

FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 604 AT ROAD INTERSECTION

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) Donnas L. Fisher
 R.P.E. _____ L.L.S. 670

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)



DATE JUNE 1, 19 81
 OPERATOR'S WELL NO. KEM 97
 API WELL NO. 47 - 035 - 1587-PP
 STATE COUNTY PERMIT FRAC

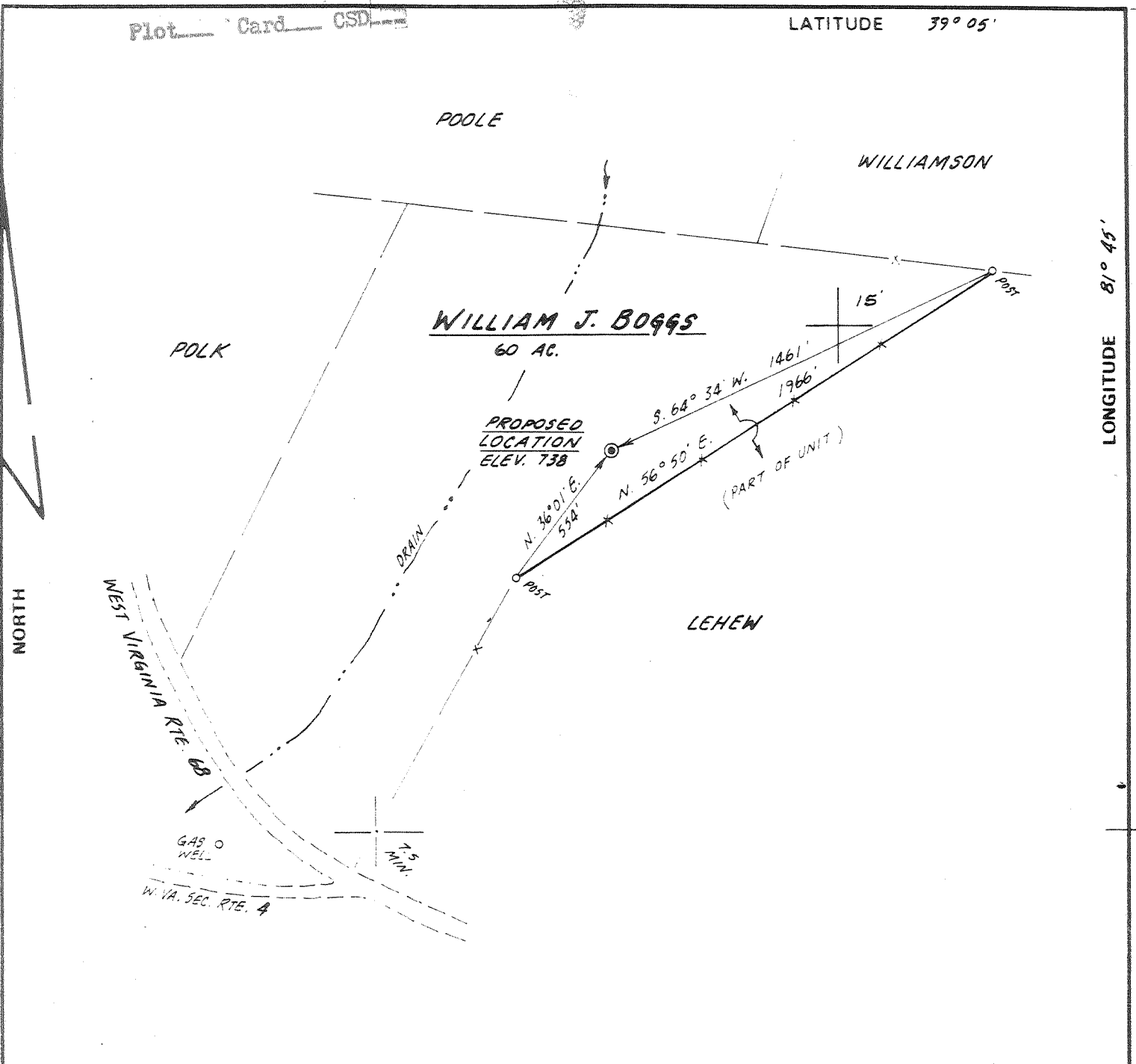
STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION ___ STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 738 WATER SHED OHIO RIVER
 DISTRICT GRANT COUNTY JACKSON
 QUADRANGLE PORTLAND, OHIO - W. VA. (7.5 MIN.) Keno 15' SE
 SURFACE OWNER WILLIAM J. BOGGS ACREAGE 60
 OIL & GAS ROYALTY OWNER WILLIAM J. BOGGS LEASE ACREAGE 60
 LEASE NO. _____
 PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION X PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
 PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 4200 R.A. PRYCE JUN 25 1984
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY
 ADDRESS P.O. BOX B COMPANY ADDRESS P.O. BOX B
RAVENSWOOD, WEST VIRGINIA 26164 RAVENSWOOD, WEST VIRGINIA 26164

