

FILE NO. 6-5

DRAWING NO. _____

SCALE 1" = 500'

MINIMUM DEGREE OF ACCURACY 1:200

PROVEN SOURCE OF ELEVATION HIGH POINT ELEV. = 948, 1100' N.E. OF 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) 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 APRIL 11, 1983

OPERATOR'S WELL NO. KEM 359

API WELL NO. _____

47 - 107 - 1253-PP-F

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 873 WATER SHED MASSEY HOLLOW

DISTRICT HARRIS COUNTY WOOD

QUADRANGLE LUBECK

SURFACE OWNER W. E AND LENA K. KAUFMAN ACREAGE 70

OIL & GAS ROYALTY OWNER W.E. AND LENA K. KAUFMAN LEASE ACREAGE 70

LEASE NO. 88-03-1217

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 4513'

WELL OPERATOR KAISER EXPLOR. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.

ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8

DRILL WELL RAYENSWOOD, W. V. 26164 RAYENSWOOD, W. V. 26164

60000 6-6 New England (296) NOV 19 1984

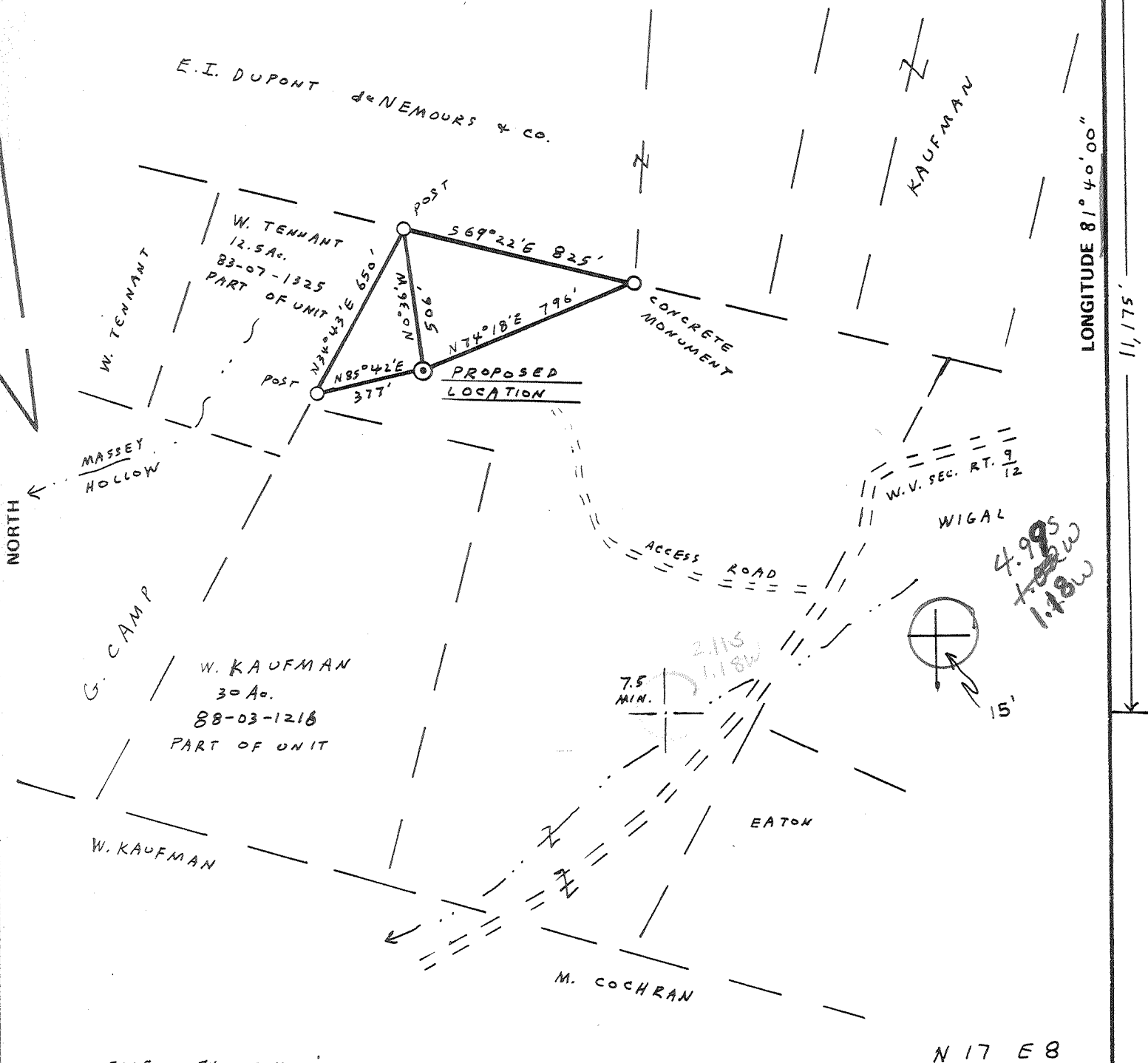
FORM IV-6 (8-78)

