



IV-35 (Rev 0-81)

WELL TYPE:

LOCATION: Elevation: 735

District: Harris



OIL & GAS DIVISION Luie of West Wirginian DEPT. OF MINE Repartment of Allines Oil und Cas Division

Date	August	17, 19	83
Operat	or's		
Well N	O. KEM	#353	
Farm	Tennan		
API No		107	1255

Quadrangle Lubeck

/ Shallow__/)

WELL OPERATOR'S REPORT

Oil__/ Gas X / Liquid Injection__/ Waste Disposal

(If "Gas," Production x / Underground Storage / Deep x

County Wood

Watershed Dry Run

of

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

					-
OMPANY Kaiser Exploration and Mining Company					
DDRESS P. O. Box 8, Ravenswood, WV 26164	Casing	Used in	I of t	Cement	
ESIGNATED AGENT R. A. Prvce	Casing			fill up	
DDRESS Same	Tubing	Drilling	In werr	Cu. ft.	and the same
URFACE OWNER Lydia Tennant	Size 20-16				
DDRESS Rt. 1, New England, WV	Cond. 10,3/1"			175 -1 - 1	
NERAL RIGHIS OWNER Same :			270	175 sks cla	E S
DORESS	9 5/8				4
L AND GAS INSPECTOR FOR THIS WORK Homer	8 5/8				
ougherty ADDRESS Linden Rt., Box 3A, Looney	VIZIE ZWV		1718	175 sks 50/	þО.
RMIT ISSUED May 2, 1983	4 1/2		4278	240 sks 50/	1.0
RILLING COMMENCED June 13, 1983	3		72/0	240 383 307	
RILING COMPLETED June 18, 1983	Section Constitution of the Spinish				-
F APPLICABLE: PLUGGING OF DRY HOLE ON	2				4
INTINUOUS PROGRESSION FROM DRILLING OR	Liners				
WORKING. VERBAL PERMISSION OBTAINED	used				
Diogical Target Formation Oriskany Sandston Depth of completed well 4325 feet F Water strata depth: Fresh N/A feet;	lotary X	_/ Cable	e Tools_		
Coal seam depths: N/A	Is coal	being mine	ed in the	area? No	
PEN FLOW DATA	•				
Producing formation Oriskany Sandstone	Pay	zone depl	h 4197-42	in feet	
Gas: Initial open flow N/A Mcf/d	Oil: Ini	tial open	flow N/	A Bbl/d	•
Final open flow 267 Mcf/d	Fin	al open f	LOW N/A	Bbl/d	٠
Time of open flow between initi	al and fi	nal tests	4 ho	urs	
Static rock pressure 600 psig(surface	e measurem	ent) after	24 hou	rs shut in	
(If applicable due to multiple completion-)				
Second producing formation	Pay	zone dept	11	feet	*
Gas: Initial open flow Mcf/d					
Final open flow Mcf/d					
Time of open flow between initi Static rock pressure psig(surface	ial and fi	nal tests	or [ma ^{NF 3.0} 18	847
amone some fremmer hard fatteren	ب اعب احداد المحدد			والمستبد وساعته مستبد	

DETAILS OF PERFORMIND INTERVALS, FINCTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

6/23/83 Oriskany Sandstone was perforated with 24 shots (.39" diameter from 4197'-4203'.

6/23/83 Oriskany Sandstone was broke down using 12 bb1 HCL acid and 8 bb1 of water. Formation brokedown at 2600 psig and treated at 700 psig. Injection rate was 5.3 bb1/min.

Oriskany Sandstone fractured using 100°bbl gel pad and 50 bbl of cross-link. Treating pressure varied from 1300-1440 psig using 60,000# 20/40 sand at 1,2, 3,4 ppg concentrations. H₂O rate: 7 bbl/min; nitrogen rate: 3500 scf/min; total nitrogen: 280,000 scf; total fluid: 673 bbl. ISIP: 1000; 5 minute SI. 830 psig. Blew well back through a 1" choke.

