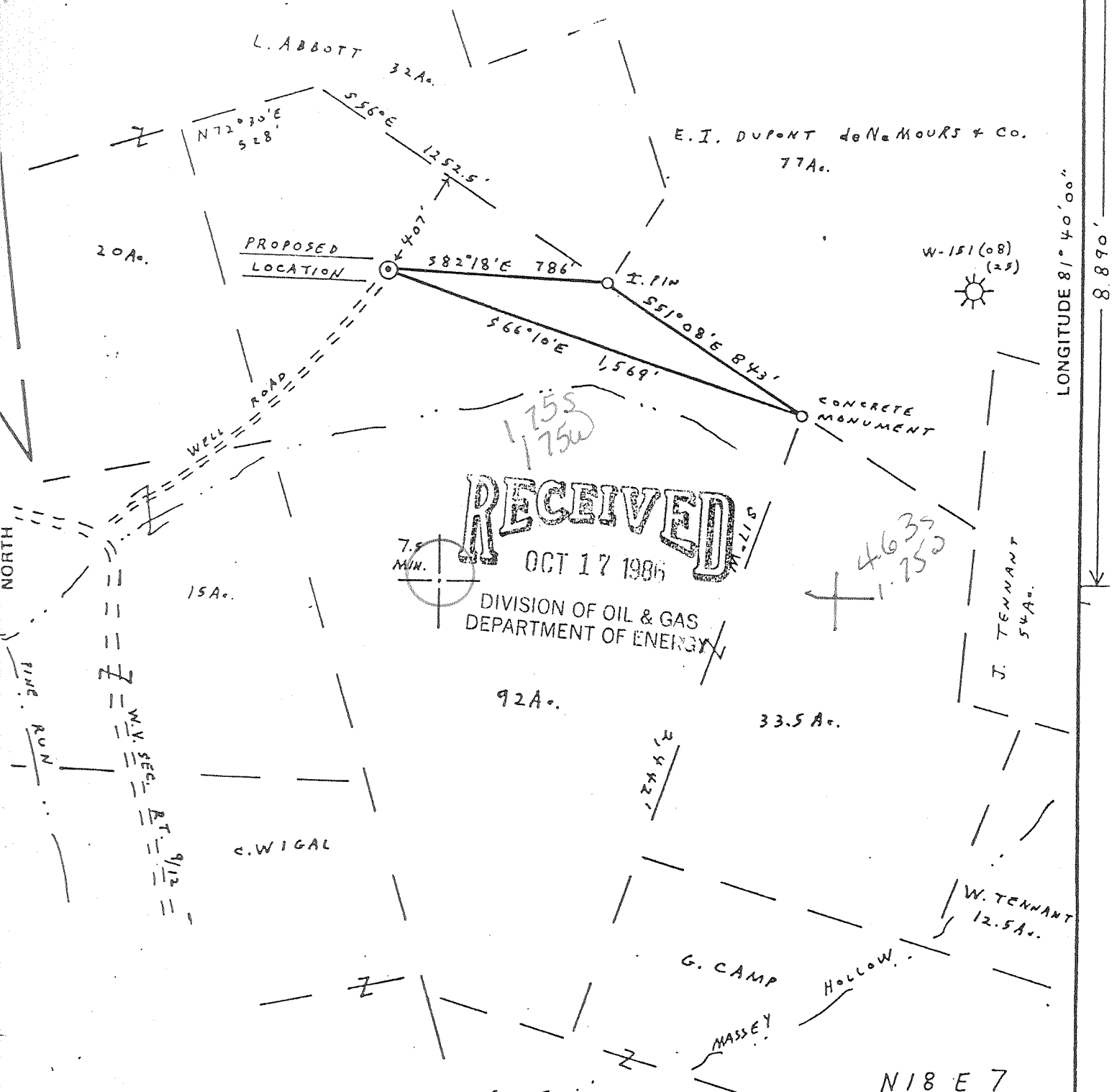


39 15  
 LATITUDE 39 1230



**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  
 PLACE SEAL HERE

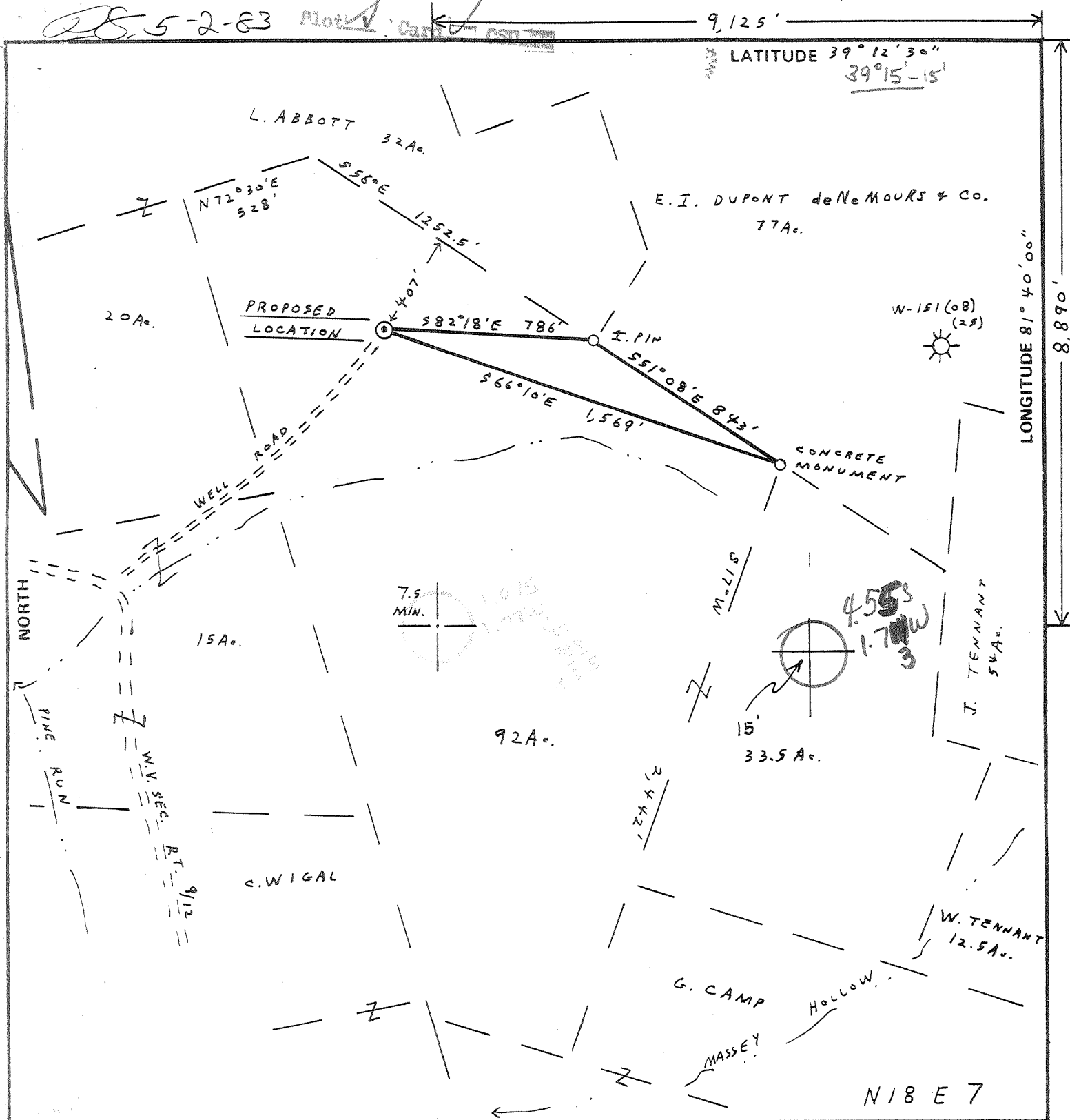
STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION



DATE APRIL 13, 1983  
 OPERATOR'S WELL NO. KEM 369  
 API WELL NO. \_\_\_\_\_  
47 - 107 - 1254-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  
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 (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 4315  
 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. (N<sub>2</sub> 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 N<sub>2</sub>. 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		
Conductor									Kinds <u>None</u>
Fresh water	<u>10 3/4</u>	<u>J-55</u>	<u>45.5</u>	<u>X</u>		<u>347'</u>	<u>347'</u>	<u>170 sks</u>	Sizes <u>--</u>
Coal									Depths set <u>--</u>
Intermediate	<u>7"</u>	<u>J-55</u>	<u>20.0</u>	<u>X</u>		<u>1832'</u>	<u>1832'</u>	<u>65 sks</u>	Perforations:
Production	<u>4 1/2</u>					<u>4431</u>	<u>4431</u>		Top <u>      </u> Bottom <u>      </u>
Tubing									
Lin.									

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 S. 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  / Liquid Injection  / Waste Disposal   
(If "Gas," Production  / Underground Storage  / Deep  / Shallow  )

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  / Cable Tools \_\_\_\_\_

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

Coal seam depths: None Is coal being mined in the area? No

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;"><b>RECEIVED</b> MAR 13 1989 DIVISION OF OIL &amp; 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 logging of a well."

