

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

CERTIFICATE

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia."

Minimum degree of accuracy is one part in 200

Signed Frank J. Barber LL#289

COMPANY KAISER EXPLORATION & MINING COMPANY 465
 ADDRESS P.O. BOX 537 RIPLEY, WEST VIRGINIA
 FARM CHARLIE PICKENS ETAL, CLIFFORD KING
 MAP _____ ACRES 220.44 OF 397.49 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 6
 ELEVATION (SPIRIT LEVEL) 1017.34 239 NE3
 QUADRANGLE ELMWOOD (7 1/2°) WINFIELD (15°)
 COUNTY MASON 353 DISTRICT UNION
 POINT OF PROVEN ELEVATION RD. INTERSECTION EL. 999

FILE NO. _____ DRAWING NO. _____
 DATE FEB 1, 1979 SCALE 1"=1000 FT.

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON

WELL LOCATION MAP

FILE NO. 47-053-0184

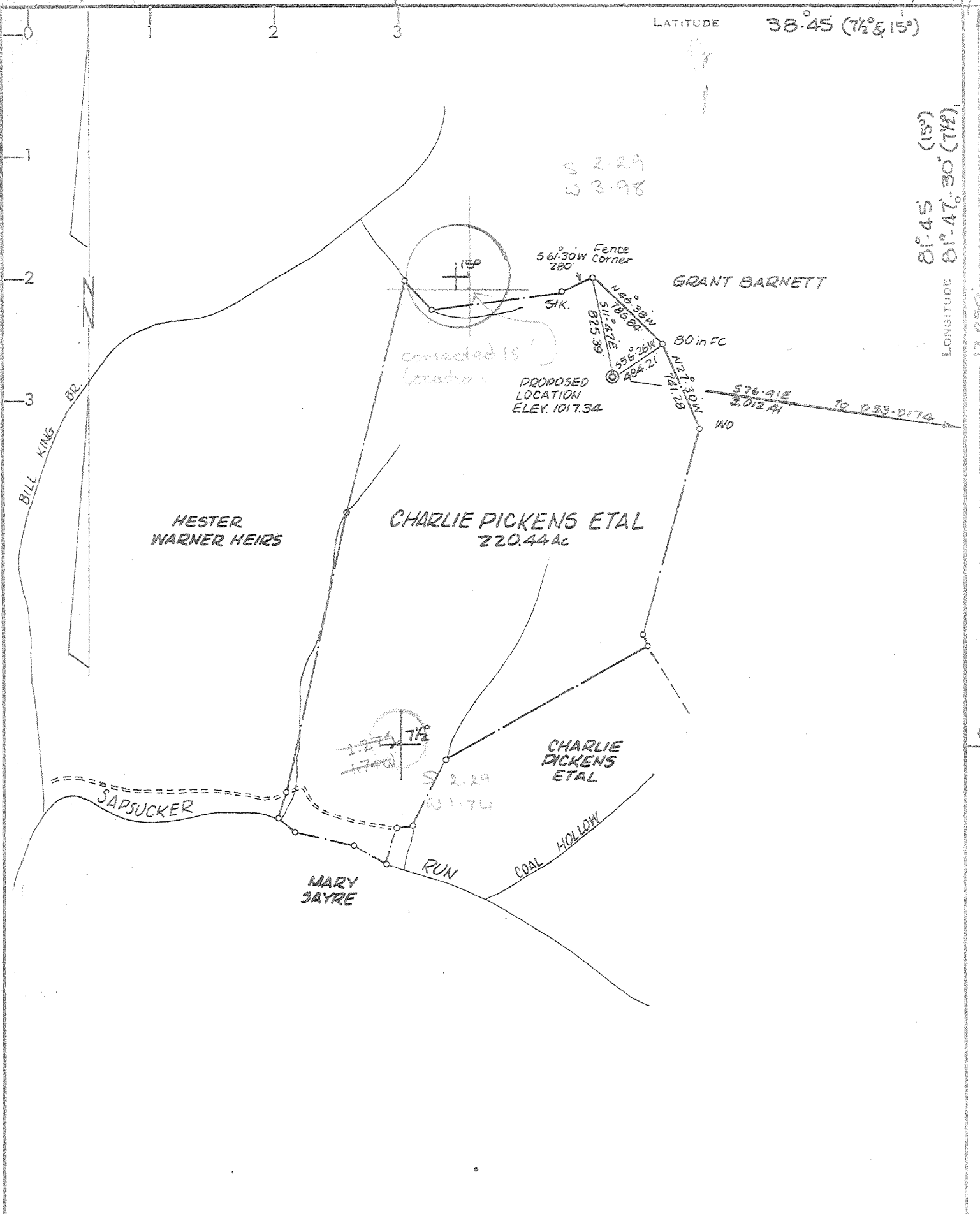
MAR 9 1979

+ DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. SCALE 1 TO 62,500. LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.
 - DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

