



SURFACE: ARTHUR WATKINS
MINERAL: ARTHUR WATKINS

CERTIFICATE

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

"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

COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO Box #8, RAVENSWOOD, WEST VIRGINIA 26164
 FARM ARTHUR WATKINS, ETAL
 MAP _____ ACRES 58.5 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 74
 ELEVATION (SPIRIT LEVEL) 630'
 QUADRANGLE SANDYVILLE - 7.5 MIN. Ripley NW - 15'
 COUNTY JACKSON DISTRICT GRANT
 POINT OF PROVEN ELEVATION LOCATION ON WALDO KELLEY FARM (KEM 49) 3100' NE. OF PROPOSED LOCATION
 FILE NO. _____ DRAWING NO. REV 1
 DATE JANUARY 19, 1981 SCALE 1" = 500'

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON
WELL LOCATION MAP
FILE NO. 47-035-1555

+ 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.

6-6 ~~1983-01-19-81~~ 4675' (159) 4475 MAR 23 1981
 → 1983-01-19-81 (159) deep well



REVISED

IV-35
(Rev 8-81)

Date May 27, 1983
Operator's
Well No. KEM #74
Farm Arthur Watkins
API No. 47 - 035 - 1555

State of West Virginia
Department of Mines
Oil and Gas Division

JUN 27 1983

WELL OPERATOR'S REPORT
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

RECEIVED
JUN 17 1983

WELL TYPE: Oil / Gas / Liquid Injection / Waste Disposal / OIL & GAS DIVISION
(If "Gas," Production / Underground Storage / Deep / ~~Shallow~~ MINE

LOCATION: Elevation: 630 Watershed Little Sandy 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 Arthur Watkins

ADDRESS Sherman, WV 26173

MINERAL RIGHTS OWNER Same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Dougherty ADDRESS Linden Rt., Looneyville, WV

PERMIT ISSUED 2/17/81

DRILLING COMMENCED 5/29/81

DRILLING COMPLETED 6/4/81

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.			
10 3/4" 13x10	257(KB)	257(KB)	175 sks class A
9 5/8			
8 5/8			
7	1922(KB)	1922(KB)	65 sks pozmix 100 sks class A
5 1/2			
4 1/2		4418(KB)	250 sks pozmix
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Sandstone Depth 4348(KB) feet

Depth of completed well 4442 feet Rotary / 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 4364-4370(KB) feet

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

Final open flow 150 Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests 5 hours

Static rock pressure 875 psig(surface measurement) after -- hours shut in

(If applicable due to multiple completion--)

Second producing formation Devonian Brown Shale Pay zone depth 3504-3693(KB) feet

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

Final open flow 189 Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 5 hours

Static rock pressure 850 psig(surface measurement) after 48 hours shut in

Additional zone completed - 1983 (Continue on reverse side)

lug back

JUN 27 1983

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

- 5/11/83: Set permanent bridge plug in 4 1/2" casing at 3750' (KB). Perforated the Brown Shale selectively from 3504'-3693' (KB). 19 holes, .39" diameter.
- 6/3/83: Foam frac Devonian Brown Shale. 75 quality foam, breakdown of 2840 psig, 40 bbl/min (downhole) treatment with 2800 psig. Pumped 60,000# of 20/40 sand, 270 bbl of sand laden fluid, 390 total bbls of water. Used 200,000 SCF of nitrogen. ISIP: 950 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: R.A.P.

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

Quadrangle Sandyville

Permit No. JAC-1555

Company <u>Kaiser Exploration and Mining Company</u>	Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Address <u>P. O. Box 8, Ravenswood, WV 26164</u>				
Farm <u>Arthur Watkins</u> Acres <u>58.5</u>	Size			
Location (waters) <u>Little Sandy Creek</u>	20-16			
Well No. <u>KEM #74</u> Elev. <u>630</u>	Cond.			
District <u>Grant</u> County <u>Jackson</u>	13-10" 10 3/4"	257' (KB)	257' (KB)	175 sks class A, 3% Calcium Chloride, 1/4#/sk flocele
The surface of tract is owned in fee by <u>Arthur Watkins</u>	9 5/8			
Address <u>Sherman, WV 26173</u>	8 5/8			
Mineral rights are owned by <u>Same</u>	7	1922' (KB)	1922' (KB)	65 sks 50/50 pozmix 10% salt, 100 sks class A, 3% cal. cl
Address <u>Same</u>	5 1/2			250 sks 50/50 pozmix 10% salt, 1/4#/sk flocele
Drilling Commenced <u>5/29/81</u>	4 1/2	4418' (KB)	4418' (KB)	
Drilling Completed <u>6/04/81</u>	3			
Initial open flow <u>Trace</u> cu. ft. <u>--</u> bbls.	2		4356' (KB)	
Final production <u>150,000</u> cu. ft. per day <u>--</u> bbls.	Liners Used			
Well open <u>5</u> hrs. before test <u>1300</u> RP.				

