



15' TOPO Longitude 81° 45'
7.5' TOPO 81° 45'

5.58 S
1.35 W
38 55 10
804630

2.98
2.70 S
1.36 W

New Location
Drill Deeper
Abandonment

Minimum Error of Closure 1 IN 200
Source of Elevation U.S.G.S. EL. 687' ROAD INTERSECTION
RT. 2

"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 L. E. SAMS
 Tract _____ Acres 44 Lease No. 3025
 Well (Farm) No. DEK # 37 Serial No. _____
 Elevation (Spirit Level) 703.0
 Quadrangle ~~#5 MIN. COVINGVILLE~~
15 MIN. RAVENSWOOD, 7 1/2 NE
 County JACKSON District RAVENSWOOD
 SURVEYOR James A. Saylor
 SURVEYOR'S 149
 Engineer's Registration No. _____
 File No. _____ Drawing No. _____
 Date 6--8-2-77 (owwo) Scale 1" = 400'

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

WELL LOCATION MAP
FILE NO. JAC-1412

+ 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

Deep well 6-6 North Ripley (342)

(owwo)

AUG 29 1977

[08-78]

WELL OPERATOR'S REPORT

API No. 47 - 035 -1412

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

State County Permit

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

LOCATION: Elevation: 703 Watershed: Cedar Run and Ohio River
 District: Ravenswood County: Jackson Quadrangle: Cottageville (7.5')

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

PERMITTED WORK: Drill ___ / Convert ___ / Drill deeper ___ / Re-drill ___
 Plug off old formation X / Perforate new formation X
 Other physical change in well (specify) _____

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OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

PERMIT ISSUED ON August 8, 1977

OIL & GAS INSPECTOR FOR THIS WORK:

(IF APPLICABLE: PLUGGING OF DRY HOLE OR CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED _____, 19____)

Name Richard Morris
 Address P. O. Box 372
Grantsville, WV

GEOLOGICAL TARGET FORMATION: Plugged Oriskany; Fracture Br. Shale old Depth 4518 feet
 NEW Depth of completed well, 3825 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 August 9, 1979, and completed August 10, 1979

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

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								Winds
Fresh water								
Coal								Sizes
Intermediate								
Production								Depth set
Tubing								
Liners								Perforations Br. Shale 3600 Top 3759 Bottom

OPEN FLOW DATA

OLD Producing formation Devonian Oriskany Sandstone Pay zone depth 4407-4409 feet
 Gas: Initial open flow, Show Mcf/d Oil: Initial open flow, 0 Bbl/d
 Final open flow, 50 Mcf/d Final open flow, 0 Bbl/d
 Time of open flow between initial and final tests, N/A hours
 Static rock pressure, 1620 psig (surface measurement) after N/A hours shut in

[If applicable due to multiple completion--]

Second producing formation Devonian Brown Shale Pay zone depth 3600-3759 feet
 Gas: Initial open flow, N/A Mcf/d Oil: Initial open flow, 0 Bbl/d
 Final open flow, 80 Mcf/d Final open flow, 0 Bbl/d
 Time of open flow between initial and final tests, N/A hours
 Static rock pressure, 580 psig (surface measurement) after N/A hours shut in

MAR 01 1982

[08-78]

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

- 8/9/79 Set permanent bridge plug in 4 1/2" casing at 3825' (KB). Perforated the Brown Shale with 15 holes (.51" diameter, 3 1/2" glass jets) from 3600-3759' (KB).
- 8/10/79 Foam Fractured the Brown Shale interval with 366 BBL water, 30,000 lbs of 80/100 sand, 30,000 lbs. of 20/40 sand at an average rate of 9.5 BBL/min., and an average 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
NOTE: See previous well record filed upon completion of ORISKANY SAND.					

(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 coal, encountered in the drilling of a well."



