

LATITUDE 38° 47' 30"  
38° 50'

HUTCHINSON

LONGITUDE 81° 42' 30"  
81° 40'

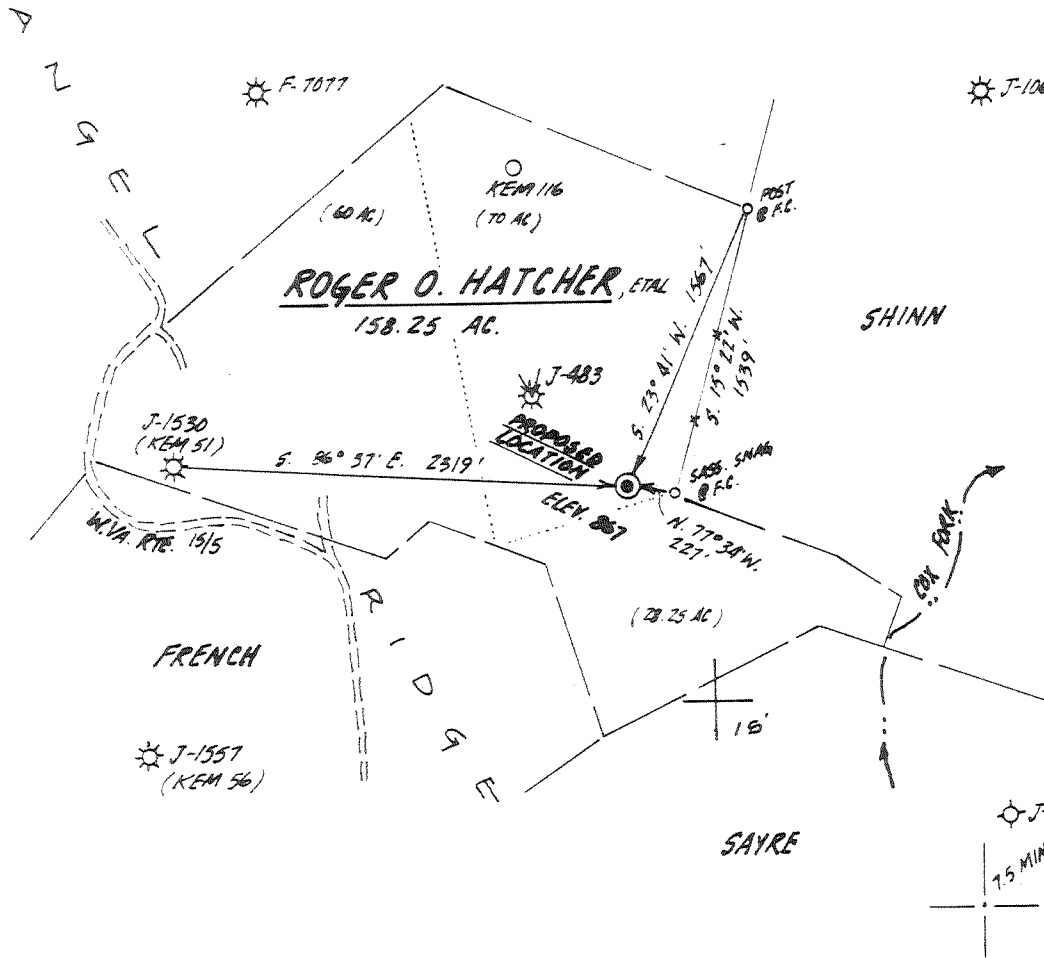
NORTH

BOWLES

SHINN

FRENCH

SAYRE



FILE NO \_\_\_\_\_  
DRAWING NO \_\_\_\_\_  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION SPOT ELEV. 1005 ON KNOLL WEST OF PROPOSED LOCATION

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) Donnis 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 JULY 29 19 81  
OPERATOR'S WELL NO KEM 117  
API WELL NO \_\_\_\_\_  
47 - 035 - 1595-Frac.  
STATE COUNTY PERMIT

