DATE: 9/28/2011 API#: 4700103207

## State of West Virginia Department of Environmental Protection Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: HARKER, ARTHUR		RTHUR	Operator Well No.:			4.					
LOCATIO	N: Elevati	on:	1682'	_Quadrang	Quadrangle:		<u> </u>	THORNTO	ON		
	District:		COVE	County:			1	BARBOUR			
	Latitude:	6,130	Feet South of		Deg.	17	Min.		ec.		
	Longitude:	4,630	Feet West of		Deg.		Min.		oc.		
Company:	Texas Keys	tone. Inc.					-				
			****	Casing &		Used in		Left in well	Сеп	nent.	fill up
Address:	560 Epsilor	1 Drive		Tubing		drilling			Cu.		<sub>F</sub>
	Pittsburgh,							-	-		
Agent:	Jon Farmer			13 3/8	95	42		42		ande	11-
Inspector:	Bryan Harr	is				72		72		andec	1 101
Date Permi	t Issued:	02	/03/11	9 5/8	1	465		465	<del></del>	170	
Date Well	Work Com	nenced: 08	/04/11	7 5/10		70.	<u>.                                    </u>	403		170	
Date Well	Work Com	oleted: 08	/11/11	ייד		185	7	1857		250	
Verbal Plu				· · ·	*****	100	<u> </u>	103/		250	
Date Permi		ed on:		4 1/2"		0		5.000	-		
	X Cable	Rig	7	4 72		<u> </u>		5673	-	253	
Total Verti				<del> </del>				ļ <u></u>			,
Total Meas	uned Denth	(6) 5790		<b>}-</b>				ļ <u></u>			
Freeh West	m Danel (fe	(11.): 3790 .): 110, 740		<u> </u>				ļ <u> </u>			
Salt Water	Doneh (#4)			ļ							
		none rep	onea					ļ			
			)? N			ļ					
Coal Depth		750				ļ					
void(s) enc	ountered (F	V/Y) Depth(s)	: N	<u> </u>							
OPEN FLO	W DATA	(If more than	two producing form	ations plea	se inc	clude add	itional	data on sepa	rate she	et)	
	Producing f	ormation:	5TH ELK			Pay zone	Thom#	h ( <del>0</del> )	5533	¥ = 1	-
	Gas; Initial		G/S TSTM			MODA	Oils 1	initial open f		0	Bbl/d
	Final open i		304			MCE/D	Oil. I	Final open fl		0	Bbl/d
			en initial and final te	oto.	NT/A	Hours	QII.	ешат орен по	JW:	<u></u>	סממם.
	Static rock	Pressure:	810	-	11/47			essure) after		4.0	TY
						har8/amr	ace pr	essure) arrer		48	Hours
	Second Pro-	ducing format	ion: 3RD ELK			Pay zone	Dane	L (A)	5005	600	10
	Gas: Initial	open flow	Co-mingled						5205		
	Final open i		Co-mingled			MODA	OH; I	initial open f Final open flo	low: —	0	Bbl/d
			en initial and final te	nta.			QII; I	rinai open no		0	Bbl/d
	Static rock	Dragoura:	Co-mingled	SLS		Hours					
	ound fook	ressure,	CO-mingled			psiā(snu	ace pr	essure) after			Hours
I certify und	ler penalty	of law that I	have personally exam	mined and	am f	amiliae ···	rith +1-	- info		- قيمها	بالتهيد
document a	nd all the	attachmente o	nd that, based on r	mine and	ο <b>έ</b> 4	pose je s muniqu M	THE THE	in the same of the same	1 SHOIIII	nea c	л (III\$
obtaining th	e informatio	n I believe the	the information is	ny mquiry	ite, an	nd comple	ividua ete.	is minediate	ny resp	onsib	ie for
			MA O	X-7				9-20-	//		
		<del>-//</del>	Signature	//	***************************************		-	Date			
		· ·		- ,				שומעו			

RECEIVED
Office of Oil & Gas

MAR 1 6 2012

WW Department of Environmental Protection

Were o	ore sam	ples taken?	No_X	Were	cuttings caught durindlling?	Yes	No_X
Were	N Y/N	_Electrical,	N Mechanica	l, <u>Y</u>	or Geophysical logs recorded on	this well?	-

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL

 $\label{perforated} \mbox{ Perforated Intervals, Fracturing, or Stimulating:}$ 

Perfed 5th Elk 5533' - 5565' (21 shots). BD 3147 #. 155 sks 40/70 & 100 sks 20/40. 501 bbl. Gel Frac.

