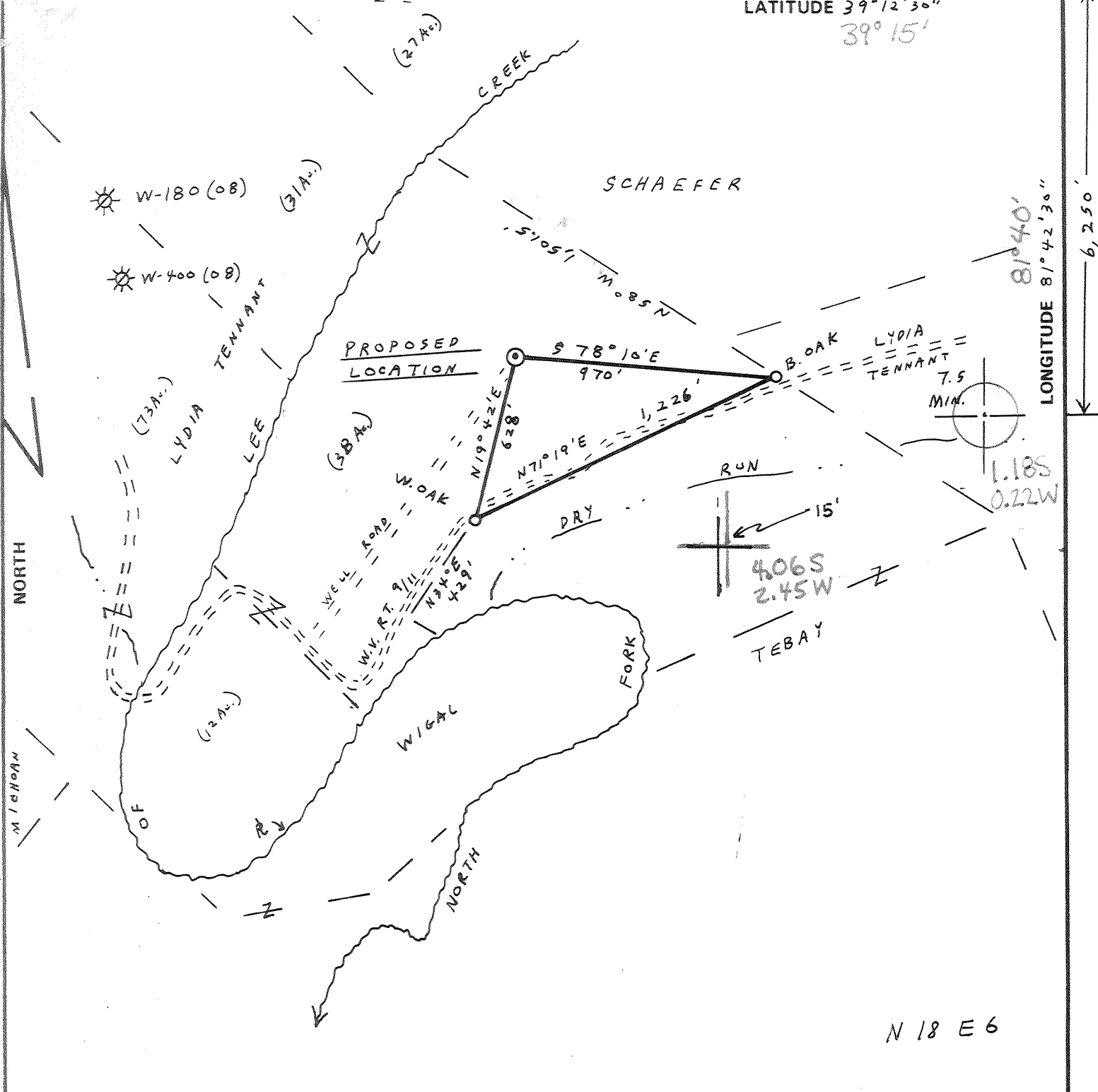


LATITUDE 39°12'30"  
39°15'

LONGITUDE 81°42'30"  
81°40'



