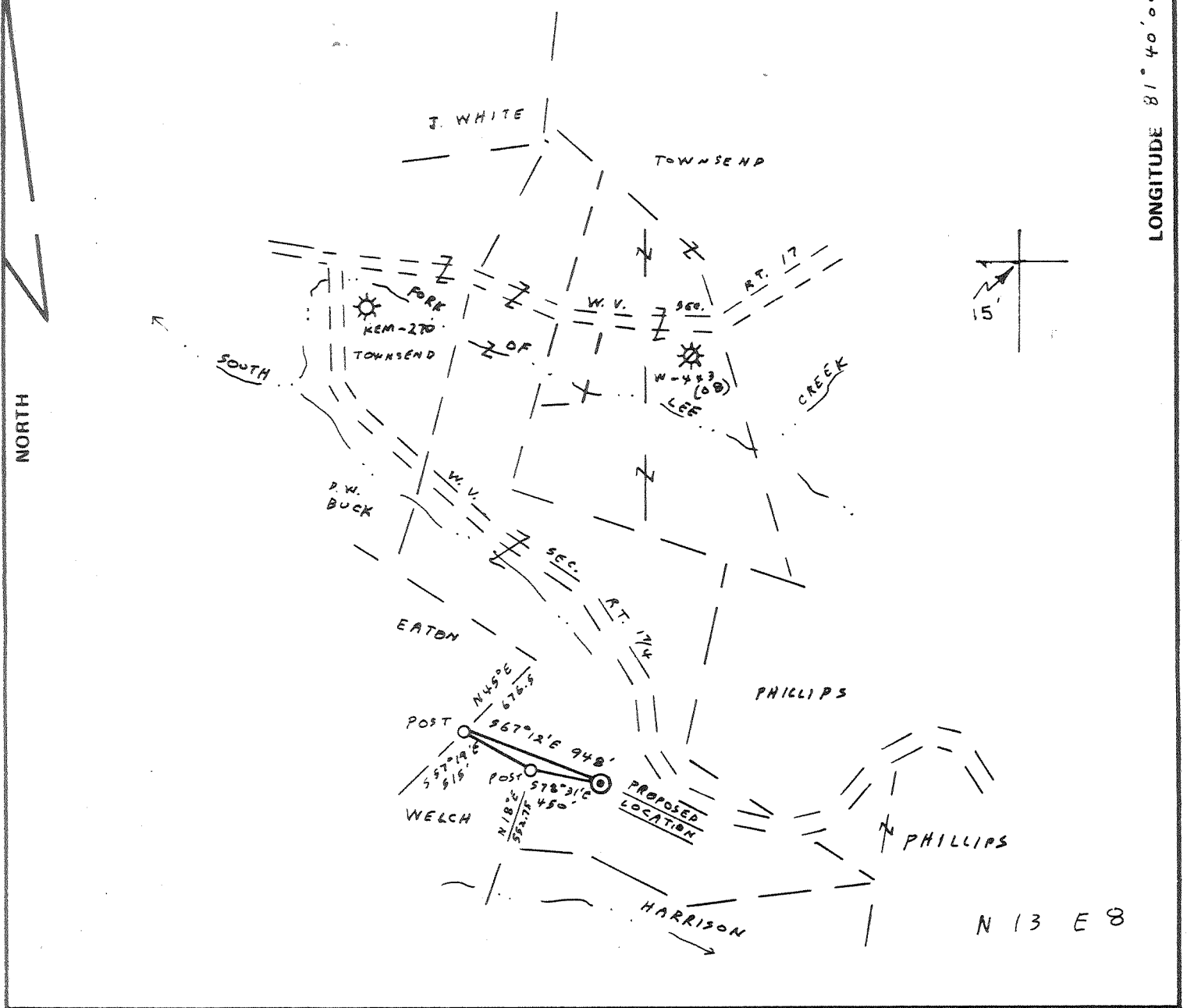


LATITUDE 39° 07' 30"  
39° 10'

7.5 MIN.

LONGITUDE 81° 40' 00"



FILE NO. \_\_\_\_\_  
DRAWING NO. 5-22  
SCALE 1" = 1,000'  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION INTERSECTION W.V. RT 17 AND 17 1/4, ELEV. = 638

