



STATE OF WEST VIRGINIA
Department of Revenue
State Tax Department

Earl Ray Tomblin
Governor

Mark W. Matkovich
State Tax Commissioner

August 27, 2015

FILED
2015 AUG 27 A 11:23
OFFICE WEST VIRGINIA
SECRETARY OF STATE

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

Dear Secretary Tennant:

Attached are final natural resource property valuation variables for the 2016 Tax Year that have been developed by the State Tax Department for use in appraising oil and gas, managed timberland, coal 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, 2014. The Department received six comments on the tentative variables. Three comments related to the valuation of coal and three comments related to the valuation of producing oil and gas wells. The information supplied in the coal comments resulted in an increase in the capitalization rate for coal properties. One of the oil and gas commenters supplied data supporting an increase in the decline rate for Marcellus gas wells in the North West region.

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

Sincerely,

Mark W. Matkovich
State Tax Commissioner

MWM/jaj

Attachment

cc: All County Assessors

OIL AND GAS PROPERTIES ANALYSIS

Tax Year 2016

FILED
2015 AUG 27 A 11:23
OFFICE WEST VIRGINIA
SECRETARY OF STATE

August 27, 2015
Mark W. Matkovich
State Tax Commissioner
Department of Revenue

OIL AND GAS

TY 2016

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.

| | | | | |
|------------------|--|----------|------|---------------|
| Safe Rate | (3-Month Constant Maturity Interest Rates) | | | |
| | January | December | 2014 | 0.033% |

| | | | |
|------------------|--|----------------|------------------|
| Risk Rate | (Interest differential between Loan Rate and 3-Month Constant Maturity Interest Rates) | | |
| | <u>Loan Rate*</u> | | <u>Risk Rate</u> |
| | 2014 | 5.250% | 5.217% |
| | | *Prime plus 2% | |

| | | | |
|---------------|--|--|------------------|
| Equity | (Differential between Equity Rates and 3-Month Constant Maturity Interest Rates) | | |
| | <u>Equity Rate**</u> | | <u>Risk Rate</u> |
| | 2014 | [11.5%/(1-.37)]-0.033% | 18.221% |
| | | ** Value Line Investment Survey Analysis | |

| | | | | | |
|----------------------------|---|--------------------|------------------|-----------------------|--------|
| Composite Risk Rate | Loan and Equity Rates weighted by industry estimated capital structure. | | | | |
| | | <u>Equity Rate</u> | <u>Debt Rate</u> | <u>Composite Risk</u> | |
| | 2014 | 11.8436% | 1.826% | 14.389% | *** |
| | Note: Debt equity Ratio | | Debt | 35% | Equity |
| | *** Effective severance tax adjustment | | | 0.95 | 65% |

| | | | | | | |
|---------------------------|--|----------|------|-------------------|----------------------|---------------------------|
| Non Liquidity Rate | 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 | 2014 | 0.121% | 0.033% | 0.088% |

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

| | | | |
|--------------------------|---|-------------|---------------|
| Property Tax Rate | Sixty percent (60%) of State average Class III property tax rate. | | |
| | 2014 | 60% of 2.19 | 1.314% |

| | | | |
|-----------------------|---------|----------|---------------|
| Inflation Rate | | | |
| | January | December | 2014 |
| | | | 0.760% |

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.

| | 2014 | 2013 | 2012 |
|----------------------------|---------------|---------------|----------------|
| Inflation Rate | -0.760% | -1.500% | -1.700% |
| Safe Rate | 0.033% | 0.058% | 0.086% |
| Composite Risk Rate | 14.389% | 14.634% | 14.605% |
| Non Liquidity Rate | 0.088% | 0.074% | 0.089% |
| Management Rate | 0.500% | 0.500% | 0.500% |
| Property Tax Rate | 1.314% | 1.314% | 1.326% |
| Total | 15.564% | 15.080% | 14.906% |
| | 50.000% | 33.333% | 16.667% |
| | 7.782% | 5.027% | 2.484% |
| | | | 15.293% |

