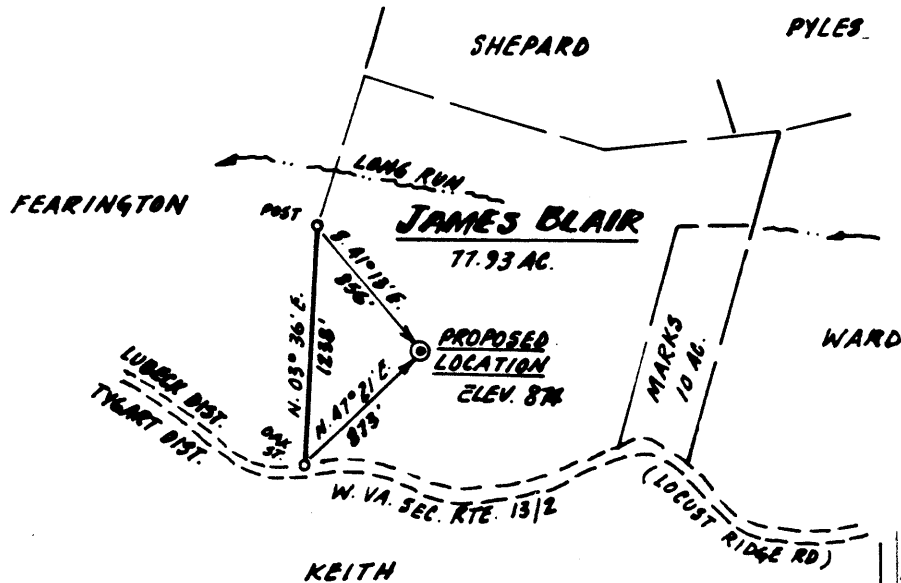


NORTH



Corrected 15'  
location  
S5.36  
W2.24

S 248  
W 0.01

FILE NO. \_\_\_\_\_  
DRAWING NO. \_\_\_\_\_  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION SPOT ELEV. 959 AT ROAD INTERSECTION

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) Dennis L. Fisher  
R.P.E. \_\_\_\_\_ L.L.S. 670

PLACE SEAL HERE

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



DATE OCTOBER 8, 19 81  
OPERATOR'S WELL NO. KEW 134  
API WELL NO. 47-107-1180-PF  
STATE COUNTY PERMIT Frac.

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 874 WATER SHED LANG RUN  
DISTRICT LUBECK COUNTY WOOD  
QUADRANGLE LUBECK  
SURFACE OWNER JAMES BLAIR ACREAGE 77.93  
OIL & GAS ROYALTY OWNER JAMES BLAIR LEASE ACREAGE 78  
LEASE NO. \_\_\_\_\_

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

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
TARGET FORMATION ORISKANY ESTIMATED DEPTH 4784'  
WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY  
ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26164 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26164

JAN 30 1984

DEEP WELL

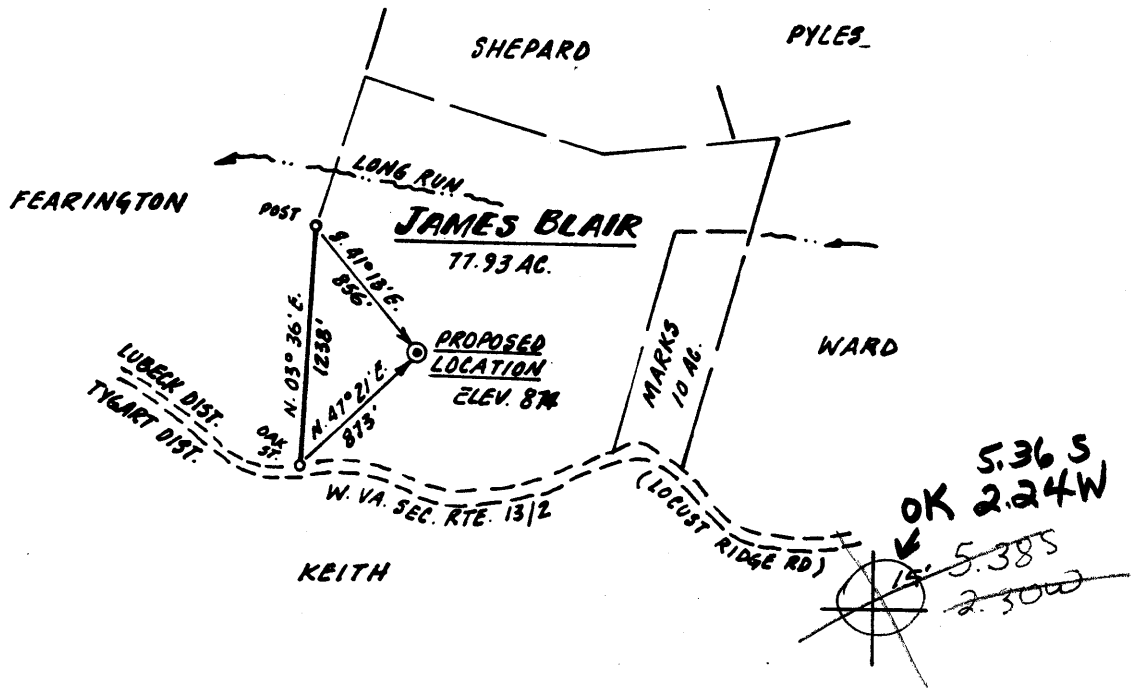
WOOD 1180-PF-FRAC.