Perfed 3rd Elk 5205' - 5233' (28 shots). BD 4180 #. 250 sks 40/70 & 112 sks 20/40. 875 bbl. Gel Frac.

Perfed 1st Elk 4763' - 4767' (12 shots). BD 4520 #. 105 sks 40/70 & 100 sks 20/40. 437 bbl. Gel Frac.

Perfed Balltown B 3258' - 3268' (20 shots). BD 3800 #. 200 sks 40/70 & 115 sks 20/40. 539 bbl. Gel Frac.

FILL 0 15 30 30 42 5ANDSTONE 310 340 11/2° FW ⊕ 110′ 5ANDSTONE 310 340 11/2° FW ⊕ 110′ 5ANDSTONE 310 340 11/2° FW ⊕ 240′ 5ANDSTONE 375 400 375 5ANDSTONE 375 400 530° 5ANDSTONE 375 375 5ANDSTONE 375 375 5ANDSTONE 375 375 5ANDSTONE 375 3800 580 5ANDSTONE 3800 5800 5ANDSTONE 380	Formations Encountered:	Top Depth	Bettom Depth	Notes:
SANDY SHALE  \$ 30	FILI.	0	**	
SANDSTONE				
SANDY SHALE         42         210         M2° FW @ 110′           SANDY SHALE         340         375           SANDY SHALE         340         375           SANDSTONE         375         400           SANDY SHALE         400         350           SANDY SHALE         400         350           SANDY SHALE         640         750           SANDY SHALE         640         750           SANDY SHALE         640         750           SANDY SHALE         800         980           SANDY SHALE         800         980           SANDY SHALE         880         1215           SANDY SHALE         180         1396           SANDY SHALE         180         131           SANDY SHALE         180         191           SHALE         1849         1849           SEEALE <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td></td>	· · · · · · · · · · · · · · · · · · ·			
SANDSTONE 340 340 174°FV @ 240°  SANDY SHALE 340 375 400  SANDY SHALE 400 550  SANDY SHALE 400 550  SANDY SHALE 400 550  SANDY SHALE 400 750  SANDY SHALE 400 750  SANDY SHALE 400 750  SANDY SHALE 400 750  SANDY SHALE 500 990  SANDSTONE 800 990  SANDSTONE 800 990  SANDSTONE 800 990  SANDSTONE 800 1215  SANDSTONE 1215 1280  SANDY SHALE 1280 1396  LITLE LIME 1396 1401  FENCIL CAVE SHALE 1401 1437  BIG LIME 1437 1663  SQLAW SANDSTONE 1663 1689  SPIALE 1689 1715  WER SANDSTONE 1715 1764  SHALE 1764 1849  BEREA SANDSTONE 1888 1904  GANTZ SANDSTONE 1904 1944  LOWER GANTZ SANDSTONE 2515 2651  SANDY SHALE 1883 2579  SANDY SHALE 1883 2579  SANDY SHALE 1983 2579  SANDY SHALE 2615 2651  SANDY SHALE 2615 2661  SANDY SHALE				1/2" PW @ 110
SANDY SHALE         240         375         400           SANDSTONE         375         400         530           SANDSTONE         550         640         550           SANDSTONE         550         640         550           SANDSTONE         550         640         550           SANDSTONE         750         755         800           SANDSTONE         800         980         580           SANDSTONE         1215         1280         1396           SANDSTONE         1215         1280         1396           SANDSTONE         1216         1396         1401           PENCIL CAVE SHALE         1401         1437         1663           SQUAW SANDSTONE         1663         1689         1715           WER SANDSTONE         1715         1764         1849           SHALE         1689         1715         1764           SHALE         1849         1858         1904           GANTZ SANDSTONE         1849         1858         1904           GANTZ SANDSTONE         1944         1943         1943           LOWER GANTZ SANDSTONE         2579         2615         2631				_
SANDSTONE 375 400 SANDSTONE 550 640 SANDSTONE 550 640 SANDSTONE 550 640 SANDSTONE 750 755 SANDSTONE 755 800 SANDSTONE 800 980 SANDSTONE 800 980 SANDSTONE 1215 1280 SANDSTONE 1215 1280 SANDSTONE 1215 1280 SANDSTONE 1216 1280 1396 LITTLE LIMB 1396 1401 FIRECL CAVE SHALE 1401 1437 BIG LIMB 1497 1663 SQUAW SANDSTONE 1669 1689 SHALE 1764 1849 BEREA SANDSTONE 1715 1764 SHALE 1858 1904 GANTZ SANDSTONE 1849 1858 SHALE 1858 1904 GANTZ SANDSTONE 1944 1944 LOWER GANTZ SANDSTONE 1944 1983 SANDY SHALE 1983 2579 SANDY SHALE 1983 2579 SANDS SANDSTONE 2519 2615 SANDY SHALE 2611 2676 SANDSTONE 2519 2615 SANDY SHALE 2611 2676 SANDSTONE 3247 3272 SANDY SHALE 2615 2631 2676 SANDY SHALE 2615 3247 BALLTOWN B SANDSTONE 3247 3272 SHALE 3272 4517 BALLTOWN B SANDSTONE 3247 3272 SHALE 3252 4507 ALEXANDER 4545 4707 ALEXANDER 5525 5578	SANDY SHALE			114 TW (#) 240
