

FILE NO. 62-41
 DRAWING NO. ~
 SCALE 1" = 2,000'
 MINIMUM DEGREE OF ACCURACY 1:16,800.
 PROVEN SOURCE OF ELEVATION Coal Company Datum & Control

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 MINES.
 (SIGNED) George Gary Born
 R.P.E. 3999 L.L.S. _____

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)


WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION: ELEVATION 2425.0 WATER SHED Right Fork of Buffalo Creek
 DISTRICT Triadelphia 3 COUNTY Logan
 QUADRANGLE Lorodo 445 0007 Bald Knobs W

SURFACE OWNER Pardee Land Company ACREAGE 17,000.+
 OIL & GAS ROYALTY OWNER Pardee Land Company LEASE ACREAGE 4,000.
 LEASE NO. 60622

PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION Devonian Shale ESTIMATED DEPTH 6,820'
 WELL OPERATOR Ashland Exploration, Inc. DESIGNATED AGENT Forrest Burkett
 ADDRESS P.O. Box 391 Ashland, Ky. 41114 ADDRESS P.O. Box 379 Brenton, W. Va. 24818



STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

DATE March 01, 19 89
 OPERATOR'S WELL NO. 79, S.N. 117541
 API WELL NO. 47 - 045 - 01138
 STATE COUNTY PERMIT

MAR 24 1989

WR 13
RECEIVED
 OCT 11 1989

20-Mar-89
 API # 47- 45-01138

State of West Virginia
 DEPARTMENT OF ENERGY
 Division of Oil and Gas

DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY

Well Operator's Report of Well Work

Farm name: PARDEE LAND COMPANY Operator Well No.: 79-S-117541

LOCATION: Elevation: 2425.00 Quadrangle: LORADO

District: TRIADELPHIA County: LOGAN
 Latitude: 9770 Feet South of 37 Deg. 47Min. 30 Sec.
 Longitude 5060 Feet West of 81 Deg. 42 Min. 30 Sec.

Company: ASHLAND EXPLORATION, INC.
 P. O. BOX 391
 ASHLAND, KY 41114-0000

Agent: FORREST BURKETT

Inspector: TIM BENNETT
 Permit Issued: 03/20/89
 Well work Commenced: 5/8/89
 Well work Completed: 9/22/89

Verbal Plugging
 Permission granted on:
 Rotary X Cable Rig
 Total Depth (feet) 6835'
 Fresh water depths (ft) approximate
 140', 550' & 1535'
 Salt water depths (ft) approximate
 2755 & 3177

Is coal being mined in area (Y/N)? N
 Coal Depths (ft): Not noted during drilling

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
20"	35'	35'	23.6
16"	50'	50'	
8 5/8"	2790'	2790'	1464
5 1/2"	6791'	6791'	675
1.9" @ 6616' KB w/ADL-1 Pkr @ 4498' KB			
1.9" @ 4461' KB			

OPEN FLOW DATA

Producing formation Devonian Shale Pay zone depth (ft) 5576-6692
 Gas: Initial open flow 0 MCF/d Oil: Initial open flow _____ Bbl/d
 Final open flow 638/987 MCF/d Final open flow _____ Bbl/d
 Time of open flow between initial and final tests 3 Hours
 Static rock Pressure 705 psig (surface pressure) after 72 Hours
 Berea 4437-4462
 Second producing formation Big Lime Pay zone depth (ft) 3887-3893
 Gas: Initial open flow 0 MCF/d Oil: Initial open flow _____ Bbl/d
 Final open flow 349 MCF/d Final open flow _____ Bbl/d
 Time of open flow between initial and final tests 3 Hours
 Static rock Pressure 560 psig (surface pressure) after 72 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: ASHLAND EXPLORATION, INC.

By: James L. Stephens Jr. Jin Stephens-Engineering Techn
 Date: October 10, 1989

OCT 13 1989

<u>FORMATION</u>	<u>TOP</u>	<u>BASE</u>
Sand & Shale	0	2101
L. Salt Sand	2101	2801
Shale	2801	2956
Avis LS	2956	2989
Sand & Shale	2989	3462
L. Maxton	3462	3488
Shale	3488	3520
L. Lime	3520	3590
Pencil Cave	3590	3608
Big Lime	3608	3950
Shales	3950	4191
Lower Weir	4191	4212
Shale	4212	4414
Coffee Shale	4414	4433
Berea	4433	4470
Devonian Shale	4470	6819
Onondaga LS	6819	TD

RECEIVED
OCT 11 1989

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

DTD 6835
LTD 6829

WELL TREATMENT

Perf L. Dev. Shale 23H/6444-6692. 75 Q foam frac using 1000 gal 16% inh Fe acid, 1000 gal 25% Methanol, 26,000# 20/40 sand & 531,000 SCF N₂ @ 33,500 SCF/min. BD @ 3223# w/N₂, ATP 3062# @ 50 bpm foam rate, MTP 3342#, ISIP 2174#, 15 min 1798# & TF 313 bbls.

