



STATE OF WEST VIRGINIA

Department of Revenue  
State Tax Department

Joe Manchin III  
Governor

Christopher G. Morris  
State Tax Commissioner

August 28, 2009

The Honorable Natalie Tennant  
Secretary of State  
Capitol Complex  
Building 1, Suite 157-K  
Charleston, West Virginia 25305

FILED  
2009 AUG 28 AM 10:17  
OFFICE WEST VIRGINIA  
SECRETARY OF STATE

Dear Secretary Tennant:

Attached are final natural resource property valuation variables for the 2010 Tax Year as developed by the State Tax Department for use in appraising coal, oil, natural gas, managed timberland and other natural resource properties for ad valorem tax purposes.

In accordance with requirements of §§ 110 CSR 1-I, 1-J, and 1-K, tentative variables were made available for public comments on June 30, 2009. The Department received a comment on the tentative variables from EQT Corporation (EQT) during the comment period. EQT correctly observed that the inflation rate utilized was inconsistent with previous years. The final variables have incorporated the proper inflation rate and the various capitalization rates have been modified accordingly.

The Department also received a comment from Howard Engineering, Inc. concerning the capitalization rate and T-factors utilized for the valuation of coal property. As previously mentioned, the inflation rate adjustment will increase the capitalization rate; however, since no additional data was provided relative to the T-factors, no change was made.

The final valuation variables are being filed for inclusion in the State Register.

Sincerely,

Christopher G. Morris  
State Tax Commissioner

CGM/jap  
Attachment

cc: All County Assessors  
State of West Virginia

**OIL AND GAS PROPERTIES ANALYSIS**

**Tax Year 2010**

August 28, 2009  
Christopher G. Morris  
Tax Commissioner  
Department of Revenue

**OIL AND GAS**

TY 2010

Capitalization Rate Analysis and Results:

In developing a capitalization rate for use in valuing specific income-producing properties consideration is given to the three approaches generally employed in estimating a discount rate. As a matter of practicality, the Bands-of-Investment and Summation Technique approaches are utilized in establishing discount rates for producing oil and gas properties. Data for analysis has been derived in accordance with current Legislative Rule Title 110, Series 1J.

<u>Safe Rate</u>	( 3-Month Constant Maturity Interest Rates )			<b>1.392%</b>
	January	December	2008	

<u>Risk Rate</u>	(Interest differential between Loan Rate and 3-Month Constant Maturity Interest Rates)			
	<u>Loan Rate*</u>		<u>Risk Rate</u>	
	2008	7.088%	5.696%	
		*Prime plus 2%		

<u>Equity</u>	(Differential between Equity Rates and 3-Month Constant Maturity Interest Rates)			
	<u>Equity Rate**</u>		<u>Risk Rate</u>	
	2008	[12.75%/(1-.37)]-1.392%	18.846%	
	** Value Line Investment Survey Analysis			

<u>Composite Risk Rate</u>	Loan and Equity Rates weighted by industry estimated capital structure.			
	Equity Rate	Debt Rate	Composite Risk	
	2008	12.2500%	1.994%	<b>14.993%</b> ***
	Note: Debt equity Ratio	Debt	35%	Equity 65%
	*** Effective severance tax adjustment		0.95	

<u>Non Liquidity Rate</u>	Interest differential between 3-month Constant Maturity Interest Rates and a 1 year Constant Maturity Interest Rates which reflects a reasonable time necessary to sell active property.				
			<u>1yr T Bill</u>	<u>90 day T Bill</u>	<u>Non Liquidity Rate</u>
	January	December	2008	1.823%	1.392%
					<b>0.431%</b>

<u>Management Rate</u>	Charges for the management of investment portfolios.	
	Fixed Rate (by Rule)	<b>0.500%</b>

<u>Property Tax Rate</u>	Sixty percent (60%) of State average Class III property tax rate.		
	2008	60% of 2.16=	<b>1.296%</b>

<u>Inflation Rate</u>				<b>0.100%</b>
	January	December	2008	

Capitalization Rate

Since the valuation of oil and gas property is predicated on a three year production , the capitalization rate will be considered in a similar manner.

	<u>2008</u>	<u>2007</u>	<u>2006</u>
Inflation Rate	-0.100%	-4.100%	-2.500%
Safe Rate	1.392%	4.472%	4.848%
Composite Risk Rate	14.993%	12.028%	12.141%
Non Liquidity Rate	0.431%	0.050%	0.084%
Management Rate	0.500%	0.500%	0.500%
Property Tax Rate	1.296%	1.302%	1.326%
Total	18.512%	14.252%	16.399%
	50.000%	33.333%	16.667%
	9.256%	4.751%	2.733%
			16.740%

Capitalization Rate Rounded to:

16.70%

MULTIPLIERS FOR 14.9% MID-YEAR LIFE (ANNUALLY)

<u>YEAR</u>		<u>YEAR</u>	
1	0.925688	21	0.042174
2	0.793220	22	0.036139
3	0.679709	23	0.030967
4	0.582441	24	0.026536
5	0.499093	25	0.022739
6	0.427671	26	0.019485
7	0.366471	27	0.016696
8	0.314028	28	0.014307
9	0.269090	29	0.012260
10	0.230583	30	0.010505
11	0.197586	31	0.009002
12	0.169311	32	0.007714
13	0.145082	33	0.006610
14	0.124321	34	0.005664
15	0.106530	35	0.004854
16	0.091285	36	0.004159
17	0.078222	37	0.003564
18	0.067029	38	0.003054
19	0.057437	39	0.002617
20	0.049217	40	0.002242



### Decline Rates for Natural Gas and Oil Formations

Code		Central	Central	Central	
		Year 1	Year 2	Year 3+	
					Braxton
12	Alexander, Benson	-0.31	-0.20	-0.10	Clay
14	Benson	-0.48	-0.08	-0.08	Fayette
16	Benson, Balltown	-0.45	-0.16	-0.12	Nicholas
17	Gordon +	-0.30	-0.07	-0.07	Webster
18	Big Injun	-0.34	-0.13	-0.13	
19	Big Injun, Big Lime	-0.36	-0.13	-0.13	
22	Big Lime	-0.34	-0.34	0.13	
26	Ravenciff	-0.40	-0.40	-0.25	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper*	-0.41	-0.22	-0.09	
110	Marcellus*	-0.41	-0.22	-0.09	
9	Exception (median)	-0.41	-0.22	-0.09	
10	Non-Filer	-0.30	-0.07	-0.07	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Decline Rates for Natural Gas and Oil Formations

Code			East	East	East	
			Year 1	Year 2	Year 3+	
						Berkeley
1	Oriskany		-0.30	-0.30	-0.19	Grant
14	Benson		-0.31	-0.17	-0.12	Greenbrier
20	Benson +		-0.44	-0.20	-0.08	Hampshire
21	Benson, Fifth		-0.29	-0.28	-0.09	Hardy
32	Brallier +		-0.48	-0.20	-0.05	Jefferson
33	Elk, Benson		-0.39	-0.21	-0.08	Mineral
34	Elk, Benson, Riley		-0.53	-0.19	-0.05	Monroe
35	Elk, Benson, Riley +		-0.36	-0.19	-0.11	Morgan
36	Elk, Benson, Balltown		-0.34	-0.18	-0.11	Pendleton
37	Elk, Alexander, Benson		-0.50	-0.07	-0.07	Pocahontas
38	Elk, Alexander, Benson +		-0.40	-0.16	-0.16	Preston
39	Hunterville		-0.31	-0.31	-0.14	Randolph
40	Fox, Haverly		-0.36	-0.21	-0.15	Summers
93	4th Sand		-0.42	-0.32	-0.08	Tucker
94	50 Foot		-0.34	-0.26	-0.07	
95	Injun/Weir		-0.51	-0.26	-0.09	
96	Maxton		-0.70	-0.27	-0.08	
110	Marcellus*		-0.41	-0.22	-0.10	
9	Exception (median)		-0.41	-0.22	-0.10	
10	Non-Filer		-0.29	-0.07	-0.05	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Decline Rates for Natural Gas and Oil Formations