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STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division

OIL & GAS DIVISION
DEPT. OF MINES

WELL RECORD¹⁴

Quadrangle Cottageville 7 1/2

Permit No. JAC 1412
47-035

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

Company Kaiser Exploration & Mining Co.
Address P.O. Box 98, Ravenswood, WV
Farm L.E. Sams Acres 44
Location (waters) Cedar Run & Ohio River
Well No. DEK #37 Elev. 703
District Ravenswood County Jackson
The surface of tract is owned in fee by _____
L.E. Sams Et al
Address 204 Devols Rd., Marietta, Ohio
Mineral rights are owned by Same as above
Address _____
Drilling Commenced 8/10/77
Drilling Completed 8/23/77
Initial open flow Show cu. ft. _____ bbls.
Final production 50 MCFD cu. ft. per day _____ bbls.
Well open _____ hrs. before test 1620 RP.
Well treatment details: _____

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
8 5/8			
7	2240	2240	75 Sax
5 1/2			
4 1/2		4493	150 Sax=1543'
3			
2			
Liners Used			

Perforated Oriskany 4407-4409 with 16 Omega Jets. Fractured Oriskany with 358 bbl water with 3,255 lbs. 80/100 sand and 40 MSCF nitrogen. Fractured Oriskany with 1,000 gal. 15% HCL, 832 bbl water and 26,000 lbs 20/40 sand.

Testing not complete.

Coal was encountered at None Feet _____ Inches _____
Fresh water _____ Feet _____ Salt Water _____ Feet _____
Producing Sand Oriskany Depth 4407-4409

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Red Shales			0	143		
Sand			143	187		
Shale			187	246		
Sand			246	252		
Shale			252	389		
Sand			389	423		
Shale			423	449		
Sand			449	447		
Red Rock			447	489		
Shale			489	563		
Sand			563	567		
Red Rock			567	629		
Shale			629	665		
Sand			665	675		
Red Rock			675	720		
Shale			720	755		
Red Rock			755	810		
Shale			810	867		
Sand			867	888		
Shale			888	929		
Salt Sand			929	995		
Shale			995	1010		
Sand			1010	1046		
Shale			1046	1142		

(over)

* Indicates Electric Log tops in the remarks section.

Formation	Color	Hard or Soft	Top Feet /'	Bottom Feet	Oil, Gas or Water	* Remarks
Sand			1142	1156		
Shale			1156	1180		
Sand			1180	1209		
Shale			1209	1275		
Broken Sand			1275	1358		
Shale			1358	1382		
Sand			1382	1405		
Shale			1405	1418		
Sand			1418	1433		
Shale			1433	1498		
Sand			1498	1527		
Shale			1527	1571		
Maxon			1571	1595		
Shale			1595	1601		
Maxon			1601	1635		
Big Lime			1635	1696		
Shale			1696	1798		
Injun Sand			1798	1830		
Shale			1830	2124		
Coffee Shale			2124	2147		
Shale			2147	3292		
Brown Shale			3292	3760		
Shale			3760	4172		
Marcellus Shale			4172	4310		
Onondaga L.S.			4310	4388		
Oriskany Sand			4388	4410		
Helderberg L.S.			4410	TD		
Log Total Depth				4518		

Date March 2 1978

APPROVED Robert A. Payne Owner

By Operations Manager

(Title)



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

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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 August 5, 1977

Surface Owner L. E. Sams, et al
Address 204 Devols Rd, Marietta, Ohio

Company Kaiser Exploration & Mining Co.
Address Box 98, Ravenswood, WV

Mineral Owner L. E. Sams, et al
Address 204 Devols Rd, Marietta, Ohio

Farm L. E. Sams Acres 44 ac.
Location (waters) Cedar Run & Ohio River

Coal Owner Same As Above

Well No. DEK #37 Elevation 703

Address _____

District Ravenswood County Jackson

Coal Operator Not Operated

Quadrangle Cottageville 7-1/2'

Address _____

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 12-8-77.

INSPECTOR TO BE NOTIFIED Richard Morris

ADDRESS Grantsville, W. Va.

PHONE 354-7259

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 21 1977 by L. E. Sams, et ux made to Devon & Eason and recorded on the 7th day of April 1977, in Jackson County, Book 143 Page 557

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) Robert A. Pryce
Well Operator Robert A. Pryce

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 BOND

JAC-1412

PERMIT NUMBER

"I have read and understand the reclamation requirements as set forth in Chapter 22, Article 4, Section 12-b and will carry out the specified requirements."

47-035

Signed by Robert A. Pryce

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, WV
 TELEPHONE 965-3379 TELEPHONE 342-3171
 ESTIMATED DEPTH OF COMPLETED WELL: 4500 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	2250	2250	75 sax = 625'
5 1/2			
4 1/2	4500	4500	150 sax = 1800'
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