



FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION SPOT ELEV. 602 AT INTER. ROB. S.W. 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) 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 9, 19 81
 OPERATOR'S WELL NO. KEM 105
 API WELL NO. 47 - 035 - 1584
 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 760 WATER SHED WASHINGTON RUN
 DISTRICT GRANT 1 COUNTY JACKSON
 QUADRANGLE PORTLAND, O-W.V.A Kemp 15' SE 64
 SURFACE OWNER CARL WILLIAMSON ACREAGE 118
 OIL & GAS ROYALTY OWNER CARL WILLIAMSON LEASE ACREAGE 118
 LEASE NO. _____
 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 3440
 WELL OPERATOR KAISER EXPLORATION & MINING DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO BOX B RAVENSWOOD, WEST VIRGINIA 26164 COMPANY ADDRESS PO BOX B RAVENSWOOD, WEST VIRGINIA 26164

JUN 29 1981

Deep Well 6-6 Neptune (255)

WELL OPERATOR'S REPORT

(08-78)

WELL NAME: Washington Run

035-1584

WELL TYPE: Oil / Gas / Liquid Injection / Waste Disposal
 (If "Gas", Production / Underground storage / Test
 LOCATION: Elevation: 760 Watershed: Washington Run
 District: Grant County: Jackson Subdivision: 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) _____

PERMIT ISSUED ON June 18, 1981

OIL & GAS INSPECTOR FOR THIS WORK:

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

Name Richard Morris
 Address P. O. Box 372
Grantsville, WV

GEOLOGICAL TARGET FORMATION: Oriskany Sandstone Depth 4310 feet
 Depth of completed well, 4352 feet Rotary / Cable Tools
 Water strata depth: Fresh, feet; salt, feet.
 Coal seam depths: Is coal being mined in the area? No
 Work was commenced June 28, 1981, and completed July 4, 1981

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
Conductor									NONE
Fresh water	10 3/4	H	32.75	X		241(KB)	241(KB)	150sx Class A	
Coal									Sizes
Intermediate	7	K	20	X		1930(KB)	1930(KB)	65sx Pozmix 100sx Class A	
Production	4 1/2	N	11.60	X			4340(KB)	250sx Pozmix	Depth set
Tubing									Perforations:
Liners									Top Bottom
									4250 4260(KB)

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 4250 feet
 Gas: Initial open flow, 60 Mcf/d Oil: Initial open flow, bbl/d
 Final open flow, 300 Mcf/d Final open flow, bbl/d
 Time of open flow between initial and final tests, hours
 Static rock pressure, 1500 psig (surface measurement) after 16 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 Final open flow, bbl/d
 Time of open flow between initial and final tests, hours
 Static rock pressure, psig (surface measurement) after hours shut in

[08-78]

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

- 7/7/81: Basin surveys perforated Oriskany 4250'-4260'(KB); 4 holes/ft; 40 holes; 3 1/2" strip.
- 7/9/81: Halliburton Hydrofractured Oriskany w/150,000# 80/100 sand; 45,000# 20/40 sand; 177,000 SCF nitrogen; 500 Gallon 28% HCL Acid; 2000 Hydraulic Horsepower; 740 BBL water; breakdown was 2600 psig; avg. rate was 35 BPM; avg. treating pressure was 2750 psig; maximum pressure was 3200 psig; Instantaneous shut in pressure was 1900 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 and Shale			0	38	
Siltstone			38	87	
Shale			87	161	
Sand			161	222	
Shale			222	275	
Sand and Shale			275	434	
Sand			434	468	
Siltstone and Shale			468	1108	
Salt Sand			1108	1146	
Shale			1146	1175	
Salt Sand			1175	1237	
Shale			1237	1476	
Sand			1476	1519	
Big Lime (Greenbrier)			1519	1560	
Shale			1560	2018	
Coffee Shale (Sunbury)			2018	2037	
Berea Sand			2037	2039	
Shale			2039	3168	
Brown Shale			3168	3638	
Shale			3638	3958	
Marcellus Shale			3958	4156	
Onondaga Lime			4156	4241	
Oriskany Sand			4241	4275	Gas show @ 4255
Helderberg Lime			4275	4357	
Total Depth			<u>4357</u>		

(Attach separate sheets to complete as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator
By [Signature]
Its Operation Manager

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



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

RECEIVED
JUN 12 1981

OIL AND GAS WELL PERMIT APPLICATION

DEPARTMENT OF MINES

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

DATE June 11, 1981

Surface Owner Carl Williamson
Address 1009 Crawford Drive, Rockville, MD 20851
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 Carl Williamson Acres 118
Location (waters) Washington Run
Well No KEM #105 Elevation 760'
District Grant County Jackson
Quadrangle Portland, O-WV

THIS PERMIT MUST BE POSTED AT THE WELL SITE

provisions being in accordance with Chapter 22,
the W. Va. Code, the location is hereby approved
drilling. This permit shall expire if
operations have not commenced by 2-17-82

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

J. H. Murray
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 February 14 1981 by Carl and
Catherine Williamson Royal Resources Corp. Assigned to
Kaiser Exploration and Mining Co. and recorded on the _____ day of _____
1981, in Jackson County, Book 147 Page 386

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
GEOPHYSICAL LOGS DIRECTLY TO:

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

Address
of
Well Operator

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

*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

THIS IS AN ESTIMATE ONLY
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO X DRILL DEEPEN FRACTURE-STIMULATE

DRILLING CONTRACTOR: (If Known)
NAME Clint Hurt & Associates, Inc.
ADDRESS P. O. Box 388, Elkview, WV 25071
TELEPHONE 273-5371

RESPONSIBLE AGENT:
NAME Robert A. Pryce
ADDRESS P. O. Box 8, Ravenswood, WV 2616
TELEPHONE 273-5371

ESTIMATED DEPTH OF COMPLETED WELL: 4310' 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	LEFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16			
13 - 10 10 3/4	250	250	75 sks class A to surface
9 - 5/8			
8 - 5/8			
7	1950	1950	65 sks pozmix 100 sks class A (1200'
5 1/2			fillup)
4 1/2	4310	4310	275 sks pozmix (2400 fill
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