



15' 1000 LOC



1.59 S
0.71 W

38 48 35
81 50 50

15' Longitude 81° 50'
7.5' 1000 - 81° 50'

- New Location
- Drill Deeper
- Abandonment

Minimum Error of Closure 1 IN 200
Source of Elevation USGS Elev. 623' Road Intersection
EAST OF Well LOC.

"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."

Company KAISER EXPL. & MINING Co.

Address Box 98 RAVENSWOOD, WV

Farm ALLEN ANKRUM

Tract _____ Acres 73^{CALCULATED} Lease No. 3030

Well (Farm) No. DEK 27 Serial No. _____

Elevation (Spirit Level) 695' 0

Quadrangle 7.5' COTTAGEVILLE
15' RAVENSWOOD SC

County JACKSON District UNION

Engineer N.L. Sexton

Engineer's Registration No. 1832

File No. _____ Drawing No. _____

Date 3-26-77 Scale 1" = 400'

STATE OF WEST VIRGINIA

DEPARTMENT OF MINES

OIL AND GAS DIVISION
CHARLESTON

WELL LOCATION MAP

FILE NO. JAC-1404

035

+ 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.

47-035

REVISED

Operator's
Well No. DEK - 27

WELL OPERATOR'S REPORT
OF

API Well No. 47 - 035 - 1404
County Permit

[08-78,

DRILLING, REPAIRING AND/OR STIMULATING, OR OTHER CHANGE

WELL TYPE: Oil / Gas / Liquid Injection / Waste Disposal

(If "Gas", Production / Underground storage / Deep / Shallow

LOCATION: Elevation: 695 Watershed: Left fork of Cow Creek

District: Union County: Jackson Distance: Cottageville (7.5')

WELL OPERATOR Kaiser Exploration and Mining Co. DESIGNATED AGENT SAME

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

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PERMITTED WORK: Drill / Convert / Drill deeper / Re-drill / Fracture or stimulate

Plug off old formation / Perforate new formation FEB 9 - 1982

Other physical change in well (specify) _____ OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

PERMIT ISSUED ON _____, 19____

OIL & GAS INSPECTOR FOR THIS WORK:

(IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED

Name Richard Morris (354-7259)

Address P. O. Box 372

Grantsville, WV

GEOLOGICAL TARGET FORMATION: Plugged: Oriskany, Frac'd: Br. Shale ^{old} Depth 4546 (KB) Feet

NEW Depth of completed well, 4369 (KB) feet Rotary / Cable Tools

Water strata depth: Fresh, _____ feet; salt, _____ feet.

Coal seam depths: NONE Is coal being mined in the area? NO

PLUG BACK Work was commenced October 4, 1978, and completed October 6, 1978

CASING AND TUBING PROGRAM: See previous well record filed upon completion of Oriskany.

CASING OR TUBING TYPE	SPECIFICATIONS				FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling		
Conductor								Kinds
Fresh water								
Coal								Sizes
Intermediate								
Production								Depth set
Tubing								
Liners								Perforations: Br. Shale 3655 _{Top} 3766 _{Bottom}

OPEN FLOW DATA

Producing formation Devonian Oriskany Sandstone OLD Pay zone depth 4433' - 4444' (KB)

Gas: Initial open flow, Trace Mcf/d Oil: Initial open flow, NONE Bbl/d

Final open flow, 50 Mcf/d Final open flow, NONE Bbl/d

Time of open flow between initial and final tests, N/A hours

Static rock pressure, 980 psig (surface measurement) after N/A hours shut in.

[If applicable for multiple completion--]

Second producing formation Devonian Brown Shale Pay zone depth 3655-3766 (KB) feet

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

Final open flow, N/A Mcf/d Final open flow, N/A Bbl/d

Time of open flow between initial and final tests, N/A hours

Static rock pressure, N/A psig (surface measurement) after N/A hours shut in.

MAR 01 1982

[08-78]

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

- 10/4/78 Set permanent bridge plug in 4 1/2" casing at 4369' (KB). Perforated Brown Shale with 20 holes (.50" diameter, 3 1/8" ceramic jets) from 3655' - 3766' (KB).
- 10/6/78 Foam fractured Brown Shale interval with nitrogen, 30,000 lbs of 80/100 sand, 30,000 lbs of 20/40 sand, 182 BBL of water, and 500 gallons of 15% HCL Acid Formation fractured at an average rate of 9 BBL/min and an average treating pressure of 1750 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
<p>NOTE: See previous well record filed upon completion of Oriskany.</p>					

(Attach separate sheets to complete as necessary.)

KAISER EXPLORATION AND MINING COMPANY
 Well Operator
 By E. A. P. _____
 Its Operation 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 soil, encountered in the drilling of a well."



RECEIVED
MAR - 6 1978

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES, OIL & GAS DIVISION
DEPT. OF MINES

Oil and Gas Division

WELL RECORD 14

Quadrangle Cottageville

Permit No. JAC-1404

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

Company Kaiser Expl. & Mining Co.
Address Box 98, Ravenswood, WV
Farm Allen Ankrum Acres 73
Location (waters) Left Fork of Cow Creek
Well No. DEK #27 Elev. 695
District Union County Jackson
The surface of tract is owned in fee by _____
Allen Ankrum
Address 1054 So. Eureka Ave., Columbus, Ohio
Mineral rights are owned by Allen Ankrum
Address Same
Drilling Commenced 7/5/77
Drilling Completed 7/19/77
Initial open flow Show cu. ft. _____ bbls.
Final production 25 MCFD ~~cu ft per day~~ bbls.
Well open _____ hrs. before test 980 RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size			
20-16			
Cond.			
13-10"			
9 5/8	196	196	100 Sax - To surf.
8 5/8			
7	2328	2328	75 Sax=625'
5 1/2			
4 1/2	4537	4537	150 Sax=1800'
3			
2			
Liners Used			

Well treatment details:

Attach copy of cementing record.