SANDS SHALE         400         550         640           SANDS SHALE         640         750         755           COAL         750         755         800           SANDS SHALE         800         980         1215         800           SANDS SHALE         980         1215         1280	SANDSTONE			
SANDSTONE         550         640         750           COAL         750         755         755           SHALE         755         800           SANDSTONE         800         980           SANDY SHALE         980         1215           SANDY SHALE         1280         1396           LITTLE LIME         1396         1401           PENCIL CAVE SHALE         1401         1437           BIG LIME         1437         1663           SQUAW SANDSTONE         1663         1689           SHALE         1689         1715           WEIR SANDSTONE         1715         1764           SHALE         1764         1849           BEREA SANDSTONE         1915         1764           SHALE         1849         1858           SHALE         1849         1849           SHALE         1849         1944           CANTZ SANDSTONE         194         194           SANDY SHALE         194         1983           SANDY SHALE         194         1983           SANDY SHALE         2615         2651           SANDY SHALE         2615         2651 <td< td=""><td>SANDY SHALE</td><td></td><td></td><td></td></td<>	SANDY SHALE			
SANDY SHALE         640         750         755           SHALE         755         800           SANDSTONE         800         980           SANDSTONE         800         980           SANDY SHALE         1215         1280           SANDY SHALE         1280         1396           LITTLE ILME         1396         1401           PENCIL CAVE SHALE         1401         1437           BIG LIME         1437         1663           SQUAW SANDSTONE         1663         1689           SHALE         1669         1689           SHALE         1764         1849           BEREA SANDSTONE         1715         1764           SHALE         1764         1849           BEREA SANDSTONE         1949         1858           GANTZ SANDSTONE         1944         1943           LOWER GANTZ SANDSTONE         1944         1983           SANDY SHALE         1983         2579           BAYARD SANDSTONE         2579         2615           SANDY SHALE         2615         2631           SPEECHLEY A SANDSTONE         2631         2676           SANDY SHALE         3247         3272	SANDSTONE			
COAL         730         755         800           SHALE         755         800         980           SANDSTONE         800         980         1215           SANDY SHALE         980         1215         1280           SANDY SHALE         1280         1396         1401           LITTLE LIME         1396         1401         1437           PENCIL CAVE SHALE         1401         1437         1663           SQUAW SANDSTONE         1663         1689         1715           WER SANDSTONE         1663         1689         1715           WER SANDSTONE         1715         1764         1849           BEREA SANDSTONE         1849         1858         1904           GANIZ SANDSTONE         1849         1858         1904           GANIZ SANDSTONE         1944         1983         2579         2615           SANDY SHALE         1983         2579         2615         2631         2676           SANDY SHALE         2615         2631         2676         2631         2676         2631         2676         2631         2676         2631         2676         2631         2676         2631         2676	SANDY SHALE			•