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

PLACE SEAL HERE

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION



DATE OCTOBER 19, 1982  
OPERATOR'S WELL NO. KEM 272  
API WELL NO. \_\_\_\_\_

47 - 107 - 1233-Frac.  
STATE COUNTY PERMIT

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS,") PRODUCTION X STORAGE \_\_\_ DEEP X SHALLOW \_\_\_  
LOCATION: ELEVATION 892 WATER SHED SOUTH FORK OF LEE CREEK  
DISTRICT HARRIS COUNTY WOOD  
QUADRANGLE POND CREEK  
SURFACE OWNER CLARENCE TOWNSEND, ET. AL. ACREAGE 135.62, P/O 189.12  
OIL & GAS ROYALTY OWNER CLARENCE TOWNSEND, ET. AL. LEASE ACREAGE 189.12  
LEASE NO. 87-10-1054  
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 \_\_\_ OWWO-6-6 Newengl  
TARGET FORMATION CRISKANY ESTIMATED DEPTH 4679 (296) SEP 24 1984  
WELL OPERATOR KAISER EXPL. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.  
ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8  
RAVENSWOOD, W. V. 26164 RAVENSWOOD, W. V. 26164

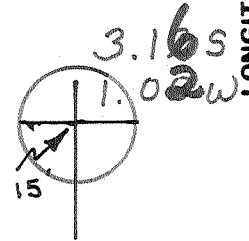
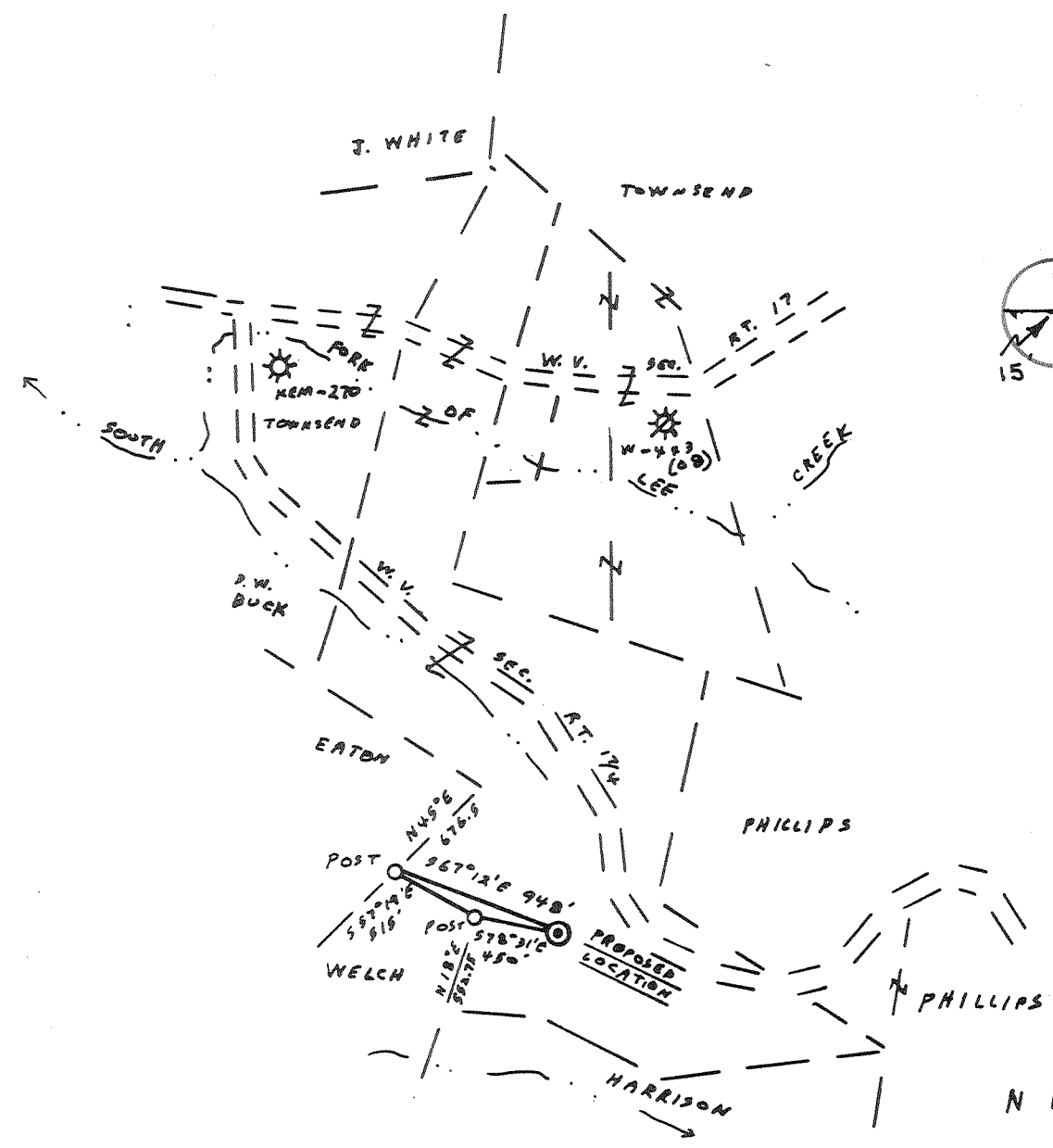
Wood - 1233

