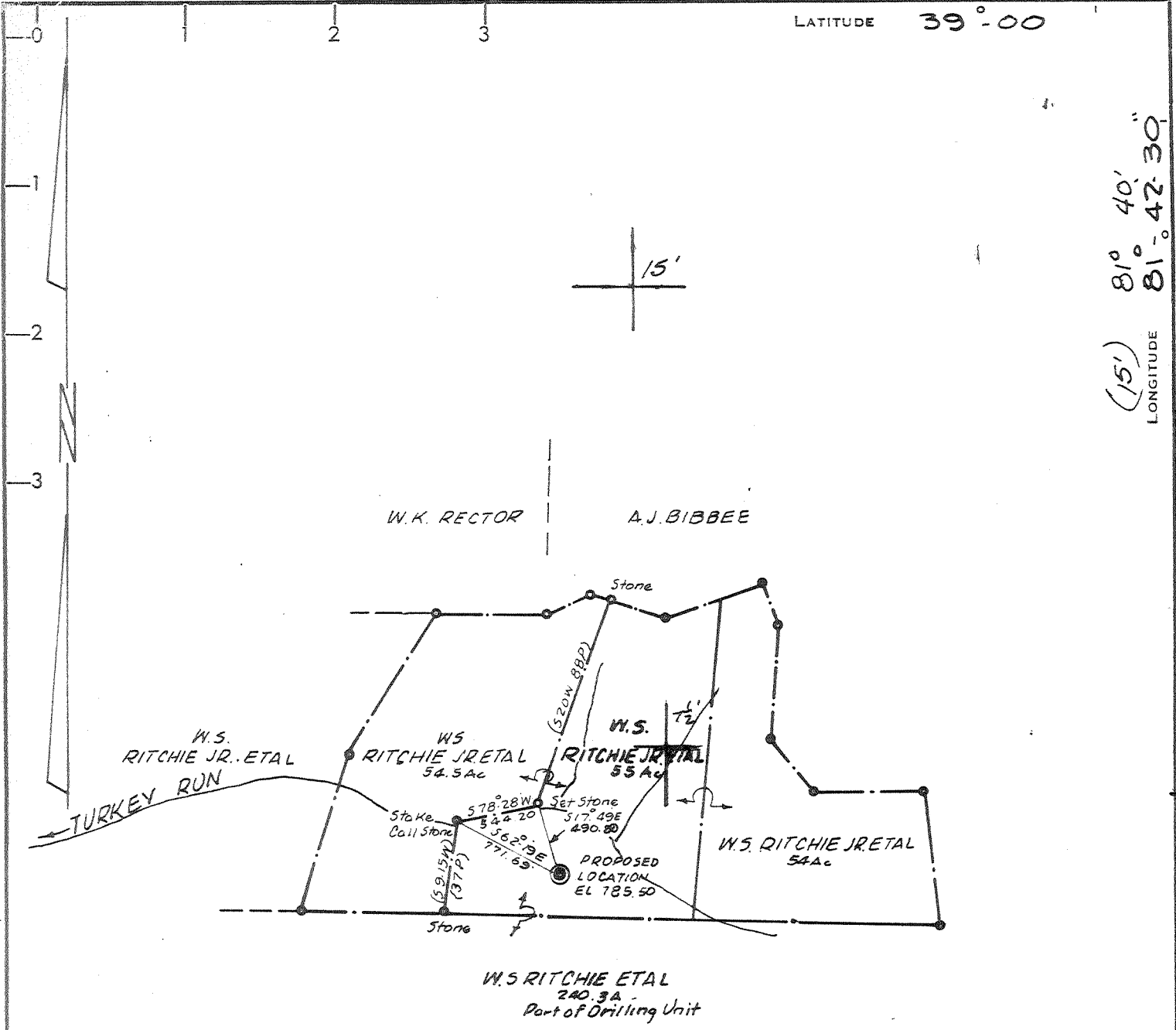


W y. 4-80

LATITUDE 39° 00'

(15') LONGITUDE 81° 40' 81° 42' 30"



