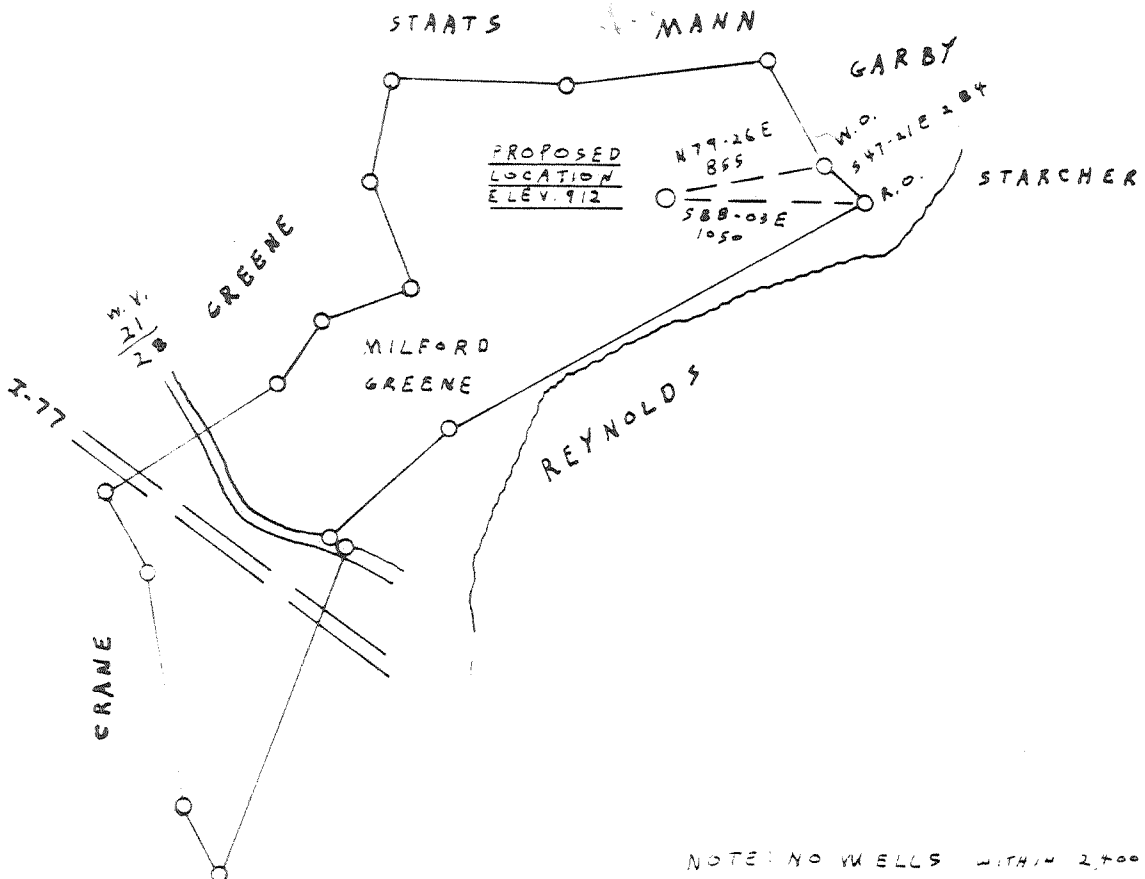


7.5 MIN.

NORTH



NOTE: NO WELLS WITHIN 2400 FT. OF PROPOSED LOC.

FILE NO _____
 DRAWING NO _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 773
AT RT. 21/2B & RT. 36/2

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. Asher
 RPE _____ L.L.S. 670

PLACE SEAL HERE

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



STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

DATE FEBRUARY 26 19 82
 OPERATOR'S WELL NO. KEM 191
 API WELL NO. 47-035-1665
 STATE JACKSON COUNTY JACKSON PERMIT 1665

WELL TYPE OIL _____ GAS LIQUID INJECTION _____ WASTE DISPOSAL _____
 IF GAS PRODUCTION STORAGE _____ DEEP SHALLOW _____
 LOCATION ELEVATION 912 WATER SHED GRASSLICK CREEK
 DISTRICT RIPLEY COUNTY JACKSON
 QUADRANGLE KENNA
 SURFACE OWNER MILFORD GREENE ACREAGE 109.79
 OIL & GAS ROYALTY OWNER MILFORD GREENE LEASE ACREAGE 112.04
 LEASE NO _____
 PROPOSED WORK DRILL 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 _____
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING CO.
 ADDRESS P.O. BOX 8, RAVENSWOOD, WEST VIRGINIA, 26166 ADDRESS P.O. BOX 8, RAVENSWOOD, WEST VIRGINIA, 26164