N 18 E 6

FILE NO. 5-74  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 500'  
 MINIMUM DEGREE OF ACCURACY 1:200  
 PROVEN SOURCE OF ELEVATION W-400

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

VINCENT W. WOOD  
 LICENSED SURVEYOR  
 NO. 684  
 STATE OF WEST VIRGINIA  
 PLACE SEAL HERE

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION



DATE APRIL 7, 19 83  
 OPERATOR'S WELL NO. KEM 353  
 API WELL NO. \_\_\_\_\_  
47 - 107 - 1255-PP 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 735 WATER SHED DRY RUN  
 DISTRICT HARRIS 2 COUNTY WOOD  
 QUADRANGLE LUBECK 449 BELLEVILLE 009  
 SURFACE OWNER LYDIA TENNANT ACREAGE 181  
 OIL & GAS ROYALTY OWNER LYDIA TENNANT LEASE ACREAGE 181  
 LEASE NO. 84-02-1323  
 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 4315'  
 WELL OPERATOR KAISER EXPLOR. & MIN. Co. DESIGNATED AGENT KAISER EXPLORATION AND MINING Co.  
 ADDRESS P.O. BOX 8 RAVENSWOOD, W.V. 26164 ADDRESS P.O. BOX 8 RAVENSWOOD, W.V. 26164  
 465

WOOD 1255-PP-Frac

FORM IV-6 (8-78)  
 H. I. HALL





107-1255.

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

- 6/23/83 Oriskany Sandstone was perforated with 24 shots (.39" diameter from 4197'-4203'.
- 6/23/83 Oriskany Sandstone was broke down using 12 bbl HCL acid and 8 bbl of water. Formation brokedown at 2600 psig and treated at 700 psig. Injection rate was 5.3 bbl/min.
- 7/6/83 Oriskany Sandstone fractured using 100 bbl gel pad and 50 bbl of cross-link. Treating pressure varied from 1300-1440 psig using 60,000# 20/40 sand at 1,2, 3,4 ppg concentrations. H<sub>2</sub>O rate: 7 bbl/min; nitrogen rate: 3500 scf/min; total nitrogen: 280,000 scf; total fluid: 673 bbl. ISIP: 1000; 5 minute SI. 830 psig. Blew well back through a 1" choke.

WELL LOG

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	100	
Sand			100	182	
Siltstone & Shale			182	396	
Sand & Shale			396	552	
Shale			552	891	
Sand			891	926	
Siltstone & Shale			926	1142	
Sand			1142	1208	
Shale & Siltstone			1208	1436	
Salt Sands			1436	1598	
Shale			1598	1926	
Coffee Shale			1926	1945	
Berea Sand			1945	1948	
Shale			1948	3086	
Brown Shale			3086	3576	
Shale			3596	3806	
Marcellus Shale			3806	4101	
Onondaga Lime			4101	4187	
Oriskany Sandstone			4187	4230	
Helderberg Lime			4230	4331	
Total Depth			4331		

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY  
 Well Operator  
 By: K. A. P.  
 Date: August 18, 1983

Note: Regulation 2.02(i) provides as follows:  
 "The term 'log' or 'well log' shall mean a systematic

**RECEIVED**

SEP 24 1984



1) Date: September 10, 1984  
 2) Operator's Well No. KEM #353  
 3) API Well No. 47 - 107 - 1255 - PP - FRAC  
 State County Permit

