



[SURFACE : W.K. RECTOR
 MINERAL : W.K. RECTOR]

CERTIFICATE

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia."

Minimum degree of accuracy is one part in 200

Signed Dennis L. Fisher LLS No 670

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO BOX #8, RAVENSWOOD, WEST VIRGINIA 26164
 FARM W.K. RECTOR
 MAP _____ ACRES 102.75 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 72
 ELEVATION (SPIRIT LEVEL) 789'
 QUADRANGLE SANDYVILLE - 7.5 MIN. Ridge NW
 COUNTY JACKSON DISTRICT GRANT
 POINT OF PROVEN ELEVATION SPOT ELEV. 978', 1400' WEST OF PROPOSED LOCATION
 FILE NO. _____ DRAWING NO. _____
 DATE FEBRUARY 6, 1981 SCALE 1" = 500'

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
 WELL LOCATION MAP
 FILE NO. 47-035-1550
1983-0000 - New zone completed 6-6-81
 + DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. SCALE 1 TO 62,500. LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.
 - DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

deep well
 Ovis (Kenny) 66 etc. (Sigsbee) 665 (157) (AGE)
 MAR 9 1981



REVISED

IV-35
(Rev 8-81)

Date May 27, 1983
Operator's Well No. KEM #72
Farm W. K. Rector
API No. 47 - 035 - 1550

State of West Virginia
Department of Mines
Oil and Gas Division

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: 789 Watershed Little Sand Creek
District: Grant County Jackson Quadrangle Sandyville

COMPANY Kaiser Exploration and Mining Company

ADDRESS P. O. Box 8, Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER W. K. Rector

ADDRESS 101 Virginia Street, Ravenswood, WV

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Dougherty ADDRESS Linden Rt., Looneyville, WV

PERMIT ISSUED 1/13/81

DRILLING COMMENCED 6/6/81

DRILLING COMPLETED 6/12/81

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.			
13 1/2 10 3/4"	267' (KB)	267' (KB)	175 sks neat
9 5/8			
8 5/8			
7	2099 (KB)	2099 (KB)	65 sks pozmix 100 sks neat
5 1/2			
4 1/2		4617' (KB)	275 sks pozmix
3			
2			
Liners used	None		
	OIL & GAS DIVISION DEPT. OF MINES		

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4350' feet

Depth of completed well 4648' feet Rotary X / Cable Tools

Water strata depth: Fresh -- feet; Salt -- feet

Coal seam depths: -- Is coal being mined in the area?

OPEN FLOW DATA

Producing formation Oriskany Sandstone Pay zone depth 4549-4561 (KB) feet

Gas: Initial open flow 0 Mcf/d Oil: Initial open flow -- Bbl/d

Final open flow 25 Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1300 psig (surface measurement) after 48 hours shut in

(If applicable due to multiple completion--)

NOTE: Uneconomical to produce due to excessive salt water production

Secondary producing formation Huron Pay zone depth 3682-3872 (KB) feet

Gas: Initial open flow 0 Mcf/d Oil: Initial open flow Bbl/d

Final open flow 175 Mcf/d Oil: Final open flow Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 775 psig (surface measurement) after -- hours shut in

new zone completed (Continue on reverse side)

JUN 13 1983

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

4/28/83: Young Wireline set 4 1/2" Baker N-1 permanent bridge plug at 3940'(KB).
Using 3 1/8" O.D. hollow steel select fire carrier. Perforated Brown Shale interval w/20 holes, .39" diameter, from 3682'-3872'(KB).

5/25/83: B.J. Hughes foam frac'd the Brown Shale interval. Breakdown pressure: 2349 psig, pad: 200 bbl foam; treating pressure: 1970-2240 psig. Used 60,000# of 20/40 sand, pumped water at a rate of 10-14 bbl/min, nitrogen at a rate of 25,000 scf/min; foam at a rate of 40-56 bbl/min. Total nitrogen: 750,000 scf, total sand ladened fluid: 267 bbl, total fluid: 316 bbl. ISIP: 870 psig; 5 min SI: 770 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 OG-10					

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: RAJ

Date: May 27, 1983

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."