MAY 21 1984

M.S. 3-10-82

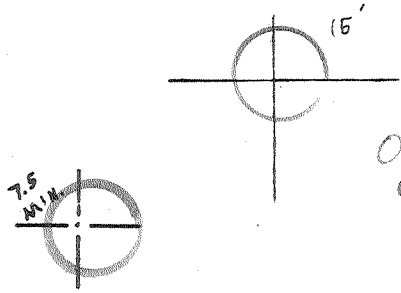
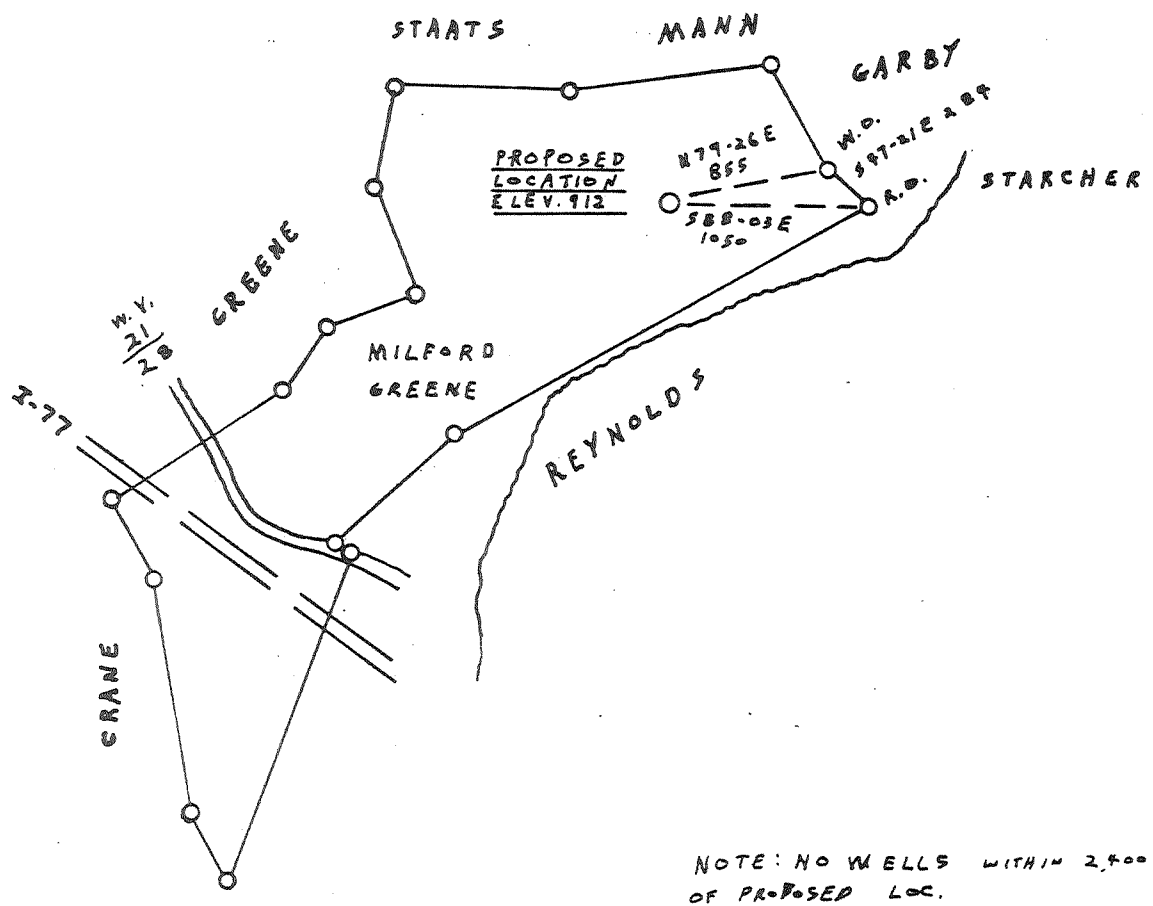
10,825'

LATITUDE 38° 45' 00"

2,500'

38 44 35
81 39 50

LONGITUDE 81° 37' 30"



0.505
4.360
(4.200)

NOTE: NO WELLS WITHIN 2,500 FT. OF PROPOSED LOC.

FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 773
 AT RT. 21/28 ← RT. 36/2

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. Asher
 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 FEBRUARY 26, 19 82
 OPERATOR'S WELL NO. KEM 191
 API WELL NO. _____
47 - 035 - 1665
 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 912 WATER SHED GRASBLICK CREEK
 DISTRICT RIPLEY COUNTY JACKSON
 QUADRANGLE KENNA 415' NG
 SURFACE OWNER MILFORD GREENE ACREAGE 109.79
 OIL & GAS ROYALTY OWNER MILFORD GREENE LEASE ACREAGE 112.04
 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 5290'
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING CO.
 ADDRESS P.O. BOX 8, RAVENSWOOD, WEST VIRGINIA, 26164 ADDRESS P.O. BOX 8, RAVENSWOOD, WEST VIRGINIA, 26164

MAR 29 1982

916 - Area / (sic) with DEFOO WELL - (1982)

NOV 1 1982



OIL & GAS DIVISION
DEPT. OF MINES
State of West Virginia
Department of Mines
Oil and Gas Division

Date October 21, 1982
Operator's
Well No. KEM - 191
Farm Milford Green
API No. 47 - 035 - 1665

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 ___ /)
LOCATION: Elevation: 912' Watershed Grasslick Creek
District: Ripley County Jackson Quadrangle Kenna

COMPANY Kaiser Exploration & Mining Co.
ADDRESS P. O. Box 8, Ravenswood, 26164
DESIGNATED AGENT R. A. Pryce
ADDRESS P. O. Box 8, Ravenswood, 26164
SURFACE OWNER Milford Green
ADDRESS Rt. 3, Box 122, Ripley, 25271
MINERAL RIGHTS OWNER Same
ADDRESS _____
OIL AND GAS INSPECTOR FOR THIS WORK Richard Morris
ADDRESS Box 372, Grantsville
PERMIT ISSUED 3/11/82
DRILLING COMMENCED 5/16/82
DRILLING COMPLETED 5/29/82

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"		253'	150 sks
9 5/8			
8 5/8			
7		2149'	165 sks
5 1/2			
4 1/2		5288	200 sks
3			
2			
Liners used			

IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON _____

GEOLOGICAL TARGET FORMATION Oriskany Ss Depth 5200 feet
Depth of completed well 5312 feet Rotary x / Cable Tools _____
Water strata depth: Fresh _____ feet; Salt _____ feet
Coal seam depths: _____ Is coal being mined in the area? _____

OPEN FLOW DATA
Producing formation Oriskany Ss *pp- plugged back to 370* Pay zone depth 5200-5250 feet
Gas: Initial open flow trace Mcf/d Oil: Initial open flow -- Bbl/d
Final open flow 40 Mcf/d Final open flow -- Bbl/d
Time of open flow between initial and final tests N/A hours
Static rock pressure 650 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation Devonian Brown Shale *upon* Pay zone depth 4164-4388 feet
Gas: Initial open flow -- Mcf/d Oil: Initial open flow -- Bbl/d
Final open flow 194 Mcf/d Oil: Final open flow -- Bbl/d
Time of open flow between initial and final tests _____ hours
Static rock pressure 1000 psig (surface measurement) after -- hours shut in

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

5/27/82 Oriskany Ss Perforation:
5197' - 5205', 5209' - 5216' (KB)
60 shots, 0.5" in diameter

6/04/82 Oriskany Ss Frac:
60,000 # 20/40 sand
Treatment pressure = 3600 psig
Total of 886 bbl of water and
259,000 SCF of N₂ 4470 4370?

10/12/82 Devonian Brown Shale: Set 3.71" O.D. permanent bridge plug at 3370' (KB); perf. selectively 4164-4388'; shot 24 holes 0.39" diameter

10/15/82 Devonian Brown Shale 90,000# of 20/40 sand, treatment rate: 12-14 bbl/min; treatment pressure: 2450-2820 psig; ISIP: 1240 psig, total of 1,100,000 SCF of nitrogen.

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Shale			0	150	
Sandstone			150	360	
Shale			360	1200	
Sandstone and shale			1200	1760	
Limestone			1760	2060	
Shale			2060	2088	
Limestone			2088	2150	
Shale			2150	2535	
Coffee shale			2535	2560	
Berea Ss			2560	2570	s/g at 2565
Shale			2570	3808	
Brown shale			3808	4390	s/g at 4165
Shale			4390	4773	
Marcellus			4773	5092	
Onondaga Ls			5092	5148	
Oriskany Ss			5148	5250	s/g at 5200, 5211
Helderberg			5250	5312	T.D. s/g at 5257, 5268

4164
2570

1594

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: R.A.P.

Date: October 21, 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 coal, encountered in the drilling of a well."