LATITUDE  $39^{\circ} 12' 30''$   
 $39^{\circ} 15'$

LONGITUDE  $81^{\circ} 31' 30''$   
 $81^{\circ} 35'$

13,100'

NORTH



2.78 S  
 8.10 W  
 4.01 W  
 1.40 W  
 1.11 W

FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE  $1'' = 1000'$   
 MINIMUM DEGREE OF ACCURACY  $1:200$   
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 959 AT ROAD INTERSECTION

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) Dennis L. Fisher  
 R.P.E. \_\_\_\_\_ L.L.S. 670

PLACE SEAL HERE

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



DATE OCTOBER 8, 19 81  
 OPERATOR'S WELL NO. KEW 134  
 API WELL NO. \_\_\_\_\_  
47 - 107 - 1180  
 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 874 WATER SHED LONG RUN  
 DISTRICT LUBECK COUNTY WOOD  
 QUADRANGLE LUBECK Belleville 15' NC  
 SURFACE OWNER JAMES BLAIR ACREAGE 77.93  
 OIL & GAS ROYALTY OWNER JAMES BLAIR LEASE ACREAGE 77  
 LEASE NO. \_\_\_\_\_  
 PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_ PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 4734'  
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY  
 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26164 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26164



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

11/19/81: BASIN SURVEYS perforated the Oriskany from 4662' - 4672' (KB); 4 holes/ft; 3 1/2" glass jets on strip.

11/20/81: DOWELL, BJ HUGHES hydrofractured the Oriskany w/15,000# 80/100 sand; 45,000# 20/40 sand; 500 gal 28% HCL acid; 810 bbl water; 165,000 SCF nitrogen; breakdown was 3500 psig; treated zone at average rate of 33 BPM; average pressure of 2050 psig; ISIP was 1500 psig.

**RECEIVED**  
JAN 10 1984

WELL LOG

OIL & GAS DIVISION

DEPT. OF MINES			REMARKS
FORMATION	COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET
Including indication of all fresh and salt water, coal, oil and gas			
Soil and Shale		0	185
Siltstone and Shale		185	614
Shale		614	636
Sand		636	642
Shale		642	658
Sand		658	664
Shale		664	682
Sand		682	700
Shale		700	790
Sand		790	838
Shale		838	1110
Sand		1110	1147
Shale		1147	1184
Sand		1184	1198
Shale		1198	1242
Sand		1242	1258
Sand and Shale		1258	1681
Sand		1581	1600
Shale		1600	1619
Sand		1610	1646
Shale		1646	1702
Sand		1702	1714
Shale		1714	1730
Salt Sand		1730	1843
Shale		1843	2191
Coffee Shale (Sunbury)		2191	2224
Berea Sand		2224	2228
Shale		2228	3390
Brown Shale		3390	3951
Shale		3951	4308
Marcellus Shale		4308	4560
Onondaga Lime		4560	4642
Oriskany Sand		4642	4694
Helderberg Lime		4695	4779
Total Depth		4779	

Gas show at 3238, 3258  
Gas show at 3827

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY  
Well Operator

By: RA P

Date: August 8, 1982

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..."



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES

RECEIVED

OCT 13 1981

OIL AND GAS DIVISION  
WV DEPARTMENT OF MINES

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,  
Charleston, W. Va.