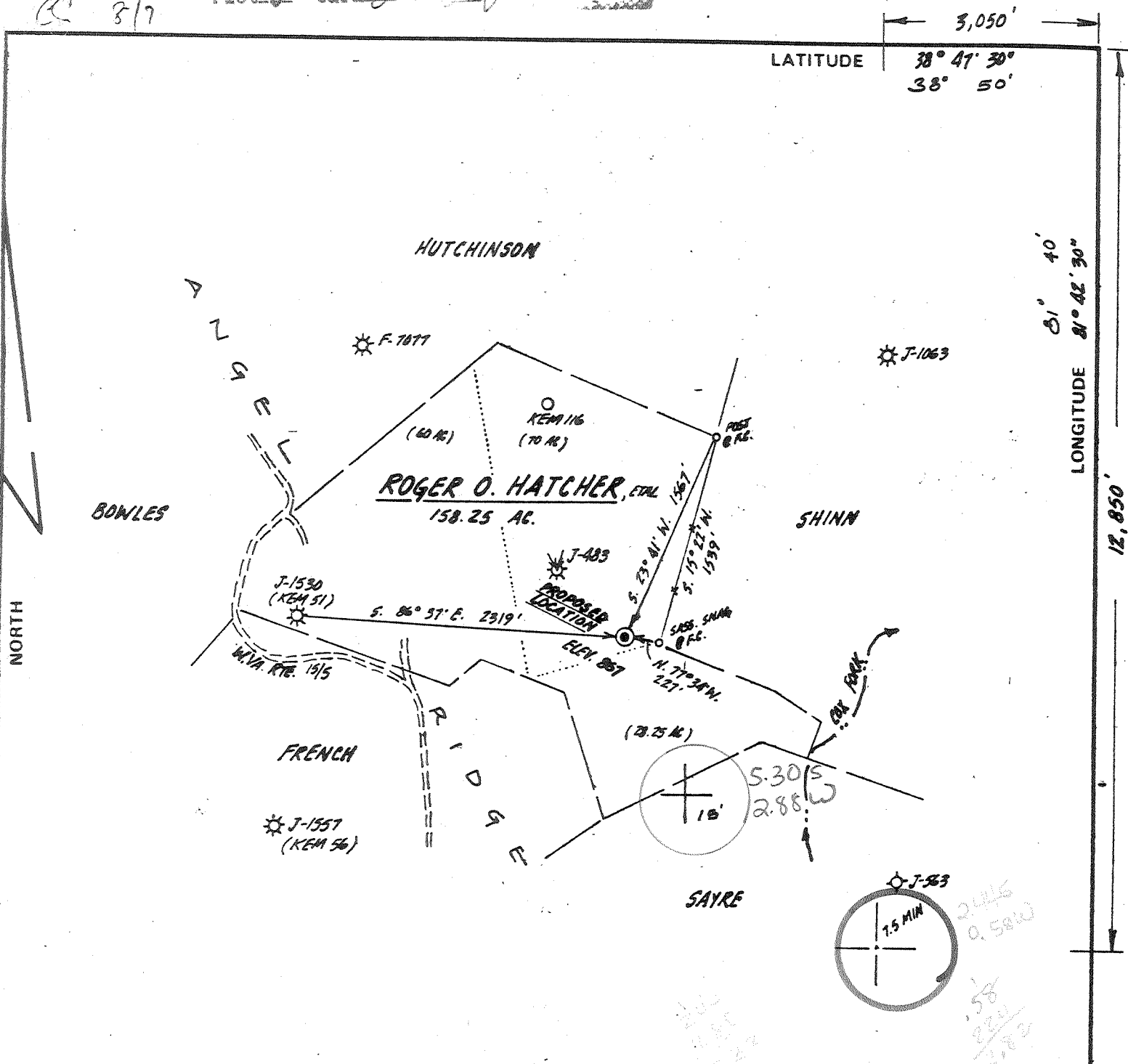
STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION

WELL TYPE OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
LOCATION N ELEVATION 887 WATER SHED COX FORK  
DISTRICT RIPLEY COUNTY JACKSON  
QUADRANGLE RIPLEY

SURFACE OWNER ROGER O. HATCHER ACREAGE 158.25  
OIL & GAS ROYALTY OWNER ROGER O. HATCHER, ETAL LEASE ACREAGE 158.25  
LEASE NO. \_\_\_\_\_

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 SHALE ESTIMATED DEPTH 2520  
WELL OPERATOR KAISER EXPLORATION & MINING CO. DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY  
ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26664 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26664



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1:200  
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 1005 ON KNOLL WEST OF PROPOSED LOCATION

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) Donnus L. Asker  
 R.P.E. \_\_\_\_\_ L.L.S. #670



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



DATE JULY 29, 19 81  
 OPERATOR'S WELL NO. KEM 117  
 API WELL NO. 47-035-1595  
 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 \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
 LOCATION: ELEVATION 857 WATER SHED COX FORK  
 DISTRICT RIPLEY COUNTY JACKSON  
 QUADRANGLE RIPLEY 7 1/2 x 15 SW  
 SURFACE OWNER ROGER O. HATCHER ACREAGE 158.25  
 OIL & GAS ROYALTY OWNER ROGER O. HATCHER, ETAL LEASE ACREAGE 158.25  
 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) \_\_\_\_\_

AUG 24 1981

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
 TARGET FORMATION SHALE ESTIMATED DEPTH 2520  
 WELL OPERATOR KAISER EXPLORATION & MINING CO. DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY  
 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26664 ADDRESS PO BOX 8, RAVENSWOOD, WEST VIRGINIA 26664  
6-6 Elk. Poca (Sissonville) (192)



IV-35  
(Rev 8-81)

Date March 21, 1986

Operator's Well No. KEM 117

Farm Roger O. Hatcher

API No. 47 - 035 - 1595

### State of West Virginia

Department of Mines  
Oil and Gas Division

*Frac.*

#### WELL OPERATOR'S REPORT OF

#### DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil  / Gas  / Liquid Injection  / Waste Disposal  /  
(If "Gas," Production  / Underground Storage  / Deep  / Shallow )

LOCATION: Elevation: 867 Watershed Cox Fork  
District: Ripley County Jackson Quadrangle Ripley

COMPANY Kaiser Exploration and Mining Company

ADDRESS P. O. Box 8 Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER Roger O. Hatcher

ADDRESS Rt 2 Box 55 Ripley, WV 25271

MINERAL RIGHTS OWNER \_\_\_\_\_

ADDRESS \_\_\_\_\_

OIL AND GAS INSPECTOR FOR THIS WORK Jerry

Tephabock ADDRESS Rt. 1 Box 101A Ripley

PERMIT ISSUED 8/5/81 5/8/84 WV 25271

DRILLING COMMENCED August 29, 1981 6/1/84

DRILLING COMPLETED September 4, 1981 11/9/84

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

Casing & Tubing Size Cond.	Used in Drilling	Left in Well	Cement fill up Cu. ft.
20-16			
10 3/4"	247' (KB)	247' (KB)	150 sks Class A
9 5/8			
8 5/8			
7	2412' (KB)	2412' (KB)	65 sks Pozmix 50/50
5 1/2			100 sks Clas
4 1/2	4948' (KB)	4948' (KB)	250 sks Pozmix 50/50
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shales Depth 4943 feet

Depth of completed well 4956 feet Rotary  / Cable Tools \_\_\_\_\_

Water strata depth: Fresh 0 feet; Salt 0 feet

Coal seam depths: 0 Is coal being mined in the area? No

#### OPEN FLOW DATA

Producing formation Marcellus Shale Pay zone depth 4702 feet  
Brown Shale 4118 feet