JACK. 1587 PP-FRAC

ALL DEPT. OF MINES owwo-6-6

Neptune (255)



FILE NO. _____
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(SIGNED) Dennis L. Fisher
 R.P.E. _____ L.L.S. 670

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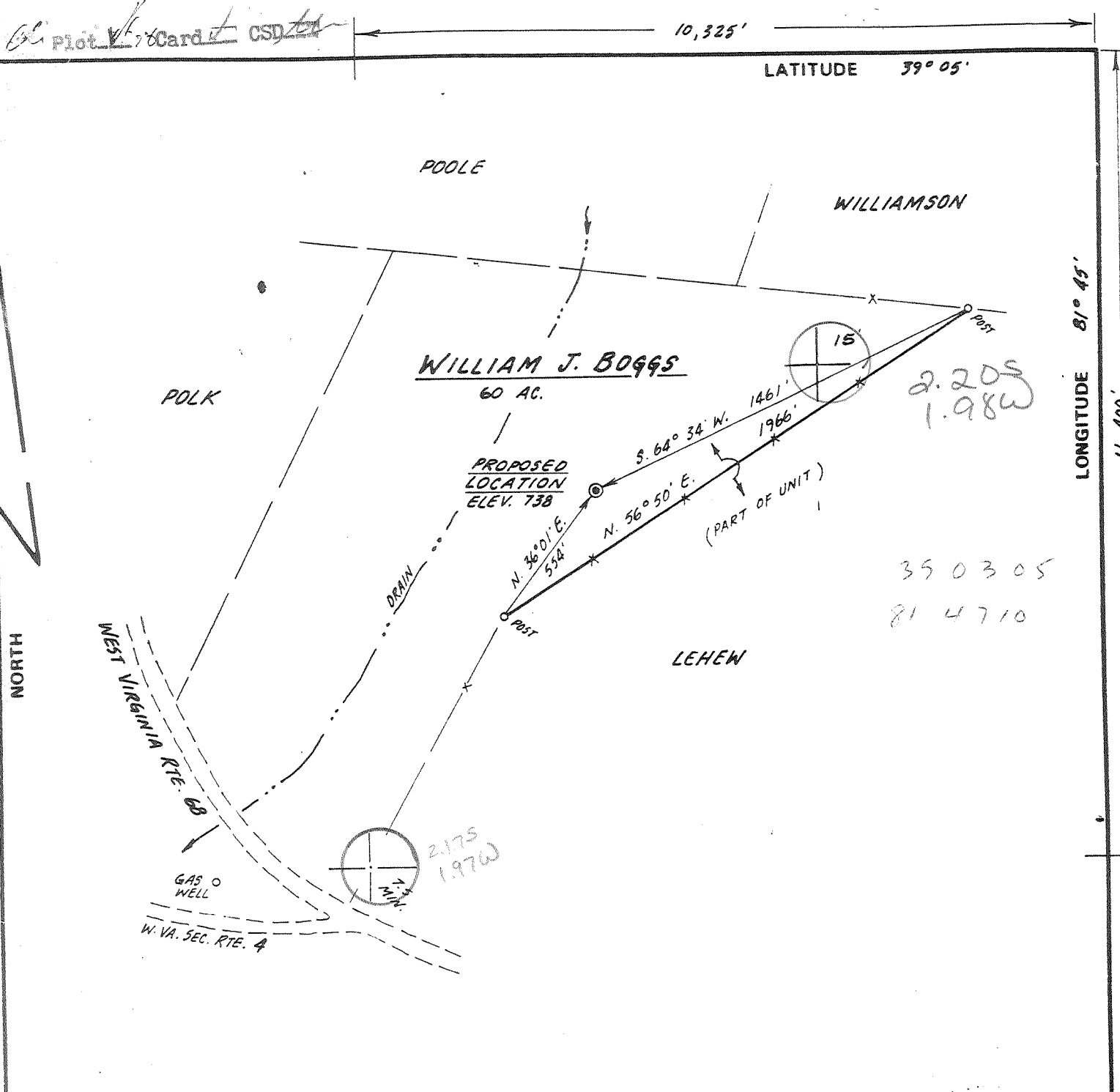