**OIL & GAS DIVISION** STATE OF WEST VIRGINIA  
**DEPT. OF MINES** 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  )
- 5) LOCATION: Elevation: 735 Watershed: Dry Run  
 District: Harris County: Wood Quadrangle: Lubeck
- 6) WELL OPERATOR Kaiser Exploration and Mining Co. DESIGNATED AGENT R. A. Pryce  
 Address P. O. Box 8 Address Same  
Ravenswood, WV 26164
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:  
 Name Glen Robinson Name Kaiser Service Rig #1 or #2  
 Address Rt. 1, #6, Mt. Pleasant Estate Address P. O. Box 8  
Mineral Wells, WV 26150 Ravenswood, WV 26164
- 10) PROPOSED WELL WORK: Drill \_\_\_\_\_ / Drill deeper \_\_\_\_\_ / Redrill \_\_\_\_\_ / Stimulate X / Pull tubing; set  
 Plug off old formation \_\_\_\_\_ / Perforate new formation \_\_\_\_\_ permanent bridge plug at 3620'  
 Other physical change in well (specify) dump calseal; perforate Brown Shale;  
frac; set frac plug at 2000'; perforate  
 11) GEOLOGICAL TARGET FORMATION, Brown Shale & Berea Berea; fracture; isolate by tubing and  
 12) Estimated depth of completed well, 3620 feet  
 13) Approximate trata depths: Fresh, 600 feet; salt, 1000 packer. 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	H	40.50	X		270KB	270KB	175 sks class A		
Coal										
Intermediate	7"	K	20	X		1718KB	1718KB	175 sks poz mix		
Production	4 1/2" N	N	11.60	X			4278KB	240 sks poz mix		depths set
Tubing	2 3/8" J	J	4.60	X			4193KB			
Liners										
										Perforations:
									Top	Bottom
									4197	4203KB
										Oriskany

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

Permit number 47-107-1255-PP-FRAC Date November 13, 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 November 13, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u>86</u>	Agent: <u>MH</u>	Plat: <u>MU</u>	Casing: <u>TS</u>	Fee: <u>969</u> <u>313</u>
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*Margaret J. Harsh*  
 Administrator, Office of Oil and Gas

RECEIVED  
 IV-3  
 (Rev 8-81)  
 NOV 17 1984



OIL & GAS DIVISION  
 DEPT. OF MINES

State of West Virginia  
 Department of Mines  
 Oil and Gas Division

Date 12/10/84  
 Operator's Well No. KEM #353  
 Farm Tennant  
 API No. 47-107 - 1255-FRAC

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 X /)

LOCATION: Elevation: 735 Watershed Dry Run  
 District: Harris County Wood Quadrangle Lubeck

COMPANY Kaiser Exploration and Mining Company

ADDRESS P. O. Box 8 Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER Lydia Tennant

ADDRESS Rt. 1, New England, WV

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Dougherty ADDRESS Linden Rt., Box 3A Looneyville, WV

PERMIT ISSUED May 2, 1983

DRILLING COMMENCED June 13, 1983

DRILLING COMPLETED June 18, 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.			
10 3/4 -13-10*-		270	175 sks class A
9 5/8			
8 5/8			
7 5 1/2		1718	175 sks 50/50 poz
4 1/2		4278	240 sks 50/50 poz
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Brown Shale Depth 3395-3567 feet

Depth of completed well 4288 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  
 Drilled on fluid not known.

OPEN FLOW DATA

Producing formation Brown Shale Pay zone depth 3395-3567 feet

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

\* Final open flow 1.237 commingled Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 830 psig (surface measurement) after 48 hours shut in

(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 1945-1949 feet

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

Final open flow 1.237 commingled Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 830 psig (surface measurement) after 48 hours shut in

\*Brown Shale and Berea are commingled.

JAN 28 1985

(Continue on reverse side)

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

11/13/84 Young Wireline perf Brown Shale from 3395' to 3567'.  
 11/27/84 Haliburton frac Brown Shale with 75% foam using #60,000 of 20/40 sand, 337 bbl fluid, 585,000 scf N<sub>2</sub>, ISIP-1800 psig.

11/13/84 Young Wireline perf Berea Sandstone from 1945' to 1949'.  
 11/27/84 Halliburton frac Brown Shale with 75% foam using #45,000 of 20/40 sand, #15,000 10/20 sand, 900,000 scf N<sub>2</sub>, 370 bbl fluid, ISIP-1000 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
See Original.					

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company

Well Operator

By: RA P

Date: December 10, 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 ~~encountered~~, encountered in the drilling of a well."