DATE October 8, 1981

Surface Owner James R. & Karen E. Blair

Company Kaiser Exploration and Mining Company

Address Rt. 2, Box 119A, New England, WV 26154

Address P. O. Box 8, Ravenswood, WV 26164

Mineral Owner Same

Farm James Blair Acres 77.93

Address \_\_\_\_\_

Location (waters) Long Run

Coal Owner Same

Well No. KEM #134 Elevation 874'

Address \_\_\_\_\_

District Lubeck County Wood

Coal Operator None

Quadrangle Lubeck

Address \_\_\_\_\_

THIS PERMIT MUST BE POSTED AT THE WELL SITE

All provisions being in accordance with Chapter 22, of the W. Va. Code, the location is hereby approved for drilling. This permit shall expire if operations have not commenced by 6-21-82.

INSPECTOR

TO BE NOTIFIED Paul Goodnight

ADDRESS Smithville, WV

PHONE 477-2455

*J. E. Huggins*  
Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated August 26th 1981 by Paul R. & Karen E. Blair made to Kaiser Exploration and Mining Company and recorded on the 26th day of August 1981, in Wood County, Book 760 Page 48

NEW WELL \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE  
\_\_\_\_\_ OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days. \*

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address \_\_\_\_\_ day \_\_\_\_\_ before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY  
P. O. BOX 879  
MORGANTOWN, WEST VIRGINIA 26505  
AC-304 - 292-6331

Very truly yours,

(Sign Name)

*K.A.P.*  
Well Operator  
Kaiser Exploration and Mining Company  
P. O. Box 8  
Street  
Ravenswood  
City or Town  
West Virginia 26164  
State

Address of Well Operator

\*SECTION 3 . . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that the same is approved and the well operator authorized to proceed.

BLANKET BOND

47-107-1180

PERMIT NUMBER

THIS IS AN ESTIMATE ONLY  
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO X DRILL \_\_\_\_\_ DEEPEN \_\_\_\_\_ FRACTURE-STIMULATE \_\_\_\_\_  
 DRILLING CONTRACTOR: (If Known) \_\_\_\_\_ RESPONSIBLE AGENT: \_\_\_\_\_  
 NAME Clint Hurt & Associates, Inc. NAME Robert A. Pryce  
 ADDRESS P. O. Box 388, Elkview, WV 25071 ADDRESS P. O. Box 3, Ravenswood, WV  
 TELEPHONE 344-2401 TELEPHONE 273-5371  
 ESTIMATED DEPTH OF COMPLETED WELL: 4784' ROTARY X CABLE TOOLS \_\_\_\_\_  
 PROPOSED GEOLOGICAL FORMATION: Oriskany  
 TYPE OF WELL: OIL \_\_\_\_\_ GAS X COMB. \_\_\_\_\_ STORAGE \_\_\_\_\_ DISPOSAL \_\_\_\_\_  
 RECYCLING \_\_\_\_\_ WATER FLOOD \_\_\_\_\_ OTHER \_\_\_\_\_

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16			
13 - 10			
9 - 5/8 10 3/4"	250'	250'	150 sks class A
8 - 5/8			
7	2100'	2100'	65 sks 50/50 pozmix
5 1/2			100 sks class A
4 1/2	4784'	4784'	225 sks class A
3			Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS \_\_\_\_\_ FEET \_\_\_\_\_ SALT WATER \_\_\_\_\_ FEET \_\_\_\_\_  
 APPROXIMATE COAL DEPTHS \_\_\_\_\_  
 IS COAL BEING MINED IN THE AREA? No BY WHOM? \_\_\_\_\_

TO DRILL:  
 SUBMIT FIVE (5) COPIES OF OG - 1, \$100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAT.

TO DRILL DEEPER OR REDRILL:  
 SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND. ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAT AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE:  
 OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAT AND ORIGINAL WELL RECORD.  
 OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.  
 Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty-four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt thereof.

WAIVER: I the undersigned, Agent for \_\_\_\_\_ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.  
 We the \_\_\_\_\_ Coal Company have no objections to said well being drilled at this location, providing operator has complied with all rules and regulations in Articles 4, 5, and 7, Chapter 22 of the West Virginia Code.

\_\_\_\_\_  
 For Coal Company  
 \_\_\_\_\_  
 Official Title