



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1 in 17,923  
 PROVEN SOURCE OF ELEVATION U.S.G.S. B.M. on highway bridge at Standard

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) John H. Burkett  
 R.P.E. 1442 L.I.S. \_\_\_\_\_

PLACE SEAL HERE

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



DATE November 11, 19 85  
 OPERATOR'S WELL NO. 86-Ser. #106991  
 API WELL NO. \_\_\_\_\_  
47 - 039 - 4264  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS,") PRODUCTION X STORAGE \_\_\_ DEEP X SHALLOW \_\_\_  
 LOCATION: ELEVATION 1650 WATER SHED Fourmile Fork of Paint Creek  
 DISTRICT Cabin Creek 2 COUNTY Kanawha  
 QUADRANGLE Eskdale 340 084 C5 Montgomery  
 SURFACE OWNER Eastern Associated Coal Corp. ACREAGE 22,000 +  
 OIL & GAS ROYALTY OWNER Eastern Associated Coal Corp. LEASE ACREAGE \_\_\_\_\_  
 LEASE NO. 11909  
 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 6390  
 WELL OPERATOR Ashland Exploration Inc. DESIGNATED AGENT Forrest Burkett  
 ADDRESS Box 391 - Ashland, Ky. 41114 ADDRESS Box 379 - Brenton, W.Va. 24818

FILE COPY  
**RECEIVED**  
NOV 13 1985



1) Date: November 12, 1985  
 2) Operator's Eastern Associated Coal Corp.  
 Well No. 86, Serial No. 106991  
 3) API Well No. 47 - 039 - 4264  
 State            County            Permit           

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

**APPLICATION FOR A WELL WORK PERMIT**

- 4) WELL TYPE: A Oil            / Gas X /  
 B (If "Gas", Production X / Underground storage            / Deep X / Shallow           )
- 5) LOCATION: Elevation: 1650' Watershed: Fourmile Fork of Paint Creek  
 District: Cabin Creek 043 County: Kanawha Quadrangle: Eskdale
- 6) WELL OPERATOR Ashland Exploration CODE: 2750 7) DESIGNATED AGENT Forrest Burkett  
 Address P.O. Box 391 Address Box 379  
Ashland, KY 41114 Brenton, WV 24818
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:  
 Name Carlos Hively Name Ray Resources Drilling Co.  
 Address 223 Pinch Ridge Road Address 2101 Washington St., East  
Elkview, WV 25071 Charleston, WV 25311
- 10) PROPOSED WELL WORK: Drill X / Drill deeper            / Redrill            / Stimulate X /  
 Plug off old formation            / Perforate new formation             
 Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, Devonian Shale 441  
 12) Estimated depth of completed well, 6390 feet sand base  
 13) Approximate strata depths: Fresh,            feet; salt, @ 1800' KB feet.  
 14) Approximate coal seam depths: 533 (open mine) 753 Is coal being mined in the area? Yes            / No X

15) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor	16	H-40	65	X		30	30	CTS	Kinds
Fresh water									
Coal	11	H-40	42	X		600	600	CTS	By rule 15.05
Intermediate	8 5/8	K-55	24	X		1850	1850	CTS	" "
Production	4 1/2	K-55	11.6	X		6390	6390	As Needed	400 Sacks or as required by rule 15.01
Tubing									
Lin...									Perforations:
									Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-039-4264 Date December 2 1985

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector, (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.

Permit expires December 2, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee	WPCP	S&E	Other
	<u>AB</u>	<u>mu mu</u>	<u>mu mu</u>	<u>506 735</u>	<u>mu mu</u>	<u>mu mu</u>	

NOTE: Keep one copy of this permit posted at the drilling location.

[Signature]  
 Director, Division of Oil and Gas

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.

File



MR-35

APR 11 1986

State of West Virginia  
DEPARTMENT OF ENERGY  
Oil and Gas Division

Date April 10, 1986  
Operator's  
Well No. 86  
Farm Eastern Associated Coal  
Corp.  
API No. 47 - 039 - 4264

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 X / Underground Storage      / Deep X / Shallow      /)

LOCATION: Elevation: 1650' Watershed Fourmile Fork of Paint Creek  
District: Cabin Creek County Kanawha Quadrangle Eskdale