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

F.D. Barber LS #289

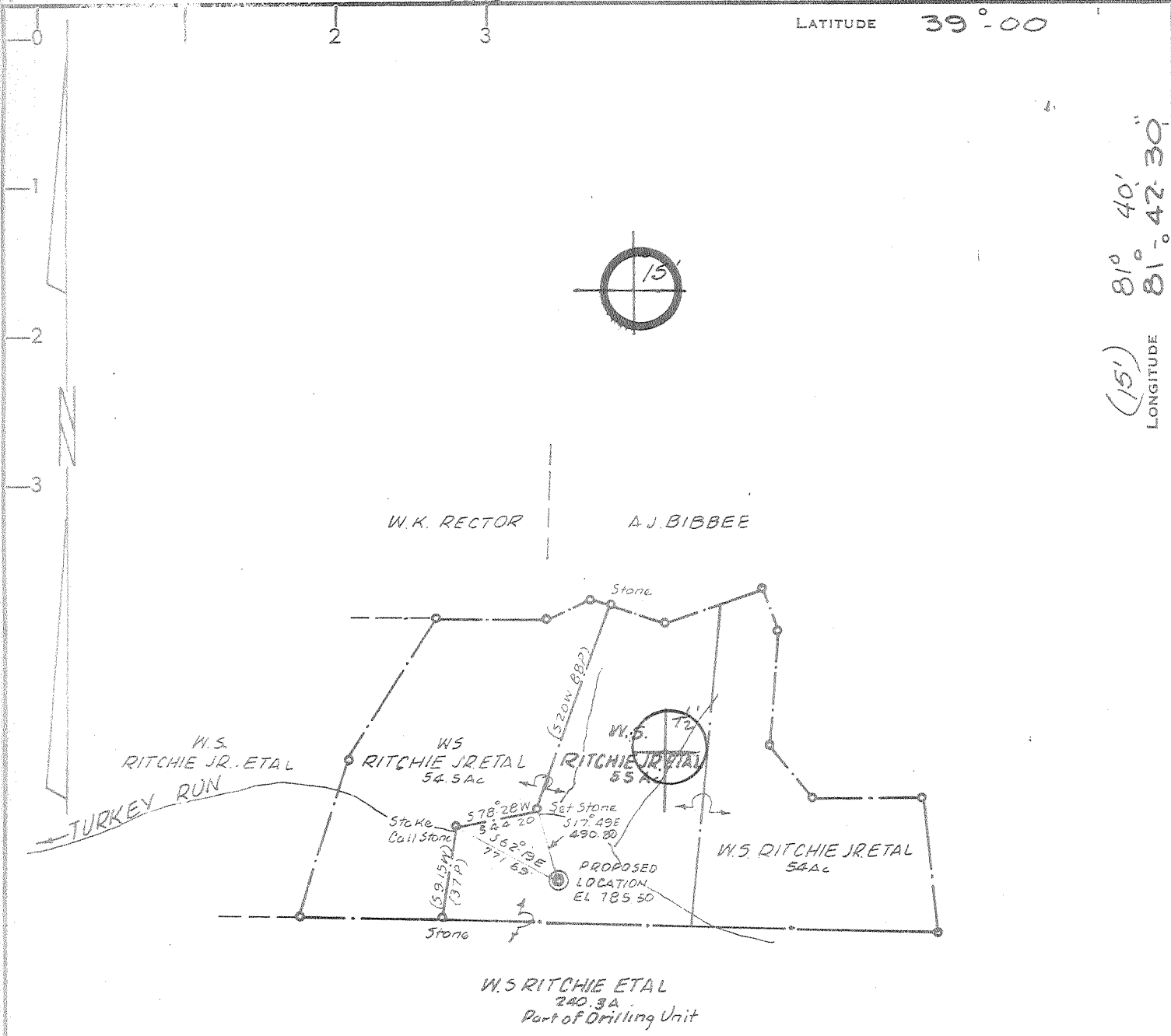
COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO. 8 RAVENSWOOD, W.VA.
 FARM W.S. RITCHIE JR. ETAL
 MAP _____ ACRES 55 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 48
 ELEVATION (SPIRIT LEVEL) 785.50
 QUADRANGLE SANDYVILLE 7 1/2 RIPLEY 15'
 COUNTY JACKSON DISTRICT RAVENSWOOD
 POINT OF PROVEN ELEVATION Pt. on Knob El. 1076
 FILE NO. _____ DRAWING NO. _____
 DATE AUG 13, 1980 SCALE 1" = 1000 FT.

