



12v 8-81)



State of Mest Wirginiu

Department of Mines Oil and Cas Nivision

Date	Oc t	<u>do:</u>	er	21		19	82		
Oper									
Well	NO.	K	EM	450	15	l			
Farm	De	ewe	У	Luc	as	}			
API	No.	17		03	5	gra.	10	649	9

OIL & GAS DIVISION DEPT. OF MINES

Second producing formation

Final open flow_

Gas: Initial open flow

Static rock pressure_

WELL OPENJUR'S REPORT

DRILLING, FRACTURING AND/OR STIM	ilating, o	R PHYSICAL	. CILLARD	JAN 1 0 1284
FIL TYPE: Oil / Cos x / Liquid Injection (If "Gas," Production x / Underground	ınd Storag	e / reel	CIL C Sha	INGER PART
OCATION: Elevation: 929 Watershed (coleman i	sranch		
District: Ripley County Jack	son	Quadrangle	e Kenna	
CMPANY Kaiser Exploration & Mining Co.	(Cement
DORESS P.O. Box 8, Ravenswood, 26164	Caşing	Used in	Left	fill up
DESIGNATED AGENT R. A. Pryce	Tubing	Drilling	in Well	Cu. ft.
ADDRESS P.O. Box 8, Ravenswood, 26164	Size			
SURFACE OWNER Dewey O. Lucas	20-16 Cond.			
ADDRESS 1442 Madison St., Charleston	13-10"		498'	200 sks
INERAL RIGHTS CHNER Same	9 5/8			
ADDRESS	8 5/8			
OIL AND GAS INSPECTOR FOR THIS WORK Richard	7		2418'	165 sks
Morris ADDRESSBox 372. Grantsville	- 5 1/2			
PERMIT ISSUED 2/23/82	4 1/2	1	5286'	170 sks
ORILLING COMMENCED 4/21/82	3		1 2200	1
DRILLING COMPLETED 4/29/82	2			
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON	Liners used			
GEOLOGICAL TARGET FORMATION Oriskany Ss		Dep	th 5189	KB feet
Depth of completed well 5327 feet	Rotary :	x / Cabl	e Tools	
Water strata depth: Fresh N/A* feet;				
				e area?_No_
OPEN FLOW DATA	* Drilled	on fluid -	not know	ın
Producing formation Oriskany Ss	Pa	y zone dep	th_5216-	5241 feet
Can Tribial and Elect 16 World	Oil. Tn	itial open	flow	BbL/d
Final open flow est 300 McF/d	fluid to Fi	nal open f	low -	Bbl/d
Time of open flow between init				
Static rock pressure 1600 psig(surface	ce measure	ment) afte	r ho	urs shut in
(If applicable due to multiple completion	•	•		

Mcf/d

Mcf/d

Time of open flow between initial and final tests____

prig(surface measurement) after_

(Continue on reverse vide)

hours

feet

Bbl/d

Bbl/d

hours shut in 1984

Pay zone depth

Oil: Initial open flow

Oil: Final open flow_

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DETAILS OF PERIODATED INTERVALS, PROCEDENCE OR STIMULATING, PRESIDAL CHARGE, EIC.

5/03/82

Oriskany Ss

Perforation:

5216-5224 and 5233-5241 64 holes 0.41" in diameter

5/25/82

Oriskany Ss

Frac:

60,000 # of 20/40 sand Treatment pressure = 3900 psiq Shut-in pressure = 3400 psig Total of 840 bbl water and 170,000 SCF of N2 used

REMARKS

WELL LOG

ORMATION COLOR	HARD OR SOFT	TOP FEET	BOITCH FEET	Including indication of and salt water, coal,	f all fresh oil and gas .
Shale Sandstone Shale Siltstone Sandstone and Sandstone Sandstone and Shale Little Dunkard Shale Little Dunkard Sar Salt Sands Big Lime (Greer Shale Big Injund Sand Shale Coffee Shale Berea Sandstone Shale Brown Shale Brown Shale Shale	Shale Shale Sand and abrier) d po	0 59 110 184 325 700 810 1070 1216 1315 1362 1765 2045 2118 2147 2225 2606 2628 2640 3880 4433 4311 5114 5160	59 110 184 325 700 810 1070 1216 1315 1362 1765 2045 2118 2147 2225 2628	shale 2225 Coffee 2600 S/g @4421 Shale 202 Srownshie 3 S/g @5129 Shale 44 Onondaga Orist	2606 2606 2606 2608 8-2640 80-4633 33-4811
mendajs	5114 102			as necessaru)	

(Attach separate sheets as necessary).

