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Stude of West Nirginiu

Alepartment of Mines Dil und Vas Division

Operato	October 15, 1984 or's . <u>KEM #272</u>
Farm	Townsend
VEI NO	47 - W -1233 - F

WELL OPERATOR'S REPORT

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANCE

	Oil/ (If "Gas,"	F & C C C C C C C C C C C C C C C C C C						and the second s	
CATION:	Elevation:	892*	Water	shed	South E	Fork of Let	e Creek	rock	
	Elevation:_ District:_	Marris	Count	A Mod	<u>l</u>	Manrangre	PONG C		
									year) matth
									_
OMPANY KV	ISER EXPLORA	TH DNY NOIL	NING CO	MPANY	0	Used in	Teft	Cement	
ddress <u>f</u> .	O. Box 8, R	avenswood,	MA 56	164	6	Drilling	1	fill up Cu. ft.	
ESIGWIE	D AGENT Robe	rt A. Pryce				DEITTING	TI' HETT		
	ame				Size 20-16				
URFACE O	WNER Clarence	e Townsend			Cond.			LSO SX CI	a: s
	t. 2, Bellevi				13×10"3/	4	246	3% CaCl,	1/4# f 100
	ugiis amer				9 5/8				-
ADDRESS					8 5/8			150 sx 5	07/50
TT. AND C	AS INSPECTO	R FOR THIS	WORK !	lomer	7		1974	100 sx C	laks
l\nr	FI ADDRES	s Linden Rt	., Box	3 - A	. 5 1/2			225 sx 5	0/50
TOTAL TO	eciten .	Hobar 28	1982	9-19-87	4 1/2		4657	223 SX 3	4
DOTTITNG	COMMENCED .	June 21, 13	703		1 3				_
DRILLING	COMPLETED_	June 27, 19	983	9-24-87	2				_
T THE ST	CARIE. PIIK	CING OF U	KY INJUL	Old .	Liners				
CONTINUE OF	ITS PROGRESS	CON FROM DI	والسلسلة والمراجعة	UK	used				
REVORKIN ON	IG. VEREAL I	PERMISSION	VUI:						
- The state of the	CAL TARGET F	DWATTON	Oriskan	y Šandstor	ne			579f6	æt
GEO TOCI (AL TARGET F	orod vall	4665	feet	Rotary	x / Cal	ble Tools		
	pth of compl ter strata d		ah NI/A	feets	Salt	N/A _fe	et		
Wa	ter strata d al seam dept	epun ree	. Δ		Is coa	l being m	ined in t	the area?_	No_
Co	aı seam dept	15.	·//·	0	— illed on f	luid - not	t known		
OPEN FL	ON DATA							54' _ 4569 5	eet
PI	OW DATA coducing for	mation	Oriskan	y Sandsto	re l	ay zone c	on flow	<u> </u>	l/d
Gá		- E7		Mct/d	ULL: -	Limbon of			
	9 9	67~7	250	· Mcf/d	. 4	char ober	9 10 45 47 1		
	•		Florib	atween in	itial amo	inai w	3 <u>4</u>		
s	tatic rock P	ressure_1	400	psig(surf	ace measu	rement) a	rer	Monte and	ب سیست میں
			ian De	vonian Br	own Shale	Pay zone	depth	, D	17 1/
Songlife S	Gas: Initia Final (non flow	101	McE/	3 O1T:	FINAL OF			אדיר (
)~ \}~	-	·	n flow l	retween 1	uiciar air			O-Marie Marie Mari	
00,	T Static rock	pressure	875	psig (surf	ace measu	rainint al		المالين المالي	IC LI
,	Juice Lock			• •		(17)	ontinua o	oci 27 n reverse	oid

(1.7.C.).

DETAILS OF PERFORMIND INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, EIC.

28-83: NL McCullough on location to perforate Oriskany Sandstone 4564' - 4568', 16 holes, 0.41" in diameter.

B. J. Hughes x-link gel frac Oriskany Sandstone breakdown @1960 psig; treated @7.5 BPM; fluid 225 MSCF N₂, 1450 to 800 psig. Total sand was 60,000# of 20/40 sand, total nitrogen was 174 MSCF, total fluid was 799 bbls. ISIP: 680 psig, 5 min SIP: 490 psig.