Code			North	North	North	
			Year 1	Year 2	Year 3+	
						Brooke
11	Gordon		-0.47	-0.31	-0.09	Hancock
13	Alexander, Benson, Riley		-0.26	-0.16	-0.15	Marshall
15	Benson, Riley		-0.18	-0.16	-0.06	Ohio
93	4th Sand		-0.42	-0.32	-0.08	Tyler
94	50 Foot		-0.34	-0.26	-0.07	Wetzel
95	Injun/Weir		-0.51	-0.26	-0.09	
96	Maxton		-0.70	-0.27	-0.08	
97	Coalbed Methane (vertical)		-0.23	-0.08	-0.05	
110	Marcellus*		-0.39	-0.23	-0.08	
9	Exception (median)		-0.39	-0.23	-0.08	
10	Non-Filer		-0.18	-0.16	-0.06	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

**Decline Rates for Natural Gas and Oil Formations**

Code		North Central	North Central	North Central	
		Year 1	Year 2	Year 3*	
		-0.41	-0.14	-0.12	Barbour
					Doddridge
11	Gordon	-0.37	-0.19	-0.11	Gilmer
12	Alexander, Benson	-0.40	-0.28	-0.05	Harrison
13	Alexander, Benson, Riley	-0.31	-0.17	-0.12	Lewis
14	Benson	-0.34	-0.17	-0.14	Marion
15	Benson, Riley	-0.36	-0.16	-0.13	Monongalia
18	Big Injun	-0.31	-0.20	-0.14	Taylor
21	Benson, Fifth	-0.34	-0.34	-0.07	Upshur
28	Weir	-0.28	-0.28	-0.23	
29	Weir +	-0.34	-0.16	-0.11	
33	Elk, Benson	-0.42	-0.27	-0.08	
34	Elk, Benson, Riley	-0.49	-0.23	-0.08	
37	Elk, Alexander, Benson	-0.38	-0.20	-0.12	
38	Elk, Alexander, Benson +	-0.46	-0.16	-0.08	
40	Fox, Haverty	-0.28	-0.03	-0.03	
50	Rhonestreat	-0.39	-0.26	-0.08	
57	Alexander, Benson, Balltown	-0.35	-0.20	-0.10	
58	Alexander	-0.39	-0.22	-0.10	
59	Alexander +	-0.39	-0.35	-0.12	
60	Alexander, Benson, Riley*	-0.35	-0.20	-0.10	
61	Balltown	-0.28	-0.22	-0.10	
62	Balltown, Speechley	-0.30	-0.13	-0.10	
63	Balltown, Speechley +	-0.28	-0.22	-0.09	
64	Benson, Balltown, Speechley	-0.37	-0.20	-0.10	
65	Benson, Bradford	-0.29	-0.23	-0.11	
66	Benson, Balltown	-0.38	-0.14	-0.10	
67	Benson, Riley +	-0.30	-0.22	-0.14	
68	Benson, Speechley	-0.42	-0.20	-0.13	
69	Brallier, Elk	-0.40	-0.22	-0.15	
70	Brallier	-0.24	-0.24	-0.03	
71	Deeper/Onondago or Oriskany/Heiderberg	-0.42	-0.22	-0.09	
72	Elk, Alexander	-0.38	-0.20	-0.12	
73	Elk, Benson +	-0.43	-0.12	-0.10	
74	Elk	-0.60	-0.35	-0.17	
75	Elk, Riley	-0.46	-0.18	-0.09	
76	Fox +	-0.35	-0.16	-0.16	
77	Haverty, Elk, Benson (no Alexander)	-0.45	-0.15	-0.15	
78	Haverty	-0.44	-0.22	-0.10	
79	Riley	-0.30	-0.18	-0.09	
80	Speechley	-0.39	-0.24	-0.10	
81	Alexander, Benson, Speechley	-0.47	-0.14	-0.14	
82	Haverty, Elk, Alexander	-0.45	-0.25	-0.22	
85	Fifth Oil	-0.30	-0.20	-0.05	
87	Bayard All	-0.29	-0.18	-0.12	
88	Fifth	-0.25	-0.15	-0.13	
89	Fifth +	-0.41	-0.23	-0.23	
90	Gordon/Injun All	-0.37	-0.31	-0.06	
91	Squaw	-0.34	-0.22	-0.22	
92	Injun +	-0.42	-0.32	-0.08	
93	4th Sand	-0.34	-0.26	-0.07	
94	50 Fool	-0.51	-0.26	-0.09	
95	Injun/Weir	-0.70	-0.27	-0.08	
96	Maxton	-0.23	-0.08	-0.05	
97	Coalbed Methane (vertical)	-0.05	-0.05	-0.32	
98	Coalbed Methane (horizontal)	-0.38	-0.21	-0.11	
109	Trenton/Deeper*	-0.38	-0.21	-0.11	
110	Marcellus Shale*	-0.38	-0.21	-0.11	
9	Exception (median)	-0.23	-0.03	-0.03	
10	Non-Filter				

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

**Decline Rates for Natural Gas and Oil Formations**

Code		North	North	North	
		West	West	West	
		Year 1	Year 2	Year 3+	Pleasants
2	Huron, Rhinestreet	-0.41	-0.26	-0.07	Ritchie
4	Huron	-0.42	-0.24	-0.14	Wood
5	Huron, Shale, Above Huron	-0.39	-0.25	-0.14	
8	Berea	-0.31	-0.15	-0.15	
11	Gordon	-0.38	-0.10	-0.10	
12	Alexander, Benson (No Riley)	-0.34	-0.23	-0.10	
13	Alexander, Benson, Riley	-0.32	-0.20	-0.10	
14	Benson	-0.19	-0.19	-0.10	
44	Rhinestreet, Huron, Shallow Shale	-0.43	-0.28	-0.11	
47	Alexander, Riley, (no Benson)	-0.41	-0.05	-0.05	
48	Rhinestreet, Alexander, Benson, Riley	-0.31	-0.24	-0.10	
49	Weir, Squaw, Big Injun	-0.27	-0.17	-0.07	
50	Rhinestreet	-0.40	-0.27	-0.27	
51	Rhinestreet +	-0.36	-0.21	-0.10	
52	All Upper Devonian (undiv)	-0.48	-0.33	-0.19	
53	Huron, Chemung	-0.35	-0.11	-0.09	
54	Huron, Hampshire, Pocono	-0.12	-0.12	-0.11	
55	Upper Devonian (above Huron)	-0.46	-0.33	-0.23	
56	Chemung Sands=Riley,Bradford,Balltown,Speechley&Warren(no Benson or Alexander)	-0.28	-0.18	-0.10	
83	Huron Oil	-0.74	-0.44	-0.40	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper*	-0.39	-0.23	-0.13	
110	Marcellus*	-0.39	-0.23	-0.13	
9	Exception (median)	-0.39	-0.23	-0.13	
10	Non-Filer	-0.12	-0.05	-0.05	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Annual Production Rate Changes for Natural Gas and Oil Formations