WOOD 1253

4-22-83

LATITUDE 39°12'30"
39°15'-15"

LONGITUDE 81°40'00"



NO WELLS WITHIN 2,400'

N 17 E 8

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 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION HIGH POINT ELEV. = 948, 1100' N.E. OF 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) 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 APRIL 11, 1983
 OPERATOR'S WELL NO. KEM 359
 API WELL NO. _____
47 - 107 - 1253
 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 873 WATER SHED MASSEY HOLLOW
 DISTRICT HARRIS COUNTY WOOD
 QUADRANGLE LUBECK Bellville 15' NW
 SURFACE OWNER W. E AND LENA K. KAUFMAN ACREAGE 70
 OIL & GAS ROYALTY OWNER W. E. AND LENA K. KAUFMAN LEASE ACREAGE 70
 LEASE NO. 88-03-1217
 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 4573' New England deep well (296)
 WELL OPERATOR KAISER EXPLOR. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.
 ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8
DEEP WELL RAVENSWOOD, W. V. 26164 RAVENSWOOD, W. V. 26164

WOOD 1253



RECEIVED

IV-35
(Rev 8-81)

JAN 19 1984

OIL & GAS DIVISION
DEPT. OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

Date June 27, 1983
Operator's
Well No. KEM #359
Farm Kaufman
API No. 47 - 107 - 1253

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: 873' Watershed Masey Hollow
District: Harris County Wood Quadrangle Lubeck

COMPANY KAISER EXPLORATION AND MINING COMPANY

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

DESIGNATED AGENT Robert A. Pryce

ADDRESS Same

SURFACE OWNER W. E. & L. K. Kaufman

ADDRESS Rt. 2, Belleville, WV

MINERAL RIGHTS OWNER Same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Dougherty ADDRESS Linden Rt., Box 3-A

PERMIT ISSUED Looneyville, WV
April 18, 1983

DRILLING COMMENCED May 25, 1983

DRILLING COMPLETED May 30, 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 Cord.			
<u>13 1/2</u>		<u>372</u>	<u>150 sx Class A</u>
<u>9 5/8</u>			
<u>8 5/8</u>			
<u>7</u>		<u>1891</u>	<u>100 sx 10% salt</u> <u>100 sx Class A</u> <u>3% CaCl</u>
<u>5 1/2</u>			<u>200 sx Class A</u>
<u>4 1/2</u>		<u>4335</u>	<u>50/50 poz.</u> <u>10% salt</u>
<u>3</u>			
<u>2</u>			<u>12.5#/sk gilson</u> <u>1/4#/sk floccel</u>
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4573 feet

Depth of completed well 4560 feet Rotary x / Cable Tools _____

Water strata depth: Fresh _____ feet; Salt _____ feet

Coal seam depths: _____ Is coal being mined in the area? _____

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 4444-4449 feet

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

Final open flow (200) Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure 1525 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 1 1/2 hours

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

(Continue on reverse side)

107-1253

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

- 6/01/83 Oriskany perforated w/20 shots (.41") 4444' - 4440', 4 holes/ft.
- 6/02/83 Oriskany breakdown with 500 gal 28% acid; breakdown at 1200 psig w/10 BPM water. Displaced 20 bbl total ISIP: 500 psig.
- 6/17/83 Oriskany Sandstone fracture: cross-link frac: 28,000# 20/40 sand. Treating pressure: 1330-3600 psig; liquid rate: 6 BPM; N2 rate: 4,000 SCF/M; 200 bbl of sand-laden fluid, 507 total bbls; total N2: 290,000 SCF. ISIP: 3600 psig; 15-min SIP: 3160.

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			0	290	
Sandstone			290	416	
Siltstone and Shale			416	1230	
Sandstone			1230	1258	
Shale			1258	1338	
Sandstone			1338	1378	
Shale			1378	1418	
Sandstone			1418	1445	
Shale			1445	1486	
Sandstone			1486	1525	
Shale			1525	1630	
Sandstone			1630	1774	
Shale and Siltstone			1774	2114	
Coffee Shale			2114	2134	
Berea Sandstone			2134	2137	
Grey Shale			2137	3594	
Brown Shale			3594	3790	
Shale			3790	4158	
Marcellus Shale			4158	4336	
Onondaga Limestone			4336	4416	
Oriskany Sandstone			4416	4476	
Helderberg Limestone			4476	4560 TD	

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By: A. P.
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 well."