DEEP WELL = OWWD. 6-6, Rock Castle (346)

LATITUDE 38°45' (7½° & 15°)

LONGITUDE 81°45' (15°)
81°47'30" (7½°)



CERTIFICATE

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Minimum degree of accuracy is one part in 200

Signed *Frank J. Barber* LL#289

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS P.O. BOX 537 RIPLEY, WEST VIRGINIA
 FARM CHARLIE PICKENS ETAL, CLIFFORD KING
 MAP _____ ACRES 220.44 OF 397.49 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 6
 ELEVATION (SPIRIT LEVEL) 1017.34
 QUADRANGLE ELMWOOD (7½°) WINFIELD (15°) NE
 COUNTY MASON DISTRICT UNION
 POINT OF PROVEN ELEVATION RD. INTERSECTION EL. 999

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON

WELL LOCATION MAP

FILE NO. 47-053-0184

FILE NO. _____ DRAWING NO. _____
 DATE FEB, 1979 SCALE 1" = 1000 FT.

+ DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. SCALE 1 TO 62,500. LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN. MAR 21 1979
 - DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

Deep Well 5-5 2 Rock Castle (346)



RECORDED

FEB 20 1980

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division
WELL RECORD 3%

OIL & GAS DIVISION
DEPT. OF MINES

Quadrangle Elmwood
Permit No. 47-053-0184

Rotary X Oil _____
Cable _____ Gas X
Recycling _____ Comb. _____
Water Flood _____ Storage _____
Disposal _____ (Kind) _____

Company <u>Kaiser Exploration and Mining Company</u>	Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Address <u>P. O. Box 8, Ravenswood, WV 26164</u>				
Farm <u>Charlie Pickens</u> Acres <u>220.44</u>	Size			
Location (waters) <u>Sapsucker</u>	20-16			
Well No. <u>KEM 6</u> Elev. <u>1017.34</u>	Cond.			
District <u>Union</u> County <u>Mason</u>	13-10" 10 3/4"	251' (KB)	Same	100 sx class A (To surface) (Halliburton)
The surface of tract is owned in fee by <u>Clifford King</u>	9 5/8			
Address <u>Rt. 2, Gallipolis, Ohio</u>	8 5/8			65 sx pozmix
Mineral rights are owned by <u>Charlie Pickens et al</u>	7	2707' (KB)	Same	100 sx class A (Halliburton)
Address <u>Leon, WV 25123</u>	5 1/2			
Drilling Commenced <u>7/6/79</u>	4 1/2	5049' (KB)	Same	225 sx pozmix (Halliburton)
Drilling Completed <u>7/17/79</u>	3			
Initial open flow <u>8,469</u> cu. ft. -- bbls.	2		5002 (KB)	
Final production <u>450 M</u> cu. ft. per day bbls.	Liners Used			
Well open <u>24</u> hrs. before test <u>1800</u> RP.				

Well treatment details:

Attach copy of cementing record.

Perforated the Oriskany S.S. from 5006' - 5008', 5009 1/2' - 5010 1/2' w/ 4 holes/ft (7/20/79); Halliburton and Aircowell fractured the Oriskany w/30,000# 80/100 mesh sand, 30,000# 20/40 mesh sand, 500 gal 15% HCL, 900 BBL water, 178,000 SCF nitrogen.

450 MCF

Coal was encountered at _____ Feet _____ Inches
Fresh water _____ Feet _____ Salt Water _____ Feet _____
Producing Sand Oriskany Depth 5006-10

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Soil			0	10		
Shale			10	22		
Sand			22	264		
Shale			264	301		
Sand			301	346		
Red Rock			346	394		
Shale			394	403		
Red Rock			403	412		
Shale			412	440		
Red Rock			440	489		
Shale			489	502		
Red Rock			502	616		
Sand			616	626		
Red Rock			626	670		
Shale			670	682		
Red Rock			682	722		
Shale			722	732		
Red Rock			732	768		
Sand			768	782		
Shale			782	787		
Coal			787	802		
Red Rock			802	834		
Shale			834	850		

Tops From KB = 1025

(over)

* Indicates Electric Log tops in the remarks section.

