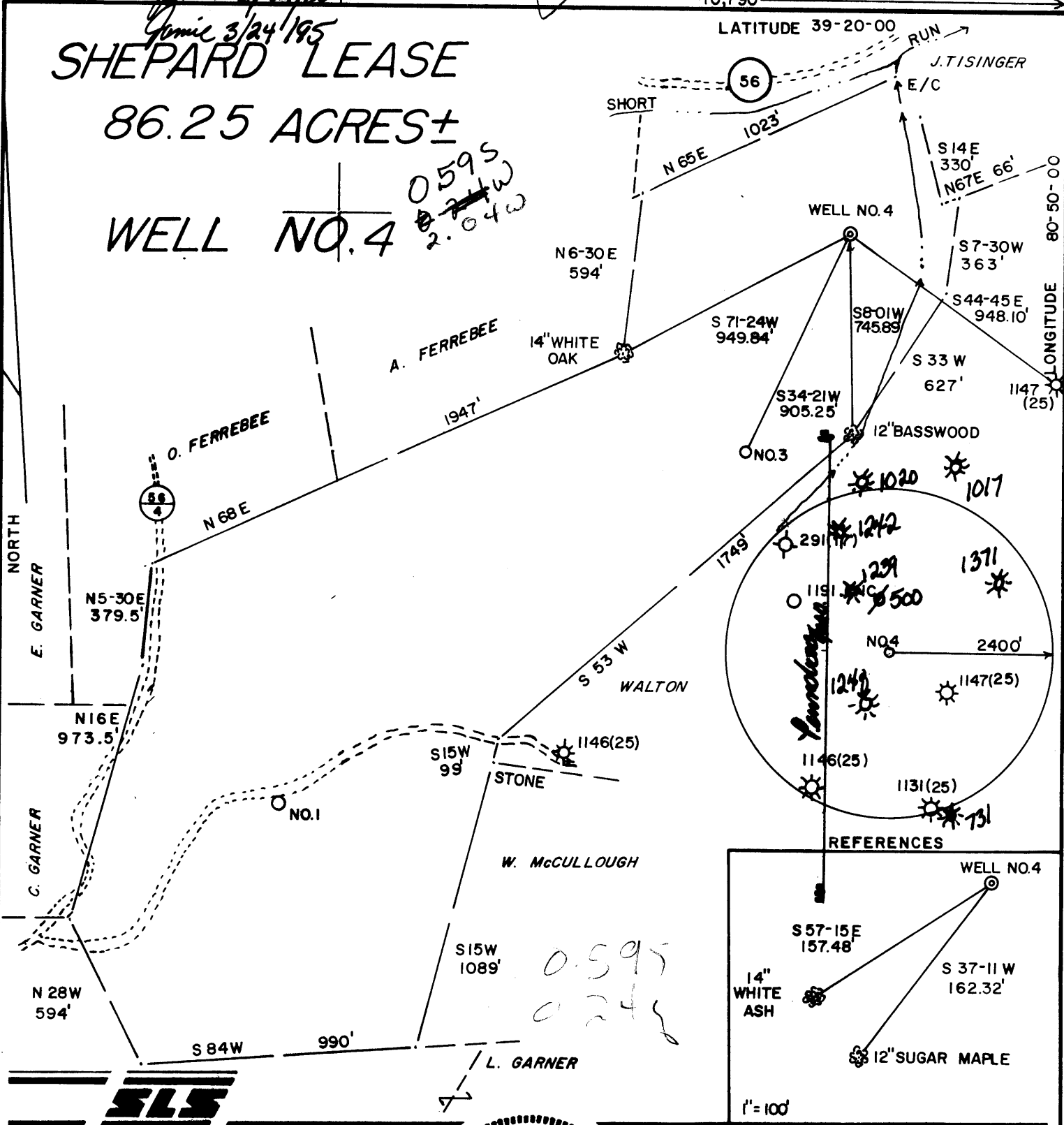
Yomic 6/29/88
Yomic 3/24/95

SHEPARD LEASE

86.25 ACRES±

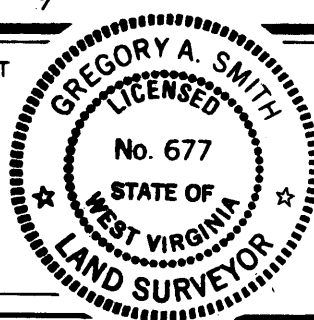
WELL NO. 4

0.595
2.040



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. 677 *Gregory A. Smith*



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

DATE JUNE 7, 19 88

OPERATORS WELL NO. SHEPARD NO. 4

API WELL NO. 47 - 095 - 012497
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 1845 (25-32)
PROVEN SOURCE OF ELEVATION TOP OF KNOB ELEV. = 1308' SCALE 1" = 500'

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
OIL AND GAS DIVISION



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

LOCATION: ELEVATION 1037' WATERSHED SHORT RUN

DISTRICT CENTERVILLE COUNTY TYLER QUADRANGLE WEST UNION 7.5'

SURFACE OWNER PHYLLIS A. SHEPARD ACREAGE 86.25

ROYALTY OWNER PHYLLIS A. SHEPARD LEASE ACREAGE 86.25

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) Surface & frac depth will now conform to completion TARGET FORMATION ALEXANDER

ESTIMATED DEPTH 5900 5397'