Code			South	South	South	
			Year 1	Year 2	Year 3+	
						McDowell
8	Berea		-0.34	-0.15	-0.15	Mercer
22	Big Lime		-0.31	-0.19	-0.07	Raleigh
23	Big Lime, Maxton		-0.31	-0.19	-0.07	Wyoming
24	Big Lime, Ravencloff		-0.29	-0.29	-0.17	
25	Berea +		-0.37	-0.12	-0.08	
26	Ravencloff		-0.40	-0.08	-0.07	
28	Weir		-0.44	-0.20	-0.10	
29	Weir +		-0.28	-0.21	-0.08	
30	Weir, Big Lime		-0.37	-0.19	-0.13	
42	Maxton, Ravencloff		-0.40	-0.08	-0.07	
93	4th Sand		-0.42	-0.32	-0.08	
94	50 Foot		-0.34	-0.26	-0.07	
95	Injun/Weir		-0.51	-0.26	-0.09	
96	Maxton		-0.27	-0.13	-0.09	
97	Coalbed Methane (Vertical)		+0.03	+0.10	-0.05	
98	Coalbed Methane (Horizontal)		-0.05	-0.05	-0.32	
110	Marcellus*		-0.36	-0.19	-0.09	
10	Exception (median)		-0.36	-0.19	-0.09	
10	Non-Filer		-0.23	-0.08	-0.05	

## Decline Rates for Natural Gas and Oil Formations

Code			South Central	South Central	South Central	Boone
			Year 1	Year 2	Year 3+	
3	Devonian Shale		-0.23	-0.08	-0.05	Kanawha
4	Huron		-0.31	-0.15	-0.04	
8	Berea		-0.23	-0.14	-0.09	
18	Big Injun		-0.29	-0.25	-0.12	
27	Huron, Shales above Huron		-0.21	-0.08	-0.05	
28	Weir		-0.30	-0.21	-0.14	
29	Weir +		-0.31	-0.25	-0.09	
31	Devonian Shales +		-0.27	-0.07	-0.05	
86	Big Injun-Oil		-0.19	-0.18	-0.10	
93	4th Sand		-0.42	-0.32	-0.08	
94	50 Foot		-0.34	-0.26	-0.07	
95	Injun/Weir		-0.51	-0.26	-0.09	
96	Maxton		-0.70	-0.27	-0.08	
109	Trenton/Deeper*		-0.33	-0.19	-0.08	
110	Marcellus*		-0.33	-0.19	-0.08	
9	Exception (median)		-0.33	-0.19	-0.08	
10	Non-Filer		-0.19	-0.07	-0.04	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Decline Rates for Natural Gas and Oil Formations

Code			South	South	South	
			West	West	West	
			Year 1	Year 2	Year 3+	
						Cabell
3	Devonian Shale		-0.31	-0.15	-0.04	Lincoln
8	Berea		-0.36	-0.11	-0.11	Logan
18	Big Injun		-0.38	-0.22	-0.04	Mingo
22	Big Lime		-0.19	-0.19	-0.19	Wayne
43	Berea, Big Lime		-0.18	-0.18	-0.18	
93	4th Sand		-0.42	-0.32	-0.08	
94	50 Foot		-0.34	-0.26	-0.07	
95	Injun/Weir		-0.51	-0.26	-0.09	
96	Maxton		-0.70	-0.27	-0.08	
109	Trenton/Deeper*		-0.38	-0.22	-0.10	
110	Marcellus*		-0.38	-0.22	-0.10	
9	Exception (median)		-0.38	-0.22	-0.10	
10	Non-Filer		-0.18	-0.11	-0.04	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Decline Rates for Natural Gas and Oil Formations

Code		West Central	West Central	West Central	
		Year 1	Year 2	Year 3+	
2	Huron, Rhinestreet	-0.49	-0.11	-0.06	Calhoun
4	Huron	-0.33	-0.22	-0.14	Roane
27	Huron, Shales above Huron	-0.42	-0.23	-0.12	Wirt
44	Rhinestreet, Huron, Shallow Shale	-0.51	-0.14	-0.11	
45	Devonian Shale, Pocono	-0.25	-0.17	-0.12	
46	Pocono	-0.29	-0.25	-0.12	
84	Big Injun - Oil	-0.41	-0.41	-0.11	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper*	-0.42	-0.24	-0.10	
110	Marcellus*	-0.42	-0.24	-0.10	
9	Exception (median)	-0.42	-0.24	-0.10	
10	Non-Filer	-0.25	-0.11	-0.06	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Decline Rates for Natural Gas and Oil Formations

Code		West	West	West	
		Year 1	Year 2	Year 3+	
					Jackson
1	Oriskany	-0.40	-0.40	-0.29	Mason
2	Huron, Rhinestreet	-0.13	-0.12	-0.03	Putnam
3	Devonian Shale	-0.31	-0.15	-0.04	
4	Huron	-0.29	-0.14	-0.05	
5	Huron, Shale, Above Huron	-0.38	-0.15	-0.06	
6	Huron, Berea	-0.29	-0.08	-0.08	
7	Berea, Devonian Shales	-0.08	-0.08	-0.08	
8	Berea	-0.36	-0.16	-0.16	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper*	-0.35	-0.20	-0.09	
110	Marcellus*	-0.35	-0.20	-0.09	
9	Exception (median)	-0.35	-0.20	-0.09	
10	Non-Filer	-0.08	-0.08	-0.03	

\* New Formation(s) involved in recent production. These will be valued with the Exception rates until decline information is available.

## Industry Operating Expense Survey and Results

This component was determined through a review of responses to a survey distributed by the State Tax Department to producers of all oil and natural gas wells producing in West Virginia and through use of other market data. The survey requested working costs for the 2007 calendar year producing wells.

### GAS

- % Working Interest Expenses for Typical Producing Well	=	30%
- Maximum Operating Expenses	=	\$5,000
- Coal Bed Methane, Vertical Wells Expenses	=	\$9,000

### OIL

- % Working Interest Expenses for Typical Producing Well	=	35%
- Maximum Operating Expenses	=	\$5,750
- Maximum Enhanced Operating Expenses	=	\$9,000

Minimum Working Interest Appraisal = \$500 per well

Flat Rate Royalty Multiplier = 5.75

Home Use Only Wells: Appraised at \$500 per well

Industrial Use Only Wells:\* MCF usage X \$ 8.07/MCF  
BBL usage X \$99.57/BBL

\*(Also includes Department of Environmental Protection reported wells.)

### Non-Filer Valuations

Working Interest	=	150% of previous year's appraisal
Royalty Interest	=	90% of previous year's appraisal

### Valuation

The previously discussed variables are used to establish a future income stream converted to present worth through application of a capitalization rate. The sum of the discounted future net income per year represents a reasonable estimate of market value.

### Lease Rate/Term Survey and Results

The non-producing property value for each county is determined by multiplying the average delay rental by a factor, which represents the average lease term under present economic conditions.

As a result of higher lease terms being inversely proportional to the value of oil and gas (thus counties with little leasing or production activities reflect inflated values) and with the volatile nature of county activity, necessary adjustments in the review have been made.

A compilation of lease terms produced a statewide average of 5 years. This term (5 years) was applied to all county lease rates and compared to the appraisal rates derived from calculations using individual county data. The two resulting calculations were reviewed and considered in the assignment of an appraisal rate per acre.

The appraisal rate/acre amounts shown on the next page are preliminary figures, which may change if additional lease data is received. These rates have been applied to all county magisterial districts with either producing wells, lease activity within the past 5 years or both. Tax districts void of activity within the past 5 years have been assigned the minimum value per acre.