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Soil & shale Sand Siltstone & Shale Sand & Shale Shale Sand Siltstone & Shale Sand Shale & Siltstone Salt Sands Shale Coffee Shale Berea Sand Shale Brown Shale Brown Shale Onondaga Lime Oriskany Sandstone Helderberg Lime Total Depth	0 100 182 396 552 891 926 1142 1208 1436 1598 1926 1945 1945 1948 3086 3596 3806 4101 4187 4230 4331	100 182 396 552 891 926 1142 1208 1436 1598 1945 1945 1948 3086 3576 3806 4101 4187 4230 4331	

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY	
Well Operator	
BV: VAP	Rg. Co.
Date: August 18, 1983	





)	Date: September	10	19.84
ì	Operator's		

Operator's Well No. KEM #35:

3) API Well No. 47

inty Permit

OIL & GAS DIVISION STATE OF WEST VIRGINIA DEPT. OF MINES APPLICATION FOR A WELL WORK PERMIT

4) WELL TYP	PE: A O	ii	/ Ga	s <u>X</u>				· ·		* #
			Production	X		_/ Underground s	torage		_/ Shallow _	_ X /)
5) LOCATIO		vation: _								*
			<u> Harris</u>			County:	Wood	Quadrangle:	<u>Lubeck</u>	
6) WELL OP	ERATOR.			rati	on and	<u>d Min</u> ing Co.	7) DESIGNATED	AGENT R. A.	<u>Pryce</u>	
Address	management water our	P. O.				The state of the s	Address	Same_	~~~	
		<u>Raven</u> :	swood,	WV	26164	na n			***************************************	
8) OIL & GA			BE NOTIF	TED			9) DRILLING CO			_
Name <u>G</u>								<u>ser Service Ri</u>		2
Address			<u>, Mt. F</u>			state	Address	P. O. Box 8		
	Mine	eral W	ells, k	VV	26150			Ravenswood,		
10) PROPOSE	D WELL	WORK:	Drill		/ Drill	deeper	/ Redrill	/ Stimulate	Pull	tubing; set
			Plug of	f old f	ormation.	/ Perfora	ate new formation.	permaner	it bridge	plug at 3620
			Other pl	hysical	change in	well (specify)	<u>dump</u>	calseal; perf	orate Bro	wn Shale;
11) GEOLOGI	CALTAR	GET FOR	MATION,	Bron	<u>ın Sha</u>	<u>le & Berea</u>	<u>trac</u> ;	; set frac plu	<u>ig at 2000</u>	<u>'; perfo</u> rate
12) Estima	ated depth	of complet	ted well, _	36	520	feet		a; fracture; i	solate by	tubing and
13) Appro	ximate trat	ta depths:	Fresh,	6	00	feet; salt,	<u>,1000 packe</u>	<u>Pr.</u> feet.		
14) Appro	ximate coa	ıl seam dep	oths:	None	<u>}</u>	Is coa	al being mined in the	e area? Yes	/ No	/
15) CASING A	AND TUB	ing pro	GRAM					•		
CASING OR	K Daniel Land	SPE	DIFICATIONS		et posterior	FOOTAGE II	NTERVALS	CEMENT FILL-UP	PACKE	RS
TUBING TYPE	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well	OR SACKS (Cubic feet)		
Conductor									Kinds NO	ne
Fresh water	10 3/4	dn H	40.50	χ	A STATE OF THE STA	270KB	270KB	175 sks clas	s A	
Coal					The second secon				Sizes	And the state of t
Intermediate	7"	K	20	χ		1718KB	1718KB	175 sks bozn	lix	
Production	4 1/	2" N	11.60	Χ			4278KB	240 sks bozn		
Tubing	2 3/8	8" J	4.60	χ			4193KB			
Liners								a Department	Perforations:	
			and the same of						Top	Bottom
	-								4197	4203KB
								Tradition (Constitution of Constitution of Con	∥Orisk	any
								•		
						OFFICE USE (ONLY			
						DRILLING PE	RMIT			
m		47-10	7-1255	-PP-1	FRA C			November	r 13.	19 84
Permit number_							***************************************	Dat		
This permit cov	ering the u	vell onersi	or and wel	Llocati	on chown	helow is evidence	of nermission grant	ed to drill in accordan		inen: legal re.
quirements subj	ect to the c	conditions	contained	herein a	and on th	e reverse hereof. No	tification must be a	given to the District Oil	and Gas Inspec	tor. (Refer to
No. 8) Prior to t	the constru	ction of re	oads, locati	ons and	d pits for	any permitted work	. In addition, the w	ell operator or his con	tractor shall not	ify the proper
•	•					ork has commence				
	vork is as d	lescribed i	n the Notic	e and A	Applicatio	n, plat, and reclam	ation plan, subject	to any modifications a	nd conditions sp	ecified on the
reverse hereof.		N	ovembe	r 13	, 1986	· · · · · · · · · · · · · · · · · · ·	work is commoned	d maior to that data and	menance and which	
Permit expires .	**********					uiiiess well	work is commenced	d prior to that date and	prosecuted with	uue amgence.
			T							
Bond:	Age	nt:	Plat:	Casi	0	Fee			7	
861	m	WI)	$\gamma 1/l$		5	68	700		///	
L	* / /		115				1 Kino	antel	Llan	£
							- Joseph	inistrator Office of O	il and Gas	
NOTE: Keep	one conv o	of this peri	nit posted	at the c	irilling loc	cation.	17	minoracor, Office Of C	m and Cas	
F										File
		Sec	e the revers	e side c	of the AP	PLICANT'S COPY	for instructions to	the well operator.		



