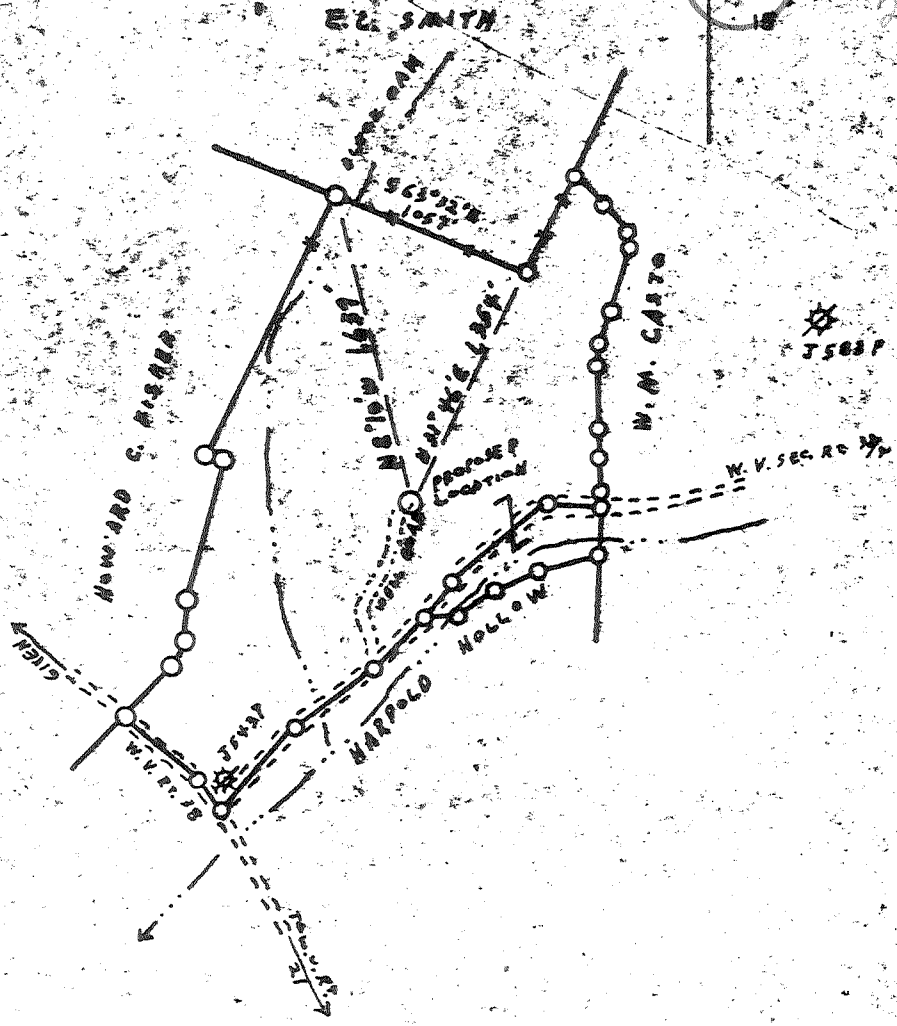
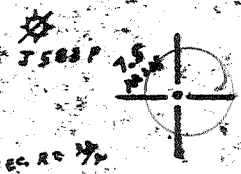


NORTH



1.905  
2.910  
2.870



38 43 55  
81 43 15

FILE NO. \_\_\_\_\_  
 DRAWING NO. REV. 1  
 SCALE 1" = 1,000'  
 MINIMUM DEGREE OF ACCURACY 1:200  
 PROVEN SOURCE OF ELEVATION U.S. G.S. D.A. No. S 106 ELEV. = 661

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) Vincent W. Wood  
 R.P.E. \_\_\_\_\_ L.L.S. 664



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



DATE MARCH 29, 1982  
 OPERATOR'S WELL NO. KEM 189  
 API WELL NO. 47-035-1681  
 STATE WEST VIRGINIA COUNTY JACKSON PERMIT 1681

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 818 WATERSHED HARPOLD HOLLOW  
 DISTRICT RIPLEY COUNTY JACKSON  
 QUADRANGLE KENNA 15' NW  
 SURFACE OWNER DORSEL AND WILMA FISHER ACREAGE 107.62  
 OIL & GAS ROYALTY OWNER DORSEL AND WILMA FISHER LEASE ACREAGE 107.62  
 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 5194'  
 WELL OPERATOR KAISER EXPLOR & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION & MINING CO.  
 ADDRESS P.O. BOX 8 RAYENSWOOD, W. V. 26164 ADDRESS P.O. BOX 8 RAYENSWOOD, W. V. 26164