COMPANY Ashland Exploration, Inc.  
ADDRESS P. O. Box 391, Ashland, KY 41114  
DESIGNATED AGENT Forrest Burkett  
ADDRESS Box 379, Brenton, WV 24818  
SURFACE OWNER Eastern Associated Coal Corp.  
ADDRESS One PPG Place, Pittsburgh, PA 15219  
MINERAL RIGHTS OWNER East. Assoc. Coal Corp.  
ADDRESS One PPG Place, Pittsburgh, PA 15219  
OIL AND GAS INSPECTOR FOR THIS WORK Carlos Hively  
ADDRESS 223 Pinch Ridge Road Elkview, WV  
PERMIT ISSUED 12/2/85  
DRILLING COMMENCED 2/4/86  
DRILLING COMPLETED 2/16/86  
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 Cood.	35'	35'	20 sks
13-10"			
9 5/8			
8 5/8	1846'	1846'	700 sks
7			
5 1/2			
4 1/2	6448'	6448'	400 sks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 6390 feet  
Depth of completed well 6490 feet Rotary X / Cable Tools       
Water strata depth: Fresh 71 feet; Salt      feet  
Coal seam depths: 543-547 Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Dev. Shale/Gordon Pay zone depth 3482-5920 feet  
Gas: Initial open flow 97 Mcf/d Oil: Initial open flow      Bbl/d  
Final open flow 2160 Mcf/d Oil: Final open flow      Bbl/d  
Time of open flow between initial and final tests 3 hours  
Static rock pressure 560 psig (surface measurement) after 120 hours shut in  
(If applicable due to multiple completion--)  
Second producing formation Weir/Injun Pay zone depth 2780-2877 feet  
Gas: Initial open flow 133 Mcf/d Oil: Initial open flow      Bbl/d  
Final open flow 2110 Mcf/d Oil: Final open flow      Bbl/d  
Time of open flow between initial and final tests 3 hours  
Static rock pressure 460 psig (surface measurement) after 120 hours shut in

2160  
2110  
4270  
Mcf  
PDF  
for well

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

Perf L. Dev. Shale 30H/5900-5920<sup>shinst.</sup> - N<sub>2</sub> frac using 500 gal 15% HCl & 1,854,000 SCF N<sub>2</sub>.  
BD @ 3900#, ATP 3900# @ 80,000 SCF/min, MTP 4000#, ISIP 2600#, 10 min 2200#.

Perf U. Dev. Shale 15H/5038-5052<sup>Huron</sup> & 5H/4744-4752<sup>Huron</sup> - N<sub>2</sub> frac using 500 gal 15% HCl.  
BD @ 2550#, ATP 3150# @ 80,000 SCF/min. MTP 3500#, ISIP 1620#, 5 min 1450#.

Perf Dev. Shale & Gordon 19H/3482-4330<sup>3482-3487-Gordon</sup> - N<sub>2</sub> frac using 700 gal 15% HCl & 1,800,000 SCF N<sub>2</sub>.  
BD @ 2300#, ATP 2275# @ 80,000 SCF/min. MTP 2300#, ISIP 1200#, 5 min 1050#.

Perf U. Weir 15H/2866-2877 & Injun 25H/2780-2802 - 75 Q foam frac using 450,000 SCF N<sub>2</sub> @ 15,000 SCF/min & 75,000# 20/40 sand. BD @ 1000#, ATP 1650# @ 40 B/M, MTP 1800#, ISIP 850#, 15 min 700#.

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 & Shale			0	1160	
Lower Salt Sand			1160	1711	
Shale			1711	1934	
Avis LS			1934	1965	
Shale			1965	2031	
Upper Maxton			2031	2061	
Shale			2061	2173	
Middle Maxton			2173	2213	
Shale			2213	2345	
Lower Maxton			2345	2411	
Shale			2411	2413	
Little Lime			2413	2484	
Pencil Cave			2484	2498	
Big Lime			2498	2753	
Shale			2753	2760	
Injun			2760	2813	
Shale			2813	2865	
Upper Weir			2865	2878	
Shale			2878	2952	
Lower Weir			2952	3001	
Shale			3001	3217	
Coffee Shale			3217	3233	
Berea			3233	3290	
Dev. Shale			3290	3474	
Gordon			3474	3487	
Dev. Shale			3487	6420	
Onondaga LS			6420	TD	
DTD 6490'					
LTD 6463'					

(Attach separate sheets as necessary)

ASHLAND EXPLORATION, INC.

Well Operator

By: Joseph S. Thina

Date: April 10, 1986

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."