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
 WELL LOCATION MAP
035-1532-PP-Frac.
 FILE NO. _____

+ 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 OWWO - 7B Drisk. produce shale 5600 - NEWBURG-LOCKPORT

150 9 4-80



(15') 81° 40' 81° 42' 30"
LONGITUDE

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

F.D. Barker LS #289

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

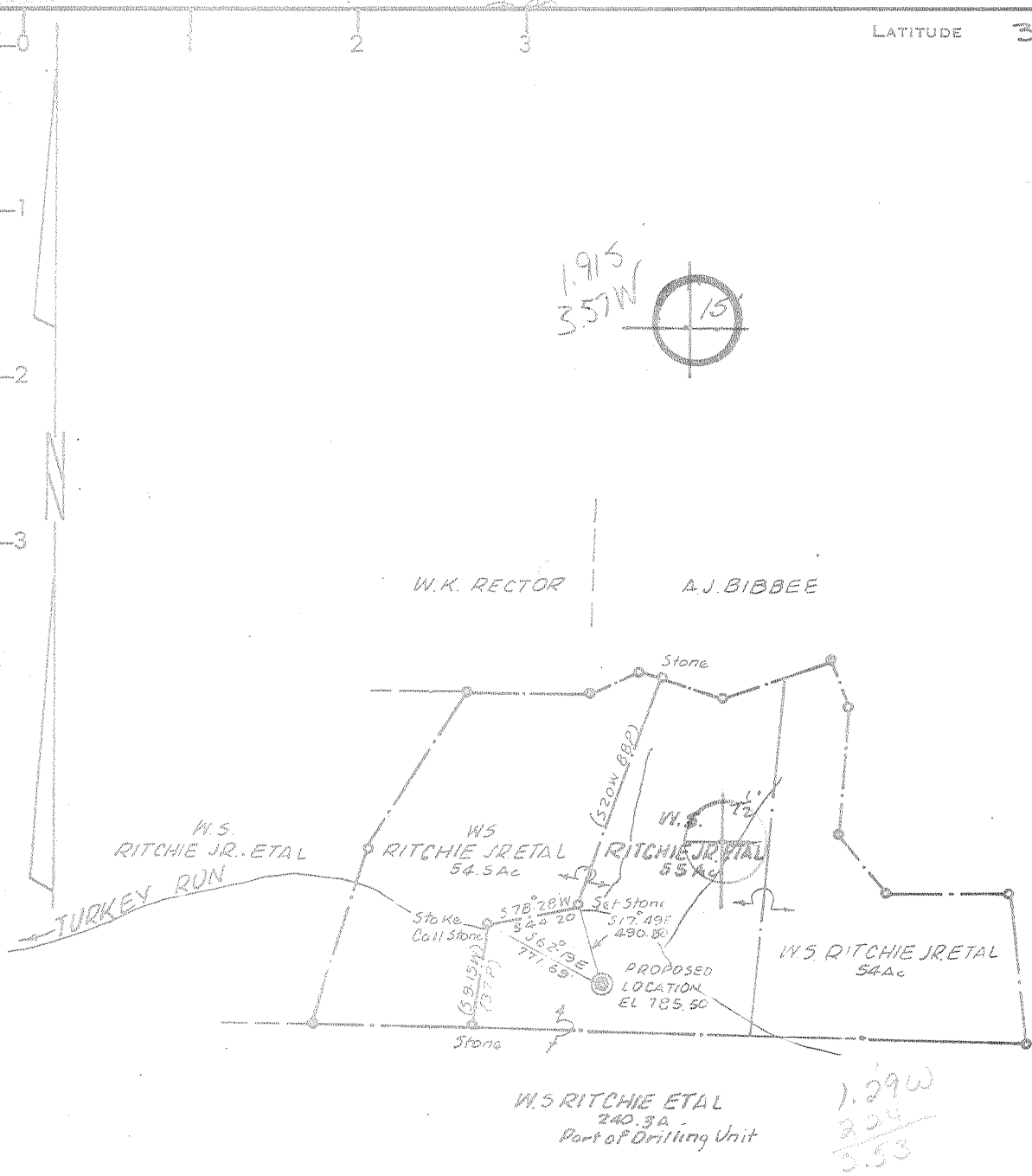
COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS PO. 8 RAVENSWOOD, W.VA.
 FARM W.S. RITCHIE JR. ETAL
 MAP _____ ACRES 55 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 48
 ELEVATION (SPIRIT LEVEL) 785.50
 QUADRANGLE SANDYVILLE 7 1/2 RIPLEY 15' NW
 COUNTY JACKSON DISTRICT RAVENSWOOD
 POINT OF PROVEN ELEVATION Pt. on Knob El. 1076
 FILE NO. _____ DRAWING NO. _____
 DATE AUG 13, 1980 SCALE 1" = 1000 FT.

