

FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION PREVIOUS LOCATION KEM 59

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) Donnus L. Ashier
 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 AUGUST 18 1981
 OPERATOR'S WELL NO. KEM 115
 API WELL NO. 47-035-1599
 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 ___ SHALLOW X
 LOCATION: ELEVATION 817 WATER SHED PARCHMENT CREEK
 DISTRICT RIPLY COUNTY JACKSON
 QUADRANGLE RIPLY 415' SW
 SURFACE OWNER F.M. SAYRE HEIRS ACREAGE 400
 OIL & GAS ROYALTY OWNER F.M. SAYRE HEIRS LEASE ACREAGE 400
 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 SHALE ESTIMATED DEPTH 4900'
 WELL OPERATOR KAISER EXPLORATION & MINING CO. DESIGNATED AGENT KAISER EXPLORATION & MINING COMPANY (192)
 ADDRESS PO BOX B, RAVENSWOOD, WEST VIRGINIA 26164 ADDRESS PO BOX B, RAVENSWOOD, WEST VIRGINIA 26164
6-6 Elk-Poca (Sissonville) 192 DEEP WELL

RECEIVED

IV-35
(Rev 8-81)

NOV 17 1984



OIL & GAS DIVISION
DEPT. OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

REVISED

Date 12/20/84
Operator's Well No. KEM 115
Farm F. Sayre
API No. 47 - 035 - 1598

035 - 1598-FRAC
1599

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: 817 ^{827K} G Watershed Parchment Creek
District: Ripley County Jackson Quadrangle Ripley

COMPANY Kaiser Exploration and Mining Company

ADDRESS P. O. Box 8 Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER F. M. Sayre, Heirs

ADDRESS P. O. Box 1777, Beckley, WV 25801

MINERAL RIGHTS OWNER Same

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Richard

Morris ADDRESS P. O. Box 372 Grantsville, WV

PERMIT ISSUED 5-4-84

DRILLING COMMENCED 9/13/81 05/25/84

DRILLING COMPLETED 9/20/81 06/12/84

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.			
13-10 ^{3/4}	249' KB	249	150 sx class A
9 5/8			
8 5/8			
7	2396	2396	65 sx 50/50 poz 100 sx class A
5 1/2			
4 1/2		4869' KB	225 sx 50/50 poz
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shales Depth 4900 feet

Depth of completed well 4881 feet Rotary X / Cable Tools

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

Coal seam depths: N/A Is coal being mined in the area? NO
Drilled on fluid not known.

OPEN FLOW DATA

Producing formation Devonian Brown Shale ^{orig zone comp.} Pay zone depth 4019-4238 feet

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

Final open flow 200 ¹¹⁷³ Mcf/d Final open flow -- Bbl/d

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

Static rock pressure 950 psig (surface measurement) after 12 hours shut in
(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2499-2506 feet

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

Final open flow 978 Mcf/d Oil: Final open flow -- Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 900 psig (surface measurement) after 48 hours shut in

(Continue on reverse side)

JAN 28 1985

new zone completed

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

- 5/25/84 Young's to perf Bereawith 21 (.40" dia) shots from 2499' to 2506'.
- 6/05/84 NOWSCO and BJ Hughes to foam frac Berea. Breakdown at 2550 psig, treating pressure at 2400 psig, used #60,000 of 20/40 sand, total nitrogen: 650 mscf, total fluid: 281 bbls, ISIP: 2300 psig, 5 min SIP: 2100 psig.
- 6/12/84 Gearhart to set permanent plug above Marcellus @ 4482'.

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					

(Attach separate sheets as necessary)

Kaiser Exploration and Mining Company

Well Operator

By:

R.W. Durst

Date: 12/20/84

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."

09-73

WELL OPERATOR'S REPORT

Well No. KEM-115
- 035 1599

WELL TYPE: Oil / Gas / Little Injection / Water Disposal
(If "Gas", production / Waterground storage /
LOCATION: Elevation: 8176-8274 Waterhole: Parchment Creek
District: Ripley County: Jackson Municipality: Ripley

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

PERMITTED WORK: Drill / Convert / Drill deeper / Re-drill / Fracture or stimulate
Plug off old formation / Perforate new formation / **RECEIVED**
Other physical change in well (specify) _____ FEB 9 - 1982

PERMIT ISSUED ON August 20, 19 81 OIL & GAS INSPECTOR FOR THIS WORK: **OIL AND GAS DIVISION WV DEPARTMENT OF MINES**
(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: Devonian Shales Depth 4900 feet
Depth of completed well, 4881 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 September 13, 19 81, and completed September 20, 19 81

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 NONE
Fresh water	10 3/4	H	32.75	X		249 (KB)	249 (KB)	150sx Class A	
Coal									Sizes ---
Intermediate	7	K	20	X		2396 (KB)	2396 (KB)	65 sx 50/50 pozmix 100sx Class A	
Production	4 1/2	K	10.50	X			4869 (KB)	255sx 50/50 pozmix, net	
Tubing									Perforations:
Liners									
									4633 4851 (KB)
									4019 4238 (KB)

