

8 JB 10/14/86

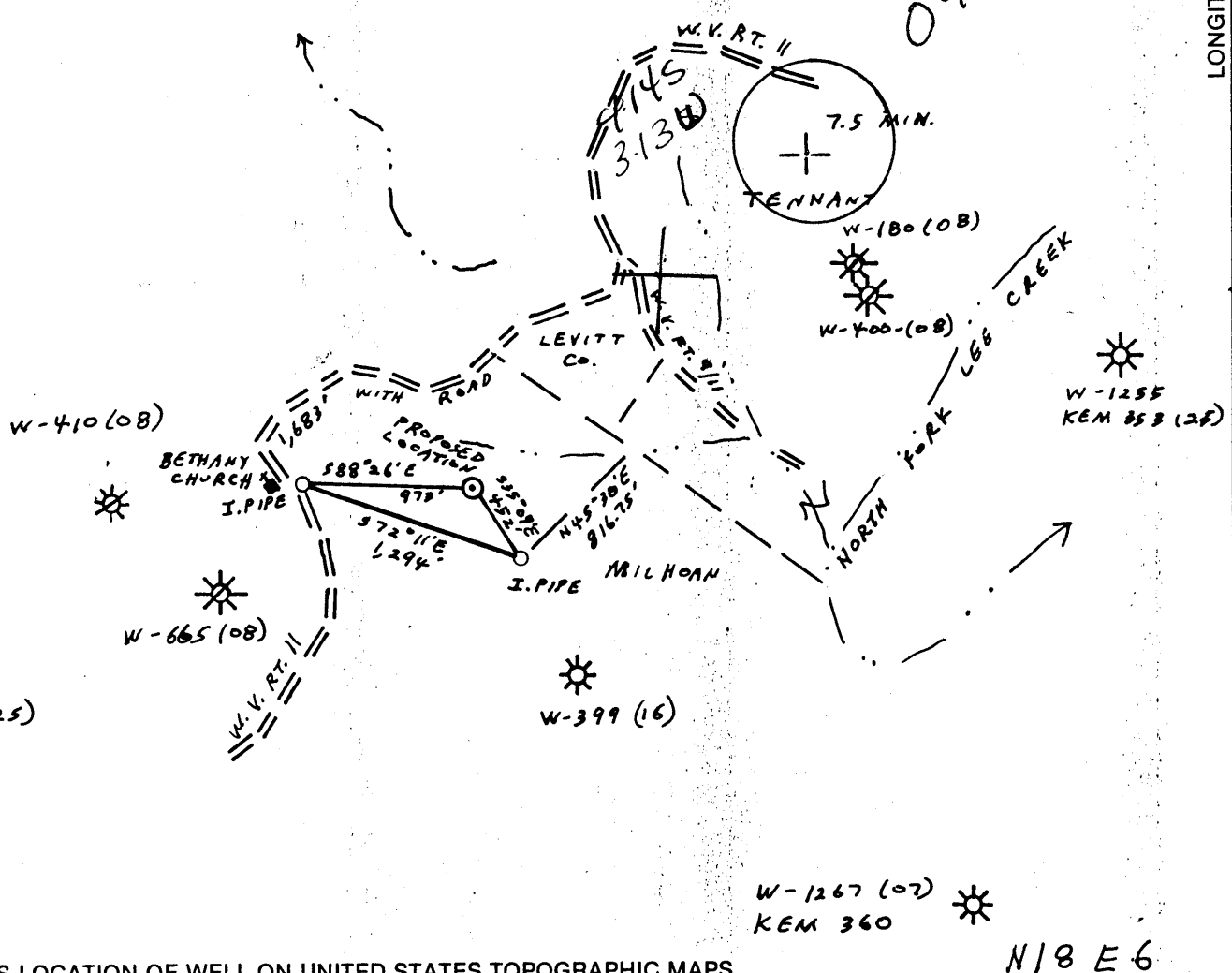
4,750' 39' 15"

LATITUDE 39° 12' 30"

REFERENCE POINTS:
S38° 16' E 143' TO 20" ELM
S31° 13' W 144' TO 14" LOCUST

8,500'
81° 42' 30"
LONGITUDE 7,125'

NORTH



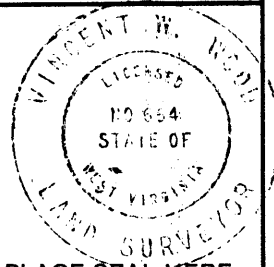
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

N18 E 6

FILE NO. 8-41
 DRAWING NO. _____
 SCALE 1" = 1,000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION ROAD INTERSECTION
 ELEV. = 819,990' WEST OF LOC.