DATE JUNE 1, 19 81
 OPERATOR'S WELL NO. KEM 97
 API WELL NO. 47 - 035 - 1587.PP.
 STATE COUNTY PERMIT FRAC

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION ___ STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 738 WATER SHED OHIO RIVER
 DISTRICT GRANT COUNTY JACKSON
 QUADRANGLE PORTLAND, OHIO - W.VA. (7.5 MIN.)
 SURFACE OWNER WILLIAM J. BOGGS ACREAGE 60
 OIL & GAS ROYALTY OWNER WILLIAM J. BOGGS LEASE ACREAGE 60
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 PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION DRISKANY ESTIMATED DEPTH 4200
 WELL OPERATOR KAISER EXPLORATION & MINING COMPANY DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY
 ADDRESS P.O. BOX B RAVENSWOOD, WEST VIRGINIA 26164 ADDRESS P.O. BOX B RAVENSWOOD, WEST VIRGINIA 26164

JACK. 1587 PP-FRAC



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(SIGNED) Dennis L. Fisher
 R.P.E. _____ L.L.S. 670

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)



DATE JUNE 1, 19 81
 OPERATOR'S WELL NO. KEM 97
 API WELL NO. 47-035-1587
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS,") PRODUCTION ___ STORAGE ___ DEEP X SHALLOW ___
 LOCATION: ELEVATION 738 WATER SHED OHIO RIVER
 DISTRICT GRANT COUNTY JACKSON
 QUADRANGLE PORTLAND, OHIO - W. VA. (7.5 MIN.) Kemolis SE
 SURFACE OWNER WILLIAM J. BOGGS ACREAGE 60
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 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 DRISKANY ESTIMATED DEPTH 4200
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO BOX B COMPANY ADDRESS PO BOX B
RAVENSWOOD, WEST VIRGINIA 26164 RAVENSWOOD, WEST VIRGINIA 26164

JUL 09 1981

6-6 NEPTUNE deep well (255) NPT K



REVISED

IV-35
(Rev 8-81)

RECEIVED

NOV 17 1984

State of West Virginia
Department of Mines
Oil and Gas Division

Date 12/28/84
Operator's
Well No. KEM 97
Farm William Boggs
API No. 47 - 035 - 1587-FRAC

OIL & GAS DIVISION
DEPT. OF MINES
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: 738' Watershed Ohio River
District: Grant County Jackson Quadrangle Portland

COMPANY Kaiser Exploration and Mining Co.