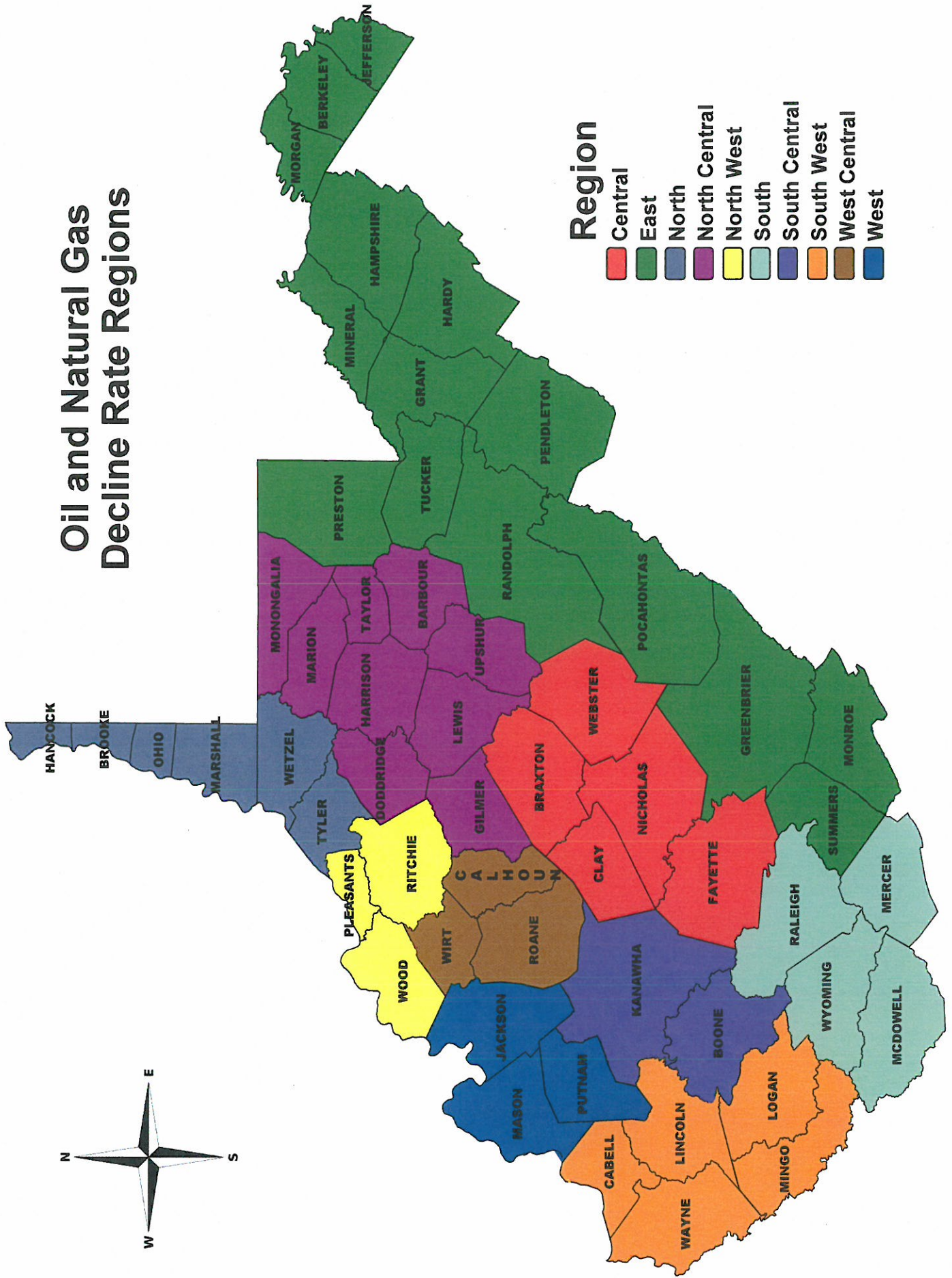
Capitalization Rate Rounded to:

15.30%

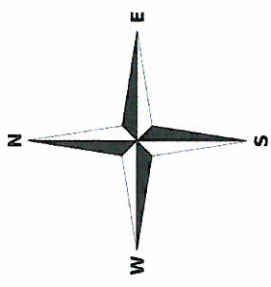
MULTIPLIERS FOR 15.3% MID-YEAR LIFE (ANNUALLY)

| <u>YEAR</u> | | <u>YEAR</u> | |
|--------------------|----------|--------------------|----------|
| 1 | 0.931291 | 21 | 0.054013 |
| 2 | 0.807711 | 22 | 0.046846 |
| 3 | 0.700530 | 23 | 0.040629 |
| 4 | 0.607572 | 24 | 0.035238 |
| 5 | 0.526948 | 25 | 0.030562 |
| 6 | 0.457024 | 26 | 0.026507 |
| 7 | 0.396378 | 27 | 0.022989 |
| 8 | 0.343780 | 28 | 0.019939 |
| 9 | 0.298161 | 29 | 0.017293 |
| 10 | 0.258596 | 30 | 0.014998 |
| 11 | 0.224281 | 31 | 0.013008 |
| 12 | 0.194519 | 32 | 0.011282 |
| 13 | 0.168707 | 33 | 0.009785 |
| 14 | 0.146320 | 34 | 0.008486 |
| 15 | 0.126904 | 35 | 0.007360 |
| 16 | 0.110064 | 36 | 0.006384 |
| 17 | 0.095459 | 37 | 0.005536 |
| 18 | 0.082792 | 38 | 0.004802 |
| 19 | 0.071806 | 39 | 0.004165 |
| 20 | 0.062277 | 40 | 0.003612 |

Oil and Natural Gas Decline Rate Regions



- Region**
- Central
 - East
 - North
 - North Central
 - North West
 - South
 - South Central
 - South West
 - West Central
 - West



Decline Rates for Natural Gas and Oil Formations: Central

Central: Braxton, Clay, Fayette, Nicholas, Webster

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|---------------------|--------|--------|----------|
| 12 | Alexander, Benson | -0.31 | -0.20 | -0.10 |
| 14 | Benson | -0.48 | -0.08 | -0.08 |
| 16 | Benson, Balltown+ | -0.45 | -0.16 | -0.12 |
| 17 | Gordon + | -0.30 | -0.07 | -0.07 |
| 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 | Ravenclyff | -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: East

**East: Berkeley, Grant, Greenbrier, Hampshire, Hardy, Jefferson, Mineral,
Monroe, Morgan, Pendleton, Pocahontas, Preston, Randolph, Summers,
Tucker**

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|--------------------------|--------|--------|----------|
| 1 | Oriskany | -0.30 | -0.30 | -0.19 |
| 14 | Benson | -0.31 | -0.17 | -0.12 |
| 20 | Benson + | -0.44 | -0.20 | -0.08 |
| 21 | Benson, Fifth | -0.29 | -0.28 | -0.09 |
| 32 | Brallier + | -0.48 | -0.20 | -0.05 |
| 33 | Elk, Benson | -0.39 | -0.21 | -0.08 |
| 34 | Elk, Benson, Riley | -0.53 | -0.19 | -0.05 |
| 35 | Elk, Benson, Riley + | -0.36 | -0.19 | -0.11 |
| 36 | Elk, Benson, Balltown | -0.34 | -0.18 | -0.11 |
| 37 | Elk, Alexander, Benson | -0.50 | -0.07 | -0.07 |
| 38 | Elk, Alexander, Benson + | -0.40 | -0.16 | -0.16 |
| 39 | Hunterville | -0.31 | -0.31 | -0.14 |
| 40 | Fox, Haverty | -0.36 | -0.21 | -0.15 |
| 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 |
| 110 | Marcellus | -0.59 | -0.22 | -0.17 |
| 9 | Exception (Median) | -0.41 | -0.22 | -0.10 |
| 10 | Non-Filer | -0.29 | -0.07 | -0.05 |

Decline Rates for Natural Gas and Oil Formations: North**North: Brooke, Hancock, Marshall, Ohio, Tyler, Wetzel**