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
BARBOUR	1	1	\$15.00
		2	\$15.00
		3	\$15.00
		4	\$15.00
		5	\$15.00
		6	\$1.00
		7	\$15.00
		8	\$15.00
		9	\$15.00
		10	\$15.00
		11	\$15.00
BERKELEY	2	1	\$1.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
BOONE	3	1	\$15.00
		2	\$1.00
		3	\$1.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$15.00
		8	\$15.00
		9	\$1.00
BRAXTON	4	1	\$20.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
		8	\$1.00
BROOKE	5	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
CABELL	6	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$20.00
		9	\$1.00
		10	\$20.00
CALHOUN	7	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
CLAY	8	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
DODDRIDGE	9	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
		8	\$20.00
		9	\$20.00
FAYETTE	10	1	\$15.00
		2	\$15.00
		3	\$15.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$1.00
		11	\$1.00
		12	\$1.00
		13	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
GILMER	11	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$20.00
GRANT	12	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$1.00
		5	\$15.00
GREENBRIER	13	1	\$10.00
		2	\$1.00
		3	\$10.00
		4	\$10.00
		5	\$1.00
		6	\$10.00
		7	\$10.00
		8	\$10.00
		9	\$10.00
		10	\$1.00
		11	\$10.00
		12	\$1.00
		13	\$1.00
		14	\$1.00
		15	\$1.00
		16	\$10.00
		17	\$1.00
		18	\$10.00
HAMPSHIRE	14	1	\$10.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$10.00
		6	\$1.00
		7	\$10.00
		8	\$10.00
		9	\$10.00
		10	\$10.00
HANCOCK	15	1	\$15.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$1.00
		6	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
HARDY	16	1	\$1.00
		2	\$10.00
		3	\$10.00
		4	\$10.00
		5	\$10.00
		6	\$1.00
HARRISON	17	1	\$20.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$20.00
		6	\$1.00
		7	\$20.00
		8	\$1.00
		9	\$20.00
		10	\$20.00
		11	\$20.00
		12	\$20.00
		13	\$1.00
		14	\$20.00
		15	\$20.00
		16	\$1.00
		17	\$1.00
		18	\$20.00
		19	\$1.00
		20	\$20.00
		21	\$1.00
JACKSON	18	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
JEFFERSON	19	1	\$1.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010					
COUNTY	CO #	DISTRICT #	TY2010 \$/AC		
KANAWHA	20	1	\$20.00		
		2	\$20.00		
		3	\$20.00		
				4	\$1.00
				5	\$1.00
				6	\$1.00
				7	\$1.00
				8	\$1.00
				9	\$1.00
				10	\$1.00
				11	\$1.00
				12	\$1.00
				13	\$1.00
				14	\$1.00
				15	\$20.00
				16	\$20.00
				17	\$1.00
				18	\$1.00
				19	\$20.00
				20	\$1.00
				21	\$1.00
				22	\$1.00
				23	\$20.00
				24	\$20.00
				25	\$20.00
				26	\$1.00
				27	\$1.00
				28	\$20.00
				29	\$1.00
				30	\$1.00
				31	\$1.00
LEWIS	21	1	\$15.00		
		2	\$15.00		
		3	\$15.00		
		4	\$15.00		
		5	\$1.00		
		6	\$15.00		
		7	\$1.00		
		8	\$1.00		
		9	\$15.00		
LINCOLN	22	1	\$15.00		
		2	\$15.00		
		3	\$1.00		
		4	\$15.00		
		5	\$15.00		
		6	\$15.00		
		7	\$15.00		
		8	\$15.00		
		9	\$15.00		
		10	\$1.00		

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
LOGAN	23	1	\$15.00
		2	\$15.00
		3	\$15.00
		4	\$15.00
		5	\$1.00
		6	\$1.00
		7	\$15.00
		8	\$15.00
		9	\$1.00
MARION	24	1	\$20.00
		2	\$20.00
		3	\$1.00
		4	\$1.00
		5	\$20.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
		9	\$20.00
		10	\$1.00
		11	\$20.00
		12	\$20.00
		13	\$1.00
		14	\$1.00
		15	\$1.00
		16	\$20.00
		17	\$1.00
		18	\$20.00
		19	\$20.00
		20	\$1.00
MARSHALL	25	1	\$1.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$1.00
		7	\$20.00
		8	\$1.00
		9	\$20.00
		10	\$1.00
		11	\$1.00
		12	\$20.00
		13	\$20.00
		14	\$20.00
		15	\$20.00
		16	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
MASON	26	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$20.00
		11	\$1.00
		12	\$1.00
		13	\$1.00
		14	\$20.00
		15	\$20.00
		16	\$20.00
MC DOWELL	27	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$20.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$1.00
		11	\$20.00
		12	\$1.00
		13	\$20.00
		14	\$1.00
		15	\$1.00
		16	\$1.00
MERCER	28	1	\$1.00
		2	\$15.00
		3	\$1.00
		4	\$1.00
		5	\$1.00
		6	\$15.00
		7	\$1.00
		8	\$1.00
		9	\$15.00
		10	\$1.00
		11	\$15.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
MINERAL	29	1	\$15.00
		2	\$15.00
		3	\$1.00
		4	\$15.00
		5	\$1.00
		6	\$15.00
		7	\$1.00
		8	\$15.00
		9	\$1.00
		10	\$1.00
		11	\$1.00
MINGO	30	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$15.00
		8	\$1.00
		9	\$15.00
		10	\$15.00
		11	\$15.00
		12	\$1.00
MONONGALIA	31	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$1.00
		7	\$20.00
		8	\$20.00
		9	\$1.00
		10	\$1.00
		11	\$1.00
		12	\$1.00
		13	\$1.00
		14	\$1.00
		15	\$1.00
		16	\$1.00
		17	\$1.00
		18	\$20.00
		19	\$20.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
MONROE	32	1	\$1.00
		2	\$1.00
		3	\$10.00
		4	\$10.00
		5	\$10.00
		6	\$1.00
		7	\$1.00
		8	\$10.00
		9	\$10.00
MORGAN	33	1	\$1.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
NICHOLAS	34	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$1.00
		7	\$20.00
		8	\$1.00
		9	\$20.00
OHIO	35	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$1.00
PENDLETON	36	1	\$1.00
		2	\$15.00
		3	\$1.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$15.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
PLEASANTS	37	1	\$1.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$1.00
		7	\$20.00
		8	\$20.00
POCAHONTAS	38	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$1.00
		6	\$15.00
		7	\$15.00
		8	\$1.00
PRESTON	39	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$1.00
		7	\$1.00
		8	\$20.00
		9	\$1.00
		10	\$20.00
		11	\$1.00
		12	\$1.00
		13	\$1.00
		14	\$1.00
		15	\$1.00
		16	\$1.00
		17	\$1.00
		18	\$1.00
		19	\$1.00
		20	\$1.00
PUTNAM	40	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$20.00
		9	\$20.00
		10	\$20.00
		11	\$20.00
		12	\$20.00
		13	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
RALEIGH	41	1	\$15.00
		2	\$15.00
		3	\$1.00
		4	\$1.00
		5	\$15.00
		6	\$1.00
		7	\$15.00
		8	\$15.00
		9	\$15.00
		10	\$1.00
		11	\$15.00
		12	\$15.00
RANDOLPH	42	1	\$15.00
		2	\$15.00
		3	\$1.00
		4	\$15.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$1.00
		9	\$15.00
		10	\$15.00
		11	\$15.00
		12	\$1.00
		13	\$15.00
		14	\$1.00
		15	\$1.00
		16	\$15.00
		17	\$15.00
		18	\$1.00
RITCHIE	43	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$1.00
		5	\$20.00
		6	\$1.00
		7	\$20.00
		8	\$1.00
		9	\$1.00
		10	\$20.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
ROANE	44	1	\$15.00
		2	\$15.00
		3	\$15.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$15.00
		8	\$1.00
		9	\$15.00
SUMMERS	45	1	\$1.00
		2	\$1.00
		3	\$1.00
		4	\$1.00
		5	\$10.00
		6	\$1.00
		7	\$1.00
TAYLOR	46	1	\$20.00
		2	\$1.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
TUCKER	47	1	\$15.00
		2	\$15.00
		3	\$1.00
		4	\$1.00
		5	\$15.00
		6	\$15.00
		7	\$1.00
		8	\$1.00
		9	\$15.00
		10	\$1.00
		11	\$15.00
		12	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
TYLER	48	1	\$20.00
		2	\$20.00
		3	\$1.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$1.00
		8	\$1.00
		9	\$1.00
		10	\$20.00
UPSHUR	49	1	\$15.00
		2	\$15.00
		3	\$1.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$15.00
WAYNE	50	1	\$15.00
		2	\$15.00
		3	\$15.00
		4	\$1.00
		5	\$1.00
		6	\$1.00
		7	\$1.00
		8	\$15.00
		9	\$15.00
		10	\$15.00
		11	\$1.00
		12	\$15.00
WEBSTER	51	1	\$1.00
		2	\$1.00
		3	\$15.00
		4	\$15.00
		5	\$15.00
		6	\$15.00
		7	\$1.00