APR 10 1982

66 Elk Local Sixteen → Deep Well ← (192)



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

5/16/82 Oriskany S.S. Perforation  
5073-5078, 5045-5050, 5036-5040  
56 shots

5/18/82 Oriskany S.S. Frac:  
50,000 # of 20/40 sand  
Treatment pressure = 4000 psig  
Total of 820 bbl of water and  
174,000 SCF of N<sub>2</sub>

9/20/82 Set Go-Elite 3.71" O.D. permanent bridge plug in 4 1/2" at 4500' (KB).  
Perforated Brown Shale selectively with 27 holes, .39" diameter from  
4036'-4422'. 9/23/82 Frac: 60,000# of 20/40 sand, treatment pressure  
2000 - 2900 psi; instantaneous shut in pressure 1270 psig; total 342 bbls  
of water and 789 MSCF 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 and shale			150	1600	
Sandstone			1600	2150	
Shale			2150	2480	
Coffee shale			2480	2504	
Berea S.S.			2504	2517	
Shale			2517	3744	
Brown shale			3744	4280	s/g @ 3786, 4025, 4194, 4204, 4241, 4265
Shale			4280	4650	s/g @ 4424
Marcellus			4650	4936	s/g @ 4674
Onendaga L.S.			4936	4997	
Oriskany S.S.			4997	5063	
<u>Helderberg</u>			5063	<u>5136-TD</u>	

4036  
2517  
-----  
1519

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: R. A. P.

Date: September 27, 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."



Date: March 15, 19 82

Operator's Well No. KEM #189

API Well No. 47      035      1681  
State      County      Permit

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

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

LOCATION: Elevation: 894'      Watershed: Harpold Hollow  
District: Ripley      County: Jackson      Quadrangle: Kenna

WELL OPERATOR Kaiser Exploration and Mining Co. DESIGNATED AGENT R. A. Pryce  
Address P. O. Box 8      Address P. O. Box 8  
Ravenswood, WV 26164      Ravenswood, WV 26164

OIL & GAS ROYALTY OWNER Dorse] and Wilma Fisher  
Address Rt. 1,  
Given, WV

COAL OPERATOR None  
Address     

Acreage 107.62

COAL OWNER(S) WITH DECLARATION ON RECORD:  
Name       
Address       
MAR 17 1982

SURFACE OWNER Same  
Address       
Acreage     

Name       
Address       
OIL AND GAS DIVISION  
WV DEPARTMENT OF MINES

FIELD SALE (IF MADE) TO:  
Address     

COAL LESSEE WITH DECLARATION ON RECORD:  
Name       
Address       
APR 1 - 1982  
OIL AND GAS DIVISION  
WV DEPARTMENT OF MINES

OIL & GAS INSPECTOR TO BE NOTIFIED  
Name Richard Morris  
Address P. O. Box 372  
Grantsville, WV

The undersigned well operator is entitled to operate for oil or gas purposes at the above location under a deed      / lease X  
other contract      / dated August 21, 19 80, to the undersigned well operator from Dorse] & Wilma  
Fisher  
(If said deed, lease, or other contract has been recorded:)

Recorded on September 5, 1980, in the office of the Clerk of the County Commission of Jackson County, West  
Va., in Lease Book 157 at page 36. A permit is requested as follows:

PROPOSED WORK: Drill X / Drill deeper      / Redrill      / Fracture or stimulate      /  
Plug off old formation      / Perforate new formation      /  
Other physical change in well (specify)       
      
     —planned as shown on the work order on the reverse side hereof.

The above named coal operator, coal owner(s), and coal lessee are hereby notified that any objection they wish to make or are required to  
make by Code §22-4-3 must be filed with the Department of Mines within fifteen (15) days after the receipt of this Application by the  
Department.

Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed by registered mail or delivered by hand to  
the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to  
the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL  
GEOPHYSICAL LOGS DIRECTLY  
TO:  
WEST VIRGINIA OIL AND GAS  
CONSERVATION COMMIS-  
SION  
1615 WASHINGTON STREET EAST  
CHARLESTON, WV 25311  
TELEPHONE: (304) 348-3092

BLANKET BOND

KAISER EXPLORATION AND MINING COMPANY  
Well Operator  
By R. A. Pryce  
Its General Manager

THIS IS AN ESTIMATE ONLY:  
ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-35 UPON COMPLETION

DRILLING CONTRACTOR (IF KNOWN) Clint Hurt & Associates, Inc.