OPEN FLOW DATA

Producing formation Angola + Rhinestreet
Marcellus Shale Pay zone depth 4633-4851 feet
Gas: Initial open flow, --- Mcf/d Oil: Initial open flow, --- bbl/d
Final open flow, 75 Mcf/d Final open flow, --- bbl/d
Time of open flow between initial and final tests, --- hours
Static rock pressure, N/A psig (surface measurement) after --- hours shut in
[If applicable due to multiple completion--]
Second producing formation Lower Huron
Devonian Brown Shale Pay zone depth 4019-4238 feet
Gas: Initial open flow, --- Mcf/d Oil: Initial open flow, --- bbl/d
Final open flow, 200 Mcf/d Final open flow, --- bbl/d
Time of open flow between initial and final tests, --- hours
Static rock pressure, 950 psig (surface measurement) after 12 hours shut in
275 MCF FOP
OCT 12 1982

8-75;

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

- 9/23/81: Perf. Marcellus Shale 4633'-4851'(KB); 25 holes; .50" diameter; 3 1/2" glass jets on strip.
- 9/24/81: Nitrogen fractured Marcellus w/ 8 B. J. Hughes nitrogen trucks, 8,000 SCF/min/truck 64,000 SCF/min rate; breakdown was 2900 psig; avg. treatment pressure was 2750 psig instantaneous shut in pressure was 1950 psig; used 1,376,000 SCF of nitrogen.
- 10/5/81: Perf. Brown Shale interval 4019-4238(KB); 26 holes; .50" diameter; 3 1/2" glass jets on strip.
- 10/8/81: Foam fractured Brown Shale interval 2/ 15,000# 80/100 sand; 45,000# 20/40 sand; 500 gal. 15% HCL acid; 223 bbl sand laden fluid; 328 bbl. total fluid; 600,000 SCF of nitrogen (30,000 SCF/min rate); at an avg. rate of 12 BPM, and an avg. pressure of 2550 psig; breakdown was 800 psig; maximum pressure was 2600 psig; instantaneous shut in pressure was 900 psig.

WELL LOG

FORMATION	Color	Hard or Soft	Top Feet	Bottom Feet	Remarks Including indication of all fre and salt water, coal, oil and
Soil & Shale			0	102	
Sand			102	242	
Shale & Sand			242	647	
Sand			647	700	
Shale			700	752	
Sand			752	766	
Shale			766	784	
Sand			784	823	
Shale & Sand			823	1116	
Sand			1116	1202	
Shale			1202	1252	
Sand			1252	1345	
Shale			1345	1392	
Sand			1392	1402	
Shale			1402	1505	
Sand			1505	1534	
Shale & Sand			1534	1694	
Salt Sand			1694	1867	
Big Lime (Greenbrier)			1867	1980	
Shale			1980	2024	
Big Injun Sand			2024	2079	
Shale			2079	2468	
Coffee Shale (Sunbury)			2468	2489	
Berea Sand			2489	2496	
Shale			2496	3712	
Brown Shale			3712	4239	Gas show 3542, 3691
Shale			4239	4603	Gas show 3726, 3846, 4107,
Marcellus Shale			4603	4889	4113, 4206
Total Depth			4889		

0707 @ 4876 - UTL

(Attach separate sheets to complete as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

By R. A. P.

General Manager

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

RECEIVED

AUG 20 1981

Oil and Gas Division

OIL & GAS DIVISION.
DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

THE DEPARTMENT OF MINES,
Charleston, W. Va.

DATE August 18, 1981

Face Owner F. M. Sayre, heirs

Company Kaiser Exploration and Mining Co.

Address P. O. Box 1777, Beckley, WV 25801

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

General Owner Same

Farm F. M. Sayre #4 Acres 400

Location (waters) Parchment Creek

Well No. KEM #115 Elevation 817'

Local Owner Same

District Ripley County Jackson

Operator None

Quadrangle Ripley

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.

INSPECTOR

drilling. This permit shall expire if operations have not commenced by 4-25-82

TO BE NOTIFIED Richard Morris

Deputy Director - Oil & Gas Division

ADDRESS P. O. Box 372, Grantsville, WV

PHONE 354-7259

CITIZEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee thereto, (or as the case may be) under grant or lease dated January 21 1980 by F. M. Sayre, heirs made to Kaiser Exploration and Mining Company and recorded on the 25th day of March in Jackson County, Book 155 Page 346

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 owners at their above shown respective address _____ day _____ before, or on the _____ day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

Very truly yours,

(Sign Name) Roll a P

Well Operator

Kaiser Exploration and Mining Company

P. O. Box 8

Street

Address of

Well Operator

Ravenswood,

City or Town

West Virginia 26164

State

PLEASE SUBMIT COPIES OF ALL PHYSICAL LOGS DIRECTLY TO:

VIRGINIA GEOLOGICAL AND MINING SURVEY
BOX 879
MARTINSBURG, WEST VIRGINIA 26105
PHONE - 292-6331

SECTION 3 If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of such plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit certifying 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.