OIL & GAS RESERVE RATES FOR TY 2010			
COUNTY	CO #	DISTRICT #	TY2010 \$/AC
WETZEL	52	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$1.00
		7	\$1.00
		8	\$20.00
		9	\$1.00
		10	\$1.00
		11	\$1.00
		12	\$20.00
		13	\$1.00
WIRT	53	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$1.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
		8	\$20.00
WOOD	54	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$1.00
		6	\$20.00
		7	\$20.00
		8	\$20.00
		9	\$20.00
		10	\$1.00
		11	\$20.00
		12	\$20.00
		13	\$1.00
		14	\$1.00
WYOMING	55	1	\$20.00
		2	\$20.00
		3	\$20.00
		4	\$20.00
		5	\$20.00
		6	\$20.00
		7	\$20.00
		8	\$1.00
		9	\$20.00
		10	\$20.00

**MANAGED TIMBER  
PROPERTY ANALYSIS**

**Tax Year 2010**

August 28, 2009  
Christopher G. Morris  
Tax Commissioner  
Department of Revenue

# MANAGED TIMBERLAND APPRAISAL RATES TAX YEAR 2010

(based on market 2004-2008)

## Final Rates Per Acre

Class II Parcels	<u>Grade 1</u>	<u>Grade 2</u>	<u>Grade 3</u>
Region 1	\$230	\$140	\$50
Region 2	\$200	\$140	\$50
Region 3	\$265	\$165	\$50
Region 4	\$200	\$140	\$50
Region 5	\$200	\$140	\$50

Class III/IV Parcels	<u>Grade 1</u>	<u>Grade 2</u>	<u>Grade 3</u>
Region 1	\$225	\$150	\$75
Region 2	\$225	\$150	\$75
Region 3	\$240	\$150	\$75
Region 4	\$225	\$150	\$75
Region 5	\$225	\$150	\$75

- Region 1 = Brooke, Cabell, Hancock, Jackson, Marshall, Mason, Ohio, Pleasants, Putnam, Tyler, Wetzel, and Wood Counties
- Region 2 = Braxton, Calhoun, Clay, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Ritchie, Roane, Taylor, and Wirt Counties
- Region 3 = Barbour, Greenbrier, Monroe, Nicholas, Pendleton, Pocahontas, Preston, Randolph, Tucker, Upshur, and Webster Counties
- Region 4 = Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral and Morgan Counties
- Region 5 = Boone, Fayette, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Raleigh, Summers, Wayne, and Wyoming Counties

## Harvest Volumes per Acre

Harvest Interval <u>Grades</u>	<u>35 yrs.</u>	<u>45 yrs.</u>	<u>55 yrs.</u>	<u>80 yrs.</u>	<u>Total</u>
1 - Site Index 75 or more	4.6 cords	--	2.6 cords	3.3 cords	10.5 cords
	1.5 Mbf	--	4.4 Mbf	8.6 Mbf	14.5 Mbf
2 - Site Index 65 - 75	3.3 cords	--	7.0 cords	4.6 cords	14.9 cords
	1.0 Mbf	--	3.2 Mbf	5.5 Mbf	9.7 Mbf
3 - Site Index less than 65	--	3.1 cords	--	15.4 cords	18.5 cords
	--	0.8 Mbf	--	3.7 Mbf	4.5 Mbf

## Managed Timberland Statistics

### Estimation of Required Rate of Return: Class III & IV Blended Rates

**A. Safe Rate of Return (5 Year T-Bill Rate)**

Year	Rate	W/A %	W/A Rate
2008	2.7983	33.33%	0.9328
2007	4.4300	26.67%	1.1813
2006	4.7450	20.00%	0.9490
2005	4.0458	13.33%	0.5394
2004	3.4290	6.67%	0.2286

3.831 %

**B. Nonliquidity Rate**

(12 Month T-Bills vs. 3 Month T-Bills)

Year	Rate	W/A %	W/A Rate
2008	0.4308	33.33%	0.1436
2007	0.0500	26.67%	0.0133
2006	0.0845	20.00%	0.0169
2005	0.4050	13.33%	0.0540
2004	0.4920	6.67%	0.0328

0.261 %

**C. Risk Rate (30 yr T-bills vs 5 yr T-bills)\***

Year	Rate	W/A %	W/A Rate
2008	1.4808	33.33%	0.4936
2007	0.4092	26.67%	0.1091
2006	0.6070	20.00%	0.1214
2005	0.6000	13.33%	0.0800
2004	1.6180	6.67%	0.1079

0.912 %

**D. Management Factor**

0.500 %

**E. Property Tax Component**

(60% of Class III & IV Blended Rate)

Year	Rate	W/A %	W/A Rate
2008	1.296	33.33%	0.4320
2007	1.302	26.67%	0.3472
2006	1.326	20.00%	0.2652
2005	1.344	13.33%	0.1792
2004	1.356	6.67%	0.0904

1.314 %

**F. Inflation Rate:**

(Bureau of Labor Statistics)

Year	Rate	W/A %	W/A Rate
2008	0.100	13.33%	0.0133
2007	4.100	6.67%	0.2735
2006	2.500	33.33%	0.8333
2005	3.400	20.00%	0.6800
2004	3.300	26.67%	0.8801

(2.680) %

**TOTAL REQUIRED RATE OF RETURN (REAL)**

4.138 %

**LESS: PROPERTY TAX COMPONENT**

(1.314)

**TOTAL DISCOUNT COMPONENT**

2.824 %

30 yr T-bills 2004 - 2005 not available, 20 yr. T-bill data used. 2006, 2007 and 2008, 30 yr. T-bill data available

**2008 Stumpage Prices:**

		<u>Sawtimber</u>	<u>Pulpwood</u>			
Stumpage Price Adjustment Factor		-0.28%	0.00%			
		0.9065	0.8815	0.8571	0.7991	
<u>SAWTIMBER</u>	Current	\$/MBF at age	\$/MBF at age	\$/MBF at age	\$/MBF at age	
Region	\$/MBF	35	45	55	80	
Region 1	250.15	226.77	220.50	214.40	199.88	
Region 2	207.21	187.84	182.65	177.60	165.58	
Region 3	283.22	256.75	249.65	242.75	226.31	
Region 4	224.88	203.86	198.22	192.74	179.69	
Region 5	198.39	179.85	174.87	170.04	158.53	
		1.0000	1.0000	1.0000	1.0000	
<u>PULPWOOD:</u>		\$/cd at age	\$/cd at age	\$/cd at age	\$/cd at age	
Region	\$/Cord	35	45	55	80	
Region 1	5.81	5.81	5.81	5.81	5.81	
Region 2	7.56	7.56	7.56	7.56	7.56	
Region 3	6.12	6.12	6.12	6.12	6.12	
Region 4	6.14	6.14	6.14	6.14	6.14	
Region 5	6.97	6.97	6.97	6.97	6.97	