SHALE         755         800         980           SANDSTONE         800         980         SANDSTONE         1215         1280           SANDY SHALE         1280         1396         LITLE LIME         1396         1401         PARCEL CAVE SHALE         1401         1437         1663         1401         PARCEL CAVE SHALE         1401         1437         1663         1689         PARCEL CAVE SHALE         1401         1437         1663         1689         PARCEL CAVE SHALE         1663         1689         1715         1663         1689         PARCEL CAVE SHALE         1663         1689         1715         1764         PARCEL CAVE SHALE         1663         1689         1715         1764         PARCEL CAVE SHALE         1715         1764         PARCEL CAVE SHALE         1715         1764         PARCEL CAVE SHALE         1764         1849         PARCEL CAVE SHALE         1849         1858         PARCEL CAVE SHALE         1849         1858         PARCEL CAVE SHALE         1944         1983         2579         PARCEL CAVE SHALE         1964         1944         1983         2579         PARCEL CAVE SHALE         1963         2579         2615         2631         2676         SANDY SHALE         2615         2631         2676	COAL			
SANDSTONE         800         980           SANDY SHALE         980         1215           SANDSTONE         1215         1280           SANDY SHALE         1280         1396           LITTLE LIME         1396         1401           PENCIL CAVE SHALE         1401         1437           BIG LIMB         1437         1663           SQUAW SANDSTONE         1663         1689           SHALE         1689         1715           WER SANDSTONE         1715         1764           SHALE         1754         1849           BEREA SANDSTONE         1849         1858           SHALE         1858         1904           GANTZ SANDSTONE         1904         1944           LOWER GANTZ SANDSTONE         1944         1983           SANDY SHALE         1983         2579           BAYARD SANDSTONE         2615         2631           SPEECHLEY A SANDSTONE         2615         2631           SPEECHLEY A SANDSTONE         2631         2676           SANDY SHALE         2615         2631           BENSON SILTSTONE         3247         3272           SHALE         4223         4507	SHALE			
SANDSTONE 1215 1280  SANDY SHALE 1280 1396  LITTLE LEME 1396 1401  PENCIL CAVE SHALE 1401 1437  BIG LIMB 1437 1663  SQUAW SANDSTONE 1663 1689  SYLALE 1689 1715  WEIR SANDSTONE 1715 1764  SHALE 1754 1849  BEREA SANDSTONE 1846 1858 1904  GANTZ SANDSTONE 1848 1904  LOWER GANTZ SANDSTONE 1944 1983  SANDY SHALE 1983 2579  BAYARD SANDSTONE 1944 1983  SANDY SHALE 1983 2579  BAYARD SANDSTONE 2579 2615  SANDY SHALE 2615 2631  SPECHLEY A SANDSTONE 2631 2676  SANDY SHALE 2651 2676  SANDY SHALE 3272 4317  BALLOWR SANDSTONE 3247 3272  SHALE 3272 4317  SANDY SHALE 4323 4507  ALEXANDER 455 4707  SANDY SHALE 4565 4707  SANDY SHALE 4701 4711  SANDY SHALE 5002 5200  SANDY SHALE 5002 5200  SANDY SHALE 5002 5200  SANDY SHALE 5004 5525  STH BLK SILTSTONE 5525 5578	SANDSTONE			
SANDSTONE         1215         1280           SANDY SEALE         1280         1396           LITTLE LIME         1396         1401           PENCIL CAVE SHALE         1401         1437           BIG LIMB         1437         1663           SQUAW SANDSTONE         1663         1689           SHALE         1689         1715           WEIR SANDSTONE         1715         1764           SHALE         1764         1849           BERRA SANDSTONE         1849         1858           SHALE         1885         1904           GANTZ SANDSTONE         1944         1983           SANDY SHALE         1983         2579           BAYARD SANDSTONE         2579         2615           SANDY SHALE         2615         2631           SPEECHLEY A SANDSTONE         2631         2676           SANDY SHALE         2615         3247           SANDY SHALE         2631         2676           SANDY SHALE         3247         3272           SHALE         4317         4323           SANDY SHALE         4317         4323           SANDY SHALE         4545         4707	SANDY SHALE			