LATITUDE 39° 07' 30"  
39° 10'



LONGITUDE 81° 40' 00"

NORTH



N 13 E 8

FILE NO. \_\_\_\_\_  
DRAWING NO. 5-22  
SCALE 1" = 1,000'  
MINIMUM DEGREE OF ACCURACY 1:200  
PROVEN SOURCE OF ELEVATION INTERSECTION W.V. RT 17 AND 1 1/4, ELEV. = 638

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

PLACE SEAL HERE

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION



DATE OCTOBER 19, 1982  
OPERATOR'S WELL NO. KEM 272  
API WELL NO. \_\_\_\_\_  
47 - 107 - 1233  
STATE COUNTY PERMIT

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS,") PRODUCTION X STORAGE \_\_\_ DEEP X SHALLOW \_\_\_  
LOCATION: ELEVATION 892 WATER SHED SOUTH FORK OF LEE CREEK  
DISTRICT HARRIS COUNTY WOOD  
QUADRANGLE POND CREEK 7 1/2 Belleville 15' WC  
SURFACE OWNER CLARENCE TOWNSEND, ET AL. ACREAGE 135.62, P/O 189.12  
OIL & GAS ROYALTY OWNER CLARENCE TOWNSEND, ET AL. LEASE ACREAGE 189.12  
LEASE NO. 87-10-1054  
PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_ PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

NOV 15 1982

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
TARGET FORMATION GRISKANY ESTIMATED DEPTH 4679  
WELL OPERATOR KAISER EXPL. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.  
ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8

DEEP WELL  
5-5 New England (296)

V-35  
Rev 8-81)



Date October 15, 1984  
Operator's  
Well No. KEM #272  
Farm Townsend  
API No. 47 - W - 1233 - F

State of West Virginia  
Department of Mines  
Oil and Gas Division

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 x / Shallow \_\_\_ /)

LOCATION: Elevation: 892' Watershed South Fork of Ice Creek  
District: Harris County Wood Quadrangle Pond Creek

COMPANY KAISER EXPLORATION AND MINING COMPANY  
ADDRESS P. O. Box 8, Ravenswood, WV 26164  
DESIGNATED AGENT Robert A. Pryce  
ADDRESS Same  
SURFACE OWNER Clarence Townsend  
ADDRESS Rt. 2, Belleville, WV 26133  
MINERAL RIGHTS OWNER Same  
ADDRESS \_\_\_\_\_  
OIL AND GAS INSPECTOR FOR THIS WORK Homer Dougherty ADDRESS Linden Rt., Box 3-A Looneyville, WV  
PERMIT ISSUED October 28, 1982 9-19-84  
DRILLING COMMENCED June 21, 1983 9-24-84  
DRILLING COMPLETED June 27, 1983 9-24-84  
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" 3/4		246	150 sx Class A 3% CaCl <sub>2</sub> 1/4#/sk flocele
9 5/8			
8 5/8			
7		1974	150 sx 50/50 poz 100 sx Class A
5 1/2			
4 1/2		4657	225 sx 50/50 poz
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4679 feet  
Depth of completed well 4665 feet Rotary x / Cable Tools \_\_\_\_\_  
Water strata depth: Fresh N/A feet; Salt N/A feet  
Coal seam depths: N/A Is coal being mined in the area? No