Formation	Color	Hard or Soft	Top Feet \approx	Bottom Feet	Oil, Gas or Water	* Remarks
Sand			850	903		
Red Rock			903	946		
Shale			946	958		
Siltstone			958	1040		
Shale			1040	1054		
Siltstone			1054	1122		
Sand			1122	1186		
Shale			1186	1262		
Sand			1262	1272		
Shale			1272	1294		
Sand			1294	1389		
Shale			1389	1454		
Sand			1454	1467		
Siltstone			1467	1522		
Salt Sand			1522	1658		
Shale			1658	1693		
Siltstone			1693	1794		
Shale			1794	1814		
Siltstone			1814	1854		
Sand			1854	1868		
Shale			1868	1914		
Sand			1914	1922		
Shale			1922	1956		
Siltstone			1956	1986		
Sand			1986	2009		
Shale			2009	2048		
Maxton			2048	2076		
Big Lime			2076	2174		
Shale			2174	2210		
Big Injun			2210	2342		
Shale			2342	2650		
Coffee Shale			2650	2674		
Berea			2674	2686		
Shale			2686	3870		
Brown Shale			3870	4329		
Shale			4329	4672		
Marcellus			4672	4900		
Onondaga			4900	4976		
Oriskany			4976	5021		
Helderberg			5021	5081		
Total Depth			5081			

Date February 20

1980

APPROVED Kaiser Exploration and Mining Company

By [Signature]
Operations Manager



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

OIL & GAS DIVISION
DEPT. OF MINES

RECEIVED
FEB 23 1979

PK

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

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

DATE February 5, 1979

Surface Owner Clifford King
Address Route 2, Gallipolis, Ohio
Mineral Owner Charlie Pickens, et al
Address Leon, WV 25123
Coal Owner Union Carbide & Chemical Corp.
Address Charleston, WV
Coal Operator _____
Address _____

Company Kaiser Exploration and Mining Company
Address P. O. Box 537, Ripley, WV 25271
Farm Charlie Pickens Acres 220.44
Location (waters) Sapsucker
Well No. 1 - KEM-6 Elevation 1017.34
District Union County Mason
Quadrangle Elmwood

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 TO BE NOTIFIED Kenneth Butcher

operations have not commenced by 11-5-79 ADDRESS RFD #1, Barboursville, WV 25504

Robert L. Ford
Deputy Director - Oil & Gas Division

PHONE 736-4885

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 September 3 19 78 by Charlie Pickens, et al made to Kaiser Exploration and Mining Co. recorded on the 5th day of September 19 78 in Mason County, Book 43 Page 658

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.

Very truly yours,

(Sign Name) R. A. Pryce
R. A. Pryce Well Operator Operations Manager

P. O. Box 537

Street

Ripley

City or Town

West Virginia 25271

State

Address
of
Well Operator

VA. OIL & GAS CONSERVATION COMMISSION
13 WASHINGTON STREET, EAST
CHARLESTON, WEST VIRGINIA 25311

BLANKET COVERED

47-053-0184

PERMIT NUMBER

Handwritten signature/initials

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 Not known at this time NAME Robert A. Pryce
 ADDRESS _____ ADDRESS P. O. Box 537, Ripley, WV 25271
 TELEPHONE _____ TELEPHONE 372-2827 or 372-2828
 ESTIMATED DEPTH OF COMPLETED WELL: 5100 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 LIFT UP OR SACKS - CUBIC FT.
20 - 16			
13 - 10			
9 - 5/8 10 3/4	300	300	To surface (100 sks)
8 - 5/8			
7	2700	2700	125 sks = 570 feet
5 1/2			
4 1/2	5100	5100	125 sks = 1500 feet
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
RECEIVED
MAR - 3 1986



1) Date: February 11, 1986
 2) Operator's Well No. KEM #6, Pickens
 3) API Well No. 47 053035 184 -Frac
 State County Permit

DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY 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: 1017.34 Watershed: Sapsucker
 District: Union County: Mason Quadrangle: ETmwood
- 6) WELL OPERATOR Kaiser Exploration and Mining Company CODE: 253370
 Address P. O. Box 8 Ravenswood, WV 26164
- 7) DESIGNATED AGENT R. A. Pryce
 Address Same
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Jerry Tephabock
 Address Rt. 1, Box 101A Ripley, WV 25271
- 9) DRILLING CONTRACTOR: Name Kaiser Company Tools
 Address Same

- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate X /
 Plug off old formation / Perforate new formation X /
 Other physical change in well (specify) commingle Oriskany and Brown Shale after
- 11) GEOLOGICAL TARGET FORMATION, perforating and stimulating Brown Shale
- 12) Estimated depth of completed well, 5049' (KB) feet
- 13) Approximate trata depths: Fresh, N/A feet; salt, N/A feet.
- 14) Approximate coal seam depths: None Is coal being mined in the area? Yes / No X

15) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILLUP 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-40</u>	<u>40.5</u>	<u>X</u>		<u>251' (KB)</u>	<u>251' (KB)</u>	<u>100 sks</u>	
Coal									Sizes
Intermediate	<u>7"</u>	<u>K-55</u>	<u>10</u>	<u>X</u>		<u>2707' (KB)</u>	<u>2707' (KB)</u>	<u>165 sks</u>	
Production	<u>4 1/2</u>	<u>N-80</u>	<u>11.6</u>	<u>X</u>			<u>5049' (KB)</u>	<u>225 sks</u>	Depths set
Tubing	<u>2 3/8</u>	<u>J-55</u>	<u>4.6</u>	<u>X</u>			<u>5002' (KB)</u>		
Lin...									Perforations:
									Top Bottom
									<u>5006 5010 (KB)</u>

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-053-0184-F

March 21 1986
 Date

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 March 21, 1988 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee	WPCP FEAR TANK	S&E	Other
	<u>AD</u>	<u>MS</u>	<u>MS</u>	<u>969385</u>		<u>AS</u>	

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

[Signature]
 Director, Division of Oil and Gas

File

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



IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date 10/01/86
Operator's Well No. KEM #6
Farm Charlie Pickens
API No. 47-053-0184

Frac.

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: 1017.34 Watershed Sapsucker
District: Union County Mason Quadrangle Elmwood

COMPANY KAISER EXPLORATION AND MINING COMPANY

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

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER Clifford King

ADDRESS Rt. 2, Gallipolis, Ohio

MINERAL RIGHTS OWNER Charlie Pickens et al

ADDRESS Leon, WV 25123

OIL AND GAS INSPECTOR FOR THIS WORK Jerry

Tephabock ADDRESS Rt. 1 Box 101A Ripley, WV 25271

PERMIT ISSUED 3/21/86

DRILLING COMMENCED 7/06/79 / 5/28/86

DRILLING COMPLETED 7/17/79 / 6/3/86

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 Cond.			
13-10"	251(KB)	251(KB)	100 sks Class A
9 5/8			
8 5/8			
7	2707 (KB)	2707 (KB)	65 sks pozmix
5 1/2			
4 1/2	5049 (KB)	5049 (KB)	225 sks pozmix
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 5006/5008 feet

Depth of completed well 5041 feet Rotary X / Cable Tools _____

Water strata depth: Fresh N/A feet; Salt N/A feet

Coal seam depths: _____ Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 5006/5008 feet

Gas: Initial open flow 8.5 Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow 450 Mcf/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ hours

Static rock pressure 1800 psig (surface measurement) after _____ hours shut in

(If applicable due to multiple completion--)

Second producing formation Devonian Shale Pay zone depth 4142/4325 feet

Gas: Initial open flow -- Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow 284 Mcf/d Oil: Final open flow _____ Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 725 psig (surface measurement) after 72 hours shut in

(Continue on reverse side)

Zone Completed Commenced

OCT 20 1986

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

7/20/79 Perf. Oriskany from 5006' to 5008' and 5009.5 - 5010.5' w/4 holes/ft
Halliburton and Aircowell frac Oriskany w/30,000# 80/100 mesh sand,
30,000# 20/40 mesh sand, 500 gal 15% HCL, 900 bbls H₂O, 178,000 sks
N₂.

5/28/86 Young's Wireline perf Brown Shale with 20 holes from 4142 to 4325' ^{Huron}.

6/03/86 Universal Well Service foam frac Brown Shale. Used; 60,000# 20/40
sand; total N₂: 780 MSCF; total fluid: 720 bbls; ISIP: 1300 psig;
5 MIN SIP: 1100 psig.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fres and salt water, coal, oil and ga
SEE PREVIOUS IV-35					

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By: R. A. P. -

Date: October 6, 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
minerals, encountered in the drilling of a well."