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
WELL LOCATION MAP
035-1532-PP
 FILE NO. _____

+ 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.

WV - PB Onisk

5600 - NEWBURG-LOCKPORT



- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

CERTIFICATE

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Minimum degree of accuracy is one part in 200

Signed F D Barber LS# 289

COMPANY KAISER EXPLORATION & MINING COMPANY
 ADDRESS P.O. 8 RAVENSWOOD, W.VA.
 FARM W.S. RITCHIE JR. ETAL
 MAP _____ ACRES 55 LEASE NO. _____
 WELL (FARM) NO. 1 SERIAL NO. KEM 48
 ELEVATION (SPIRIT LEVEL) 785.50
 QUADRANGLE SANDYVILLE 7 1/2 RIPLEY 15' NW
 COUNTY JACKSON DISTRICT RAVENSWOOD
 POINT OF PROVEN ELEVATION Pl. on Knob El. 1076
 FILE NO. _____ DRAWING NO. _____
 DATE AUG 13, 1980 SCALE 1" = 1000 FT.

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
WELL LOCATION MAP
035-1532
 FILE NO. _____

+ DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. SCALE 1 TO ^{24,000} 62,500. LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.
 - DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

5-5 Silvertown (88)

3600 - NEWBURG - LOCKPORT SEP 25 1980

(Obverse)
7-83



1) Date: April 24, 1983
 2) Operator's Well No. KEM #48
 3) API Well No. 47 State 035 County 1532 Permit Frac

RECEIVED
 MAY 21 1985

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

- OIL & GAS DIVISION
 DEPT. OF MINES
- TYPE: A Oil Gas
 B Production Underground storage Deep Shallow
- 5) LOCATION: Elevation: 785' Watershed: Turkey Run
 District: Ravenswood County: Jackson Quadrangle: Sandyville
- 6) WELL OPERATOR Kaiser Exploration and Mining Co DESIGNATED AGENT R. A. Pryce
 Address Rt. 2, P. O. Box 8 Address Same
Ravenswood, WV 26164 25330
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name: Jerry Tephabock
 Address Rt. 1
Ripley, WV 25271
- 9) DRILLING CONTRACTOR: Name Unknown
 Address _____
- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate /
 Plug off old formation / Perforate new formation /
 Other physical change in well (specify) Treat Berea
- 11) GEOLOGICAL TARGET FORMATION, Berea Sandstone
- 12) Estimated depth of completed well, _____ feet
- 13) Approximate strata depths: Fresh, _____ feet; salt, _____ feet.
- 14) Approximate coal seam depths: none Is coal being mined in the area? Yes / No

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		
Conductor									Kinds
Fresh water	10 3/4"			X		223'	223'	150 sks class A	
Coal									
Intermediate	7"			X		1943'	1943'	260 sks 50/50 pozmix 100 sks class A	Sizes
Production	4 1/2"			X		5232'	5232'	150 sks 50/50 pozmix 100 sks class A	Depths
Tubing									
Liners									Perforations: Top Bottom

OFFICE USE ONLY
 DRILLING PERMIT

Permit number 47-035-1532-Frac Date May 22 19 85

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 May 22, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	<input checked="" type="checkbox"/> Agent:	Plat:	Casing	Fee
<u>86</u>	<u>ALB</u>	<u>MAU MAU</u>		<u>968804</u>

Margaret J. Hesse
 Administrator, Office of Oil and Gas

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

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.