OPEN FLOW DATA  
Producing formation Oriskany Sandstone Pay zone depth 4564' - 4568' feet  
Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 250 Mcf/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests 4 hours  
Static rock pressure 1400 psig (surface measurement) after \_\_\_\_\_ hours shut in  
(If applicable due to multiple completion--)  
Second producing formation Devonian Brown Shale Pay zone depth 3626-3890 feet  
Gas: Initial open flow 0 Mcf/d Oil: Initial open flow 0 Bbl/d  
Final open flow 161 Mcf/d Oil: Final open flow 0 Bbl/d  
Time of open flow between initial and final tests 4 hours  
Static rock pressure 875 psig (surface measurement) after 120 hours shut in

new zone completed

OCT 27 1984  
(Continue on reverse side)

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

- 28-83: NL McCullough on location to perforate Oriskany Sandstone 4564' - 4568', 16 holes, 0.41" in diameter.
- 9-83: B. J. Hughes x-link gel frac Oriskany Sandstone breakdown @1960 psig; treated @7.5 BPM; fluid 225 MSCF N<sub>2</sub>, 1450 to 800 psig. Total sand was 60,000# of 20/40 sand, total nitrogen was 174 MSCF, total fluid was 799 bbls. ISIP: 680 psig, 5 min SIP: 490 psig.
- 9-24-84 Young's to perf brown shale - <sup>Huron</sup> 3626/3890 - 20(.39" dia) shots, Bridge plug 3950'
- 9-27-84 Haliburton (fluid) & NOWSCO (nitrogen) - total sand - 60,000 # of 20/40, total N<sub>2</sub> - 550 mscf. Total sand laden fluid - 199 bbl, total fluid - 275 bbl, ISIP - 1040, 5 min SIP - 840 psig

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Shale and Siltstone			0	640	
Sandstone and Shale			640	806	
Siltstone and Shale			806	1160	
Sandstone and Shale			1160	1750	
Siltstone and Shale			1750	2200	
Coffee Shale			2200	2224	
Berea Sandstone			2224	2227	
Grey Shale			2227	3686	
Brown Shale			3686	3892	
Shale			3892	4274	
Marcellus Shale			4274	4458	
Onondaga Limestone			4458	4554	
Oriskany Sandstone			4554	4584	
Helderberg Limestone			4584	4670	

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY  
 Well Operator  
 By: KAP  
 Date: October 15, 1984

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."



DRILLING CONTRACTOR (IF KNOWN) Clint Hunt and Associates

Address P. O. Box 338  
Elkview, WV

GEOLOGICAL TARGET FORMATION, Oriskany

Estimated depth of completed well, 4679' feet Rotary X / Cable tools        /

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

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

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
Conductor							Kinds	
Fresh Water	10 3/4"					250'	250'	150 sks class A (to surface)
Coal								Sizes
Intermediate	7"					2133'	2133'	65 sks 50/50 pozmix 100 sks class A
Production	4 1/2"					4679'	4679'	225 sks 50/50 pozmix Depth set
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 7-4-83.  
BY [Signature]

[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



1) Date: August 22, 19 84  
 2) Operator's Well No. KEM #272  
 3) API Well No. 47 - 107 - 1233-FRAC  
 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 X /  
 B (If "Gas", Production X / Underground storage \_\_\_\_\_ / Deep X / Shallow \_\_\_\_\_)
- 5) LOCATION: Elevation: 892' Watershed: South Fork of Lee Creek  
 District: Harris County: Wood Quadrangle: Pond Creek
- 6) WELL OPERATOR Kaiser Exploration and Mining Co. 7) DESIGNATED AGENT R. A. Pryce  
 Address P. O. Box 8 Address Same  
Ravenswood, WV 26164
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Glen Robinson  
 Address Rt. 1, #6, Mt. Pleasant Estate  
Mineral Wells, WV 26150
- 9) DRILLING CONTRACTOR: Name Clint Hurt  
 Address P. O. Box 388  
Elkview, WV
- 10) PROPOSED WELL WORK: Drill \_\_\_\_\_ / Drill deeper \_\_\_\_\_ / Redrill \_\_\_\_\_ / Stimulate X  
 Plug off old formation X / Perforate new formation X /  
 Other physical change in well (specify) treat shale, plug off Oriskany
- 11) GEOLOGICAL TARGET FORMATION, Devonian Shale  
 12) Estimated depth of completed well, 5165 feet  
 13) Approximate trata depths: Fresh, \_\_\_\_\_ feet; salt, \_\_\_\_\_ feet.  
 14) Approximate coal seam depths: \_\_\_\_\_ Is coal being mined in the area? Yes \_\_\_\_\_ / No \_\_\_\_\_
- 15) CASING AND TUBING PROGRAM