OIL & GAS DIVISION DEPT. OF MINES



State of West Birginia

Bepartment of Mines Gil und Gas Pivision

Date	12/1	.0/84				
Opera Well	No.	s Kem	#353	3		
Farm	Ter					
API N		7 _1	.07		1255-	

WELL OPERATOR'S REPORT

OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

	vation: 735	Watershed	Dry Run				
Dis	trict: Harris	County Woo	od .	Quadrangle	Lubeck		
							•
XMPANY Kaiser	Exploration and M	Mining Company		фесон шта по выучает во шинунуваана на полочение населе	7-1204-0-120-0-1-7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	•	
ADDRESS P. O. E	30x 8 Ravenswood,	WV 26164	Caşing	Used in	Left	Cement	
DESIGNATED AGE	Nr R. A. Pryce		Tubing	Drilling	in Well	fill up Cu. ft.	
ADDRESS Same			Size				
SURFACE OWNER_	Lydia Tennant		20-16				
ADORESS Rt. 1,	, New England, WV	November (1990) - Company of the Com	Cond. 10 3/4		270	175 sks cla	ss A
MINERAL RIGHTS	OWNER Same		-13-10*-				
ADDRESS			9 5/8				
OIL AND GAS IN	SPECTOR FOR THIS	WORK Homer	8 5/8		1718	175 sks 50	/50 ·
Dougherty	ADDRESS Linden Rt	t., Box 3A Loone	y illé, w		1110	T. 1.2 2V2 7A	, 50
PERMIT ISSUED			-		4278	240 sks 50	/50 ·
-	NCED June 13, 19	983	4 1/2		72/0	740 SV2 30	, 50 .
	Firm June 18, 19	ALCON MATERIAL PROPERTY OF THE	3	}			
	PLUGGING OF DR		. 2				
remorking. Ve	RBAL PERMISSION	OBIAINED	used				
ON		CONTRACTOR					
GEOLOGICAL TAR	GET FORMATION BI				th 3395-3	in market market der område fra fra fra fra fra fra fra fra fra fra	
GEOLOGICAL TAR	completed well 42	288 feet		/ Cabl	e Tools_	in market market der område fra fra fra fra fra fra fra fra fra fra	
GEOLOGICAL TAR Depth of Water str	completed well 4:	288 feet	Salt N/I	_/ Cabl	e Tools_		
GEOLOGICAL TAR Depth of Water str	completed well 42	288 feet	Salt N/I	_/ Cabl	e Tools_	e area? NO	
GEOLOGICAL TAR Depth of Water str	completed well 4: rata depth: Fres	288 feet h N/A feet;	Salt N/I	_/ Cabl	e Tools_	e area? NO	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA	completed well 4: rata depth: Fres	feet;	Salt N/A	/ Cabl	e Tools_ ed in the	e area? NO t known.	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing	completed well 4: rata depth: Fres	288 feet th N/A feet; n Shale	Salt N/A Is coal Pay	_/ Cabl	ed in the fluid no	e area? NO t known.	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini	completed well 4: rata depth: Fres n depths: N/A formation Brow itial open flow	feet h N/A feet; n Shale Mcf/d	Salt N/A Is coal Pay Oil: Ind	/ Cable A feet being min Orilled on y zone dep	ed in the fluid no	e area? NO t known.	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini	completed well 4: rata depth: Fres n depths: N/A formation Brown itial open flow hal open flow 1.	288 feet h N/A feet; n Shale - Mcf/d 237 Mcf/d	Salt N/I Is coal Pay Oil: Ini	/ Cable feet being min orilled on zone depintial open for the control op	ed in the fluid no th 3395-3 flow -	e area? NO t known. 567 feet Bbl/d Bbl/d	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini * Fir	completed well 4: rata depth: Fres n depths: N/A g formation Brown itial open flow nal open flow 1. Time of open f	288 feet h N/A feet; n Shale Mcf/d 237 commingled the f/d low between in:	Pay Oil: Initial and fi	/ Cable feet being min orilled on zone depitial open fall open final tests	ed in the fluid no th 3395-3 flow 4 h	e area? NO t known. 