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary X Oil _____
Cable _____ Gas X
Recycling _____ Comb. _____
Water Flood _____ Storage _____
Disposal _____ (Kind) _____

Quadrangle Sandyville

Permit No. JAC-1550

Company Kaiser Exploration and Mining Co.
Address P. O. Box 8, Ravenswood, WV 26164
Farm W. K. Rector Acres 102.75
Location (waters) Little Sand Creek
Well No. KEM #72 Elev. 789'
District Grant County Jackson
The surface of tract is owned in fee by _____
W. K. Rector
Address 101 Virginis Street, Ravenswood, WV
Mineral rights are owned by Same
Address Same
Drilling Commenced 6/06/81
Drilling Completed 6/12/81
Initial open flow None cu. ft. -- bbls.
Final production 25M cu. ft. per day -- bbls.
Well open 4 hrs. before test 1300 RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16			
Cond.			
13-10" 10 3/4"	267' (KB)	267' (KB)	175 sks class A 3% calcium chloride, 1/4#/sk flocele
9 5/8			
8 5/8			
7	2099' (KB)	2099' (KB)	65 sks 50/50 pozmix 10% salt, 100 sks class A, 3% calcium chloride
5 1/2			
4 1/2	4617' (KB)	4617' (KB)	275 sks 50/50 pozmi.
3			
2			
Liners Used			

Well treatment details:

Attach copy of cementing record.

6/15/81: Perforated Oriskany Sandstone from 4549'-4561' (KB), 48 holes, 2 1/8" glass jets; 6/16/81: Hydrofractured Oriskany w/15,000# 30/100 sand, 45,000# 20/40 sand, 500 gal of 28% HCL acid, 36,000 SCF of nitrogen, 797 BBL of water, 26 BPM avg rate, 4250 psig avg pressure; 15 minute shut in pressure was 3250 psig.

Coal was encountered at -- Feet -- Inches
Fresh water -- Feet -- Salt Water -- Feet
Producing Sand Oriskany Sandstone Depth 4549'-4561' (KB)

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
* All formation tops taken from electric log depths						
Soil			0	18		
Siltstone			18	96		
Shale			96	204		
Sand			204	348		
Shale			348	540		
Sand			540	604		
Shale			604	650		
Sand			650	692		
Shale			692	759		
Sand			759	789		
Red Rock & Shale			789	1330		
Sand			1330	1362		
Shale			1362	1465		
Sand			1465	1486		
Shale			1486	1570		
Sand			1570	1600		
Shale			1600	1630		
Sand			1630	1644		
Shale			1644	1699		
Salt Sand			1699	1782		

(over)

* Indicates Electric Log tops in the remarks section.

DEC 13 1982

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Shale			1782	2201		
Coffee Shale (Sunbury)			2201	2232		
Berea Sand			2232	2235		
Shale			2235	3380	Show/Gas	
Brown Shale			3380	3874	Show/Gas	
Shale			3874	4240		
Marcellus Shale			4240	4445	Show/Gas	
Onondaga Lime (Corniferous)			4445	4520		
Oriskany Sand			4530	4568	Show/Gas	
<u>Helderberg</u>			4568	4648		
Total Depth			<u>4648</u>			

Date August 26, 1981

APPROVED

[Signature]

Owner

By General Manager

(Title)

305 1 1 39E



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED
FEB 11 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 February 10, 1981
Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm W. K. Rector Acres 102.75
Location (waters) Little Sand Creek
Well No. KEM #72 Elevation 789'
District Grant County Jackson
Quadrangle Sandyville

Surface Owner W. K. Rector
Address 101 Virginia Street, Ravenswood, WV
Mineral Owner Same as above
Address Same as above
Coal Owner Same as above
Address Same as above
Coal Operator None
Address _____

THIS PERMIT MUST BE POSTED AT THE WELL SITE

Provisions being in accordance with Chapter 22,
West Virginia Code, the location is hereby approved
for drilling. This permit shall expire if
operations have not commenced by 10-13-81

[Signature]
Deputy Director - Oil & Gas Division

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

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 June 20, 1980 by W. K. and
Dorothy Rector made to Kaiser Exploration and Mining Co. and recorded on the 25 day of June
1980 in Jackson County, Book 156 Page 401

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
AC-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

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) _____ 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
 TELEPHONE 344-2401 TELEPHONE 273-5371
 ESTIMATED DEPTH OF COMPLETED WELL: 4650' 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			
9 - 5/8 10 3/4"	250	250'	150 sks class A
8 - 5/8			
7	2280'	2280'	65 sks 50/50 pozmix, 100 sks class A
5 1/2			
4 1/2	4650'	4650'	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? No 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