KAISER EXPLORATION AND MINING COMPANY

Well Operator

October 21

Note: Regulation 2.02(i) provides an follows: "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including 1992!, encountered in the drilling of a well."

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5216 5-242.

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P1948 10.



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(Rev 8-81)	TE III
	ARA
TE CV	•
MILL	205

Slude of West Wirginia

Department of Alines Oil und Cas Division

Date_	June	5,	1985	Accessed the contract of		on the same of the
Opera	tor's					
Well	No	KE	<u>4 151</u>	acid (1000-100 acid 100		
Farm_	Dewe	y L	ucas			
API N	0. 4	7-	035	ome .	1649	ERAC

WELL OPERATOR'S REPORT

01 b. and	•		U 4			
4 Jenillic	FRACTURING	ND/OR	STIMULATING,	OR	PHYSICAL	GIVNGE
- Continued	23670			THE REAL PROPERTY.		
- 15ER V			•			

	/ **	- Di	ı #	
WELL TYPE: Oil / Gas X / Liquid Injection (If "Gas," Production X / Undergrou	/ Waste nd Storage	e/ Deer	/ Shal	Llow/)
IOCATION: Elevation: 929 G Watershed Co			•	
District: Ripley County Jackson	n (Quadrangle	<u>Kenna</u>	
0				
Co. Marie Co.	•	•	•	
COMPANY Kaiser Exploration & Mining Co.				Cenent
ADDRESS P. O. Box 8, Ravenswood, WV . 26164	Casing	Used in		fill up
DESIGNATED AGENT R. A. Pryce	Tubing	Drilling	in Well	Cu. ft.
ADDRESS Same	Size 20-16	•		
SURFACE OWNER Dewey Lucas	Cord.			
ADDRESS 1442 Madison St., Charleston, WV MINERAL RIGHTS OWNER Same	13- 10' ^{3/4}		498' KB	200 sks cl
STITES AND SECULATION OF THE PROPERTY OF THE P	9 5/8			
ADDRESS OIL AND GAS INSFECTOR FOR THIS WORK Jerry	8 5/8		04101 1/5	165
Tephabock ADDRESS Ripley, WV 25271	7		2418 KB	165 sks
PERMIT ISSUED 2/23/82	5 1/2		52061 VE	170 sks
DRILLING COMMENCED 4/21/82	4 1/2		J200 KL	170 383
DRILLING COMPLETED 4/29/82 4/23/85 FRAG	3			
IF APPLICABLE: PLUGGING OF DRY HOLE ON	+ 2			
CONTINUOUS PROGRESSION FROM DRILLING OR	Liners			
REWORKING. VERBAL PERMISSION OBTAINED	used			
		D-5	Lb 5180	fœt
GEOLOGICAL TARGET FORMATION Oriskany Sandstone		Dep		
Depth of completed well 5327 feet				
Water strata depth: Fresh feet;	Salt	boing min	od in the	area? NO
Coal seam depths: N/A *Plugged.		on fluid r		
OPEN FLOW DATA				
Producing formation Berea Sandstone	Pay	zone dep	th 2622-2	632 feet
Gas: Initial open flow Mcf/d	Oil: Ini	tial open	flow	Bbl/d
Final open flow 1020 Mcf/d				
Time of open flow between init	ial and fi	nal tests	4 ho	urs
Static rock pressure 1000 psig(surface		ment) afte	r hou	rs slut in
(If applicable due to multiple completion				ge ,
Second producing formation Brown Shale	Pay	y zone dep	th 4186-4	424 feet
Gas: Initial open flow N/A Mcf/d	Oil; In	itial open	flow	Bb1/d
Final open flow 812 Mcf/d				
Time of open flow between init				
Static rock pressure 950 psig(surface	e neasuran	ent) after	loc	irs shut in

FOR

Static rock pressure 950

(Continue on reverse side)

SEP 0 9 1985

DETAILS OF PERFORMED INTERVALS, FRACTURING OR STEPULATING, PRESIDENCE, ETC.