567 feet Bbl/d Bbl/d Durs	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini * Fir	completed well 4: rata depth: Fres n depths: N/A formation Brown itial open flow hal open flow 1. Time of open flow ock pressure 830	288 feet h N/A feet; n Shale Mcf/d 237 commingled fcf/d low between in: psig(surfa	Pay Oil: Initial and finance measurer	/ Cable feet being min orilled on zone depitial open fall open final tests	ed in the fluid no th 3395-3 flow 4 h	e area? NO t known. 567 feet Bbl/d Bbl/d Durs	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini *Fir Static re	completed well 4: rata depth: Fres n depths: N/A formation Brown itial open flow hal open flow Time of open flow ock pressure 830 icable due to multiple flow icable flow	288 feet h N/A feet; n Shale Mcf/d 237 commingled wcf/d low between in psig(surfational completions)	Pay Oil: Ini itial and finace measurer	/ Cable A feet being min orilled on y zone dep itial open hal open f inal tests ment) afte	ed in the fluid no th 3395-3 flow 4 hour 48 hour	e area? NO t known. 567 feet Bbl/d Bbl/d curs urs shut in	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini * Fir Static re (If apple Second pr	completed well 4: rata depth: Fres m depths: N/A g formation Brown itial open flow hal open flow 1. Time of open f ock pressure 830 icable due to mult roducing formation	288 feet h N/A feet; n Shale Mcf/d 237 commingled wcf/d low between in psig(surfation_Berea Sandst	Pay Oil: Ini itial and finace measurer on) one Pay	/ Cable A feet being min orilled on y zone dep itial open hal open f inal tests ment) after y zone dep	ed in the fluid no th 3395-3 flow - low - hour 4 hour th 1945-1	e area? NO t known. 567 feet Bbl/d Bbl/d Durs urs shut in	
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini * Fir Static re Second producing Gas: Ini	completed well 4: rata depth: Fres n depths: N/A g formation Brow itial open flow hal open flow ck pressure 830 icable due to mult roducing formation itial open flow	288 feet h N/A feet; n Shale Mcf/d 237 commingled filow between in: psig(surfation Berea Sandst Mcf/d	Pay Oil: Ini itial and finance measurer on) one Pay Oil: Ini	/ Cable feet being min brilled on zone dep itial open final tests ment) after y zone dep	ed in the fluid no th 3395-3 flow 4 hour th 1945-1 flow flow flow th 1945-1 flow	e area? NO t known. 567 feet Bbl/d Bbl/d Durs ars shut in 949 feet Bbl/d	· · · · · · · · · · · · · · · · · · ·
GEOLOGICAL TAR Depth of Water str Coal seam OPEN FLOW DATA Producing Gas: Ini * Fir Static re Second producing Gas: Ini	completed well 4: rata depth: Fres n depths: N/A g formation Brown itial open flow hal open flow 1. Time of open f ock pressure 830 icable due to mult roducing formation itial open flow hal open flow hal open flow hal open flow	288 feet h N/A feet; n Shale Mcf/d 237 commingled filow between in: psig(surfation Berea Sandst Mcf/d	Pay Oil: Ini itial and finace measurer on) one Pay Oil: Ini Oil: Fin	/ Cable feet being min prilled on y zone dep itial open inal tests ment) after y zone dep itial open hal open hal open	ed in the fluid no th 3395-3 flow 4 hour th 1945-1 flow 1 flow 1 flow 1 flow 1 flow 1	e area? NO t known. 567 feet Bbl/d Bbl/d curs urs shut in 949 feet Bbl/d Bbl/d	· · · · · · · · · · · · · · · · · · ·

JAN 18 1985

FORM IV-35 (REVERSE)

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CAGE

CAGE

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

11/13/84 Young Wireline perf Brown Shale from 3395' to 3567'.
11/27/84 Haliburton frac Brown Shale with 75% foam using #60,000 of 20/40 sand, 337 bbl fluid, 585,000 scf N_2 , ISIP-1800 psig.

11/13/84 Young Wireline perf Berea Sandstone from 1945' to 1949'.