SANDY SHALE         1280         1396           LITTLE LIME         1396         1401           PENCIL CAVE SHALE         1401         1437           BIG LIMG         1437         1663           SQUAW SANDSTONE         1663         1689           SHALE         1689         1715           WEIR SANDSTONE         1715         1764           SHALE         1764         1849           BEREA SANDSTONE         1849         1838           SHALE         1858         1904           GANTZ SANDSTONE         1944         1983           SANDY SHALE         1963         2579           BAYARD SANDSTONE         2579         2615           SANDY SHALE         2615         2631           SANDY SHALE         2615         2631           SANDY SHALE         2616         3247           BALITOWN B SANDSTONE         3261         2676           SANDY SHALE         4317         4323           BENSON SILTSTONE         4317         4323           SANDY SHALE         4323         4507           ALEXANDER         4707         4545           SHALE         4707         471	SANDSTONE			•
LITTLE LIME 1396 1401 1437 1663 1681 1401 1437 1663 1689 1715 1764 1715 1764 1849 1715 1764 1849 1715 1764 1849 1849 1858 1858 1858 1858 1858 1858 1858 185	SANDY SHALE			•
PENCIL CAVE SHALE         1401         1437         1663           BIG LIMB         1427         1663         1689           SQUAW SANDSTONE         1663         1689         1715           SHALE         1689         1715         1764           WEIR SANDSTONE         1715         1764         1849           BEREA SANDSTONE         1849         1858         1904           GANTZ SANDSTONE         1904         1944         1983           SANDY SHALE         1983         2579         2615           BAYARD SANDSTONE         2579         2615         2631           SANDY SHALE         2615         2631         2676           SANDY SHALE         2615         2631         2676           SANDY SHALE         2676         3247         3272           SHALE         3272         4317         4223           SANDY SHALE         4323         4507           ALEXANDER         4545         4707           IST ELK SILTSTONE         4707         4771           SANDY SHALE         4707         4771           SANDY SHALE         4707         4771           SANDY SHALE         4707         4771     <	LITTLE LIMB			
BIG LIMB 1437 1663  SQUAW SANDSTONE 1663 1689  SHALE 1689 1715  WER SANDSTONE 1715 1764  SHALE 1764 1849  BEREA SANDSTONE 1784 1849  BEREA SANDSTONE 1849 1858  SHALE 1858 1904  GANTZ SANDSTONE 1944 1948  LOWER GANTZ SANDSTONE 1944 1983  SANDY SHALE 1983 2579  BAYARD SANDSTONE 2579 2615  SANDY SHALE 2615 2631  SPECHLEY A SANDSTONE 2631 2676  SANDY SHALE 2676 3247  BALLTOWN B SANDSTONE 3247 3272  SHALE 3272 4317  BENSON SILTSTONE 4317 4323  SANDY SHALE 4223 4507  ALEXANDER 4545 4707  IST ELK SILTSTONE 4707 4771  SANDY SHALE 5002 5200  SANDY SHALE 5002 5200  SANDY SHALE 5002 5200  SANDY SHALE 5002 5255  STHELK SILTSTONE 5255 5578	PENCIL CAVE SHALE			
SQUAW SANDSTONE       1663       1689         SHALE       1689       1715         WER SANDSTONE       1715       1764         SHALE       1764       1849         BEREA SANDSTONE       1849       1858         SHALE       1858       1904         GANTZ SANDSTONE       1904       1944         LOWER GANTZ SANDSTONE       1944       1983         SANDY SHALE       1983       2579         BAYARD SANDSTONE       2579       2615         SANDY SHALE       2631       2676         SANDY SHALE       2631       2676         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4707       4771         SANDY SHALE       4707       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         SANDY SHALE       5002       5264         SANDY SHALE <td< td=""><td>BIG LIME</td><td>·</td><td>4</td><td></td></td<>	BIG LIME	·	4	