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|-------------|----------------------------|---------------|---------------|-----------------|
| 11 | Gordon | -0.47 | -0.31 | -0.09 |
| 13 | Alexander, Benson, Riley | -0.26 | -0.16 | -0.15 |
| 15 | Benson, Riley | -0.18 | -0.16 | -0.06 |
| 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 |
| 97 | Coalbed Methane (Vertical) | -0.23 | -0.08 | -0.05 |
| 110 | Marcellus | -0.52 | -0.23 | -0.18 |
| 9 | Exception (Median) | -0.39 | -0.23 | -0.08 |
| 10 | Non-Filer | -0.18 | -0.16 | -0.06 |

| Decline Rates for Natural Gas and Oil Formations: North Central | | | | |
|--|--|--------|--------|----------|
| North Central: Barbour, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Taylor, Upshur | | | | |
| Code | Formation | Year 1 | Year 2 | Year 3 + |
| 11 | Gordon | -0.41 | -0.14 | -0.12 |
| 12 | Alexander, Benson | -0.37 | -0.19 | -0.11 |
| 13 | Alexander, Benson, Riley | -0.40 | -0.28 | -0.05 |
| 14 | Benson | -0.31 | -0.17 | -0.12 |
| 15 | Benson, Riley | -0.34 | -0.17 | -0.14 |
| 18 | Big Injun | -0.36 | -0.16 | -0.13 |
| 21 | Benson, Fifth | -0.31 | -0.20 | -0.14 |
| 28 | Weir | -0.34 | -0.34 | -0.07 |
| 29 | Weir + | -0.28 | -0.28 | -0.23 |
| 33 | Elk, Benson | -0.34 | -0.16 | -0.11 |
| 34 | Elk, Benson, Riley | -0.42 | -0.27 | -0.08 |
| 37 | Elk, Alexander, Benson | -0.49 | -0.23 | -0.08 |
| 38 | Elk, Alexander, Benson + | -0.38 | -0.20 | -0.12 |
| 40 | Fox, Haverty | -0.46 | -0.16 | -0.08 |
| 50 | Rhinestreet | -0.28 | -0.03 | -0.03 |
| 57 | Alexander, Benson, Balltown | -0.39 | -0.26 | -0.08 |
| 58 | Alexander | -0.35 | -0.20 | -0.10 |
| 59 | Alexander + | -0.39 | -0.22 | -0.10 |
| 60 | Alexander, Benson, Riley + | -0.39 | -0.35 | -0.12 |
| 61 | Balltown | -0.35 | -0.20 | -0.10 |
| 62 | Balltown, Speechley | -0.28 | -0.22 | -0.10 |
| 63 | Balltown, Speechley + | -0.30 | -0.13 | -0.10 |
| 64 | Benson, Balltown, Speechley | -0.28 | -0.22 | -0.09 |
| 65 | Benson, Bradford | -0.37 | -0.20 | -0.10 |
| 66 | Benson, Balltown | -0.29 | -0.23 | -0.11 |
| 67 | Benson, Riley + | -0.38 | -0.14 | -0.10 |
| 68 | Benson, Speechley | -0.30 | -0.22 | -0.14 |
| 69 | Brallier, Elk | -0.42 | -0.20 | -0.13 |
| 70 | Brallier | -0.40 | -0.22 | -0.15 |
| 71 | Deeper/Onondaga or Oriskany/Helderberg | -0.24 | -0.24 | -0.03 |
| 72 | Elk, Alexander | -0.42 | -0.22 | -0.09 |
| 73 | Elk, Benson + | -0.38 | -0.20 | -0.12 |
| 74 | Elk | -0.43 | -0.12 | -0.10 |
| 75 | Elk, Riley | -0.60 | -0.35 | -0.17 |
| 76 | Fox + | -0.46 | -0.18 | -0.09 |
| 77 | Haverty, Elk, Benson (No Alexander) | -0.35 | -0.16 | -0.16 |
| 78 | Haverty | -0.45 | -0.15 | -0.15 |
| 79 | Riley | -0.44 | -0.22 | -0.10 |
| 80 | Speechley | -0.30 | -0.18 | -0.09 |
| 81 | Alexander, Benson, Speechley | -0.39 | -0.24 | -0.10 |
| 82 | Haverty, Elk, Alexander | -0.47 | -0.14 | -0.14 |
| 85 | Fifth, Oil | -0.45 | -0.25 | -0.22 |
| 87 | Bayard All | -0.30 | -0.20 | -0.05 |
| 88 | Fifth | -0.29 | -0.18 | -0.12 |
| 89 | Fifth + | -0.25 | -0.15 | -0.13 |
| 90 | Gordon, Injun All | -0.41 | -0.23 | -0.23 |
| 91 | Squaw | -0.37 | -0.31 | -0.06 |
| 92 | Injun + | -0.34 | -0.22 | -0.22 |
| 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 |
| 97 | Coalbed Methane (Vertical) | -0.23 | -0.08 | -0.05 |
| 98 | Coalbed Methane (Horizontal) | -0.05 | -0.05 | -0.32 |
| 109 | Trenton/Deeper * | -0.38 | -0.21 | -0.11 |
| 110 | Marcellus | -0.59 | -0.29 | -0.23 |
| 9 | Exception (Median) | -0.38 | -0.21 | -0.11 |
| 10 | Non-Filer | -0.23 | -0.03 | -0.03 |

