



NOTE: Bearings and Distances from Location to Surrounding Wells calculated from Distances given on Off-Set Well Plots

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

Frank E. Barber L.L.#288

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS P.O. BOX 8, RAVENSWOOD, WEST VIRGINIA
 FARM OTHO SAYRE HEIRS
 MAP ACRES 110.84 TR. LEASE NO.
 WELL (FARM) NO. 1 SERIAL NO. KEM 39
 ELEVATION (SPIRIT LEVEL) 872.82
 QUADRANGLE COTTAGEVILLE 7 1/2 RAVENSWOOD 15
 COUNTY MASON DISTRICT UNION
 POINT OF PROVEN ELEVATION PT. ON KNOB N.E. OF LOG. EL. 917
 FILE NO. DRAWING NO.
 DATE DEC. 3, 1979 SCALE 1" = 1000 FT.

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
 WELL LOCATION MAP
 FILE NO. 053-0234

+ 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 6-6 Providence (359) 358 AUG 15 1980

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

W. VA. OIL & GAS
CONSERVATION COMMISSION

Quadrangle Cottageville

Permit No. MAS-234

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

Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm Otho Sayre, heirs Acres 122.57
Location (waters) Little Horse Cave Run
Well No. KEM #39 Elev. 874.84
District Union County Mason

The surface of tract is owned in fee by _____
Otho Sayre, heirs

Address #7 Maple Dr, Evans, WV

Mineral rights are owned by Same

Address Same

Drilling Commenced 9/11/80

Drilling Completed 9/18/80

Initial open flow 100 M cu. ft. -- bbls.

Final production -- cu. ft. per day -- bbls.

Well open 10 hrs. before test 1580 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"	259' (KB)	259' (KB)	150 sks Class A (to surface)
9 5/8			
8 5/8			
7	2596' (KB)	2596' (KB)	65 sks 50/50 pozmi.
5 1/2			100 sks Class A (1400' fillup)
4 1/2	4880' (KB)	4880' (KB)	225 sks 50/50 poz mix (2100' fillup)
3			
2			
Liners Used			

Well treatment details:

Attach copy of cementing record.

Perforated Oriskany Sandstone 4789'-4795' (KB), 4 holes/ft, 24 holes; hydrofractured zone w/ 26,000# 80/100 sand, 26,000# 20/40 sand, 200,000 SCF of nitrogen, 2357 HHP; well failed to produce; set permanent bridge plug at 4710' (KB); perforated Marcellus Shale from 4507'-4680' (KB) w/20 holes; nitrogen fractured zone w/870,000 SCF of product, 37,500 SCF/minute, 5 trucks, 3100 psig treatment pressure; shut in at 2700 psig; treated at 36 BPM water equivalent.

Coal was encountered at -- Feet -- Inches

Fresh water -- Feet -- Salt Water -- Feet --

Producing Sand Marcellus Shale Depth 4507' - 4680'

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Soil & Shale			0	168		
Sand			168	258		
Red Rock			258	511		
Shale			511	653		
Sand			643	666		
Shale			666	738		
Sand			738	762		
Shale			762	795		
Sand			795	894		
Shale			894	894		
Sand			984	1034		
Shale			1034	1092		
Sand			1092	1105		
Shale			1105	1166		
Sand			1166	1262		
Shale			1262	1328		
Salt Sands			1328	1520		
Shale			1520	1676		
Sand			1676	1750		
Shale			1750	1850		
Big Lime			1850	2000		
Shale			2000	2050		
Big Injun			2050	2074		
Shale			2074	2487		

*Tops from
KB = 885*

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	Remarks
Coffee Shale			2487	2508		
Berea Sand	60% - 885 LB		2508	2523		
Shale			2523	3685		
Brown Shale			3685	4144	Show/Gas	4066'
Shale	31A		4144	4478		
Marcellus Shale			4478	4690	Show/Gas	4537'
Onondaga Lime			4690	4768	Show/Gas	4715-30'
Oriskany Sand			4768	4804	Show/Gas	4785'
Helderberg Lime			4804	4901		
Total Depth			4901			

GR 100 - 885' LB

H 3677
 J 4140
 A 4276
 Rh 4453
 On 4690

4690
 2523

 2167

December 8, 1980

Z.A.P. -

Operations Manager

WELL OPERATOR'S REPORT

WELL TYPE: Oil / Gas X / Liquid Injection / Waste Disposal (If "Gas", Production X / Underground storage / Fees / Shallow

LOCATION: Elevation: 874.84 Watershed: Little Horse Cave Run District: Union County: Mason Township: Cottageville

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

RECEIVED

PERMITTED WORK: Drill / Convert / Drill deeper / Ream / Fracture or stimulate X Plug off old formation / Perforate new formation X Other physical change in well (specify) To perforate and fracture the Devonian Brown Shale