ADDRESS P. O. Box 8 Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER William Boggs

ADDRESS Murraysville, WV

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Jerry

Tephabock ADDRESS Rt. 1 Box 101A Ripley, WV

PERMIT ISSUED 7/03/81 6-18-84

DRILLING COMMENCED 10/13/81 11/10/83

DRILLING COMPLETED 10/17/81 07/03/84

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.			
13-10"			
9 5/8			
8 5/8	SAME AS	PREVIOUSLY REPORTED	
7			
5 1/2			
4 1/2			
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Depth feet

Depth of completed well 3640 feet Rotary / 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 3575 feet

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

Final open flow 250 ³³⁶ Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1025 psig (surface measurement) after 48 hours shut in

(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2006-2009 feet

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

Final open flow 86.9 ^{comm} Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 375 psig (surface measurement) after 96 hours shut in

(Continue on reverse side)

JAN 28 1985

new
zone
completed
7/3/84

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

11/10/83 McCullough set permanent plug @ 3640'.
 5/31/84 NL McCullough to perf Berea with 12 (.39" dia) shots from 2006' to 2009'.
 7/03/84 NOWSCO to foam frac Berea. Breakdown pressure: 2200 psig; treated with 750 foam @ 1800 psig; Used #60,000 of 20/40 sand; total N₂: 643 mscf; total fluid: 267 bbls; ISIP: 1200 psig; 5 min SIP: 1150 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:

RW Durst

Date: 12/28/84

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."

[08-78]

WELL OPERATOR'S REPORT

DEPARTMENT OF MINES, OIL AND GAS DIVISION

WELL TYPE: Oil / Gas / Liquid Injection / Waste Disposal
 (If "Gas", Production / Underground storage / Deep / Shallow
 LOCATION: Elevation: 738' Watershed: Ohio River
 District: Grant County: Jackson Substrate: Portland O/WV

WELL OPERATOR Kaiser Exploration and Mining Co. DESIGNATED AGENT SAME
 Address P. O. Box 8 Address _____
Ravenswood, WV 26164

PERMITTED WORK: Drill / Convert / Drill deeper / Re-drill / Fracture or stimulate
 Plug off old formation / Perforate new formation /
 Other physical change in well (specify) _____

RECEIVED

FEB 9 - 1982

PERMIT ISSUED ON July 3, 1981

OIL & GAS INSPECTOR FOR THIS WELL RICHARD MORRIS OIL AND GAS DIVISION DEPARTMENT OF MINES

IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED

Name Richard Morris
 Address BOX 372
Grantsville, WV

GEOLOGICAL TARGET FORMATION: Oriskany Sandstone Depth 4192 feet
 Depth of completed well, 4280 feet Rotary / Cable Tools
 Water strata depth: Fresh, _____ feet; salt, _____ feet.
 Coal seam depths: NONE Is coal being mined in the area? NO
 Work was commenced October 13, 1981, and completed October 27, 1981

CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS				FOOTAGE INTERVALS		CEMENT FILL-IN OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft	New	Used	For drilling		
Conductor								Winds
Fresh water	10 3/4	H	32.75	X		249(KB)	249(KB)	150sks Class A
Coal								Sizes
Intermediate	7	K	20	X		1901(KB)	1901(KB)	65sks Pozmix 100sks Class A
Production	4 1/2	N	11.6	X		4267(KB)	4267(KB)	225sks Pozmix
Tubing	2 3/8	K	4.6	X		4180(KB)	4180(KB)	Bestho set
Liners								Perforations:
								Top Bottom
								4192 4200
								4141 4142
								4150 4151

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 4192-4200 feet
 Gas: Initial open flow, Trace Mcf/d Oil: Initial open flow, _____ Mcf/d
 Final open flow, 92 Mcf/d Final open flow, _____ Mcf/d
 Time of open flow between initial and final tests, _____ hours
 Static rock pressure, 1000 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, _____ Mcf/d
 Final open flow, _____ Mcf/d Final open flow, _____ Mcf/d
 Time of open flow between initial and final tests, _____ hours
 Static rock pressure, _____ psig (surface measurement) after _____ hours shut in