1) Date: April 25, 19 83  
 2) Operator's Well No. KEM #353  
 3) API Well No. 47 107 1255  
 State \_\_\_\_\_ County \_\_\_\_\_ Permit \_\_\_\_\_

DRILLING CONTRACTOR:

Clint Hurt

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

OIL AND GAS WELL PERMIT APPLICATION

- 4) WELL TYPE: A Oil \_\_\_\_\_ / Gas X /  
 B (If "Gas", Production X / Underground storage \_\_\_\_\_ / Deep X / Shallow \_\_\_\_\_)
- 5) LOCATION: Elevation: 735 Watershed: Dry Run  
 District: Harris County: Wood Quadrangle: Lubeck
- 6) WELL OPERATOR Kaiser Exploration and Mining Co. 11) DESIGNATED AGENT R. A. Pryce  
 Address P. O. Box 8 Address Same  
Ravenswood, WV 26164
- 7) OIL & GAS ROYALTY OWNER Lydia Tennant 12) COAL OPERATOR None  
 Address Rt. 1 Address \_\_\_\_\_  
New England, WV  
 Acreage 181
- 8) SURFACE OWNER Lydia Tennant 13) COAL OWNER(S) WITH DECLARATION ON RECORD:  
 Address Same Name None  
 Address \_\_\_\_\_  
 Name \_\_\_\_\_  
 Address \_\_\_\_\_
- 9) FIELD SALE (IF MADE) TO:  
 Address \_\_\_\_\_
- 10) OIL & GAS INSPECTOR TO BE NOTIFIED  
 Name Homer Dougherty  
 Address Linden Rt., Box 3A  
Looneyville, WV
- 15) PROPOSED WORK: Drill X / Drill deeper \_\_\_\_\_ / Redrill \_\_\_\_\_ / Fracture or stimulate \_\_\_\_\_ /  
 Plug off old formation \_\_\_\_\_ / Perforate new formation \_\_\_\_\_ /  
 Other physical change in well (specify) \_\_\_\_\_
- 16) GEOLOGICAL TARGET FORMATION, Oriskany
- 17) Estimated depth of completed well, 4315 feet
- 18) Approximate water strata depths: Fresh, \_\_\_\_\_ feet; salt, \_\_\_\_\_ feet.
- 19) Approximate coal seam depths: \_\_\_\_\_ Is coal being mined in the area? Yes \_\_\_\_\_ / No \_\_\_\_\_ /

20) 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
Fresh water	<u>10 3/4"</u>			<u>X</u>		<u>275-250</u>	<u>275-250</u>	<u>125 sks class A to surface</u>	
Coal									Sizes
Intermediate	<u>7"</u>			<u>X</u>		<u>1855</u>	<u>1855</u>	<u>65 sks 50/100 mix</u>	
Production	<u>4 1/2"</u>			<u>X</u>		<u>4315</u>	<u>4315</u>	<u>225 sks 50/100 mix</u>	Depths set
Tubing									
Liners									Perforations:
									Top Bottom

- 21) EXTRACTION RIGHTS  
 Check and provide one of the following:  
 Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil or gas.  
 The requirement of Code 22-4-1-(c) (1) through (4). (See reverse side for specifics.)
- 22) ROYALTY PROVISIONS  
 Is the right to extract, produce or market the oil or gas based upon a lease or other continuing contract or contracts providing for flat well royalty or any similar provision for compensation to the owner of the oil or gas in place which is not inherently related to the volume of oil or gas so extracted, produced or marketed? Yes  No
- If the answer above is No, nothing additional is needed. If the answer is Yes, you may use Affidavit Form IV-60.
- 23) Required Copies (See reverse side.)  
 24) 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.

Notary: \_\_\_\_\_  
 My Commission Expires \_\_\_\_\_

Signed: R. A. Pryce  
 Its: General Manager

OFFICE USE ONLY  
DRILLING PERMIT

Permit number 47-107-1255 Date May 2 19 83

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. 10) 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.)

Permit expires \_\_\_\_\_ unless drilling is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee
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Administrator, Office of Oil and Gas