Gas: Initial open flow N/A Mcf/d Oil: Initial open flow 0 Bbl/d

Final open flow 125 Mcf/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests 0 hours

Static rock pressure 1050 psig (surface measurement) after 14 hours shut in  
(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2541 feet

Gas: Initial open flow 0 Mcf/d Oil: Initial open flow 0 Bbl/d

Final open flow 0 Mcf/d Oil: Final open flow 0 Bbl/d

Time of open flow between initial and final tests 4 hours

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

*new zone  
completion  
attempted*

NOV 10 1986

(Continue on reverse side)

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

6/1/84 Young's Wireline set retrievable bridge plug at 2810': perf 3 squeeze holes at 2695.

6/4/84 NOWSCO: squeezed with 200 sks Class A, 2% CaCl<sub>2</sub>.

6/8/84 Young's Re-perf for squeeze at 2557.

7/19/84 Halliburton on location to squeeze: unsuccessful.

7/20/84 Young's Wireline perf Berea from 2541-2546 with 15 holes (0.39" DIA)

7/26/84 Halliburton and NOWSCO foam frac. Berea with 60,000 lbs 20/40 sand; total N<sub>2</sub> = 613 mscf; total water 304 bbls; ISIP: 2170 psig; 5 MIN SIP: 200 psig.

11/9/84 Knocked out plug between Berea and Shale.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Same as before					

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company

Well Operator

By: E. A. P.

Date: 24 March 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 coal, encountered in the drilling of a well."

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

FORM IV-35 (Obverse)

Operator's Well No. KEM-117

[08-73]

WELL OPERATOR'S REPORT OF

APT Well No. -035 -1595

DEVELOPMENT, REWORKING AND/OR OILY MATING, OR OTHER SPECIAL CHANGE

WELL TYPE: Oil / Gas X / Liquid Injection / Waste Disposal (If "Gas", Production X / Underground storage / Deep / Shallow X)

LOCATION: Elevation: 867 Watershed: Cox Fork District: Ripley County: Jackson Subtriangle: Ripley

WELL OPERATOR: Kaiser Exploration and Mining Co. Address: P. O. Box 8 Ravenswood, WV 26164

PERMITTED WORK: Drill X / Convert / Drill deeper / Fracture or stimulate X / Plug off old formation / Perforate new formation / Other physical change in well (specify) RECEIVED FEB 9 - 1982

PERMIT ISSUED ON August 5, 1981 OIL & GAS INSPECTOR FOR THIS COUNTY: RICHARD MORRIS

(IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED) Name: Richard Morris Address: P. O. Box 372 Grantsville, WV

GEOLOGICAL TARGET FORMATION: Devonian Shales Depth: 4943 feet Depth of completed well: 4956 feet Rotary X / Cable Tools Water strata depth: Fresh, == feet; salt, -- feet Coal seam depths: == Is coal being mined in the area? No Work was commenced August 29, 1981, and completed September 4, 1981

CASING AND TUBING PROGRAM

Table with columns: CASING OR TUBING TYPE, SPECIFICATIONS (Size, Grade, Weight, New, Used), FOOTAGE INTERVALS (For drilling, Left in well), CEMENT FILL-UP OR SACKS (Cubic feet), PACKERS (Kinds, None, Sizes, Perforations: Top, Bottom)

OPEN FLOW DATA: Producing formation: Argolas Rhinestreet Marcellus Shale Pay zone depth: 4702-4927 feet Gas: Initial open flow, -- Mcf/d Oil: Initial open flow, -- bbl/d Final open flow, 50 Mcf/d Final open flow, -- bbl/d Time of open flow between initial and final tests, N/A hours Stable rock pressure, N/A psig (surface measurement) after -- hours shut in

