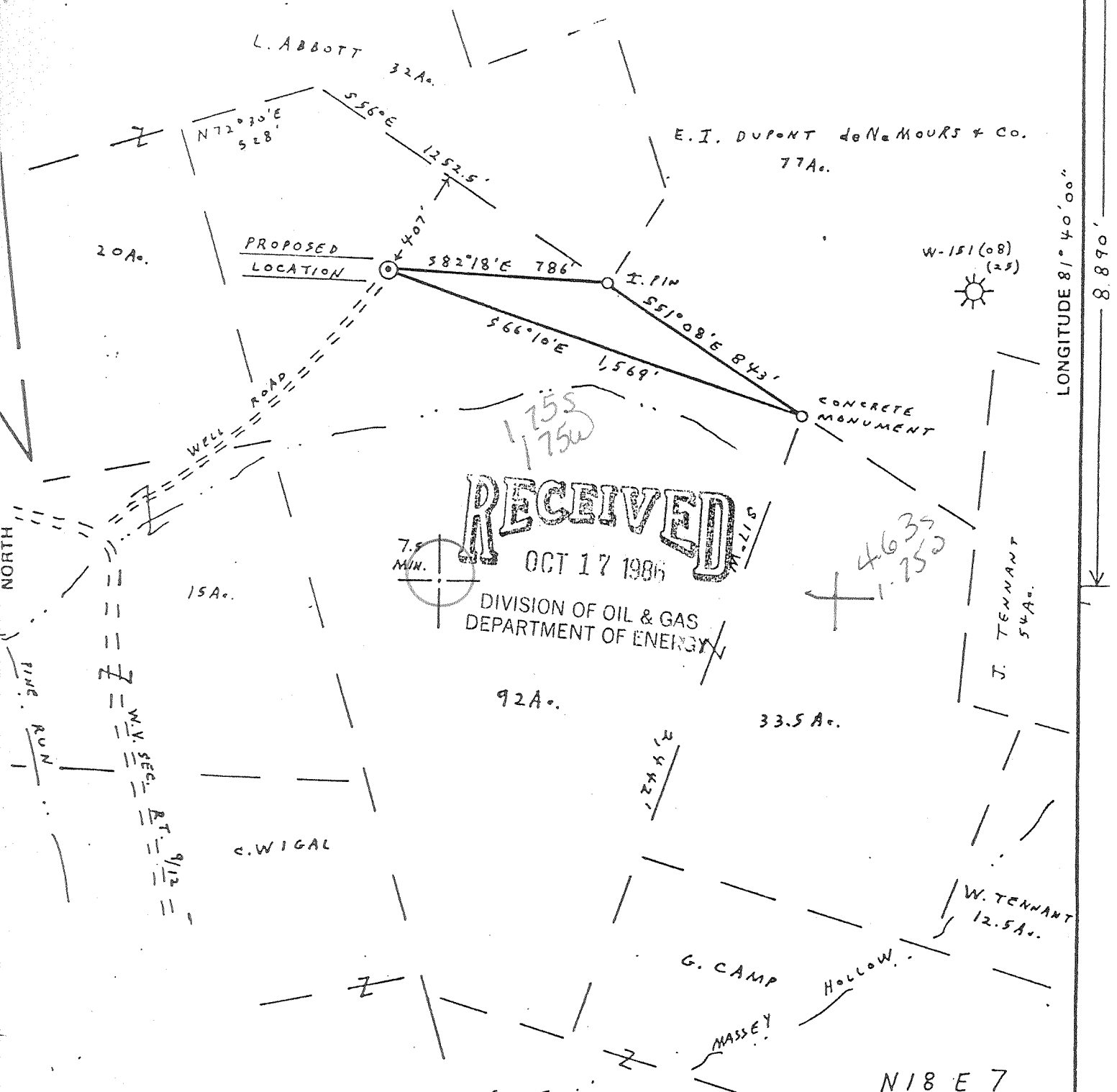


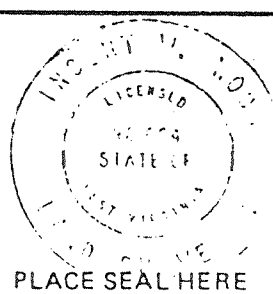
39 15
 LATITUDE 39 1230



RECEIVED
 OCT 17 1986
 DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY

FILE NO. 6-6
 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION W-151, 2,100 FEET EAST 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