11/27/84 Halliburton frac Brown Shale with 75% foam using #45,000 of 20/40 sand, #15,000 10/20 sand, 900,000 scf N2, 370 bbl fluid, ISIP-1000 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
See Original.			
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and the second of the second o		9	

(Attach separate sheets as necessary)

	Kaiser	Exploration	and Mining	Company		
# * * * * · · · · · · · · · · · · · · ·	Wel	1 Operator				
	By:	RAK				
	Date:_	December 10,	1984		May 1.	a an Change and a second

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 that, encountered in the drilling of a well."

13 - 13 × 15 m 1

4.5

DRILLING CONTRACTOR:



2) Operator's Well No. KEM #353	

3) API Well No. 47
State 107 1255 County Permit

STATE OF WEST VIRGINIA

	althor are a						IT APPLICATION		
	WELLTWON	4 01			v .				
4)	WELL TYPE				14	Underground	storage	Deep X	_/ Shallow/)
5)	LOCATION:	Eleva	ition:	735		Watershed: _	Dry Run		Lubook
6)	WELL OPER		ict:	Harris	ion and		11) DESIGNATE	Quadrangle: D AGENT	Lubeck
0)	Address	P	. O. B	ox 8			Address	Same	
		Ra	vensw	ood, WY	26164				
7)	OIL & GAS ROYALTY O	WNER 1	_ydia	Tennant			12) COAL OPERA	ATOR None	
	Address		Rt. 1				Address		
			New En	gland, W	V				
8)	Acreage SURFACE OV	-	N Color	Tennant		- 0	Name		RATION ON RECORD:
	Address		Same				Address		
		-				_			
9)	Acreage FIELD SALE	(IF MAD	E) TO:				Name		
	Address						11000		
10:	OV 0 6:5	NOPE	DD 75					E WITH DECLARAT	TION ON RECORD:
10)	OIL & GAS II						NameAddress	MUTTE	
	Address	Linder	Rt	Box 3A			Audiess		
		Looney					A Report to	Assertion of Balas	
15)	PROPOSED V	WORK:				/ Redri	ll/ Fra	cture or stimulate	
				hysical change			new formation		
16)	GEOLOGICA								
	17) Estimated18) Approxim						salt,	feet.	
	19) Approxim							e area? Yes	/ No/
20)	CASING ANI	TUBING	G PROGI	RAM					
	CASING OR		S	PECIFICATIONS	-	FOOTAG	GE INTERVALS	CEMENT FILL-UP	PACKERS
	TUBING TYPE	Size	Grade	Weight per ft.	New Used	For drilling	Left in well	OR SACKS (Cubic feet)	
	Conductor								Kinds
10	Fresh water Coal	10 3/4	11		X	175 250	275 250	125 sks cla	s A to surface
	Intermediate	7"			X	1855	1855	980° 88 8 848	Sizes
	Production	4 1/2	211		X	4315	4315	225 sks 50/	Depths set
-	Tubing								
	Liners								Perforations: Top Bottom
01)	EVED A CEIO	1 DIGITO							
21)	EXTRACTION Check and pro			lowing:					
							The state of the s	e right to extract oil o	r gas.
22)	ROYALTY PR			22-4-1-(c) (1) th	rough (4). (S	ee reverse side f	or specifics.)		
	Is the right to e	xtract, pro	oduce or 1						ing for flat well royalty or any
	similar provision produced or m				er of the oil o	r gas in place w	hich is not inherent	ly related to the volur	ne of oil or gas so extracted,
							may use Affidavit l		
23) 24)	Copies of this	Permit A	pplication	and the enclo	osed plat and	reclamation plan	have been mailed l	by registered mail or d	elivered by hand to the above
	Mines at Char				essee on or be	fore the day of t	me manning or denve	ry of this Perinit App	lication to the Department of
	Notonu						Cianada	ATT	West Control
	Notary: My Commission	Evnires					Signed:	neral Manager	
	Commission								
					OI D	FFICE USE OR RILLING PE	ONLY RMIT		
Per	mit number			10/-1/35					19
		a the P		and 11 1	tion -b - 1	low is a 14	of namini	Da Da deill in accordan	
qui	rements subject	to the con	ditions construct	and well loca ontained herei	n and on the r	everse hereof.	Notification must be tted work	given to the District	ce with the pertinent legal re- r his contractor shall notify the
pro	per district oil a	nd gas ins	pector 24	hours before	actual permitt	ed work has cor	In additionmenced.)	on, the well operator of	r his contractor shall notify the
	mit expires	Ja	muary	4, 1984				l prior to that date and	prosecuted with due diligence.
-	Bond:	Agen	t:	Plat:	Casing	Fee		37	
	73		0	and the same of th		1	A	dministrator, Office of	f Oil and Gas