Second producing formation: Brown Shale lower Huron Pay zone depth: 4118-4304 feet Gas: Initial open flow, -- Mcf/d Oil: Initial open flow, -- bbl/d Final open flow, 125 Mcf/d Final open flow, -- bbl/d Time of open flow between initial and final tests, -- hours Stable rock pressure, 1050 psig (surface measurement) after 14 hours shut in

175MCF ROP

FEB 12 1982

(66-78)

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

- 9/30/81: Perf. Marcellus shale w/ 3 1/2" ceramic strip on strip, 25 holes, .50 diameter from 4702'-4927' (KB)
  - 10/1/81: BJ Hughes nitrogen fractured zone w/ 9 trucks (72,000 SCF/min, or 8,000 SCF/min truck); used 1,594,000 SCF of product; breakdown was 2800 psig; avg. treating pressure was 2800 psig; instantaneous shut in pressure was 1800 psig.
  - 10/29/81: Set retrievable bridge plug in 4 1/2" csg. at 4379 (KB)
  - 11/3/81: Perf Brown Shale zone using 3 1/2" glass jets on strip, .50" diameter from 4118'-4304' (KB)
  - 11/4/81: Foam fractured Brown shale using 500 gal. 15% HCL acid; 15,000# 80/100 sand; 45,000# 20/40 sand; 586,000 SCF of nitrogen (30,000 SCF/min rate); 221 bbl. of sand laden fluid; 13.5 BPM avg. rate; 2800 psig avg. pressure; 3000 psig maximum pressure; 550 psig breakdown pressure; 1300 psig instantaneous shut in pressure
- WELL LOG was 1300 psig. Recovered retrievable plug, commingled zones

FORMATION	Color	Hard or Soft	Top Feet	Bottom Feet	Remarks Including indication of all fresh and salt water, coal, oil and gas
Soil & Shale			0	78	
Siltstone			78	150	
Shale			150	297	
Sand			297	352	
Shale			352	406	
Sand			406	426	
Shale & Siltstone			426	704	
Sand			704	736	
Shale			736	814	
Sand & Shale			814	890	
Shale			890	1014	
Sand			1014	1034	
Shale			1034	1177	
Sand			1177	1279	
Shale			1279	1346	
Sand			1346	1394	
Shale			1394	1425	
Sand			1425	1438	
Shale			1438	1503	
Sand			1503	1540	
Shale			1540	1721	
Salt Sand			1721	1915	
Big Lime (Greenbrier)			1915	2042	
Shale			2042	2077	
Big Injun Sand			2077	2126	
Shale			2126	2520	
Coffee Shale (Sunbury)			2520	2543	
Berea Sand			2543	2552	
Shale			2552	3766	Gas show 3612
Brown Shale			3755	4306	Gas show 3871, 3903, 4178, 4
Shale			4306	4668	Gas show 4449
Marcellus Shale			4668	4959	Gas show 4840, 4902
Total Depth			4959		
<i>Rhinestreet</i>					

(Attach separate sheets to complete as necessary)

R. A. P.  
 Well Operator

KAISER EXPLORATION AND MINING COMPANY

By \_\_\_\_\_  
 Its General Manager

NOTE: Association 2.01(1) 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

AUG - 5 1981

Oil and Gas Division

OIL & GAS DIVISION

DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

THE DEPARTMENT OF MINES,  
Charleston, W. Va.

DATE August 3, 1981

Surface Owner Roger O. Hatcher  
 Address Rt. 2, Box 55, Ripley, WV  
 General Owner Roger O. Hatcher et al.  
 Address Rt. 2, Box 55, Ripley, WV  
 Mineral Owner Same  
 Address \_\_\_\_\_  
 Well Operator None  
 Address \_\_\_\_\_

Company Kaiser Exploration and Mining Company  
 Address P. O. Box 8, Ravenswood, WV 26164  
 Farm Roger O. Hatcher Acres 158.25  
 Location (waters) Cox Fork  
 Well No. KEM #117 Elevation 867'  
 District Ripley County Jackson  
 Quadrangle Ripley