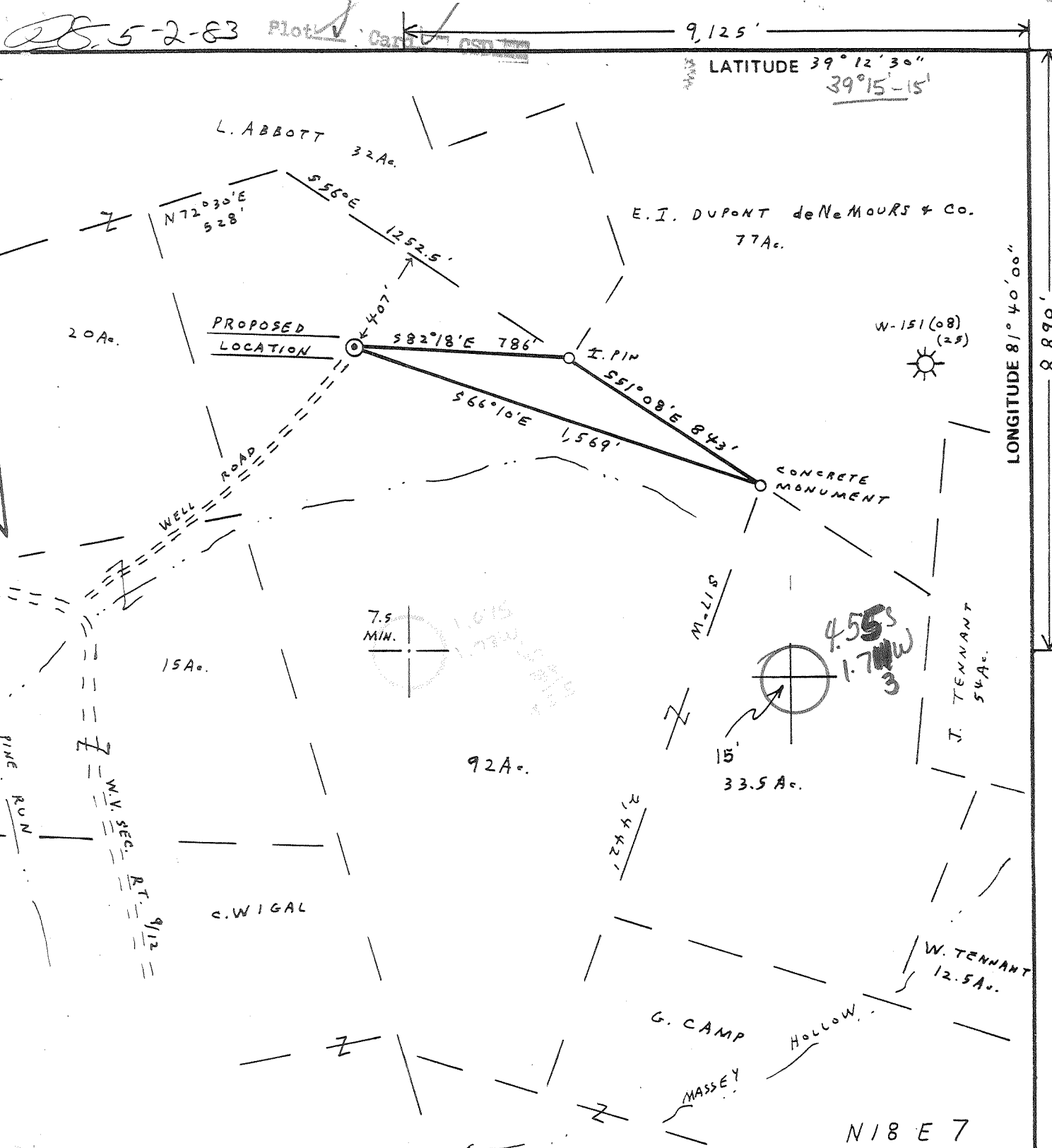
STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION



DATE APRIL 13, 1983
 OPERATOR'S WELL NO. KEM 369
 API WELL NO. _____
47 - 107 - 1254-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 846 WATER SHED PINE RUN
 DISTRICT HARRIS COUNTY WOOD
 QUADRANGLE LUBECK 449 009 1
 SURFACE OWNER WILBUR E. AND SANDRA K. TENNANT ACREAGE 125.5
 OIL & GAS ROYALTY OWNER WILBUR E. AND SANDRA K. TENNANT LEASE ACREAGE 125.5
 LEASE NO. 84-02-1318
 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 ___ DEEPWELL OCT 27 1986
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 6000-6600 NEW ENGLAND (296)
 WELL OPERATOR KAISER EXPLOR. & MIN. CO. DESIGNATED AGENT KAISER EXPLORATION AND MINING CO.
 ADDRESS P.O. BOX 8 ADDRESS P.O. BOX 8