SHALE 1689 1715 WER SANDSTONE 1715 1764 SHALE 1764 1849 BEREA SANDSTONE 1849 1858 SHALE 1858 1904 GANTZ SANDSTONE 1904 1944 LOWER GANTZ SANDSTONE 1944 1983 SANDY SHALE 1983 2579 BAYARD SANDSTONE 2579 2615 SANDY SHALE 2615 2631 SPEECHLEY A SANDSTONE 2615 2661 SANDY SHALE 3267 3247 BALLTOWN B SANDSTONE 3247 3272 SHALE 3272 4317 BENSON SILTSTONE 4317 4223 SANDY SHALE 4323 4507 ALEXANDER 4555 4707 IST ELK SILTSTONE 4707 4771 SANDY SHALE 4771 4948 SANDY SHALE 4948 5002 SANDY SHALE 5264 5525 STH ELK SILTSTONE 5200 5264 SANDY SHALE 5264 5525 STH ELK SILTSTONE 5255 5578	SQUAW SANDSTONE			
WEIR SANDSTONE         1715         1764         1849           SHALE         1764         1849         1858           BEREA SANDSTONE         1849         1858           SHALE         1855         1904           GANTZ SANDSTONE         1904         1944           LOWER GANTZ SANDSTONE         1983         2579           BAYARD SANDSTONE         2579         2615           SANDY SHALE         2615         2631           SPEECHLEY A SANDSTONE         2631         2676           SANDY SHALE         2676         3247           BALLTOWN B SANDSTONE         3247         3272           SHALE         3272         4317           BENSON SILTSTONE         4317         4323           SANDY SHALE         4329         4507           ALEXANDER         4507         4545           SHALE         4545         4707           1ST ELK SILTSTONE         4948         5002           SANDY SHALE         5002         5200           SANDY SHALE         5002         5200           SANDY SHALE         5002         5264           SANDY SHALE         5026         5525           STH ELK SILTSTONE	•			
SHALE       1764       1849         BEREA SANDSTONE       1849       1858         SHALE       1858       1904         GANTZ SANDSTONE       1904       1944         LOWER GANTZ SANDSTONE       1944       1983         SANDY SHALE       1983       2579         BAYARD SANDSTONE       2579       2615         SANDY SHALE       2615       2631         SPEECHLEY A SANDSTONE       2631       2676         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4545       4707         1ST ELK SILTSTONE       4701       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         3RD ELK SILTSTONE       5264       5525         5TH ELK SILTSTONE       5264       5525         5TH ELK SILTSTONE       5265       5578	WEIR SANDSTONE			
BEREA SANDSTONE 1849 1858 SHALE 1858 1904 GANTZ SANDSTONE 1904 1944 LOWER GANTZ SANDSTONE 1944 1983 SANDY SHALE 1983 2579 BAYARD SANDSTONE 2579 2615 SANDY SHALE 2615 2631 SPECCHLEY A SANDSTONE 2631 2676 SANDY SHALE 3247 3272 SHALE 3272 4317 BENSON SILTSTONE 4317 4323 SANDY SHALE 4323 4507 ALEXANDER 4507 4545 SHALE 4545 4707 IST ELK SILTSTONE 4701 4771 SANDY SHALE 4771 4948 2ND ELK SILTSTONE 4948 5002 SANDY SHALE 5002 5200 SRD ELK SILTSTONE 5206 5525 STHELK SILTSTONE 5525 5578	SHALE			
SHALE       1858       1904         GANTZ SANDSTONE       1904       1944         LOWER GANTZ SANDSTONE       1944       1983         SANDY SHALE       1983       2579         BAYARD SANDSTONE       2579       2615         SANDY SHALE       2615       2631         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4507       4545         ALEXANDER       4507       4545         SHALE       4545       4707         1ST ELK SILTSTONE       4707       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         SANDY SHALE       5002       5200         SANDY SHALE       5002       5204         SANDY SHALE       5002       5264         SANDY SHALE       5264       5525         STH ELK SILTSTONE       5255       5578	BEREA SANDSTONE			•