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 4-11-82

INSPECTOR  
 TO BE NOTIFIED Richard Morris  
 ADDRESS P. O. Box 372, Grantsville, WV  
 PHONE 354-7259

[Signature]  
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 thereto, (or as the case may be) under grant or lease dated March 28 1979 by Roger & Connie Hatcher made to Kaiser Exploration and Mining Company and recorded on the 6th day of July 1979, in Jackson County, Book 152 Page 688

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 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 and coal owners at their above shown respective addresses \_\_\_\_\_ day \_\_\_\_\_ before, or on the \_\_\_\_\_ day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL PHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY  
P. O. BOX 879  
MARTINSBURG, WEST VIRGINIA 26105  
304 - 292-6331

Very truly yours,  
 (Sign Name) [Signature]  
 Well Operator  
 Kaiser Exploration and Mining Company  
 Address P. O. Box 8 Street  
Ravenswood City or Town  
West Virginia 26164 State

SECTION 3 . . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of such plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting 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

47-035-1595

PERMIT NUMBER

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 8, Ravenswood, WV 26164  
 TELEPHONE 273-5371 TELEPHONE 273-5371  
 ESTIMATED DEPTH OF COMPLETED WELL: 4943' ROTARY X CABLE TOOLS         
 PROPOSED GEOLOGICAL FORMATION: Shale  
 TYPE OF WELL: OIL        GAS X COMB.        STORAGE        DISPOSAL         
 RECYCLING        WATER FLOOD        OTHER       

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LIST IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16			
- 10			
5/8 10 3/4"	250'	250'	Cement to surface
- 5/8			
7	2427'	2427'	65 sks 50/50 pozmix
5 1/2			100 sks class A
4 1/2	4943'	4943'	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 hereof.

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



**RECEIVED**  
APR 18 1984



1) Date: April 4, 1984  
 2) Operator's Well No. KEM-117  
 3) API Well No. 47 - 035 - 1595 - FRA  
 State County Permit

OIL & GAS DIVISION  
**DEPT. OF MINES** STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES, 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        / Shallow X /)
- 5) LOCATION: Elevation: 867' Watershed: Cox Fork  
 District: Ripley County: Jackson Quadrangle: Ripley
- 6) WELL OPERATOR ~~KEM-117~~ Kaiser Exp & Mining Co DESIGNATED AGENT R.A. PRYCE  
 Address P. O. Box 8 Address Same  
Ravenswood, WV 26164
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name J. Tephobock  
 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 X /  
 Plug off old formation        / Perforate new formation X /  
 Other physical change in well (specify) Squeeze 4 1/2" csg; treat Berea; isolate Berea
- 11) GEOLOGICAL TARGET FORMATION, Berea Sandstone Shale with tubing and packer
- 12) Estimated depth of completed well, 4956 feet
- 13) Approximate trata depths: Fresh, 150 feet; salt, 600 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 FILL-UP OR SACKS (Cubic feet)	PACKERS	
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		Kinds	Sizes
Conductor										None
Fresh water	10 3/4	H	40.50	X		247' (KB)	247' (KB)	150 sx Neat		
Coal										
Intermediate	7	K	20	X		2412' (KB)	2412' (KB)	65 sks Pozmix 100 sks Neat		
Production	4 1/2	K	10.50	X			4948' (KB)	250 sks Pozmix		
Tubing	2 3/8	J	4.6	X			4900' (KB)			
Liners										
									Perforations:	
									Top	Bottom
									4702	4927 (KB)
									4118	4304 (KB)

**OFFICE USE ONLY**  
**DRILLING PERMIT**

Permit number 47-035-1595-FRAC Date May 8, 1984

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 8, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u>BLANKET</u>	Agent: <u>✓</u>	Plat: <u>MAI</u>	Casing: <u>MAI</u>	Fee: <u>966-988</u>
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*T. H. W.*

Administrator, Office of Oil and Gas

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

File