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 26164
 TELEPHONE 273-5371 TELEPHONE 273-5371
 ESTIMATED DEPTH OF COMPLETED WELL: 4900' ROTARY X CABLE TOOLS
 PROPOSED GEOLOGICAL FORMATION: Shale
 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	2400'	2400'	65 sks 50/50 pozmix
5 1/2			100 sks class A
4 1/2	4900'	4900'	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? 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



1) Date: April 5, 19 84
 2) Operator's Well No. KEM #115
 3) API Well No. 47 - 035 - 1598-FRAC
 State County Permit

1599

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES, OIL AND GAS DIVISION

APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil / Gas /
 B (If "Gas", Production / Underground storage / Deep / Shallow /)
- 5) LOCATION: Elevation: 817' Watershed: Parchment Creek
 District: Ripley County: Jackson Quadrangle: Ripley
- 6) WELL OPERATOR KEMAS Kaiser Exp & Mining Co. 7) DESIGNATED AGENT R. A. Pryce
 Address P. O. Box 8 Address Same
Ravenswood, WV 26164
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Jerry Tephabock
 Address Rt. 1, Box 101A
Ripley, WV 25271
- 9) DRILLING CONTRACTOR: Name Clint Hurt
 Address P. O. Box 388
Elkview, WV
- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate OIL & GAS DIVISION
 Plug off old formation / Perforate new formation DEPT. OF MINES
 Other physical change in well (specify) Treat Berea; isolate Berea, shale w/packer and tubing
- 11) GEOLOGICAL TARGET FORMATION, Berea Sandstone
- 12) Estimated depth of completed well, 4889' (KB) feet
- 13) Approximate trata depths: Fresh, 160 feet; salt, 600 feet.
- 14) Approximate coal seam depths: None Is coal being mined in the area? Yes / No

RECEIVED
APR 18 1984

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 None
Fresh water	10 3/4"	H	32.75	X		249(KB)	249(KB)	150 sks class A	Sizes
Coal								65 sks pozmix	Lengths set
Intermediate	7"	K	20	X		2396'(KB)	2396'(KB)	100 sks class A	
Production	4 1/2"	K	10.5	X			4869'(KB)	255 sks pozmix	
Tubing									
Liners									Perforations:
									Top Bottom
									4633 4851(KB)
									4109 4238(KB)

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-035-1598-FRAC

Date May 4, 1984

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 4, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

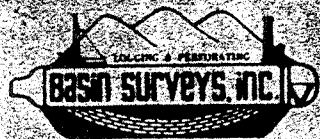
Bond: <u>966-986</u>	Agent: <input checked="" type="checkbox"/>	Plat: <u>MW</u>	Casing: <u>MW</u>	Fee: <u>966-986</u>
----------------------	--	-----------------	-------------------	---------------------

T. H. ...
Administrator, Office of Oil and Gas

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

File

47-035-01599



Basin Surveys, Inc

COMPENSATED DENSITY LOG

FILING NO. 47-035-1599 FIELD COPY	COMPANY <u>KAISER EXPLORATION & MINING Co.</u>
	WELL <u>F.M. SAYRE #4 KEM 115</u>
	FIELD <u>RIPLEY DISTRICT</u>
	COUNTY <u>RIPLEY QUAD.</u> STATE <u>WV</u>
LOCATION: <u>PARCHMENT CREEK</u> <u>RIPLEY QUAD.</u>	OTHER SERVICES: <u>NONE</u>
SEC. _____ TWP. _____ RGE. _____	

Permanent Datum: <u>GROUND LEVEL</u> ; Elev.: <u>817'</u>	Elev.: K.B. <u>827'</u>
Log Measured From <u>KELLY</u> , <u>10</u> Ft. Above Perm. Datum	D.F. <u>825'</u>
Drilling Measured From <u>KELLY</u>	G.L. <u>817'</u>

Date	20 SEPT 81	20 SEPT 81	20 SEPT 81
Run No.	TEMP.	C-GR-CDL	USGD
Type Log	ONE	ONE	TWO
Depth-Driller	4881'	4881'	4881'
Depth-Logger	4889'	4889'	4889'
Bottom logged interval	4889'	4884'	4889'
Top logged interval	2390'	2410 (GR-SURFACE)	2400'
Type fluid in hole	DRY	DRY	DRY
Salinity, PPM Cl.	-	-	-
Density	-	-	-
Level	-	-	-
Max rec. temp., deg F.	-	-	-
Operating rig time	7 HRS.		
Recorded by	R. CRITES		
Witnessed by	MR. MATHEWS		

Run No.	Bore-Hole Record				Casing Record			
	Bit	From	To	Size	Wgt.	From	To	
ONE	6.25"	2410'	4889'	7.0	-	SURFACE	2410'	

THIS HEADING AND LOG CONFORMS TO API RP 33

FOLD HERE

1443
827
1443

EA

2400

BOTTOM 7.0" CSG

1663

Berea

2500

ZK 12 = 24
ZX 10 = 20
ZX B = 16
ZX 10 = 20

80 0.9