WELL OPERATOR APPALACHIAN ENERGY DEVELOPMENT DESIGNATED AGENT GEORGE WILLIAMS

ADDRESS RT.2 BOX 499, GRAFTON, WV 26354

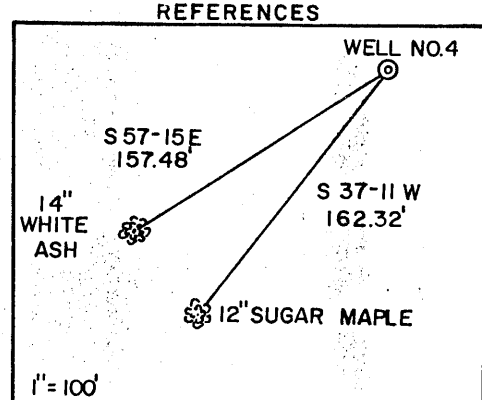
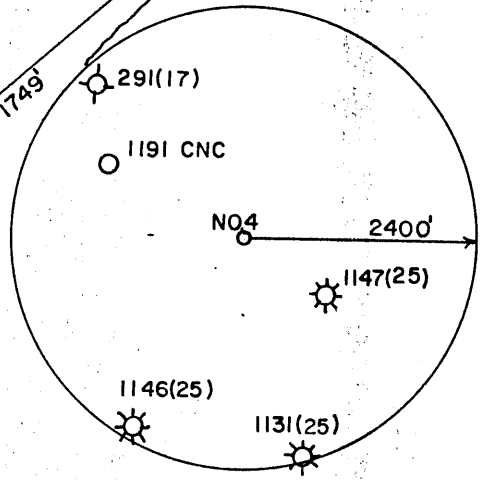
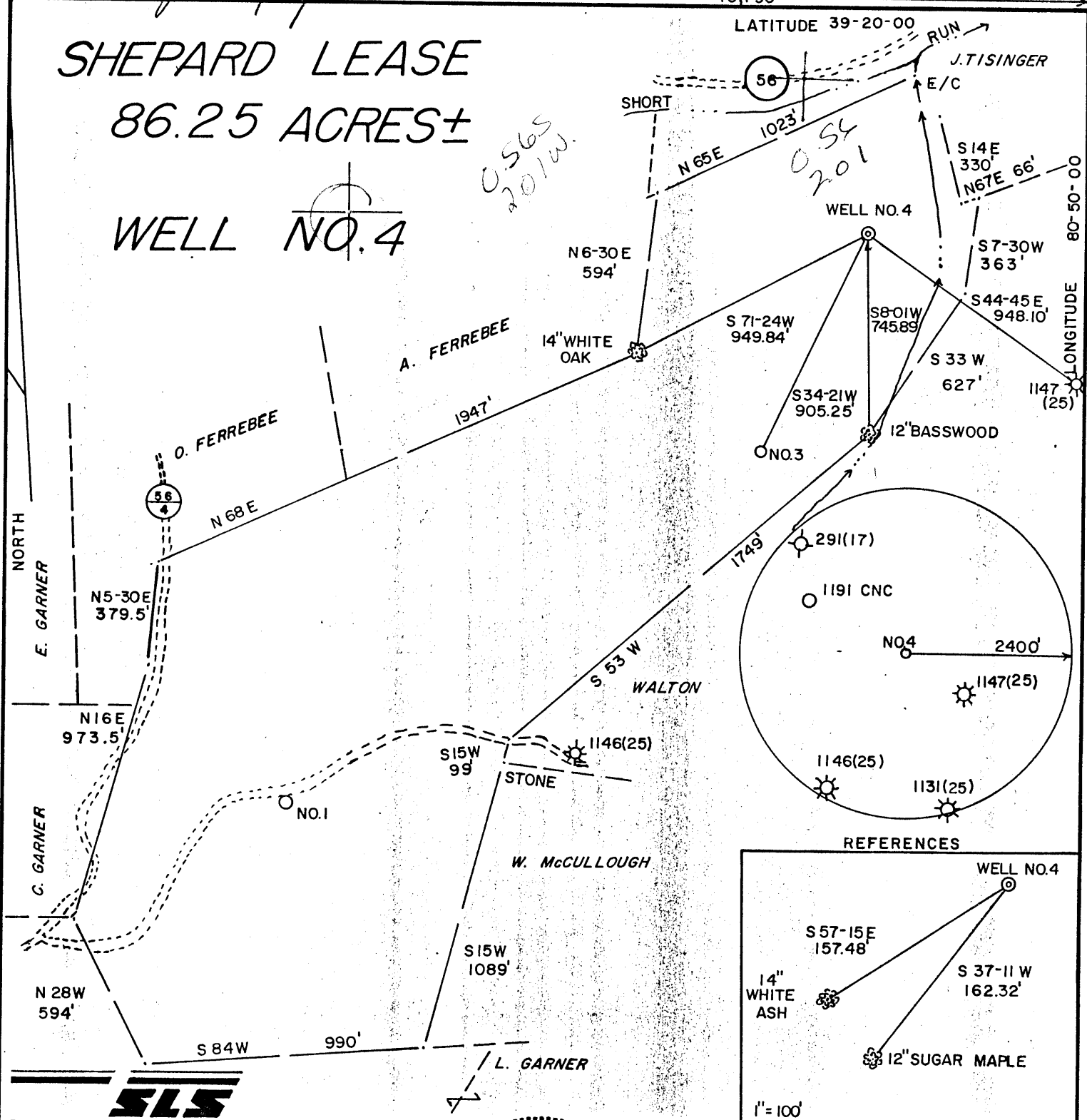
COUNTY NAME TYLER
PERMIT 1249

575

June 6/29/88

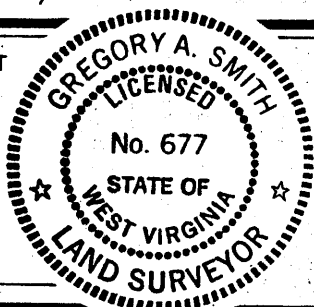
SHEPARD LEASE 86.25 ACRES ± WELL NO. 4

*0.565
201W.*



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 JUNE 7, 19 88
OPERATORS WELL NO. SHEPARD NO. 4
API WELL NO. 47-095-1249
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 1845 (25-32)
PROVEN SOURCE OF ELEVATION TOP OF KNOB ELEV. = 1308' SCALE 1" = 500'