Young's perf Berea @ 2622-2632 feet,30 perfs (.39"), 3 holes/ft. Set frac plug @ 2700'.

NOWSCO to 75% quality foam frac Berea Sandstone. Breakdown pressure: 3000 psig; treating pressure: 2550 psig; fractured zone with 60,000# of 20/40 sand @ 4 - 10 ppg concentrations; total nitrogen: 702,500 scf; total sand laden fluid: 199 bbl; total fluid: 291 bbl; ISIP: 2250 psig; 5 min SIP: 2030 psig. Flow back through %" plug.

WELL LOG

REMARKS

ormation color hard or soft	TOP FEET	BOITOM FEET	Including indication of all fresh and salt water, coal, oil and gas
Same as previously submitted.			
· · · · · · · · · · · · · · · · · · ·	· ·		
		1	
			as necessary) 's and Mining Company

Kaiser Exploration and Mining Company
Well Operator

By: Z.A.P.

Date: June 5, 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 east, ascentiered in the drilling of a well."

THE DEPARTMENT OF MINES,

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

Charleston, W. Va.	DATE	<u>February 8, 1982</u>		
urface Owner Dewey O. Lucas	Company	Kaiser Explorati	on and Mining Co	mpany
ddress 1442 Madison Street, Charlesto			enswood, WV 261	-
Sineral Owner Same			Acres 67.5	
ddress		(waters) Coleman E		
oal Owner Same		•	Elevation 92	91
ddress	District		County_Jac	
Coal Operator None	· Quadrangle		•	
All provisions being in accordance with Chipper of the W. Va. Cods, the location is hereby appropriate drilling. This permit shall expense operations have not commenced by 10-23-82	INSPECTOR TO BE NOTIF	FIED <u>Richard Mo</u> O. Box 372, Gra		
The mil	ADDICOU T.	0, 80x 372, dra	mesvirie, m	
Deputy Director - Oil & Gas Division	PHONE 354-	7259	•	
The undersigned well operator is entitled to d			· · · · ·	
The undersigned well operator is entitled to detect the case may be under gran Kaiser Explored drenna M. Eplingmade to Mining Company, Book	nt or lease dated June ation and pany and r	17th 19	0.80 by Carlos L. Oth day ofN	& larch
The undersigned well operator is entitled to detect thereto, (or as the case may be) under grange to the man and the case may be under grange to the thereto, (or as the case may be) under grange to the thereto.	nt or lease dated June at ion and pany and r 159 Page EEPER RED	17th 19 ecorded on the 10 572 RILL FR	· · · · ·	& larch
The undersigned well operator is entitled to detect thereto, (or as the case may be) under granted to a series of the case may be) under granted to Kalser Explored to Mining Compared t	nt or lease dated	ecorded on the	2.80 by Carlos	larch LATE erators equired erators
The undersigned well operator is entitled to detect thereto, (or as the case may be) under granted to a series of the case may be) under granted to Kalser Explored to Mining Compared t	nt or lease dated June at 1.0n and pany and r 159 Page EEPER RED Y DRILLED BEFORE June are hereby notified that sived by, or filed with the re mailed by registered manaddress by to the Department of Management of Management and the second secon	ecorded on the	2.80 by Carlos	larch LATE erators equired erators
The undersigned well operator is entitled to detect thereto, (or as the case may be) under grant Kalser Explored Maning Compared to Mining Compared to DRILL DI OIL AND GAS WELL ORIGINALL The enclosed plat was prepared by a registere are been notified as of the above date. The above named coal owners and/or operator make by Section 3 of the Code, must be received to make by Section 3 of the code, must be received as a coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners at their above shown respective to the coal owners are coal owners at the coal owners are coal owners at their above shown respective to the coal owners are coal owners at the coal owners are coal owners at their above shown respective to the coal owners are coal owners and coal owners are coal owners at the coal owners are coal owners.	nt or lease dated	ecorded on the10	2.80 by Carlos 1.20 Oth day of Market or STIMU Coal owners and/or operate to make, or are restricted in the coal of the coal	LATE serators equired on the
The undersigned well operator is entitled to detect thereto, (or as the case may be) under grant Kalser Explored to Mining Compared to Mining Comp	nt or lease dated	ecorded on the10	2.80 by Carlos 1.20 Oth day of M. ACTURE OR STIMU coal owners and/or op vish to make, or are restricted to the coal of the	LATE serators equired on the
The undersigned well operator is entitled to detect thereto, (or as the case may be) under grant Kalser Exploration of the control of the con	nt or lease dated	ecorded on the10	2.80 by Carlos 1.20 Oth day of Market or STIMU Coal owners and/or operate to make, or are restricted in the coal of the coal	LATE serators equired on the
The undersigned well operator is entitled to detect thereto, (or as the case may be) under grant Kalser Exploration of the control of the con	nt or lease dated	ecorded on the	2.80 by Carlos 1.20th day of	LATE serators equired erators on the
the thereto, (or as the case may be) under granderenna M. Eplingmade to Mining Compally, in lackson County, Book X NEW WELL DRILL D	nt or lease dated	ecorded on the	2.80 by Carlos 1.20th day of	LATE serators equired serators on the