**Management Costs:**

Region	\$/acre (1)
1	3.15
2	3.15
3	3.15
4	3.15
5	3.15
State	

**Tax Rates:**

Effective Federal Income Tax Rate	35.00%
Effective WV State Income Tax Rate (6.5% * (1-.35))	4.23%
Effective WV Severance Tax Rate (4.0% * (1-.35))	2.60%

**Yield (Volumes) (80 year rotation)**

Timberland		Yield - MBF	Yield - Cords
Productivity Grades	Site Index		
Grade I	75 or more	14.5	10.5
Grade II	65-74	9.7	14.9
Grade III	less than 65	4.5	18.5

## Managed Timberland Statistics

### Estimation of Required Rate of Return: Class II Rates

**A. Safe Rate of Return (5 Year T-Bill Rate)**

Year	Rate	W/A %	W/A Rate
2008	2.7980	33.33%	0.9327
2007	4.4300	26.67%	1.1813
2006	4.7450	20.00%	0.9490
2005	4.0458	13.33%	0.5394
2004	3.4290	6.67%	0.2286

3.831 %

**B. Nonliquidity Rate**

(12 Month T-Bills vs. 3 Month T-Bills)

Year	Rate	W/A %	W/A Rate
2008	0.4308	33.33%	0.1436
2007	0.0500	26.67%	0.0133
2006	0.0845	20.00%	0.0169
2005	0.4050	13.33%	0.0540
2004	0.4920	6.67%	0.0328

0.261 %

**C. Risk Rate (30 yr T-bills vs 5 yr T-bills)\***

Year	Rate	W/A %	W/A Rate
2008	1.4800	33.33%	0.4933
2007	0.4084	26.67%	0.1089
2006	0.6070	20.00%	0.1214
2005	0.6000	13.33%	0.0800
2004	1.6180	6.67%	0.1079

0.912 %

**D. Management Factor**

0.500 %

**E. Property Tax Component**

(60% of Class II Rate)

Year	Rate	W/A %	W/A Rate
2008	0.696	33.33%	0.2320
2007	0.708	26.67%	0.1888
2006	0.726	20.00%	0.1452
2005	0.738	13.33%	0.0984
2004	0.744	6.67%	0.0496

0.714 %

**F. Inflation Rate:**

(Bureau of Labor Statistics)

Year	Rate	W/A %	W/A Rate
2008	0.100	13.33%	0.0133
2007	4.100	6.67%	0.2735
2006	2.500	33.33%	0.8333
2005	3.400	20.00%	0.6800
2004	3.300	26.67%	0.8801

(2.680) %

**TOTAL REQUIRED RATE OF RETURN (REAL)**

3.538 %

**LESS: PROPERTY TAX COMPONENT**

(0.714)

**TOTAL DISCOUNT COMPONENT**

2.824 %

30 yr T-bills 2004-2005 not available, 20 yr. T-bill data used. 2006, 2007 and 2008 30 yr. T-bill data available

**Stumpage Prices:**

	<u>Sawtimber</u>	<u>Pulpwood</u>		
Stumpage Price Adjustment Factor	-0.28%	0.00%		
	0.9065	0.8815	0.8571	0.7991

**SAWTIMBER**

Region	Current \$/MBF	\$/MBF at age 35	\$/MBF at age 45	\$/MBF at age 55	\$/MBF at age 80
Region 1	250.15	226.77	220.50	214.40	199.88
Region 2	207.21	187.84	182.65	177.60	165.58
Region 3	283.22	256.75	249.65	242.75	226.31
Region 4	224.88	203.86	198.22	192.74	179.69
Region 5	198.39	179.85	174.87	170.04	158.53

**PULPWOOD:**

Region	\$/Cord	\$/cd at age 35	\$/cd at age 45	\$/cd at age 55	\$/cd at age 80
Region 1	5.81	5.81	5.81	5.81	5.81
Region 2	7.56	7.56	7.56	7.56	7.56
Region 3	6.12	6.12	6.12	6.12	6.12
Region 4	6.14	6.14	6.14	6.14	6.14
Region 5	6.97	6.97	6.97	6.97	6.97

**Management Costs:**

Region	\$/acre (1)
1	3.15
2	3.15
3	3.15
4	3.15
5	3.15
State	

**Tax Rates:**

Effective Federal Income Tax Rate	35.00%
Effective WV State Income Tax Rate (6.5% * (1-.35))	4.23%
Effective WV Severance Tax Rate (4.0% * (1-.35))	2.60%

**Yield (Volumes) (80 year rotation)**

Timberland Productivity Grades	Site Index	Yield - MBF	Yield - Cords
Grade I	75 or more	14.5	10.5
Grade II	65-74	9.7	14.9
Grade III	less than 65	4.5	18.5

**West Virginia Wgt/Avg Managed Timberland Stumpage Prices**

**REGION 1 - Sawtimber**

Year	Volume	\$/MBF	W/A%	\$/MBF
2008	18,483.95	236.57	33.33%	78.86
2007	29,593.93	249.91	26.67%	66.64
2006	33,592.39	243.44	20.00%	48.69
2005	27,014.00	286.32	13.33%	38.18
2004	31,149.31	266.78	6.67%	17.79
	<b>139,833.58</b>			<b>250.15</b>

**REGION 1 - Pulpwood**

Year	Volume	\$/CORD	W/A%	\$/CORD
2008	1,929.30	2.07	33.33%	0.69
2007	745.60	2.81	26.67%	0.75
2006	14,814.80	13.10	20.00%	2.62
2005	925.90	8.10	13.33%	1.08
2004	1,930.00	10.07	6.67%	0.67
	<b>20,345.60</b>			<b>5.81</b>

**REGION 2 - Sawtimber**

Year	Volume	\$/MBF	W/A%	\$/MBF
2008	62,741.47	187.95	33.33%	62.65
2007	118,327.50	213.26	26.67%	56.87
2006	89,863.24	219.73	20.00%	43.95
2005	138,585.00	204.62	13.33%	27.28
2004	78,012.63	246.97	6.67%	16.46
	<b>487,529.84</b>			<b>207.21</b>

**REGION 2 - Pulpwood**

Year	Volume	\$/CORD	W/A%	\$/CORD
2008	12,213.00	5.57	33.33%	1.86
2007	8,626.70	5.44	26.67%	1.45
2006	17,557.00	11.87	20.00%	2.37
2005	41,667.70	9.06	13.33%	1.21
2004	9,748.00	10.07	6.67%	0.67
	<b>89,812.40</b>			<b>7.56</b>

**REGION 3 - Sawtimber**

Year	Volume	\$/MBF	W/A%	\$/MBF
2008	223,321.70	239.45	33.33%	79.82
2007	270,925.20	288.93	26.67%	77.05
2006	225,502.90	293.05	20.00%	58.61
2005	249,306.30	349.89	13.33%	46.65
2004	194,879.00	316.47	6.67%	21.10
	<b>1,163,935.10</b>			<b>283.22</b>

**REGION 3 - Pulpwood**

Year	Volume	\$/CORD	W/A%	\$/CORD
2008	280,717.80	5.76	33.33%	1.92
2007	187,872.20	7.16	26.67%	1.91
2006	82,518.60	1.95	20.00%	0.39
2005	163,133.00	9.51	13.33%	1.27
2004	116,021.00	9.47	6.67%	0.63
	<b>830,262.60</b>			<b>6.12</b>