NOV 15 1982

[08-78]

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

- 10/26/81: Perforated Oriskany w/3 5/8" carrier gun; ^{Onond.} 4141' to 4142'(KB), 4150' to 4151'(KB) and 4192' to 4200; total 38 charges. (Basin Survey)
- 10/27/81: Hydrafracture Oriskany w/15,000# 80/100, 45,000# 20/40 sand, 250,000 SCF of Nitrogen and 945 BBL water. Formation breakdown @ 5200 psig, rate 35 BPM and 2400 psig, treatment @ 32.5 BPM and 2400 psig. Casing loaded w/additional 1000 gal. 20% HCL acid before fractured. ISIP 1100 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
Soil & Shale			0	152	
Sand			152	180	
Shale			180	309	
Sand			309	344	
Shale			344	528	
Sand			528	555	
Shale			555	611	
Sand			611	633	
Shale			633	1149	
Salt Sand			1149	1250	
Shale			1250	1458	
Sand			1458	1478	
Shale			1478	1504	
Big Lime (Greenbrier)			1504	1540	
Shale			1540	1987	
Coffee Shale (Sunbury)			1987	2006	
Berea Sand			2006	2009	
Shale			2009	3128	Gas show @ 2500, 2690, 2850, 2920, 3042
Brown Shale			3128	3589	Gas show @ 3208 ^{Onond.}
Shale			3589	3906	Gas show @ 3774 ^{Tava}
Marcellus Shale			3906	4097	Gas show @ 3964 ^{Riv.}
Onondaga Lime			4097	4176	Gas show @ 4140, 4150 ^{Onond.}
Oriskany Sand			4176	4216	Gas show @ 4195 ^{Orisk.}
Helderberg Lime			4216	4274	
Total Depth			<u>4274</u>		

from nearby wells
 up
 2002
 within
 3128
 Tava
 3638
 Riv.
 3778
 Riv.
 3906
 Onond.
 4026
 Marcellus
 4097
 Onondaga
 4097

(Attach separate sheets to complete as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By R.A.P.
 Its General Manager

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 soil, encountered in the drilling of a well."



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED

JUN 25 1981

Oil and Gas Division
OIL & GAS DIVISION
DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,
Charleston, W. Va.

DATE June 23, 1981

Surface Owner William Boggs
Address Murraysville, WV
Mineral Owner Same as above
Address _____
Coal Owner Same as above
Address _____
Coal Operator None
Address _____

Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm William Boggs Acres 60
Location (waters) Ohio River
Well No. KEM #97 Elevation 738'
District Grant County Jackson
Quadrangle Portland, O/WV

(THIS PERMIT MUST BE POSTED AT THE WELL SITE)

All provisions being in accordance with Chapter 22, of the W. Va. Code, the location is hereby approved for drilling. This permit shall expire if operations have not commenced by 3-4-82

INSPECTOR
TO BE NOTIFIED Richard Morris
ADDRESS P. O. Box 372, Grantsville, WV
PHONE 354-7259

Fred B. Burkett
Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated March 8 19 80 by William J. & Betty Boggs made to Kaiser Exploration and Mining Company and recorded on the 25 day of March 19 80, in Jackson County, Book 155 Page 336

NEW WELL DRILL DEEPER REDRILL FRACTURE OR STIMULATE
OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days.

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address _____ day _____ before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOLOGICAL AND GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY
P. O. BOX 879
MORGANTOWN, WEST VIRGINIA 26505
C-304 - 292-6331

Very truly yours,
(Sign Name) [Signature]
Well Operator
Kaiser Exploration and Mining Company
P. O. Box 8
Street
Ravenswood
City or Town
West Virginia 26164
State

Address of Well Operator

*SECTION 3... If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that the same is approved and the well operator authorized to proceed.