Perforated Oriskany section at 4433' - 4434' and 4442' - 4444' with 8 Omega Jet shots/foot. Fractured Oriskany section with 500 gal hcl, 637 bbl water, 5,000 lbs. 80/100 and 25,000 20/40 sand at 14 bpm.

Coal was encountered at None Feet _____ Inches _____
Fresh water _____ Feet _____ Salt Water _____ Feet _____
Producing Sand Oriskany Depth 4433 - 4444

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Red Shales			0	82		
Sand			82	103		
Shales			103	160		
Sand			160	193		
Shale			193	220		
Red Rock			220	238		
Shale			238	264		
Sand			264	283		
Red Rock			283	313		
Sand			313	338		
Red Rock			338	399		
Sand			399	412		
Red Rock			412	452		
Sand			452	471		
Red Rock			471	484		
Sand			484	487		
Red Rock			487	540		
Sand			540	544		
Red Rock			544	562		
Sand			562	582		
Red Rock			582	630		
Sand			630	642		
Red Rock			642	704		
Sand			704	717		

(over)

* Indicates Electric Log tops in the remarks section.

Formation	Color	Hard or Soft	Top Feet ¹⁴	Bottom Feet	Oil, Gas or Water	* Remarks
Shale			717	768		
Red Rock			768	791		
Sand			791	807		
Red Rock			807	838		
Sand			838	864		
Red Rock			864	887		
Shale			887	975		
Salt Sand			975	1060		
Shale			1060	1130		
Sand			1130	1134		
Shale			1134	1178		
Sand			1178	1211		
Shale			1211	1227		
Sand			1227	1238		
Shale			1238	1317		
Sand			1317	1342		
Shale			1342	1366		
Sand			1366	1375		
Shale			1375	1445		
Sand			1445	1467		
Shale			1467	1476		
Sand			1476	1500		
Shale			1500	1555		
Maxon			1555	1628		
Big Lime			1628	1750		
Shale			1750	1762		
Injun Sand			1762	1884		
Shale			1884	2226		
Coffee Shale			2226	2241		
Berea			2241	2258		
Shale			2258	3394		
Brown Shale			3394	3831		
Shale			3831	4220		
Marcellus Shale			4220	4350		
Onondaga L.S.			4350	4431		
Oriskany Sand			4431	4450		
Helderberg L.S.			4450	4546		
Log Total Depth				4546		

Date March 2, 1978

APPROVED Ralph A. Payne, Owner

By Operations Manager

(Title)



RECEIVED

JUN 16 1977

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

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 April 22, 1977

Surface Owner Allen A. Ankrum
Address 1054 So. Eureka Avenue, Columbus,
Mineral Owner Allen A. Ankrum Ohio
Address 1054 So. Ankrum Ave., Columbus, Ohio
Coal Owner Same as above
Address _____
Coal Operator Not Operated
Address _____

Company Kaiser Exploration & Mining Co.
Address Box 98, Ravenswood, W. Va.
Farm Allen Ankrum Acres 73 ac
Location (waters) Left Fork of Cow Creek
Well No. DEK #27 Elevation 695
District Union County Jackson
Quadrangle Cottageville 7 1/2, Ravenswood 15'

THIS PERMIT MUST BE POSTED AT THE WELL SITE

This permit is 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 10-21-77.

INSPECTOR Richard J. Morris
TO BE NOTIFIED _____
ADDRESS P.O. Box 372, Grantsville, W.Va.
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 March 4 1977 by A. A. Ankrum, et ux made to Devon Corp. & Eason Oil Co and recorded on the being day of recorded 1977 in Jackson County, Book _____ Page _____
XXX 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, KAISER EXPLORATION & MINING CO.
(Sign Name) [Signature]
W. F. Wegener, Well Operator
Owner's Representative
Box 98
Street
Ravenswood,
City or Town
West Virginia
State

*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 BOARD

JAC-1404 PERMIT NUMBER

"I have read and understand the reclamation requirements as set forth in Chapter 22, Article 4, Section 1, 2 and will carry out the specified requirements."

Signed by [Signature]

47-035

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

PROPOSED WORK ORDER TO XXX DRILL _____ DEEPEN _____ FRACTURE-STIMULATE _____
 DRILLING CONTRACTOR: (If Known) RESPONSIBLE AGENT:
 NAME FWA Drilling Co. NAME Bill W. Backus
 ADDRESS Box 448, Elkview, W. Va. ADDRESS Box 1433, Charleston, W. Va.
 TELEPHONE 965-3379 TELEPHONE 342-3171
 ESTIMATED DEPTH OF COMPLETED WELL: 4550 ROTARY XXX CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: Oriskany
 TYPE OF WELL: OIL _____ GAS XXX 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	200	200	100 Sax = To Surface
8 - 5/8			
7	2325	650	75 Sax = 625 Feet
5 1/2			
4 1/2	4550	4550	125 Sax = 1500 Feet
3			Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

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