**RECEIVED**  
 AUG 27 1984  
 OIL & GAS DIVISION  
 DEPT. OF MINES

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									Kind
Fresh water	10 3/4"			X		255	255	100 sks neat	SIZES EXISTING
Coal								65 sks poz	
Intermediate	7"			X		2492	2492	100 sks class A	
Production	4 1/2"			X		5165	5165	225 sks poz	Depths set
Tubing									
Liners									Perforations: Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-107-1233-FRAC Date September 19, 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 September 19, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u>86</u>	Agent: <u>LO</u>	Plat: <u>MW</u>	Casing: <u>MW</u>	Fee: <u>968-164</u>
BLANKET				

Margaret J. Hesse  
 Administrator, Office of Oil and Gas

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



IV-35  
(Rev 8-81)

RECEIVED  
MAY 3 - 1984

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

Date June 27, 1983  
Operator's Well No. KEM #272  
Farm Townsend  
API No. 47 - 107 W - 1233

107-1233

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 x / Shallow \_\_\_ /)

LOCATION: Elevation: 892' Watershed South Fork of Lee Creek  
District: Harris County Wood Quadrangle Pond Creek

COMPANY KAISER EXPLORATION AND MINING COMPANY

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

DESIGNATED AGENT Robert A. Pryce

ADDRESS Same

SURFACE OWNER Clarence Townsend

ADDRESS Rt. 2, Belleville, WV 26133

MINERAL RIGHTS OWNER Same

ADDRESS \_\_\_\_\_

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Dougherty ADDRESS Linden Rt., Box 3-A

Looneyville, WV

PERMIT ISSUED October 28, 1982

DRILLING COMMENCED June 21, 1983

DRILLING COMPLETED June 27, 1983

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.			
<u>13*10<sup>3</sup>/<sub>4</sub></u>		<u>246</u>	<u>150 sx Class A 3% CaCl, 1/4#/s flocel</u>
<u>9 5/8</u>			
<u>8 5/8</u>			
<u>7</u>		<u>1974</u>	<u>150 sx 50/50 p 100 sx Class A</u>
<u>5 1/2</u>			
<u>4 1/2</u>		<u>4657</u>	<u>225 sx 50/50 p</u>
<u>3</u>			
<u>2</u>			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4679 feet

Depth of completed well 4665 feet Rotary x / Cable Tools \_\_\_\_\_

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

Coal seam depths: N/A Is coal being mined in the area? No

OPEN FLOW DATA

Drilled on fluid - not known

Producing formation Oriskany Sandstone Pay zone depth 4564' - 4569 feet

Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow 250 Mcf/d Final open flow \_\_\_\_\_ Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1400 psig (surface measurement) after \_\_\_\_\_ hours shut in

(If applicable due to multiple completion--)

Second producing formation \_\_\_\_\_ Pay zone depth \_\_\_\_\_ feet

Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow \_\_\_\_\_ Mcf/d Oil: Final open flow \_\_\_\_\_ Bbl/d

Time of open flow between initial and final tests \_\_\_\_\_ hours

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

(Continue on reverse side)

MAY 14 1984



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

- 7-28-83: NL McCullough on location to perforate Oriskany Sandstone 4564' - 4568', 16 holes, 0.41" in diameter.
- 8-9-83: B. J. Hughes x-link gel frac Oriskany Sandstone breakdown @1960 psig; treated @7.5 BPM; fluid 225 MSCF N<sub>2</sub>, 1450 to 800 psig. Total sand was 60,000# of 20/40 sand, total nitrogen was 174 MSCF, total fluid was 799 bbls. ISIP: 680 psig, 5 min SIP: 490 psig.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Shale and Siltstone			0	640	
Sandstone and Shale			640	806	
Siltstone and Shale			806	1160	
Sandstone and Shale			1160	1750	
Siltstone and Shale			1750	2200	
Coffee Shale			2200	2224	
Berea Sandstone			2224	2227	
Grey Shale			2227	3686	
Brown Shale			3686	3892	
Shale			3892	4274	
Marcellus Shale			4274	4458	
Onondaga Limestone			4458	4554	
Oriskany Sandstone			4554	4584	
Helderberg Limestone			4584	4670	

TO ↑

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: ZAP

Date: July 19, 1983

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."