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 NOVEMBER 19, 1985
 OPERATOR'S WELL NO. KEM 5,64
 API WELL NO. _____

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: ELEVATION 743 WATERSHED RIGHT FORK OF LEE CREEK
 DISTRICT HARRIS 2 COUNTY WOOD
 QUADRANGLE LUBECK 449 009 NW, Belleville
 SURFACE OWNER WILBUR EARL AND SANDRA K. TENNANT ACREAGE 27.5
 OIL & GAS ROYALTY OWNER WILBUR EARL + SANDRA TENNANT LEASE ACREAGE 27.5
 LEASE NO. 93-02-1242

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 ___
 TARGET FORMATION DEVONIAN HURON SHALE ESTIMATED DEPTH _____
 WELL OPERATOR KAISER EXPLORATION + MINING CO. DESIGNATED AGENT R. A. PRYCE
 ADDRESS P.O. BOX 8, RAVENSWOOD, W.V. 26164 ADDRESS P.O. BOX 8, RAVENSWOOD, W.V. 26164

OCT 20 1986

COUNTY NAME PERMIT

FEAC
12/31/86



IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date November 17, 1986
Operator's
Well No. KEM #564
Farm Wilbur Tennant
API No. 47 - 107 - 140

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: 743 Watershed Right Fork of Lee Creek
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 Wilbur Tennant
ADDRESS New England, WV
MINERAL RIGHTS OWNER same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK Glenn
Robinson ADDRESS #6 Mt. Pleasant Est.
PERMIT ISSUED 10/14/86 Mineral Wells, WV
DRILLING COMMENCED 10/29/86
DRILLING COMPLETED 11/02/86
IF APPLICABLE: PLUGGING OF DRY HOLE OR
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"			
9 5/8			
8 5/8			
7	7"	265	100 sks Class A
5 1/2			
4 1/2	4 1/2"	1985	175 sks 50/50 po.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Berea Sandstone Depth 1997 feet
Depth of completed well 1997 feet Rotary X / Cable Tools
Water strata depth: Fresh feet; Salt feet
Coal seam depths: Is coal being mined in the area? NO

OPEN FLOW DATA
Producing formation Berea Sandstone Pay zone depth 1942-1944 feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/c
Final open flow 300 Mcf/d Final open flow Bbl/c
Time of open flow between initial and final tests 4 hours
Static rock pressure 600 psig (surface measurement) after 72 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/c
Final open flow Mcf/d Oil: Final open flow Bbl/c
Time of open flow between initial and final tests hours
Static rock pressure psig (surface measurement) after hours shut in

sl. show oil - see back

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

- 11/06/86 Young's Wireline Perforated Berea from 1942' to 1944' w/16 shots.
- 11/07/86 Halliburton 75% foam frac Berea w/45,000# 20/40 sand; 15,000# 10/20 sand; 582,000 SCF N₂; 367 bbl fluid @ 1572 psig; ISIP: 1080 psig; 5 MIN SIP: 950 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
Shale			0	82	
Sand			82	153	
Shale and Siltstone			153	440	
Sand			440	564	
Shale and Siltstone			564	899	
Sand			899	930	
Shale and Siltstone			930	1040	
Dunkard Sands			1040	1224	
Shale and Siltstone			1224	1275	
Sand			1275	1328	
Shale and Siltstone			1328	1424	
Salt Sands			1424	1593	
Shale			1593	1924	
Coffee Shale (Sunbury)			1924	1942	
√ Berea Sand			1942	1945	<u>Very Slt. s/oil</u>
Shale			1945	1997	
Total Depth			<u>1997</u>		

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By:

R. A. P.

Date:

December 1, 1986

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."



1) Date: October 7, 1986
 2) Operator's Well No. KEM #564
 3) API Well No. 47-107-1404
 State _____ County _____ Permit _____

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY, OIL AND GAS DIVISION
APPLICATION FOR A WELL WORK PERMIT

RECEIVED
 OCT 9 1986

- 4) WELL TYPE: A Oil _____ / Gas X /
 B (If "Gas", Production X / Underground storage _____ /
 5) LOCATION: Elevation: 743' Watershed: Right Fork of Lee Creek
 District: Harris County: Wood Quadrangle: Lubeck
 6) WELL OPERATOR Kaiser Exploration and Mining Company CODE: 2550 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, Mount Pleasant Estate
Mineral Wells, WV 26150
 9) DRILLING CONTRACTOR: Name Unknown
 Address _____
 10) PROPOSED WELL WORK: Drill X / Drill deeper _____ / Redrill _____ / Stimulate X /
 Plug off old formation _____ / Perforate new formation _____ /
 Other physical change in well (specify) _____
 11) GEOLOGICAL TARGET FORMATION, Berea Sandstone 395
 12) Estimated depth of completed well, 2005' feet
 13) Approximate strata depths: Fresh, _____ feet; salt, _____ feet.
 14) Approximate coal seam depths: _____ 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
Fresh water	7"			X		250'	250'	Cement to surface	Per Rule 15.05
Coal									Sizes
Intermediate									
Production	4 1/2"			X		2005'	2005'	175 sks 50/50 port mix	DRAS REQUIRED BY Rule 15.04
Tubing									Perforations:
Lin...									Top Bottom

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-107-1404 Date October 14 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 14, 1988 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Plat: <input checked="" type="checkbox"/>	Casing: <input checked="" type="checkbox"/>	Fee: <u>969794</u>	WPCP: <input checked="" type="checkbox"/>	S&E: <input checked="" type="checkbox"/>	Other: <input type="checkbox"/>
---	--	---	---	--------------------	---	--	---------------------------------

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

 Director, Division of Oil and Gas File