GANTZ SANDSTONE 1904 1944  LOWER GANTZ SANDSTONE 1944 1983  SANDY SHALE 1983 2579  BAYARD SANDSTONE 2579 2615  SANDY SHALE 2615 2631  SPECHLEY A SANDSTONE 2631 2676  SANDY SHALE 2666 3247  BALLTOWN B SANDSTONE 3247 3272  SHALE 3272 4317  BENSON SILTSTONE 4317 4323  SANDY SHALE 4323 4507  ALEXANDER 4507 4545  SHALE 4545 4707  IST ELK SILTSTONE 4707 4771  SANDY SHALE 4771 4948  2ND ELK SILTSTONE 4948 5002  SANDY SHALE 5002 5200  3RD ELK SILTSTONE 5200 5264  SANDY SHALE 5264 5525  STH ELK SILTSTONE 5205 5578	SHALE			
LOWER GANTZ SANDSTONE       1944       1983         SANDY SHALE       1983       2579         BAYARD SANDSTONE       2579       2615         SANDY SHALE       2615       2631         SPEECHLEY A SANDSTONE       2631       2676         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4545       4707         1ST ELK SILTSTONE       4707       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         3RD ELK SILTSTONE       520       5264         SANDY SHALE       5264       5825         5TH ELK SILTSTONE       525       5578	GANTZ SANDSTONE			
SANDY SHALE       1983       2579         BAYARD SANDSTONE       2579       2615         SANDY SHALE       2615       2631         SPECHLEY A SANDSTONE       2631       2676         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4545       4707         1ST ELK SILTSTONE       4707       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         3RD ELK SILTSTONE       5204       5525         SANDY SHALE       5264       5525         STH ELK SILTSTONE       525       5578	LOWER GANTZ SANDSTONE			
BAYARD SANDSTONE       2579       2615         SANDY SHALE       2615       2631         SPEECHLEY A SANDSTONE       2631       2676         SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4545       4707         1ST ELK SILTSTONE       4707       4771         SANDY SHALE       4948       5002         SANDY SHALE       5002       5200         3RD ELK SILTSTONE       5200       5264         SANDY SHALE       5264       5525         STH ELK SILTSTONE       525       5578	SANDY SHALE	1983		
SANDY SHALE 2615 2631  SPEECHLEY A SANDSTONE 2631 2676  SANDY SHALE 2676 3247  BALLTOWN B SANDSTONE 3247 3272  SHALE 3272 4317  BENSON SILTSTONE 4317 4323  SANDY SHALE 4323 4507  ALEXANDER 4507 4545  STALE 4545 4707  IST ELK SILTSTONE 4707 4771  SANDY SHALE 4771 4948  2ND ELK SILTSTONE 4948 5002  SANDY SHALE 5002 5200  3RD ELK SILTSTONE 5200 5264  SANDY SHALE 5264 5525  STHELK SILTSTONE 5525 5578	BAYARD SANDSTONE	2579		
SPEECHLEY A SANDSTONE         2631         2676           SANDY SHALE         2676         3247           BALLTOWN B SANDSTONE         3247         3272           SHALE         3272         4317           BENSON SILTSTONE         4317         4323           SANDY SHALE         4323         4507           ALEXANDER         4507         4545           STALE         4545         4707           IST ELK SILTSTONE         4707         4771           SANDY SHALE         4948         5002           SANDY SHALE         5002         5200           3RD ELK SILTSTONE         500         5264           SANDY SHALE         5264         5525           STH ELK SILTSTONE         5264         5525           STH ELK SILTSTONE         5525         5578	SANDY SHALE	2615		
SANDY SHALE       2676       3247         BALLTOWN B SANDSTONE       3247       3272         SHALE       3272       4317         BENSON SILTSTONE       4317       4323         SANDY SHALE       4323       4507         ALEXANDER       4507       4545         SHALE       4545       4707         IST ELK SILTSTONE       4707       4771         SANDY SHALE       4771       4948         2ND ELK SILTSTONE       4948       5002         SANDY SHALE       5002       5200         3RD ELK SILTSTONE       5200       5264         SANDY SHALE       5264       5525         5TH ELK SILTSTONE       525       5578	SPEECHLEY A SANDSTONE	2631		