Perf U. Dev. Shale 24H/5576-6059. 75 Q foam frac using 1000 gal 8% inh Fe acid, 1000 gal 25% treated Methanol, 98,000# 20/40 sand & 1,000,000 SCF N₂ @ 35,000 SCF/min. BD @ 2580#, ATP 2650# @ 50 bpm foam rate, MTP 2780#, ISIP 1600#, 15 min 1380# & TF 425 bbls.

Perf Berea 36H/4437-4462. 75 Q foam frac using 500 gal 12 1/2% Fe acid, 49,600# 20/40 sand & 422,000 SCF N₂ @ 12,400 SCF/min. BD @ 1540#, ATP 1300# @ 25 bpm foam rate, MTP 1540#, ISIP 930#, 10 min 840# & TF 284 bbls.

Perf Big Lime 24H/3887-3893. Acidize using 2000 gal 15% inh. Fe acid & 1000 gal 28% inh Fe acid. BD @ 1200#, ATP 1000# @ 5 bpm, MTP 1200#, ISIP 0# & displace 100 bbls. treated wtr. TF 172 bbls.

EST

JD 4470

LH 5367

J 6031

A 6155

Rh 6433

Son 6609

Gen 6729

9685

19

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

- 1) Well Operator: Ashland Exploration, Inc. *2750, 3, 445*
Pardee Land Company
- 2) Operator's Well Number: 79, Serial #117541 3) Elevation: 2425.0
- 4) Well type: (a) Oil / or Gas /
(b) If Gas: Production / Underground Storage /
Deep / Shallow /
- 5) Proposed Target Formation(s): Devonian Shale
- 6) Proposed Total Depth: 6820' KB feet
- 7) Approximate fresh water strata depths: 1535' KB, 140', 550'
- 8) Approximate salt water depths: 2755' KB, 3177'
- 9) Approximate coal seam depths: Cedar Grove Seam - 875' approx. 1042-1045'
- 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	16	H40	65	30	30	CTS
Fresh Water						<i>38CSR18-11.3</i>
Coal	11 3/4	H40	42.0	925	925	<i>38CSR18-11.2.2</i> CTS
Intermediate	8 5/8	J55	24.0	2805	2805	CTS
Production	5 1/2	J55	15.5	6820	6820	<i>38CSR18-11.1</i> As Needed
Tubing	1.9	CW55	2.76	-	6770	Siphon
Liners						

PACKERS : Kind _____
Sizes _____
Depths set _____

RECEIVED
MAR 03 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 WW-9 WW-2B Bond 50blanket Agent

0376

506522

[Handwritten initials]

[Handwritten initials]

RECEIVED
MAR 03 1989

Date: March 1, 1989
Operator's well number
Pardee Land Co. #79, Serial #117541
API Well No: 47 - 045 - 1138
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

4) Surface Owner(s) to be served:
(a) Name Pardee Land Company
Address 1510 Two Mellon Bank Center
Philadelphia, PA 19102
(b) Name _____
Address _____
(c) Name _____
Address _____
6) Inspector Tim Bennett
Address 525 Tiller St.
Logan, WV 25601
Telephone (304)-792-7075

5) (a) Coal Operator:
Name Arch of West Virginia, Inc.
Address P.O. Box 129
Lundale, WV 25631
(b) Coal Owner(s) with Declaration
Name Same as No. 4(a)
Address _____
Name _____
Address _____
(c) Coal Lessee with Declaration
Name Ark Land Company
Address P.O. Box 308
Accoville, WV 25606

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 2 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 Ashland Exploration, Inc.
By: J. T. Mellinger
Its: Manager Eastern Region
Address P.O. Box 391
Ashland, KY 41114
Telephone (606) 329-5450

Subscribed and sworn before me this 1st day of March, 1989

Thickie W. Souts
My commission expires November 23, 1990 Notary Public