**REGION 4 - Sawtimber**

Year	Volume	\$/MBF	W/A%	\$/MBF
2008	31,170.06	218.70	33.33%	72.90
2007	14,777.39	182.36	26.67%	48.63
2006	9,973.61	232.63	20.00%	46.53
2005	31,321.28	260.87	13.33%	34.78
2004	119,972.00	330.57	6.67%	22.04
	<u>207,214.34</u>			<u>224.88</u>

**REGION 4 - Pulpwood**

Year	Volume	\$/CORD	W/A%	\$/CORD
2008	49,931.50	4.02	33.33%	1.34
2007	5,620.70	8.65	26.67%	2.31
2006	17,058.10	6.77	20.00%	1.35
2005	9,814.80	4.94	13.33%	0.66
2004	6,036.30	7.18	6.67%	0.48
	<u>88,461.40</u>			<u>6.14</u>

**REGION 5 - Sawtimber**

Year	Volume	\$/MBF	W/A%	\$/MBF
2008	53,526.41	167.56	33.33%	55.85
2007	81,098.00	173.12	26.67%	46.17
2006	76,052.49	229.13	20.00%	45.83
2005	46,164.57	220.70	13.33%	29.43
2004	46,788.62	316.80	6.67%	21.12
	<u>303,630.09</u>			<u>198.39</u>

**REGION 5 - Pulpwood**

Year	Volume	\$/CORD	W/A%	\$/CORD
2008	34,275.00	5.55	33.33%	1.85
2007	9,118.90	8.36	26.67%	2.23
2006	10,888.94	4.27	20.00%	0.85
2005	25,775.90	12.44	13.33%	1.66
2004	34,607.50	5.66	6.67%	0.38
	<u>114,666.24</u>			<u>6.97</u>

# **COAL PROPERTIES ANALYSIS**

**Tax Year 2010**

August 28, 2009  
Christopher G. Morris  
Tax Commissioner  
Department of Revenue

## COAL CAPITALIZATION RATE

### Capitalization Rate Analysis and Results:

In developing a capitalization rate for use in valuing specific income-producing properties consideration is given to the three approaches generally employed in estimating a discount rate. As a matter of practicality, the Bands-of-Investment and Summation Technique approaches are utilized in establishing discount rates for active coal. Data for analysis has been derived in accordance with current Legislative Rule Title 110, Series 11.

<u>Safe Rate</u> 90 day Treasury Bills			<u>Safe Rate</u>
January	December	2008	1.390%
January	December	2007	4.470%
January	December	2006	4.850%

<u>Risk Rate</u> Interest differential between Loan Rate and 90 day Treasury Bills			
<u>Loan Rate*</u>		<u>Debt Risk Rate</u>	
2008	7.09%	5.700%	
2007	10.05%	5.580%	
2006	9.96%	5.110%	
*Prime plus 2%			

<u>Equity</u> Differential between Equity Rates and 90 day Treasury Bills			
<u>Equity Rate**</u>		<u>Equity Risk Rate</u>	
2008	[13.5%/(1-.30)]-1.39	17.896%	
2007	[12.75%/(1-.30)]-4.47	13.744%	
2006	[13.0%/(1-.30)]-4.85	13.721%	
** Value Line Investment Survey Analysis			

<u>Composite Risk Rate</u> Loan and Equity Rates weighted by industry estimated capital structure			
	<u>Equity Rate</u>	<u>Debt Rate</u>	<u>Composite Risk</u>
2008	10.737%	2.280%	13.017%
2007	8.247%	2.232%	10.479%
2006	8.233%	2.044%	10.277%
Note: Debt equity Ratio		Debt 40%	Equity 60%

<u>Non Liquidity Rate</u> Interest differential between a 90 day Treasury Bill and a 1 year Treasury Bill which reflects a reasonable time necessary to sell active property.					
			<u>1yr T Bill</u>	<u>90 d T Bill</u>	<u>Non Liquidity Rate</u>
January	December	2008	1.820%	1.390%	0.430%
January	December	2007	4.520%	4.470%	0.050%
January	December	2006	4.930%	4.850%	0.080%

<u>Management Rate</u> Charges for the management of investment portfolios.		
Fixed Rate (by Rule)	0.500%	

<u>Inflation Rate</u>			
January	December	2008	0.100%
January	December	2007	4.100%
January	December	2006	2.500%

Capitalization Rate Since the valuation of active coal property is predicated on a three year production average, the capitalization rate is considered in a similar manner.

	<u>2008</u>	<u>2007</u>	<u>2006</u>
Inflation Rate	-0.100%	-4.100%	-2.500%
Safe Rate	1.390%	4.470%	4.850%
Composite Risk Rate	13.017%	10.479%	10.277%
Non Liquidity Rate	0.430%	0.050%	0.080%
Management Rate	0.500%	0.500%	0.500%
Total	15.237%	11.399%	13.207%

Three Yr Average: 13.281 Rounded to: **13.30%**

<u>CAPITALIZATION RATE - 13.3%</u>				
<u>MULTIPLIERS:</u>		<u>%</u>		<u>%</u>
1YR	0.939		9YR	5.402
2YR	1.769		10YR	5.707
3YR	2.501		11YR	5.977
4YR	3.146		12YR	6.215
5YR	3.717		13YR	6.425
6YR	4.220		14YR	6.610
7YR	4.664		15YR	6.773
8YR	5.056			

**COAL**

**Royalty Rate Analysis**

The development of royalty rates for the various categories of mines and markets involves information collection and review from a variety of sources. Research data for coal lease rates have been derived from recorded lease transactions provided by county assessors, tax auditors, producers, and by individual lessors/lessees involved in the specific transaction. The prices for mined coal have been calculated from data published in "COAL WEEK", from pricing information provided by producers as part of the most recent tax filing, and from data obtained from the WV Public Service Commission and U.S. Energy Information Administration concerning power plant fuel purchases. Because a large portion of the data used in this analysis is, by law, considered confidential, only a summary of the results are published.

**COAL SALE PRICES 2006, 2007 & 2008 FOR TY2010 APPLICATION**  
**GRAND SUMMARY ALL SOURCES**

	STEAM SPOT	STEAM TERM	MET
PSC *	\$77.42	\$58.77	
Coal Week Publication	\$85.86	\$64.53	
FERC Data	\$65.63	\$58.63	
Active Return Summary	\$57.13	←S+T	\$82.15 26.6 mm tons

STATE STEAM PRICE	\$63.81	Weighted according to the 73/27 from the PSC tons below EIA & PSC, 3 YR AVE
STATE MET PRICE	\$82.15	
STATE STEAM SPOT PRICE	\$62.68	

PSC Tons reported in thousands	Spot Sales	Term Sales	Total
	6,033	11,466	17,499

**COAL TY 2010 ROYALTY RATES**

	5YR		6YR		7YR		8YR	
	%S	%D	%S	%D	%S	%D	%S	%D
TOTAL RECORDS	5,379	6,006	5,383	6,066	5,393	6,107	5,408	6,157
SUM of PERCENT	31,749	29,800	30,989	31,390	32,067	29,576	35,467	27,277
STRAIGHT AVERAGE	5.27	4.84	5.07	4.84	5.65	4.85	5.45	4.85
MEDIAN	4.88	4.82	4.88	4.82	4.76	4.84	4.88	4.86
WEIGHTED AVERAGE	5.90	4.96	5.76	5.17	5.95	4.84	6.56	4.43

TENTATIVE RATE SURFACE	5.89
TENTATIVE RATE DEEP	4.84

**ROYALTY RATE CALCULATIONS**

Steam Coal/ Deep Mine	\$62.68	per ton X	4.84%	=	\$3.03	per ton
Metallurgical Coal/ Deep Mine	\$82.15	per ton X	4.84%	=	\$3.98	per ton
Steam Coal/ Surface Mine	\$62.68	per ton X	5.89%	=	\$3.69	per ton
Metallurgical Coal/ Surface Mine	\$82.15	per ton X	5.89%	=	\$4.84	per ton

### Explanation of Reserve Coal Valuation

The RCVM consists of a computer model, which utilizes a database consisting of coal beds and characteristics, property locations, mine locations, sales, transportation, etc., for the entire state. An extensive algorithm calculates in-place tonnage, expected time of mining and present value for all the mineable coal on every property.