FEB 9 - 1982

OIL AND GAS DIVISION WV DEPARTMENT OF MINES

PERMIT ISSUED ON August 6, 1980 OIL & GAS INSPECTOR FOR THIS WORK: Name Kenneth Butcher (736-4885) Address RFD-1 Barboursville, WV 25504

GEOLOGICAL TARGET FORMATION: Devonian Brown Shale Depth feet Depth of completed well, 4710' (KB) feet Rotary / Cable Tools Water strata depth: Fresh, -- feet; salt, -- feet. Coal seam depths: NONE Is coal being mined in the area? NO STIMULATION Work was commenced July 23, 1981, and completed July 29, 1981

LOGGING AND TUBING PROGRAM: See previous record filed upon Marcellus Completion.

Table with columns: LOGGING OR TUBING TYPE, SPECIFICATIONS (Size, Grade, Weight per ft, New, Used), FOOTAGE INTERVALS (For drilling, Left in well), CEMENT FILL-UP OR SACKS (Cubic feet), PACKERS (Kinds, Sizes, Depths set, Perforations: Br. Shale, Top, Bottom)

FLOW DATA

Producing formation Marcellus Shale Pay zone depth 4507-4680 feet Gas: Initial open flow, 100 Mcf/d Oil: Initial open flow, 0 bbl/d Final open flow, N/A Mcf/d Final open flow, 0 bbl/d Time of open flow between initial and final tests, N/A hours Static rock pressure, 1580 psig (surface measurement) after N/A hours shut in

[If applicable due to multiple completion--] Second producing formation Brown Shale Union Pay zone depth 3935-4143 feet Gas: Initial open flow, 100 Mcf/d Oil: Initial open flow, 0 bbl/d Final open flow, N/A Mcf/d Final open flow, 0 bbl/d Time of open flow between initial and final tests, N/A hours Static rock pressure, 800 psig (surface measurement) after N/A hours shut in

935 523 412

OCT 12 1982

[08-78]

- DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.
- 7/23/81: Set retrievable bridge plug at 4191' (KB).
 - 7/28/81: Perforated Brown Shale from 3935'-4143' (KB) with 26 shots, using 2 1/8" ceramic charges.
 - 7/29/81: Foam fractured the Brown Shale interval using a 75 quality foam with 15,000# of 80/100 sand, 45,000# of 20/40 sand, 360 bbl of water and 710,000 SCF of nitrogen. Average treating pressure was 3150 psig at a controlled rate ranging from 11-15 BPM. Instantaneous shut-in pressure was 1200 psig.

WELL LOG

FORMATION	Color	Hard or Soft	Top Feet	Bottom Feet	Remarks Including indication of all free and salt water, coal, oil and gas
NOTE: See previous record filed upon completion of Marcellus Shale.					

(Attach separate sheets to complete as necessary)

KAISER EXPLORATION AND MINING COMPANY
Well Operator

By R. A. P.
Its Operation Manager

NOTE: Regulation 8.00(1) 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
MAY 30 1980
OIL & GAS DIVISION
DEPT. OF MINES

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

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

DATE May 27, 1980

Surface Owner Otho Sayre, heirs
Address #7, Maple Drive, Evans, WV
Mineral Owner Same as above
Address Same as above
Coal Owner Same as above
Address Same as above
Coal Operator None
Address None

Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm Otho Sayre, heirs Acres 122.57
Location (waters) Little Horse Cave Run
Well No. KEM #39 Elevation 874.84
District Union County Mason
Quadrangle Cottageville

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 4-6-81.

INSPECTOR
TO BE NOTIFIED Kenneth Butcher

ADDRESS RFD #1, Barboursville, WV 25504

PHONE 736-4885

Fred B. Smith
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
therein, (or as the case may be) under grant or lease dated September 12 19 75 by Otho Sayre,
heirs made to AED, Inc. and recorded on the 24th day of September
75, in Mason County, Book 40 Page 173

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
and 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
PHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND
ECONOMIC SURVEY
P. O. BOX 879
MORGANTOWN, WEST VIRGINIA 26505
733-304 - 292-6331

Very truly yours,

(Sign Name) R. A. Pryce
Well Operator

Address
of
Well Operator

R. A. Pryce
P. O. Box 8
Street
Ravenswood
City or Town
West Virginia 26164
State

BLANKET BOND

*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.

James

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 26164 _____
 TELEPHONE _____ TELEPHONE 273-5371 _____
 ESTIMATED DEPTH OF COMPLETED WELL: 4700 _____ 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	Cement to surface
8 - 5/8			
7	2500	2500	165 sks = 570 ft.
5 1/2			
4 1/2	4700	4700	225 sks = 1500 ft.
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