Address P. O. Box 388

Elkview, WV 25071

GEOLOGICAL TARGET FORMATION, Oriskany

Estimated depth of completed well, 5194' feet Rotary X / Cable tools        /

Approximate water strata depths: Fresh, 460 feet; salt,        feet.

Approximate coal seam depths:        Is coal being mined in the area? Yes        / No X /

CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS			New	Used	FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS	
	Size	Grade	Weight per ft			For drilling	Left in well		Kind	Depth set
Conductor										
Fresh Water	10 3/4			X		450'	450'	150 sks <sup>CTS</sup> Class A		A (to surface)
Coal										Sizes
Intermediate	7"			X		2470'	2470'	65 sks 50/50 pozmix		100 class A
Production	4 1/2			X		5194'	5194'	225 sks 50/50 pozmix		
Tubing										
Liners										Perforations:
										Top Bottom

NOTE: Regulation 7.02 of the Department of Mines provides that the original and four copies of Form IV-2 must be filed with the Department, accompanied by (i) a plat in the form prescribed by Regulation 11, (ii) a bond in one of the forms prescribed by Regulation 12, or in lieu thereof the other security allowed by Code § 22-4-2, (iii) Form IV-9, "Reclamation Plan", applicable to the reclamation required by Code § 22-4-12b and Regulation 23, (iv) unless previously paid on the same well, the fee required by Code § 22-4-12a, and (v) if applicable, the consent required by Code § 22-4-8a from the owner of any water well or dwelling within 200 feet of the proposed well.

A separate Form IV-2 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which a permit is sought and is noted as such on the Form IV-2 filed in connection therewith.

THIS PERMIT MUST BE POSTED AT THE WELL SITE.

ALL PROVISIONS BEING IN ACCORDANCE WITH CHAPTER 22,

ARTICLE 4 OF THE W. VA. CODE, THE LOCATION IS HEREBY

APPROVED FOR drilling. THIS PERMIT SHALL EXPIRE

IF OPERATIONS HAVE NOT COMMENCED BY 12-19-82.

BY [Signature]

The following waiver must be completed by the coal operator and by any coal owner or coal lessee who has recorded a declaration under Code 22-4-20, if the permit is to be issued within fifteen (15) days of receipt thereof.

WAIVER

The undersigned coal operator        / owner        / lessee        / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date:       , 19       

By       

Its       

[Signature]



Cmt top 2130'



# Basin Surveys, Inc.

## COMPENSATED DENSITY LOG

FILING NO.	COMPANY KAISER EXPLORATION & MINING COMPANY		
PERMIT #	WELL	KEM # 189 <i>D. FISHER</i>	
JAC-1681- 47- 035	FIELD	RIPLEY DISTRICT	
	COUNTY	JACKSON	STATE WV
	LOCATION:	<i>47-35-1681</i>	OTHER SERVICES:
		HARPOLD HOLLOW	PDC
	QUAD: KENNA		
	SEC. _____	TWP. _____	RGE. _____

Permanent Datum: GROUND LEVEL	Elev.:	<i>818</i>	
Log Measured From K.B.		10 Ft. Above Perm. Datum	Elev. K.B. <del>904</del> <i>828</i>
Drilling Measured From K.B.			D.F. <del>904</del>
			G.L. <del>894</del> <i>818</i>

Date	5-13-82		
Run No.	ONE		
Type Log	GR/COMP. DEN/CAL/USGD		
Depth—Driller	5122'		
Depth—Logger	5136'		
Bottom logged interval	5134'		
Top logged interval	2450'		
Type fluid in hole	AIR DRILLED		
Salinity, PPM Cl.	—		
Density	—		
Level	—		
Max rec. temp., deg F.	—		
Operating rig time	6 1/2 HRS.		
Recorded by	K. FISHER		
Witnessed by	MR. MATHEWS & MR. COX		

Pun No.	Bit	Bore-Hole Record			Size	Wgt.	Casing Record	
		From	To	From			To	
1	6 1/4"	2464'	T.D.	7"		SURF.	2464'	

THIS HEADING AND LOG CONFORMS TO API RP 33

FOLD HERE