FILE NO. 6-6
 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION W-151, 2,100 FEET EAST 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 13, 1983
 OPERATOR'S WELL NO. KEM 369
 API WELL NO. 47-107-1254
 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 846 WATER SHED PINE RUN
 DISTRICT HARRIS COUNTY WOOD
 QUADRANGLE LUBECK Bellville 15' NW
 SURFACE OWNER WILBUR E. AND SANDRA K. TENNANT ACREAGE 125.5
 OIL & GAS ROYALTY OWNER WILBUR E. AND SANDRA K. TENNANT LEASE ACREAGE 125.5
 LEASE NO. 84-02-1318
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) DEEP

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 4296 4515 (296)
 WELL OPERATOR KAISER EXPLOR. & MIN. Co. DESIGNATED AGENT KAISER EXPLORATION AND MINING Co.
 ADDRESS P O BOX 8 ADDRESS P O BOX 8

FORM IV-6 (8-78)

WOOD 1254

LOG OF PERFORATED INTERVALS, RECORDING OR STRATIGRAPHY, PHYSICAL CHEMISTRY, ETC.
 7/21/83 - Perforated Oriskany w/12 holes from 4360' - 4366' and 4374' - 4378' w/12 holes.
 8/3/83 - Cross link frac Oriskany SS w/200 bbl pad. Cross link gel treated about 1100 psig. (N₂ 2400 scf/minute, 8 1/2 BPM). Well screened out and pressure went to 4700 psig. Total sand: 44,300# 20/40, 556 bbl fluid and 230 MSCF N₂. ISIP: 3900.

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	260	
Sandstone			260	360	
Shale and Sandstone			360	605	
Sandstone			605	675	
Shale			675	855	
Sandstone and Shale			855	1562	S/O
Sandstone			1562	1732	S/O
Shale and Siltstone			1732	2062	S/O
Coffee Shale			2062	2081	
Berea Sandstone			2081	2084	S/O
Grey Shale			2084	3536	
Brown Shale			3536	3723	
Shale			3723	4090	
Marcellus Shale			4090	4266	
Onondaga Limestone			4266	4346	
Oriskany Sandstone			4346	4396	
Helderberg Limestone			4396	4508 TD	

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company
 Well Operator
 By: R.A.P.
 Date: July 19, 1983

Regulation 3.02(1) provides as follows:
 The company that an well log shall mean a systematic



1) Date: October 13, 1986
 2) Operator's Well No. KEM #369
 3) API Well No. 47 107 1254 -F
 State County Permit

OCT 17 1986

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY, 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: 846 Watershed: Pine Run
 District: Harris County: Wood Quadrangle: Lubeck 449
 6) WELL OPERATOR Kaiser Exploration and Mining Company CODE: 25330 7) 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 KEMGAS
 Address Rt. 1 Address
Mineral Wells, WV 26150

10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate X
 Plug off old formation X / Perforate new formation X / Set permanent bridge plug
 Other physical change in well (specify) to isolate Oriskany, Perf & stimulate Brown Shale
 11) GEOLOGICAL TARGET FORMATION, Brown Shale & Berea & Berea Sandstone
 12) Estimated depth of completed well, 3750 (PBP-TD) feet
 13) Approximate trata depths: Fresh, N/A feet; salt, N/A 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	Bottom
Conductor									None	
Fresh water	10 3/4	J-55	45.5	X		347'	347'	170 sks	--	
Coal									Sizes	--
Intermediate	7"	J-55	20.0	X		1832'	1832'	65 sks		
Production	4 1/2					4431	4431		Depths set	--
Tubing									Perforations:	
Lin.									Top	Bottom

OFFICE USE ONLY
 DRILLING PERMIT

Permit number 47-107-1254-F Date October 23 19 86

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 October 23, 1988 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u> </u>	Agent: <u>TEB</u>	Plat: <u>985</u>	Casing: <u>AS</u>	Fee: <u>969788</u>	WP&P: <u>NO PA.</u>	S&E: <u>AS</u>	Other: <u> </u>
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NOTE: Keep one copy of this permit posted at the drilling location.
John W. Johnston
 Director, Division of Oil and Gas
Margaret J. Lasse
 File
 See the reverse side of the APPLICANT'S COPY for instructions to the well operator.