9-24-84 Young's to perf brown shale - 3626/3890 - 20(.39" dia) shots, Bridge plug 3950'

9-27-84 Haliburton (fluid) & NOWSCO (nitrogen) - total sand - 60,000 # of 20/40, total N2 - 550 mscf. Total sand laden fluid - 199 bbl, total fluid - 275 bbl, ISIP - 1040, 5 min SIP - 840 psig WEIL LOG

ORMATION COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Shale and Siltst Sandstone and Sh Siltstone and Sh Sandstone and Sh Siltstone and Sh Coffee Shale Berea Sandstone Grey Shale Brown Shale Brown Shale Shale Marcellus Shale Onondaga Limesto Oriskany Sandsto Helderberg Limes	ale ale ale ale ale ale ale	0 640 806 1160 1750 2200 2224 2227 3686 3892 4274 4458 4554 4584	640 806 1160 1750 2200 2224 2227 3686 3892 4274 4458 4554 4554 4584	

(Attach separate sheets as necessary)

KNIS	ER EXPLORATION AND MINING COMPANY	
	Operator	V
By: C	Ala	
	October 15, 1984	

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 will, encountered in the drilling of a well."



4. 21		 		2	÷ *	,	~ ~	
		 		-		-	-	
				*4				
Operator	. 2	VER	A . #	272				
Well No		VFI	1 71	L 1 L.				
11 (31) 10	* ****	 						

			Maria Reservation	and the state of t	API We	II No. 47	107	1233	
		ST	ATE OF WES	T VIRGINIA		State	County	Permit	•
	Granismo	DEPARTMEN	TOF MINES.	OIL AND GA		energy .			
	OI	L AND GAS	WELL PE	RMIT AF	PLICATI	ON			
WELL TYPE:	Oil/	Gas X	$\int d^{2}x$						
	(If "Gas", Proc	duction X	/ Undergr	ound storage	/	Deep	/ Shal	low/)
LOCATION:	Elevation: 89	92'	Waters	ned: Sout	h Fork of	Lee Cree	2 k		
		arris							
WELL OPERAT	OR Kaiser Exp								
•	P. O. Box			•			•		
	,	, WV ' 26164				enswood.			
OIL & GAS									
	NER Clarence	Townsend, e	tal .	COAL	OPERATOR.	None			
Address	<u>Rt. 2</u>			A	ddress				
	Bellevill	lw, WV 261	33		Constitution of the second			, 	
Acreage	189.12		*	COAL	OWNER(S)	WITH DECL	ARATION	ON RECORI	D:
SURFACE OWN	VER Same	ø	,		None				
Address	Control of the state of the sta				ddress	Tab Car.		·	
Address	**************************************		<u> </u>	A	uaress		TEER		
		·			••••••			Company Commen	
Acreage			all annual belli annua annua a d'annua annua a sanalanggan da				<u> </u>	2	-
FIELD SALE (·			A	ddress	- Carl Control	ND GAS D		
Address						\$ \$ V &	inak 37% % t 141 hart % c %	72 (1315 (3817)	····
•	***************************************			COAL	LESSEE WIT	TH DECLAR	O NOITA	RECORD:	
OIL & GAS IN	SPECTOR TO BE	NOTIFIED		Name_	None				
Name Samue	el N. Hersman	Particular and the second of t		Å	ddress				·
Address	P. O. Box 66	<u> </u>			Constitution of the constitution of the const			,	
	Smithville,	WV 26178	·						
The undersign	ed well operator is en	ntitled to operate	for oil or gas n	urposes at the	ahove location	on under a de	and .	/ lease X	
	/ dated <u>De</u>								
Towns			, 17,	to the under	signed well o	perator from	Otalei	- CC a do la	
(IF said deed, le	ase, or other contra		•			,			
Recorded on	<u>September 9198</u>						d	County, \	West
Va., in Leas	SeBook	760 at pag	e639	A permit is	requested as	follows:			
PROPOSED W	ORK: Drill X	/ Drill deeper_	/ Re	drill	/ Fracture	or stimulate	/		
	*	formation							
·		cal change in we							
	other physic	tal change in we	ii (specify)				**************************************		
1	—planned as	s shown on the	work order on	the reverse	side hereof				
The chave now									
	ed coal operator, coa							-	
Department.	22-4-3 must be filed	with the Departr	nent of Mines	within liftee	n (15) days a	fter the rece	ipt of this A	Application by	/ the
-	Permit Application on	nd the enclosed al	at and radiom	tion alon bay					_
	Permit Application an coal operator, coal o								
	of Mines at Charles			sciore the da	y of the main	ng or denver	oi this rer	mit Application	on to
					V-1				
	T-COPIES OF ALL LOGS DIRECTLY		Lav,		Kaiser	Xplora	on and M	ining Com	pan
го:				ــ [ال	<u> </u>	<u> </u>			
8	A OIL AND GAS	GUT	2 9 1982	Manager 1		Well O	perator		u _g
CONSERVA SION	TION COMMIS-			Ву		ightender Millionikanik androidel Johanno vasco q	***************************************		100
9	ON STREET EAST	19500000 - 19500000 - 19500000	GAS DIVISIO		General	Manager		Mine with substituted to be designed up a substitute of the substi	
TELÉPHONE: (3		Land land 1	OF Min	Sentance Greened					
	the signer structure of the	1							