File

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division

WELL RECORD

Quadrangle Sandyville

Permit No. JAC-1532

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

Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm W. S. Ritchie, Jr. Acres 55
Location (waters) Turkey Run
Well No. KEM #48 Elev. 785.50
District Ravenswood County Jackson
The surface of tract is owned in fee by _____
W. S. Ritchie, Jr., et al
Address 300 Sand Street, Ravenswood, WV
Mineral rights are owned by Same
Address Same
Drilling Commenced 9/29/80
Drilling Completed 10/07/80 ✓
Initial open flow 0 cu. ft. -- bbls.
Final production 75 M cu. ft. per day -- bbls.
Well open 10 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"	223' (KB)	223' (KB)	150 sks class A (to surface)
9 5/8	1943' (KB)	1943' (KB)	260 sks 50/50 poz mix, 100 sks Class (1100' fillup)
8 5/8			150 sks 50/50 poz mix, 100 sk Class (2000' fillup)
7	5232' (KB)	5232' (KB)	
5 1/2			
4 1/2			
3			
2		4541' (KB)	
Liners Used			

Well treatment details:

Attach copy of cementing record.

Drilled hole to 5625' (KB), through Lockport Dolomite; hole was dry with no natural show; set 7" permanent bridge plug at 4620' (KB); dumped 15' of calseal on plug; perforated Oriskany Sandstone at 4544'-4550' (KB), 4 holes/ft, 24 holes, 3 1/2" glass jets, .50" diameter; fractured Oriskany w/15,000# 80/100 sand, 45,000# 20/40 sand, 170,000 SCF of nitrogen, 1080 bbl of water; rate of treatment averaged 27 BPM at 3800 psig; formation broke down at 2500 psig; maximum pressure was 4000 psig; instantaneous shut in pressure was 3700 psig.

Coal was encountered at -- Feet -- Inches
Fresh water -- Feet -- Salt Water -- Feet --
Producing Sand Oriskany Sandstone Depth 4544'-4550' (KB)

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Soil			0	10		
Siltstone			10	132		
Shale			132	211		
Siltstone			211	290		
Sand			290	334		
Shale			334	448		
Sand			448	496		
Shale			496	527		
Sand			527	590		
Shale			590	649		
Sand			649	706		
Shale			706	1036		
Sand			1036	1056		
Shale			1056	1100		
Sand			1100	1174		
Shale			1174	1234		
Sand			1234	1264		
Shale			1264	1312		
Sand			1312	1330		
Shale			1330	1357		
Sand			1357	1381		
Shale			1381	1682		
? Salt Sand ?			1682	1774		

(over)

Formation	Color	Thickness ft	Top Feet	Bottom Feet	Oil, Gas or Water
Shale			1774	2197	
Coffee Shale			2197	2220	
Berea Sand			2220	2223	
Shale			2223	3364	
Brown Shale			3364	3867	Show/Gas 3740-60'
Shale			3867	4150	
Marcellus			4150	4442	
Onondaga Lime			4442	4530	
Oriskany Sand			4530	4563	Show/Gas 4545'
Helderberg Lime			4563	4596	
Chert & Dolomite			4596	5233	Show/Gas 4730-60', 5195
Newburg Sand (Williamsport)			5233	5247	
Bloomsburg			5247	5362	
Lockport Dolomite			5362	5534	
Keefer Sand			5534	5562	
<u>Rose Hill Shale</u>			5562	<u>5625</u>	
Total Depth			5625		

December 8,

30

Wall A. P.
Operations Manager



State of West Virginia
Department of Mines
Oil and Gas Division

Date June 25, 1985
Operator's
Well No. KEM 48
Farm Ritchie
API No. 47 - 035 - 1532

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: 785' Watershed Turkey Run
District: Ravenswood County Jackson Quadrangle Ravenswood

COMPANY Kaiser Exploration and Mining Co.

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

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER W. S. Ritchie, Jr.