*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 jell operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found there's by the department and that the same is approved and the well operator authorized to proceed.

47-035-1649
PERMIT NUMBER

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

PROPOSED WORK ORDER 7	O_X DRILL	_ DEEPENFI	RACTURE-STIMULATE					
DRILLING CONTRACTOR: (If Known)	RESPONSIBLE AGENT: NAME Robert A. Pryce						
NAME Unknown at this	time							
ADDRESS								
TELEPHONE		TELEPHONE _273-5371						
	PLETED WELL: 5295'	ROTARY X	CABLE TOOLS					
PROPOSED GEOLOGICAL FO		•	•					
		MBSTORAGE	DISPOSAL					
			ODOTHER					
	And							
TENTATIVE CASING PROGR	AM:							
CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT FILE UP OR SACKS - CUBIC FT.					
20 - 16								
13 - 10		The state of the s						
9 - 5/8 10 3/4"	250'.	250'	150 sks class A CTS					
8 - 5/8	ingur Ajah							
7	25001	2500'	65 sks 50/50 pozmix CTS					
5 ½ ·			100 sks class A					
4 %	52951	'5295' <i>53</i> 0	225 sks class A or es					
2			Perf. Top rea by role 15.01 Perf. Bottom					
Liners			Perf. Top					
			Perf. Bottom					
	SHETT STREET							
ADDDAYIMATE ERESH WATE	ER DEPTHSFEET	SALT WATER	FEET					
APPROXIMATE COAL DEPTH								
			•					
IS COAL BEING MINED IN	THE AREA?None	BY WHOM?						
TO DRILL:	<u>.</u>							
SUBMIT FIVE (5) COPII OF PLAT.	ES OF OG - 1, \$100.00 PERMIT	FEE, PERFORMANCE BO	OND AND PERMANENT COPY					
TO DRILL DEEPER OR REDF	RILL:		•					
	S OF OG - 1, SHOWING ORIGIN TO 1929, A PERMANENT COI TED.							
TO FRACTURE - STIMULATE		•						
	ORIGINALLY DRILLED BEFOR AT AND ORIGINAL WELL RECO		COPIES OG - 1, PERFORMANCE					
OIL AND/OR GAS WELL	ORIGINALLY DRILLED ON AN	D/OR AFTER JUNE 5, 192	9. FIVE COPIES OG - 1, SHOW-					
Required forms must be f	iled within ninety (90) days of co	ampletion for bond release	Inspector to be notified twenty-					
four (24) hours in advance		mpicoron to bond resease.	ziapeccoi to ne nomico oumoj					
	·		•					
			3 *** E37. F1************************************					
		•						
The following waiver must thereof.	st be completed by the coal oper	ator if the permit is to be	issued within ten days of receipt					
WAIVER: I the undersigned,	Agent for	Coal Company, Owner	or Operator of the coal under					
	nined and place on our mine may	•						
We the	Coal Company h	ave no objections to said w	rell being drilled at this location,					
			7. Chapter 22 of the West Virginia					
Code.			•					
•	, as	••	en e					
	•		Ex Cost Community					
		en e	or Coal Company					
			Official Title					