BLANKET BOND

THIS IS AN ESTIMATE ONLY: ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-35 UPON COMPLETION

DRILLING CO	ONTRAC	TOR (H	KNOW	ч) _	Cli	nt_Hurt_a	nd_Associat	es	et e	
				Αd	dress :	P. O. Box	x 338			
						Elkview,	WV			
GEOLOGICAL	TARGI	ET FOR	MOITAN	, 01	riska	ny			-	
Estimate	d depth	of comp	leted we	11,_ 4	4679	fe	et Rotary	/ <u>X</u> /	Cable tools	/
Approxi	nate wat	er strata	depths:	Fres	h,	fee	i; salt,	fect.		
Approxi	nate coa	l seam d	epths:		~	ls coa	l being mined	in the area? Yes		No/
CASING AND	TUBIN	G PROG	RAM							
dhe tallication of the same and a second or second				,						
										-
CASING OR TUBING TYPE	SPE	Grade	Weight per ft	New	Usad		Left in well	OR SACKS (Cubic feet)		(S
Conductor									Kinds	-
Fresh Water	10.2	All				0.01	0501	150 -1 - 1		
Coal	10 3	14				250 '	250'		Sizes	ırface)
Intermediate	7."			-		2133'	2133'	65 sks 50/1 100 sks cla	50 pozmix	
Production	-									
	4 1,	12"				4679'	4679'	225 sks 50/	ou pozmix.	
Tubing										
Liners			Santana de la constante de la		-				Perforations	
Constitution of the second of		<u> </u>		+					Тор	Bottom
				 	 					
	!	<u></u>	1		J			<u> </u>		
the D presc "Rec previ	epartmer ribed by lamation ously paid	nt, accom Regulat Plan'', a d on the	panied by ion 12, o applicable same well	y (i) a r in li to th l, the f	plat in ieu the e recla ee requ	the form preserce the other than the	scribed by Reguer security allowed by Code \$ 22-4-12a, and	ur copies of Form I dation 11, (ii) a borwed by Code § 22-22-4-12b and Regu (v) if applicable, the feet of the property	id in one of the 4-2, (iii) Form lation 23, (iv) e consent requi	forms IV-9, unless
								well where fracturi Form IV-2 filed in		
THIS PERMIT	MUST BE	POSTED	AT THE	WELL	L SITE.	•				
ALL PROVISIO	DNS EED	YG IN A	CCORD,	AMCE	WITH	CHAPTER 22	: *	•	*	
ARTICLE 4 O	FTHE W	, VA. CC	DE, THE	LOC	ATION	V IS HEREBY	31 D E			•
APPROVED F		. Y T T T II §	COMME	THIS.	i ekm V	IT SHALL EXF 7-4-83	\$ fine don			
IF OPERATIO					i Q	niyagi jaganin higund kalaningan roʻorga kangsunadinin mariin na kadinin roʻosifi ("riddill	na "		DAA	
Sale Commence of the constitution			onder en en mentione de la contraction de contracti		erenteren gestekt det er en felt.	h hage generally confirm through the first part to the confirmation of the confirmatio		M		
								and the second		
**********		0001000			*****		,			
The	following	waiver n	ust be co	mplet	ed by t	he coal operate	or and by any co	al owner or coal les fifteen (15) days o	see who has rec	corded a
ucci	aration u	nuci Co	10 22-4	-20, 11	ine p	cimil is to be	issued within	inteen (10) unju		
proposed well. The undersign	location. ied has r	If a mine to objecti	map exi	sts wh work	ich cov propo	/ lessovers the area of sed to be done	f the well location at this location	on, the well location	i has been adde	has examined this d to the mine map, s complied with all
applicable rec	uiremen	ts of the	West-Vi	rginia	Code	and the gover	ming regulation	18.		The state of the s
•							Material demography alpha	Desirringalar attallisationiaa kayusasti täätiiningus atta, suuruulu suusunus	ir ann an tha ann an t	
Date:			, 19	Marine and the state of the sta			By			and the second s
4		- A A A A A A A A A A A A A A A A A A A	-				lts		t	manura nasa daman kanan kanan kana ka ya nakin nakanan kanan ka ya nakin nakan kanan ka ka ka ka ka ka ka ka k