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1037' WATERSHED SHORT RUN DISTRICT CENTERVILLE 1 COUNTY TYLER QUADRANGLE WEST UNION 7.5 671
SURFACE OWNER PHYLLIS A. SHEPARD ACREAGE 86.25
ROYALTY OWNER PHYLLIS A. SHEPARD LEASE ACREAGE 86.25
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X 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 5900'

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

JUL 1 1988

G. Stanley

(90)

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WV Division of
Environmental Protection

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

APR 12 1995

Well Operator's Report of Well Work

Permitting
Office of Oil & Gas
Farm name: SHEPARD, PHYLLIS

Operator Well No.: SHEPARD #4

LOCATION: Elevation: 1,037.00 Quadrangle: WEST UNION

District: CENTERVILLE County: TYLER
Latitude: 3080 Feet South of 39 Deg. 20Min. 0 Sec.
Longitude 10790 Feet West of 80 Deg. 50 Min. 0 Sec.

Company: APPALACHIAN ENERGY DEVELO
ROUTE 2, BOX 499
GRAFTON, WV 26354-0499

Agent: GEORGE WILLIAMS

Inspector: MIKE UNDERWOOD
Permit Issued: 03/27/95
Well work Commenced: 03/28/95
Well work Completed: 04/04/95
Verbal Plugging
Permission granted on: _____
Rotary _____ Cable _____ Rig
Total Depth (feet) _____
Fresh water depths (ft) _____

Salt water depths (ft) _____

Is coal being mined in area (Y/N)? _____
Coal Depths (ft): _____

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
4 1/2"			440 sks

OPEN FLOW DATA

Producing formation Warren Shale Pay zone depth (ft) 3340-3405
Gas: Initial open flow show MCF/d Oil: Initial open flow -0- Bbl/d
Final open flow 250 MCF/d Final open flow show Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 1025 psig (surface pressure) after 72 Hours

Second producing formation Weir Sand Pay zone depth (ft) 2246-2358
Gas: Initial open flow show MCF/d Oil: Initial open flow show Bbl/d
Final open flow see above MCF/d Final open flow see above Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ 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.

George Williams
For: APPALACHIAN ENERGY DEVELOPMENT, INC.

By: George Williams
Date: April 10, 1995

APR 12 1995

GEOLOGICAL WELL RECORD DATA

COMPANY NAME: Appalachian Energy Development Company
 WELL NAME: Shepard #4
 PERMIT NO.: 47- 95-01249 F

FORMATION	TOP	BOTTOM	NOTES
Big Lime	1904	1980	
Big Injun Sand	1983	2030	
Weir Sand	2246	2358	
Berea Sand	2434	2438	
Gantz Sand	2570	2582	
Gordon Sand	2656	2679	
Fifth Sand	2858	2864	
Warren Sand	3340	3405	
2nd Warren Sand	3690	3760	

Wide Month Frac Plug @ 2448

Solid Plug @ 3820

Cement Squeeze perforations at 3790.

Work done on March 28, 1995

Bond Log showed actual cement top at 1740 feet

Former Cement top at 4150 feet.

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WR-35

DIVISION OF OIL & GAS
DEPT. OF ENERGY

State of West Virginia
DEPARTMENT OF ENERGY
Oil and Gas Division

Date 12/12/88
Operator's _____
Well No. #4
Farm Shepard
API No. 47 - 095 - 1249

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

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

LOCATION: Elevation: 1037 Watershed Short Run
District: Centerville County Tyler 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 Phyllis Shepard
ADDRESS 1662 Kaiser Dr., Reynoldsburg, OH 43068
MINERAL RIGHTS OWNER Phyllis Shepard
ADDRESS 1662 Kaiser Dr., Reynoldsburg, OH 43068
OIL AND GAS INSPECTOR FOR THIS WORK Robert Lowther
ADDRESS Middlebourne, WV
PERMIT ISSUED 7/1/88
DRILLING COMMENCED 11/5/88
DRILLING COMPLETED 11/12/88
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"	99.80	99.80	60 sxs.
9 5/8			
8 5/8	1654	1654	305 sxs.
7			
5 1/2			
4 1/2	5301	5301	300 sxs.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Alexander/Benson/Riley Depth 5200 feet
Depth of completed well 5397 feet Rotary X / Cable Tools _____
Water strata depth: Fresh 470 feet; Salt 1520 feet
Coal seam depths: None Is coal being mined in the area? no