Well treatment details:

Attach copy of cementing record.

Perforated Oriskany Sandstone on 6/07/81 from 4364'-4370' (KB), 24 holes, 2 1/8" glass jets; hydrofractured Oriskany on 6/8/81 with 15,000# 80/100 sand, 45,000# 20/40 sand, 500 gal 28% HCl acid, 180,000 SCF of nitrogen, 837 BBL of water; 22 BPM rate; 4400 psig avg pressure; 4000 psig instantaneous shut in pressure.

Coal was encountered at -- Feet -- Inches
Fresh water -- Feet -- Salt Water -- Feet
Producing Sand Oriskany Sandstone Depth 4364'-4370' (KB)

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
*All formation tops taken from electric log depths						
Soil and Shale			0	53		
Siltstone			53	120		
Sand			120	176		
Siltstone			176	253		
Shale			253	362		
Sand			362	430		
Shale			430	491		
Sand			491	524		
Shale			524	606		
Sand			606	627		
Red Rock			627	904		
Shale			904	934		
Sand			934	962		
Shale			962	985		
Sand			985	1003		
Shale			1003	1063		
Sand			1063	1138		
Shale			1138	1162		
Sand			1162	1224		
Shale			1224	1496		
Salt Sand			1496	1612		

(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			1612	2036		
Coffee Shale (Sunbury)			2036	2056		
Berea Sand			2056	2060		
Shale			2060	3202	Show/Gas	
Brown Shale			3202	3698		
Shale			3698	4040		
Marcellus Shale			4040	4264		
Onondaga Lime (Corniferous)			4264	4348		
Oriskany Sand			4348	4390	Show/Gas	
<u>Helderberg</u>			4390	4445		
Total Depth			<u>4445</u>			

Date August 26 19 81

APPROVED [Signature] Owner
 By General Manager
 (Title)



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED
FEB 23 1981

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

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

DATE January 30, 1981

Surface Owner Arthur Watkins
Address Sherman, WV 26173
Mineral Owner Same as above
Address Same as above
Coal Owner Same as above
Address Same as above
Coal Operator None
Address _____

Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm Arthur Watkins Acres 58.5 acres
Location (waters) Little Sandy Creek
Well No. KEM #74 Elevation 630'
District Grant County Jackson
Quadrangle Sandyville

THIS PERMIT MUST BE POSTED AT THE WELL SITE

If provisions being in accordance with Chapter 22, the W. Va. Code, the location is hereby approved for drilling. This permit shall expire if operations have not commenced by 10-31-81

INSPECTOR

TO BE NOTIFIED Richard Morris

ADDRESS P. O. Box 372, Grantsville, WV

PHONE 354-7259

[Signature]
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 May 23 19 79 by Arthur and Geraldine Watkins made to Kaiser Exploration and Mining Co. and recorded on the 6 day of July 1979, in Jackson County, Book 152 Page 705
 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

Address of Well Operator

Very truly yours,

(Sign Name)

[Signature]
Kaiser Exploration and Mining Company
P. O. Box 8
Ravenswood
West Virginia 26164

*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

47-035-1555

PERMIT NUMBER

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 Not known at this time _____ NAME Robert A. Pryce _____
 ADDRESS _____ ADDRESS P. O. Box 8, Ravenswood, WV _____
 TELEPHONE _____ TELEPHONE 273-5371 _____
 ESTIMATED DEPTH OF COMPLETED WELL: 4475' _____ 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			
7 - 5/8 10 3/4"	250'	250'	150 sks class A
8 - 5/8			
7	2100'	2100'	65 sks pozmix, 100 sks Class A
5 1/2			
4 1/2	4475'	4475'	225 sks 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