BLANKET BOND

47-035-1587

PERMIT NUMBER

ADDITIONAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO X DRILL _____ DEEPEN _____ FRACTURE-STIMULATE _____
 DRILLING CONTRACTOR: (If Known) _____ RESPONSIBLE AGENT: _____
 NAME Clint Hurt & Associates, Inc. NAME Robert A. Pryce
 ADDRESS P. O. Box 388, Elkview, WV 25071 ADDRESS P. O. Box 8, Ravenswood, WV 26164
 TELEPHONE 273-5371 TELEPHONE 273-5371
 ESTIMATED DEPTH OF COMPLETED WELL: 4315' ROTARY X CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: Oriskany
 TYPE OF WELL: OIL _____ GAS X COMB. _____ STORAGE _____ DISPOSAL _____
 RECYCLING _____ WATER FLOOD _____ OTHER _____

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LIFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16			
- 10			
5/8	250'	250'	150 sks class A
- 5/8			
7	1913'	1913'	65 sks 50/50 pozmix
5 1/2			100 sks Class A
4 1/2	4315'	4315'	225 sks 50/50 pozmix
3			Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS _____ FEET _____ SALT WATER _____ FEET _____
 APPROXIMATE COAL DEPTHS _____
 IS COAL BEING MINED IN THE AREA? None BY WHOM? _____

TO DRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, \$100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAT.

TO DRILL DEEPER OR REDRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND. ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAT AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE:

OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAT AND ORIGINAL WELL RECORD.

OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.

Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty-four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt thereof.

WAIVER: I the undersigned, Agent for _____ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

We the _____ Coal Company have no objections to said well being drilled at this location, providing operator has complied with all rules and regulations in Articles 4, 5, and 7, Chapter 22 of the West Virginia Code.

 For Coal Company

 Official Title



1) Date: May 24, 19 84
 2) Operator's Well No. KEM #97
 3) API Well No. 47 - 035 - 1587 - FRAC
 State County Permit

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

- 4) WELL TYPE: A Oil / Gas /
 B (If "Gas", Production / Underground storage / Deep / Shallow)
 5) LOCATION: Elevation: 738' / Watershed: Ohio River
 District: Grant / County: Jackson / Quadrangle: Portland
 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 Jerry Tephabock / Name Kaiser Service Rig
 Address Rt. 1, Box 101A / Address _____
Ripley, WV 25271
 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate /
 Plug off old formation / Perforate new formation /
 Other physical change in well (specify) Squeeze 4 1/2" casing; perforate frac Berea;
 11) GEOLOGICAL TARGET FORMATION, Berea Isolate Berea and Brown Shale w/packer ✓
 12) Estimated depth of completed well, 3640 feet
 13) Approximate trata depths: Fresh, 300 feet; salt, 600 feet.
 14) Approximate coal seam depths: None Is coal being mined in the area? Yes / No

RECEIVED
 MAY 30 1984

OIL & GAS DIVISION
 DEPT. OF MINES

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		45.5	X		249' (KB)	249' (KB)	150 sks neat		
Coal								65 sks pozmix		
Intermediate	7"	K	20	X		1901' (KB)	1901' (KB)	100 sks neat		
Production	4 1/2" N		11.60	X			4267' (KB)			
Tubing										
Liners										
NOTE: permanent bridge plug set in 4 1/2" casing at 3640' (KB)									Perforations:	
									Top	Bottom
									3397'	3575' (KB)

OFFICE USE ONLY
 DRILLING PERMIT

Permit number 47-035-1587-FRAC Date June 18, 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 June 18, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent: ✓	Plat: ✓	Casing: ✓	Fee: <u>967-353</u>
ANKET	LS	MU	MU	

[Signature]
 Administrator, Office of Oil and Gas

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