OPEN FLOW DATA NOTE: These zones are downhole commingled.
Producing formation Alexander/Benson/Riley Pay zone depth See Perf. Detail feet
Gas: Initial open flow 20 Mcf/d Oil: Initial open flow 0 Bbl/d
Final open flow 690 Mcf/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 1685 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 PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

- 1) Alexander - perf 5200-16 w/18 holes. Frac w/30,000# 20/40 sand in 315 bbls. water using 86,000 SCF N₂.
- 2) Benson - perf 4912-19 w/18 holes. Frac w/30,000# 20/40 sand in 315 bbls. water using 87,000 SCF N₂.
- 3) Riley - perf 4510-42 w/18 holes. Foam frac w/30,000# 20/40 sand in 700 bbls. 75 quality foam, using 455,000 SCF N₂.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all and salt water, coal, oil
Sand and Shale			0	430	Hole damp @ 470'
Red Rock			430	540	Hole wet @ 1520'
Sand and shale			540	1902	
Big Lime			1902	1974	
Big Injun			1974	2082	
Sand and shale			2082	2244	
Weir			2244	2362	
Sand and Shale			2362	4502	
Riley			4502	4544	
Shale			4544	4912	
Benson			4912	4919	
Shale			4919	5200	
✓ Alexander			5200	5228	
Shale			5228	5397	
TOTAL DEPTH					<u>5397</u>

(Attach separate sheets as necessary)

APPALACHIAN ENERGY DEV., INC.
Well Operator

By: _____
Date: George R. Williams
12/12/88

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."
7292

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

0397

2885, 11670

- 1) Well Operator: Appalachian Energy Development, Inc.
- 2) Operator's Well Number: Shepard No. 4 3) Elevation: 1037'
- 4) Well type: (a) Oil / or Gas /
 (b) If Gas: Production / Underground Storage /
 Deep / Shallow /
- 5) Proposed Target Formation(s): Alexander 439
- 6) Proposed Total Depth: 5900 feet
- 7) Approximate fresh water strata depths: 80'
- 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
- 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			1632'	1632' ←	CTS 38 CSR 18-11.3
Coal						
Intermediate						
Production	4 1/2			5900'	5900'	CTS or 38 CSR 18-11.1
Tubing						
Liners						

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PACKERS : Kind _____
 Sizes _____
 Depths set _____

DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY

For Division of Oil and Gas Use Only

1407
 19
 Fee(s) paid: *[Signature]* Well Work Permit *[Signature]* Reclamation Fund *[Signature]* WPCP *[Signature]*
[Signature] plat *[Signature]* WW-9 *[Signature]* WW-2B *[Signature]* Bond 50 Blanket *[Signature]* Agent
 (Type)

1292

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JUN 24 1988

Page 1 of 9
Form WW2-A
(09/87)
File Copy

DIVISION OF OIL & GAS 3)
DEPARTMENT OF ENERGY

Date: June 22, 1988
Operator's well number
Shepard No. 4
API Well No: 47 - 095 - 1249
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 Phyllis A. Shepard
Address 1662 Kaiser Dr.
Reynoldsburg, OH 43068
(b) Name _____
Address _____
(c) Name _____
Address _____

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

6) Inspector Robert Lowther
Address General Delivery
Middlebourne, WV 26149
Telephone (304)- 758 - 4764

(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
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 9 on the above named parties, by:

- _____ Personal Service (Affidavit attached)
- X 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: [Signature]
Its: President
Address Rt. 2, Box 499
Grafton, WV 26354
Telephone (304) 265 - 4147

Subscribed and sworn before me this 22nd day of June, 1988

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