IV-35
(Rev 8-77)

RECEIVED
AUG 15 1985

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date June 25, 1985
Operator's Well No. KEM 359
Farm Kaufman
API No. 47 - 107 - 1253

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: 873' Watershed Masey Hollow
District: Harris County Wood Quadrangle Lubeck

COMPANY Kaiser Exploration and Mining Co.

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

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER W. E. & L. K. Kaufman

ADDRESS Rt. 2, Belleville, WV

MINERAL RIGHTS OWNER Same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Daugherty ADDRESS Linden Rt, Box 3-A

PERMIT ISSUED 4/18/83 / 1115184 Looneyville, WV

DRILLING COMMENCED 5/25/83 / 5/9/85

DRILLING COMPLETED 5/30/83 / 6/20/85

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}		372'	150 sks class
9 5/8			
8 5/8			100 sks 50/50
7		1891'	3% CaCl 10% salt
5 1/2			
4 1/2		4335'	200 sks class 50/50 poz 10 sal
3			
2			12.5#/sk Gils ite, 1/2#/sk Floccle
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4573' feet

Depth of completed well 4560' feet Rotary X / Cable Tools _____

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

Coal seam depths: NONE Is coal being mined in the area? NO
Drilled on fluid not known.

OPEN FLOW DATA

Producing formation Brown Shale ^{Huron} Pay zone depth 3655 - 3777 feet

* Gas: Initial open flow -- Mcf/d Oil: Initial open flow -- Bbl/d
Final open flow (500) Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 850 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)

Second producing formation Berea Pay zone depth 2132-2136 feet

* Gas: Initial open flow -- Mcf/d Oil: Initial open flow -- Bbl/d
Final open flow 500 Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 850 psig (surface measurement) after 24 hours shut in

*Commingled

(Continue on reverse side)

New zones interpreted

807 8 1986

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

6/01/83 Oriskany perfs @ 4444' - 4440', 4 holes/ft, 20 shots.
 6/02/83 Oriskany breakdown with 500 gal 28% acid, breakdown @ 1200 psig w/10 BPM water. Displaced 20 bbl total. ISIP: 500 psig.
 6/17/83 Oriskany frac with cross-link frac: 28,000# 20/40 sand, treating pressure: 1330' - 3600 psig, liquid rate: 6 BPM, N₂ rate: 4000 scf/min, sand laden fluid: 290 bbl, total fluid: 507 bbl, total N₂: 290,000 scf. ISIP: 3600 psig, 15 min SIP: 3160 psig. **Set permanent plug at 3900' on 5/9/85.
 6/19/85 McCulough perf Brown Shale @ 3655' - 3777', 20 holes, frac plug @ 2170' KB. ^{Hebron}
 6/20/85 NOWSCO & BJ to 2-STAGE 75% foam frac the Brown Shale & Berea.
 Brown Shale: Breakdown pressure: 2260 psig, Sand: 60,000# 20/40, total N₂: 687,500 scf, total sand laden fluid: 197 bbl, total fluid: 263 bbl, ISIP: 1150 psig, 5 min SIP: 1000 psig. BEREA: Perf @ 2132' - 2136', 4 holes/ft. Breakdown pressure: 1680 psig, sand: 60,000# 20/40, ISIP: 920 psig, 5 min SIP: 850 psig, tot. fluid: 294 bb, tot. sand lad. fluid: 234 bbl, tot. N₂: 602,800 scf.

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAME AS PREVIOUSLY SUBMITTED.					

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By: R. A. P.

Date: June 25, 1985

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 ^{any} encountered in the drilling of a well."



1) Date: April 18, 1983, 19__

2) Operator's Well No. KEM #359

3) API Well No. 47 State 107 County 1253 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: 873 Watershed: Massey Hollow
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, Ravenswood, WV 26164 Address None
- 7) OIL & GAS ROYALTY OWNER H. E. and Lena K. Kaufman 12) COAL OPERATOR None
Address Rt. 2 Belleville, WV Address _____
Acreage 70
- 8) SURFACE OWNER Same 13) COAL OWNER(S) WITH DECLARATION ON RECORD:
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
- 14) COAL LESSEE WITH DECLARATION ON RECORD:
Name None
Address _____
- 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, 4573 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>10-250</u>	<u>150 sbs class</u>	<u>A to surface</u>
Coal									Sizes
Intermediate	<u>7"</u>			<u>X</u>		<u>2056</u>	<u>2056</u>	<u>65 sbs 50/50</u>	<u>mix</u>
Production	<u>4 1/2"</u>			<u>X</u>		<u>4573</u>	<u>4573</u>	<u>225 sbs 80/50</u>	<u>Depths set</u>
Tubing									Perforations:
Liners									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. J. P. [Signature]
Its: General Manager

OFFICE USE ONLY
DRILLING PERMIT

Permit number _____

19

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. 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 December 27, 1983 unless drilling is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee

Administrator, Office of Oil and Gas