BALLTOWN B SANDSTONE     3247     3272       SHALE     3272     4317       BENSON SILTSTONE     4317     4323       SANDY SHALE     4323     4507       ALEXANDER     4507     4545       SHALE     4545     4707       1ST ELK SILTSTONE     4707     4771       SANDY SHALE     4771     4948       2ND ELK SILTSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5525       STH ELK SILTSTONE     5525     5578	SANDY SHALE	2676		-
SHALE     3272     4317       BENSON SILTSTONE     4317     4323       SANDY SHALE     4323     4507       ALEXANDER     4507     4545       SHALE     4545     4707       IST ELK SILTSTONE     4707     4771       SANDY SHALE     4771     4948       2ND ELK SILTSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5525       5TH ELK SILTSTONE     5525     5578	BALLTOWN B SANDSTONE			
BENSON SILTSTONE 4317 4323  SANDY SHALE 4323 4507  ALEXANDER 4507 4545  SHALE 4545 4707  IST ELK SILTSTONE 4707 4771  SANDY SHALE 4771 4948  2ND ELK SILTSTONE 4948 5002  SANDY SHALE 5002 5200  3RD ELK SILTSTONE 5200 5264  SANDY SHALE 5264 5525  STH ELK SILTSTONE 5525 5578	SHALE	3272		•
SANDY SHALE     4323     4507       ALEXANDER     4507     4545       SHALE     4545     4707       IST ELK SLITSTONE     4707     4771       SANDY SHALE     4771     4948       2ND ELK SLITSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SLITSTONE     5200     5264       SANDY SHALE     5264     5525       5TH ELK SLITSTONE     5525     5578	BENSON SILTSTONE	4317		•
ALEXANDER 4507 4545 SHALE 4545 4707 IST ELK SILTSTONE 4707 4771 SANDY SHALE 4771 4948 2ND ELK SILTSTONE 4948 5002 SANDY SHALE 5002 5200 3RD ELK SILTSTONE 5200 5264 SANDY SHALE 5264 5525 5TH ELK SILTSTONE 5525 5578	SANDY SHALE			
SHALE     4545     4707       1ST ELK SILTSTONE     4707     4771       SANDY SHALE     4771     4948       2ND ELK SILTSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5525       5TH ELK SILTSTONE     5525     5578	ALEXANDER			
1ST ELK SLITSTONE 4707 4771  SANDY SHALE 4771 4948  2ND ELK SLITSTONE 4948 5002  SANDY SHALE 5002 5200  3RD ELK SLITSTONE 5200 5264  SANDY SHALE 5264 5525  5TH ELK SLITSTONE 5525 5578	SHALE	4545		
SANDY SHALE     4771     4948       2ND ELK SILTSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5825       5TH ELK SILTSTONE     5525     5578	IST ELK SILTSTONE	4707		
2ND ELK SILTSTONE     4948     5002       SANDY SHALE     5002     5200       3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5525       5TH ELK SILTSTONE     5525     5578	SANDY SHALE	4771		
SANDY SHALE         5002         5200           3RD ELK SILTSTONE         5200         5264           SANDY SHALE         5264         5525           5TH ELK SILTSTONE         5525         5578	2ND ELK SILTSTONE	4948		
3RD ELK SILTSTONE     5200     5264       SANDY SHALE     5264     5525       5TH ELK SILTSTONE     5525     5578       SHALE     5525     5578	SANDY SHALE	5002		
SANDY SHALE         5264         5525           5TH BLK SILTSTONE         5525         5578           SHALE         5525         5578	3RD ELK SILTSTONE	5200		•
STH ELK SILTSTONE 5525 5578		5264		
SHALE 5578 5790 TD		5525	5578	
	SHALE	5578	5790	TD

Third Producing formati	on: IST ELK	Pay zone Depth (ft) 4763 - 4767					
Gas: Initial open flow:	Co-mingled	MCF/D Oil: Initial open flow: 0 Bbl/d					
Final open flow	Co-mingled	MCF/D Oil: Final open flow: 0 Bbl/d					
Time of open flow between	en initial and final tests:	Hours					
Static rock Pressure:	Co-mingled	psig(surface pressure) after - Hours	3				
Fourth Producing forms	tion: BALLTOWN B	Pay zone Depth (ft) 3258 - 3268					
Gas: Initial open flow:	Co-mingled	MCF/D Oil: Initial open flow: 0 Bbl/d					
Final open flow	Co-mingled	MCF/D Oil: Final open flow: 0 Bbl/d	•				
Time of open flow betwe	een initial and final tests:	Hours					
Static rock Pressure:	Co-mingled	psig(surface pressure) after Hours	2				