ADDRESS 300 Sand Street, Ravenswood, WV

MINERAL RIGHTS OWNER Same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Homer

Daugherty ADDRESS Linden Rt, Box 3-A
Looneyville, WV

PERMIT ISSUED _____

DRILLING COMMENCED 9/29/80

DRILLING COMPLETED 10/7/80

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.			
<u>13 3/8"</u> <u>13-10"</u>		<u>223'</u> KB	<u>150 sks</u> class A
<u>9 5/8</u>		<u>1943'</u> KB	<u>260 sks</u> 50/50 poz <u>100 sks</u> class A
<u>8 5/8</u>			
<u>7</u>		<u>5232'</u> KB	<u>150 sks</u> 50/50 poz <u>100 SKS</u> class A
<u>5 1/2</u>			
<u>4 1/2</u>			
<u>3</u>			
<u>2</u>			
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Depth 4544-4550 feet

Depth of completed well 4541 feet Rotary X / Cable Tools _____

Water strata depth: Fresh N/A feet; Salt _____ feet

Coal seam depths: NONE Is coal being mined in the area? NO
Drilled on fluid not known.

OPEN FLOW DATA

Producing formation Huron Devonian Brown Shale Pay zone depth 3665-3861 feet

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

Final open flow 130 Mcf/d Final open flow -- Bbl/d

Time of open flow between initial and final tests -- hours

Static rock pressure 800 psig (surface measurement) after -- hours shut in
(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2214-2218 feet

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

Final open flow 306 Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 425 psig (surface measurement) after 24 hours shut in

(Continue on reverse side)

(REVISED)

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

- 8/19/82 Gearhart set permanent bridge plug @ 3935' KB, Perf Brown Shale @ 3665' - 3861' KB, 25 holes, .39" diameter.
- 10/1/82 Frac Brown Shale, 60,000# 20/40 sand, avg. treating pressure: 1850 psig, ISIP: 1050 psig, total fluid: 433 bbl, total nitrogen: 860,000 scf.
- 6/18/85 Young's perf Berea @ 2214' - 2218', 16 holes, .39" dia. Set Alpha frac plug @ 2285'.
- 6/19/85 BJ Hughes to foam frac Berea, treating pressure: 1900 psig, sand: 30,000# 20/40, total N₂: 512,500 scf, total sand laden fluid: 175 bbl, total fluid: 269 bbl, ISIP: 1700 psig, 5 min SIP: 1700 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
SAME AS PREVIOUSLY SUBMITTED			

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By: E. A. P.

Date: June 25, 1985

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 all encountered in the drilling of a well."



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED

SEP - 2 1980

Oil and Gas Division

OIL & GAS DIVISION
DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

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

Surface Owner W. S. Ritchie, Jr. et al
Address 300 Sand Street, Ravenswood, WV 26164
Mineral Owner W. S. Ritchie, Jr. et al
Address 300 Sand Street, Ravenswood, WV 26164
Coal Owner Same as above
Address Same as above
Coal Operator None
Address _____

DATE August 25, 1980
Company Kaiser Exploration and Mining Company
Address P. O. Box 8, Ravenswood, WV 26164
Farm W. S. Ritchie, Jr. Acres 55
Location (waters) Turkey Run
Well No. KEM #48 Elevation 785.50
District Ravenswood County Jackson
Quadrangle Sandyville

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
for drilling. This permit shall expire if

operations have not commenced by 5-9-81

[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
therein, (or as the case may be) under grant or lease dated June 13th 1980 by W. S. Ritchie
et al made to Kaiser Exploration and Mining Co. and recorded on the 28th day of August
80 in Jackson County, Book 156 Page 762

NEW WELL DRILL DEEPER REDRILL FRACTURE OR STIMULATE
OIL AND GAS WELL ORIGINALLY DRILLED BEFORE _____

These leases have been recorded, but will not be indexed until next week. We will
forward this information as soon as we receive it.

Denese Carney
Director, DEPT. OF MINES

_____ 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
304 - 292-6331

Very truly yours

(Sign Name) R. A. Pryce
Well Operator

R. A. Pryce
P. O. Box 8
Street:

Address of Well Operator Ravenswood
City or Town

West Virginia 26164
State

BLANKET BOND

47-035-1532

J. P. HUBBARD

[Signature]

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

PROPOSED WORK ORDER TO 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: 5600' _____ ROTARY CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: Newburg - Lockport _____
 TYPE OF WELL: OIL _____ GAS 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	250'	250'	Cement back to surface
9 - 5/8	2250'	2250'	250 sks = 1200'
8 - 5/8			
7	5200'	5200'	200 sks = 2200'
5 1/2			
4 1/2			
3			Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS _____ FEET _____ SALT WATER _____ FEET _____
 APPROXIMATE COAL DEPTHS None _____
 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