)	Date:	<u>April</u>	4	3	19	84_
---	-------	--------------	---	---	----	-----

2) Operator's Well No. KEM-151

Well No. KEM-151

3) API Well No. 47 - 035 - 1649 - FRA

State County Permit

STATE OF WEST VIRGINIA OH. & GAS DIVERARIMENT OF MINES, OIL AND GAS DIVISION OH. & GAS DIVERARIMENT OF MINES, OIL AND GAS DIVISION OH. & GAS DIVERARIMENT OF MINES, OIL AND GAS DIVISION

4) WELL TY			/ Ga		<u>X</u> /	/ VImdonon					(D	, .		V	
5) LOCATIO		n Gas , evation: _	~ ~	91		/ Undergrown Watersho			Colema		/ Deep Branch	_/	Shallow	X_/)	
3, 200,1110		strict:	Ripl			County:			ackson			Κe	enna	· · · · · · · · · · · · · · · · · · ·	-,
6) WELL OP	<u> </u>	°. O. F	Sox 8	rise	1	loration of lining Co.	,							PRYCE	
8) OIL & GA			vood, W		6164			0)			ITR A CTOR				
Name		ephaboo		IED					DRILLING (Name		aiser Drill	ina F	?ia #'	3	
Address		∛ipley.		5271					Address		Ravenswood			164	-
										_		. are the second	A CONTRACTOR OF THE PARTY OF TH	19 s	-
10) PROPOSE11) GEOLOGI	CAL TAR	GET FOR	Other pl MATION,	f old f nysical	formation change served	on/ F in well (specify Sandston	Perfor)_S(e	ate i	new formatio eze 4 1/	n	/ Stimulate X_/ _csg; treat with tubing	Bere	ea: is	solate Be	erea -
12) Estima	ited depth	of complet	ed well, _	44	.80 (1	•	_feet		8001		_				
13) Appro 14) Appro	ximate trai	la depths:	Fresh,	None	<u>- 4 U</u>	feet;	salt.		Market Commence	L	feet.		,	X	
15) CASING A				NONE	·		_is co	ai bei	ng minea in ti	ne ai	rea? Yes		/ No		/
CASING OR	 		IFICATIONS			FOOT	AGE II	NTER	VALS	71	CEMENT FILL-UP	li	PACKI	rpe	
TUBING TYPE	Size	Grade	Weight per ft.	New	Used	For drilling			Left in well		OR SACKS (Cubic feet)		IACAI	LINS	
Conductor							<u></u>				(Odole feet)	Kind	s Nor		-
Fresh water	10 3/	4 H	32.75	Χ		498'	(KE	3)	498' (KΒ) 200 sks Ne	at			- -
Coal							·	<u> </u>			65 -lan na	Sizes			_
Intermediate	7"	K	·20	X_		2418'	<u>(K</u> E	1)_		KΒ					_
Production	4 1/	12" N	11.6¢	X			····		<u>5286' (</u>	Kβ	<u>) 170 sks po</u>	ZDBoib	<u> </u>		-
Tubing										-#-		₩			-
Liners										$-\parallel$		 	ations:		-
										+		Top		Bottom 4424 1	- /VD
				***************************************				-		$+\parallel$		418	30.	4424	_(KB
						OFFICE U				11		П			-
	/. 7 -	-035-1	649-FRA	c		DIVIDALINO	e e en	LETAN.	i i		3/ 1/			0.4	,
Permit number_	4/.	-033-10	049-FRA			_					May 14,	·····		1984	-
quirements subje	ct to the co he constru	onditions (ction of ro	contained h ads, locati	erein a ons and	nd on the	he reverse herec r any permitted	f. No work	tific: . In a	ition must be	give	Dat to drill in accordan en to the District Oi operator or his con	ce with	as Inspe	ctor. (Referito)
The permitted workereverse hereof. Permit expires		escribed in		and A	pplication						iny modifications as				
Bond: BB	Agen	ــا ،	Plat:	Casin	g g	166 30	**				lu-				
									Adn	ninis	strator, Office of O	il and (Gas		
NOTE: Keep or	ne copy of	this perm	it posted at	the di	rilling lo	ecation.								File	

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