1) Date:	August 22	1.	1984
	r's . <u>KEM #272</u>		
3) API We	ll No. <u>47</u> -	107 -	1233-FRAC
	State	County	Permit

County

Permit

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

APPLICATION FOR A WELL WORK PERMIT

4) WELL TYI	PE: A C	oil	/ Ga	s	X/				
			Production		<u>X</u>	/ Underground	storage	/ Deep <u>X</u>	_/ Shallow/)
5) LOCATIO	N: Ele	evation: _	<u>892'</u>			Watershed: _	South For	<u>k of Lee treek</u>	<u> </u>
	Di	strict:	<u>Harris</u>	<u> </u>		County:	Wood	Quadrangle:	Pond Creek
6) WELL OP				<u>atio</u>	on and	<u>i Mini</u> ng Co.	7) DESIGNATE	DAGENT R. A.	Pryce
Address		P. O. I					Address	Same	
		<u> Kavensı</u>	wood, V	<u> </u>	26164				
8) OIL &-GA				IED			9) DRILLING C		
Name <u>G</u>					5 p.	1 3	NameC1		
Address			Mt. P1 11s. W\			state_		P <u>. O. Box 388</u> E <u>lkview,</u> WV	DECENVE
10) PROPOSE	D WELL	WORK.	Drill		/ Drill	deeper		/ Stimulate_X	MU
10) 11101 002	<i>D D D D</i>	· · · · · · · · · · · · · · · · · · ·					rate new formation		4110 0 7 1004
								plug off Orisk	AUG 2 7 1984
11) GEOLOGI	CAL TAR	GET FOR	MATION.	D	evonia	an Shale			OIL & GAS DIVISIO
12) Estima						feet			
							t,	feet.	DEPT. OF MIN
								e area? Yes	/ No /
15) CASING A									
CASING OR	H	SPEC	CIFICATIONS			FOOTAGE	INTERVALS	CEMENT FILL-UP	PACKERS
TUBING TYPE	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well	OR SACKS (Cubic feet)	
Conductor		0.000	P		0302			(Caba (CE)	Kinds
Fresh water	10 3	14"		Χ		255	255	100 sks nea	
Coal		1							E
Intermediate	7"			Χ		2492	2492	650sksporm	E A / Existing
Production	4 1	/2"		X		5165	5165	225 sks pozr	
Tubing		1				0200	1 0200	I ZZO JKO POZ.	72-00-11930.
Liners									Perforations:
	1								Top Bottom
				-					

***************************************			***************************************	·		OFFICE USE	·		
						DRILLING PI	ERMII		
Permit number_	47-107	-1233-	FRAC					Se	eptember 19,19 84
							-	Date	e
This permit cove	ering the w	ell operate	or and well	locati	on showi	below is evidence	of permission grant	ed to drill in accordance	ce with the pertinent legal re-
									and Gas Inspector, (Refer to
						any permitted work work has commend		ven operator or his com	tractor shall notify the proper
1 14 1 T	-						•	to any modifications or	nd conditions specified on the
reverse hereof.				c and r	тррисанс	ni, piat, and recian	iation plan, subject	to any modifications at	id conditions specified on the
Permit expires _	Septem	ber 19	, 1986			unless we	ll work is commenced	f prior to that date and j	prosecuted with due diligence.
Bond: 86	Agej	77.	Plat:	Casi	no	Fee			
120.121 OP	//			0402		968- 1			7
BLANKET	<u> </u>	<u>0 n</u>	74	<u> </u>	ω	64	M/I_{\perp}	19	1 /
							/ / lar	garet !	Masse
							Adm	inistrator, Office of O	il and Gas
NOTE: Keep o	one copy o	f this perm	nit posted a	it the c	Irilling lo	cation.	//	•	File
		See	the reverse	side (of the AP	PLICANT'S COP	Y for instructions to	the well operator.	2 810