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED
MAR - 8 1982
OIL AND GAS
DIVISION

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

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

DATE March 5, 1982

Surface Owner Milford Greene

Company Kaiser Exploration and Mining Company

Address Rt. 3, Box 122, Ripley, WV 25271

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

Mineral Owner Same

Farm Milford Green Acres 112.04

Address _____

Location (waters) Grasslick Creek

Coal Owner Same

Well No. KEM #191 Elevation 912

Address _____

District Ripley County Jackson

Coal Operator None

Quadrangle Kenna

Address _____

THIS PERMIT MUST BE POSTED AT THE WELL SITE.

ALL PROVISIONS BEING IN ACCORDANCE WITH CHAPTER INSPECTOR

ARTICLE 4 OF THE W. VA. CODE, THE LOCATION IS HEREBY TO BE NOTIFIED Richard Morris

APPROVED FOR drilling THIS PERMIT SHALL EXPIRE ADDRESS P. O. Box 372, Grantsville, WV

IF OPERATIONS HAVE NOT COMMENCED BY 11-11-82
BY [Signature] PHONE 354-7259

ENTLEMEN:

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 January 31 1978 by Milford L. & Dorothy Green made to Kaiser Exploration and Mining Company and recorded on the 2nd day of February 1978, in Jackson County, Book 146 Page 571

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
C-304 - 292-6331

Very truly yours,

(Sign Name) [Signature]
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

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 Unknown at this time _____ NAME Robert A. Pryce _____
 ADDRESS _____ ADDRESS P. O. Box 8, Ravenswood, WV 26164 _____
 TELEPHONE _____ TELEPHONE 273-5371 _____
 ESTIMATED DEPTH OF COMPLETED WELL: 5290' _____ 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 to surface
8 - 5/8			
7	2450'	2450'	65 sks 50/50 pozmix
5 1/2			100 sks class A
4 1/2	5290'	5290'	225 sks 50/50 pozmix
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? None _____ 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.

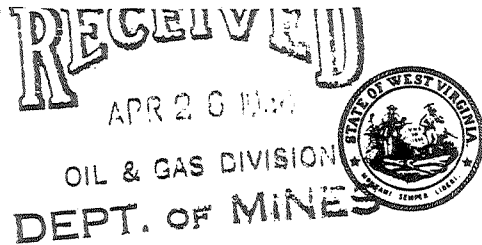
WAIVER: I the undersigned, Agent for _____ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

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

FILE COPY



1) Date: April 5, 19 84
 2) Operator's Well No. KEM-191
 3) API Well No. 47 - 035 - 1665 - FRA (State County Permit)

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES, OIL AND GAS DIVISION
APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil / Gas /
 B (If "Gas", Production / Underground storage / Deep / Shallow)
 5) LOCATION: Elevation: 912' / Watershed: Grasslick Creek
 District: Ripley / County: Jackson / Quadrangle: Kenna
 6) WELL OPERATOR KEMAS Kaiser Exp & Mining Co DESIGNATED AGENT R.A. Payne
 Address P. O. Box 8 / Address SAME
Ravenswood, WV 26164
 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name J. Tephabock
 Address Ripley, WV 25271
 9) DRILLING CONTRACTOR: Name Kaiser Drilling Rig #1
 Address Ravenswood, WV 26164
 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate /
 Plug off old formation / Perforate new formation /
 Other physical change in well (specify) Squeeze 4 1/2" csg; Treat Berea; Isolate Shale,
 11) GEOLOGICAL TARGET FORMATION, Berea Sandstone Berea with tubing and packer.
 12) Estimated depth of completed well, 4470 (PBD) feet
 13) Approximate trata depths: Fresh, 150 feet; salt, 650 feet.
 14) Approximate coal seam depths: None Is coal being mined in the area? Yes / No /

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									Kinds <u>None</u>
Fresh water	<u>10 3/4</u>	<u>H</u>	<u>40.50</u>	<u>X</u>		<u>253' (KB)</u>	<u>253' (KB)</u>	<u>150 sx Neat</u>	
Coal								<u>65 sks Pozmix</u>	Sizes <u>-</u>
Intermediate	<u>7</u>	<u>K</u>	<u>20</u>	<u>X</u>		<u>2149' (KB)</u>	<u>2149' (KB)</u>	<u>100 sks Neat</u>	
Production	<u>4 1/2</u>	<u>N</u>	<u>11.60</u>	<u>X</u>			<u>5288' (KB)</u>	<u>200 sks Pozmix</u>	
Tubing									
Liners									Perforations:
									Top <u>4164'</u> Bottom <u>4388' (KB)</u>

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-035-1665-FRAC Date May 16, 19 84

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 May 16, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond	Agent: <input checked="" type="checkbox"/>	Plat: <u>TS</u>	Casing: <u>T.S</u>	Fee: <u>967-035</u>
------	--	-----------------	--------------------	---------------------

[Signature]
 Administrator, Office of Oil and Gas

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