There are, therefore, no set "rates" available on reserve coal under the Rule. The RCVM values on each property will not be available until all data has been entered, after November 15 of each year. Please refer to the State Register, Legislative Rules, Title 110, Series 1I for details of the process.

**Title 110, Series 11**  
**Valuation of Active and Reserve Coal Property for Ad Valorem Property Tax Purposes**

The above Legislative Rule was modified during the 2005 Legislative Session to allow biannual revisiting of the geostatistical basis for several valuation factors used in the Reserve Coal Valuation Model. Preliminary research has been conducted and the results are as follows:

**Market Interest Factor**

This is the relationship between transactions (sales, leases, prospects, permit applications, etc.) and mining as it relates to properties and locations. Trans\_Ct is the number of transactions counted within the radius.

Radius = 5 miles

If Trans\_Ct >= 26 Then TransFactor = 20

If Trans\_Ct < 26 And Trans\_Ct >= 8 Then TransFactor = 40

Else TransFactor = 80

**Market Mineability Factor**

This is the relationship between property location and mining, through time. Determining feature is count of mines within the radius.

Radius = 5 miles

Surface Mines: Smine

Deep Mines: Dmine

Boom Mines: Bmine

Historic Mines: Omine

Current Mines: Cmine

To assign MineFactor:

If Cmine > 0 Then MineFactor = 20

If Cmine = 0 And (Omine > 0 Or Bmine > 0) Then MineFactor = 40

Else MineFactor = 80

**Use Conflict Factor**

This is the relationship between oil & gas well drilling and mining as it relates to property location. Well density is in wells per square mlle.

WellDensity < 4 Then WellFactor = 0

WellDensity >= 4 And WellDensity < 13 Then WellFactor = 20

WellDensity >= 13 And WellDensity < 23 Then WellFactor = 40

WellDensity > 23. Then WellFactor = 80

**Environmental Factor**

This is the relationship of known environmental hazards and impediments to the likelihood of mining occurring at this location. The rates are compiled from maps and represent densities of problems mapped.

Envrate = <=30 and Null Then EnvFactor = 0

Envrate >30 and Envrate <= 60 Then EnvFactor = 20

Envrate > 60 and Envrate <= 100 Then EnvFactor = 40

Envrate > 100 Then EnvFactor = 80

**OTHER MINED MINERAL  
PROPERTY ANALYSIS**

**Tax Year 2010**

August 28, 2009  
Christopher G. Morris  
Tax Commissioner  
Department of Revenue

## OTHER MINED MINERALS CAPITALIZATION RATE

### Capitalization Rate Analysis and Results:

In developing a capitalization rate for use in valuing specific income-producing properties consideration is given to the three approaches generally employed in estimating a discount rate. As a matter of practicality, the Bands-of-Investment and Summation Technique approaches are utilized in establishing discount rates for active coal. Data for analysis has been derived in accordance with current Legislative Rule Title 110, Series 1k.

<u>Safe Rate</u>	90 day Treasury Bills	<u>Safe Rate</u>
January	December 2008	1.390%
January	December 2007	4.470%
January	December 2006	4.850%

<u>Risk Rate</u>	Interest differential between Loan Rate and 90 day Treasury Bills	<u>Debt Risk Rate</u>
<u>Loan Rate*</u>		
2008	7.09%	5.700%
2007	10.05%	5.580%
2006	9.96%	5.110%
	*Prime plus 2%	

<u>Equity</u>	Differential between Equity Rates and 90 day Treasury Bills	<u>Equity Risk Rate</u>
<u>Equity Rate**</u>		
2008	[13.25%/(1-.32)]-1.39	18.095%
2007	[12.5%/(1-.32)]-4.47	13.912%
2006	[12.75%/(1-.32)]-4.85	13.900%
	** Value Line Investment Survey Analysis	

<u>Composite Risk Rate</u>	Loan and Equity Rates weighted by industry estimated capital structure.		
	Equity Rate	Debt Rate	Composite Risk
2008	11.762%	1.995%	13.757%
2007	9.739%	1.674%	11.413%
2006	9.730%	1.533%	11.263%
Note:	Debt equity Ratio	Debt 35%	Equity 65%

Non Liquidity Rate Interest differential between 90 day Treasury Bills and a 1 year Treasury Bill which reflects a reasonable time necessary to sell active property.

			<u>1yr T Bill</u>	<u>90 d T Bill</u>	<u>Non Liquidity Rate</u>
January	December	2008	1.820%	1.390%	0.430%
January	December	2007	4.520%	4.470%	0.050%
January	December	2006	4.930%	4.850%	0.080%

Management Rate Charges for the management of investment portfolios.  
Fixed Rate (by Rule) 0.500%

<u>Inflation Rate</u>			
January	December	2008	0.100%
January	December	2007	4.100%
January	December	2006	2.500%

<u>Property Tax Rate</u>	Sixty percent (60%) of State average Class III property tax rate.
January	December 2008 60% of 2.160 = 1.296%
January	December 2007 60% of 2.170 = 1.302%
January	December 2006 60% of 2.210 = 1.326%

Capitalization Rate Since the valuation of other mined mineral property is predicated on a three year production average, the capitalization rate is considered in a similar manner.

	2008	2007	2006
Inflation Rate	-0.100%	-4.100%	-2.500%
Safe Rate	1.390%	4.470%	4.850%
Composite Risk Rate	13.757%	11.413%	11.263%
Non Liquidity Rate	0.430%	0.050%	0.080%
Management Rate	0.500%	0.500%	0.500%
Property Tax Rate	1.296%	1.302%	1.326%
<u>Total</u>	17.273%	13.635%	15.519%

Three Yr Average: 15.476% Rounded to: **15.50%**

### CAPITALIZATION RATE - 15.50%

MULTIPLIERS:	%	%
1YR	0.930	5.038
2YR	1.736	5.292
3YR	2.434	5.513
4YR	3.037	5.703
5YR	3.560	5.869
6YR	4.013	6.011
7YR	4.405	6.135
8YR	4.744	

## OTHER MINED MINERALS

### ROYALTY RATE SURVEY

The determination of royalty rates for other mined minerals within the state of West Virginia is dependent upon the availability of leasehold information. Since this information is limited, the Department has chosen to review data for the most recent thirty year period. A summary of this review is shown below in order to protect the confidentiality of parties involved.

RESOURCE	DATA SOURCES	AVERAGE ROYALTY	MEDIAN ROYALTY	TY2010 RATE
LIMESTONE	15	\$0.22	\$0.20	<b>\$0.22</b>
SANDSTONE	8	\$0.31	\$0.25	<b>\$0.30</b>
CLAY/SHALE	34	\$0.12	\$0.10	<b>\$0.11</b>
SAND/GRAVEL	10	\$0.35	\$0.40	<b>\$0.40</b>
SALT BRINE	1	N/A	N/A	<b>\$0.10</b>

### RESERVE VALUES

	number of sales	\$/AC
LIMESTONE	5	\$3,000.00
SANDSTONE	8	\$2,300.00
CLAY/SHALE	16	\$850.00
SAND/GRAVEL	6	\$4,000.00
SALT	2	\$1,140.00