IV-35
(Rev 8-81)

RECEIVED
MAR 13 1989

State of West Virginia
Department of Mines
Oil and Gas Division

Date December 16, 1986
Operator's
Well No. KEM #369
Farm Tenant
API No. 47 - 107 - 125

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

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: 846' Watershed Pine 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 Wilbut Tennant

ADDRESS Rt. 1, New England, WV

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Glen

Robinson ADDRESS Rt.1, Mineral Wells, WV

PERMIT ISSUED 4/21/83 | 10/23/86

DRILLING COMMENCED 5/31/83 | 10/23/86

DRILLING COMPLETED 6/05/83 | 10/23/86

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" 18x18"		347	170 sks Class A
9 5/8			
8 5/8			
7		1832	65 sks 5 pozmix
5 1/2			
4 1/2		4431	225 sks 50/50 po
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Depth 4296 feet

Depth of completed well 4480 feet Rotary x / Cable Tools

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

Coal seam depths: None Is coal being mined in the area? N

OPEN FLOW DATA

Drilled on fluid, not known

Producing formation Devonian Brown Shale Pay zone depth 3540 - 3721 feet

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

Final open flow *500 Mcf/d Final open flow -- Bbl/

Time of open flow between initial and final tests 4 hours

Static rock pressure *1000 psig (surface measurement) after 72 hours shut i

(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2075 - 2077 feet

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

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

Time of open flow between initial and final tests 4 hours

Static rock pressure *1000 psig (surface measurement) after 72 hours shut i

*Commingled

MAR 17 1989

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

10/30/86 Young Wireline perforated the Brown Shale from 3540 to 3721' w/20 shots
 10/31/86 NOWSCO 75% foam frac the Brown Shale w/60,000# of 20/40 sand, 662,000 scf nitrogen; 323 bbl of water at 2300 psig; ISIP: 1600 psig; 5 min SIP: 1170 psig
 10/31/86 Young perforated the Berea Sandstone from 2075 - 2077' w/16 shots
 11/18/86 NOWSCO 75% foam frac the Berea sand w/45,000# of 20/40 sand, 15,000# of 10/20 sand; 590,000 scf of nitrogen; total fluid: 357 bbl of water; ISIP: 1000 psig; 5 min SIP: 940 psig

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fre and salt water, coal, oil and g.
SEE ORIGINAL OG-10					<p style="text-align: center;">RECEIVED MAR 13 1989 DIVISION OF OIL & GAS DEPARTMENT OF ENERGY</p>

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company
Well Operator

By: RA P

Date: December 16, 1986

Note: Regulation 2.02(i) provides as follows:
 "The term 'log' or 'well log' shall mean a systematic detailed geologic record of all formations, including those encountered in the drilling of a well."
 469



1) Date: April 21, 19 83
 2) Operator's Well No. KEM #369
 3) API Well No. 47 107 1254
 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 846 / Underground storage _____ / Deep X / Shallow _____ /)
- 5) LOCATION: Elevation: 846 Watershed: Rine 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 Ravenswood, WV
- 7) OIL & GAS ROYALTY OWNER Wilbur E. Tennant 12) COAL OPERATOR None
 Address Rt. 1 Address _____
New England, WV
- 8) SURFACE OWNER Same 13) COAL OWNER(S) WITH DECLARATION ON RECORD:
 Name None
 Address _____
- 9) FIELD SALE (IF MADE) TO:
 Address _____
- 10) OIL & GAS INSPECTOR TO BE NOTIFIED 14) COAL LESSEE WITH DECLARATION ON RECORD:
 Name Homer Dougherty Name None
 Address Linden Rt., Box 3A Address _____
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, 4296 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>350-250</u>	<u>350-250</u>	<u>150 sks class A to surface</u>		
Coal				<u>X</u>				<u>65 sks 50/100</u>		Sizes
Intermediate	<u>7"</u>			<u>X</u>		<u>2096</u>	<u>2096</u>	<u>100 sks class A</u>		
Production	<u>4 1/2"</u>			<u>X</u>		<u>4296</u>	<u>4296</u>	<u>225 sks 50/100</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: E. A. P.
 Its: General Manager

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-107-1254 Date May 1 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: <u>B/L</u>	Agent: <u>773</u>	Plat: <u>22</u>	Casing: <u>22</u>	Fee: <u>762.13</u>
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Administrator, Office of Oil and Gas