IV-	35	
(Rev	8-81	1



State of West Wirginia

Department of Mines

OIL & GAS DIVISION DEPT. OF MINES Oil and Gas Division

Date			27	, 198	3	
Opera						
Well	No.	·	KEN	1 #2	72	
Farm		Town	ıser	nd		
API	. Ov	47 •	_ [4	W	-123	3
	CONTR		/	07.	123	3

WELL OPERATOR'S REPORT

DRILLING.	FRACTURING	AND/OR	STIMULATING,	OR	PHYSICAL	CHANGE			

WEIL TYPE: Oil / Gas x / Liquid Injection	/ Wast	e Disposal	L/	·
(If "Gas," Production X / Undergrou				
LOCATION: Elevation: 892' Watershed				
District: Harris County Wo	od (Quadrangle	Pond C	reek
MINING WATER THE TOTAL THE				
COMPANY KAISER EXPLORATION AND MINING COMPANY				Cement
ADDRESS P. O. Box 8, Ravenswood, WV 26164	Caşing	Used in		fill up
DESIGNATED AGENT Robert A. Pryce	Tubing	Drilling	in Well	Cu. ft.
ADDRESS Same	Size 20-16			
SURFACE OWNER Clarence Townsend	Cond.			L50 sx Clas
ADDRESS Rt. 2, Belleville, WV 26133	13*10" 3/4		246	3% CaCl, 1
MINERAL RIGHIS OWNER Same	9 5/8			fl
ADDRESS	8 5/8			
OIL AND GAS INSPECTOR FOR THIS WORK Homer	7		1974	150 sx 50/ 100 sx Cla
Dougherty ADDRESS Linden Rt., Box 3-A Looneyville, WV	5 1/2			
PERMIT ISSUED October 28, 1982	4 1/2		4657	225 sx 50/
DRILLING COMMENCED June 21, 1983	3			
DRILLING COMPLETED June 27, 1983	2			
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR	Liners			
REWORKING. VERBAL PERMISSION OBTAINED ON	used			
GEOLOGICAL TARGET FORMATION Oriskany Sandstone		Dep	th 4679	e feet
Depth of completed well 4665 feet I	Rotary <u>x</u>	/ Cabl	e Tools_	
Water strata depth: Fresh N/A feet;	Salt N	/Afeet		
Coal seam depths: N/A	Is coal	being min	ed in the	e area?_No_
OPEN FLOW DATA Dril	led on flu	id – not k	nown	
Producing formation Oriskany Sandstone	Pay	zone dep	th 4564'	_ 4568 feet
Gas: Initial open flow Mcf/d	Oil: Ini	tial open	flow	Bbl/d
Final open flow 250 Mcf/d	Fin	al open f	low	Bb1/d
Time of open flow between init	ial and fi	nal tests	4hc	ours
Static rock pressure 1400 psig(surface	e measurem	ent) afte	rhou	ırs shut in
(If applicable due to multiple completion)		•	108Å
(If applicable due to multiple completion Second producing formation Mcf/d	Pay	zone dep	th_ $M^{ m MR}$	feet
Gas: Initial open flow Mcf/d	Oil: Ini	tial open	flow	Bbl/d
Final open flow Mcf/d	Oil: Fir	al open f	low_	Bbl/d
Time of open flow between init	ial and fi	nal tests	h	ours
Static rock pressurepsig(surface	measureme	ent) after	hou	urs shut in

(PEVILICE)

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

7-28-83: NL McCullough on location to perforate Oriskany Sandstone 4564' - 4568', 16 holes, 0.41" in diameter.

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WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Shale and Siltstone Sandstone and Shale Siltstone and Shale Sandstone and Shale Siltstone and Shale Coffee Shale Berea Sandstone Grey Shale Brown Shale Shale Marcellus Shale Onondaga Limestone Oriskany Sandstone Helderberg Limestone	0 640 806 1160 1750 2200 2224 2227 3686 3892 4274 4458 4554 4554	640 806 1160 1750 2200 2224 2227 3686 3892 4274 4458 4554 4554 4670	
		70)	
		•	
•			
	: .		

(4ttach separate sheets as necessary)

	KAIS	ER EXPLOR	ATION	AND	MINING	COMPANY	
- Constitution of the Cons	Well	Operator					
Bys	7	12 12					
Dat	æ:	July 19,	1983				ati.

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 wal, encountered in the drilling of a well."