* 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: North West | | | | |
|--|--|--------|--------|----------|
| North West: Pleasants, Ritchie, Wood | | | | |
| Code | Formation | Year 1 | Year 2 | Year 3 + |
| 2 | Huron, Rhinestreet | -0.41 | -0.26 | -0.07 |
| 4 | Huron | -0.42 | -0.24 | -0.14 |
| 5 | Huron, Shales 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 | -0.46 | -0.29 | -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.

Decline Rates for Natural Gas and Oil Formations: South

South: McDowell, Mercer, Raleigh, Wyoming

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|------------------------------|--------|--------|----------|
| 8 | Berea | -0.34 | -0.15 | -0.15 |
| 22 | Big Lime | -0.31 | -0.19 | -0.07 |
| 23 | Big Lime, Maxton | -0.31 | -0.19 | -0.07 |
| 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 |
| 9 | Exception (Median) | -0.36 | -0.19 | -0.09 |
| 10 | Non-Filer | -0.23 | -0.08 | -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: South Central

South Central: Boone, Kanawha

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|---------------------------|--------|--------|----------|
| 3 | Devonian Shale | -0.23 | -0.08 | -0.05 |
| 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: South West

South West: Cabell, Lincoln, Logan, Mingo, Wayne

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|--------------------|--------|--------|----------|
| 3 | Devonian Shale | -0.31 | -0.15 | -0.04 |
| 8 | Berea | -0.36 | -0.11 | -0.11 |
| 18 | Big Injun | -0.38 | -0.22 | -0.04 |
| 22 | Big Lime | -0.19 | -0.19 | -0.19 |
| 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: West

West: Jackson, Mason, Putnam

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|---------------------------|--------|--------|----------|
| 1 | Oriskany | -0.40 | -0.40 | -0.29 |
| 2 | Huron, Rhinestreet | -0.13 | -0.12 | -0.03 |
| 3 | Devonian Shale | -0.31 | -0.15 | -0.04 |
| 4 | Huron | -0.29 | -0.14 | -0.05 |
| 5 | Huron, Shales above Huron | -0.38 | -0.15 | -0.06 |
| 6 | Huron, Berea | -0.29 | -0.08 | -0.08 |
| 7 | Berea, Devonian Shale | -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.

Decline Rates for Natural Gas and Oil Formations: West Central

West Central: Calhoun, Roane, Wirt

| Code | Formation | Year 1 | Year 2 | Year 3 + |
|------|-----------------------------------|--------|--------|----------|
| 2 | Huron, Rhinestreet | -0.49 | -0.11 | -0.06 |
| 4 | Huron | -0.33 | -0.22 | -0.14 |
| 27 | Huron, Shales above Huron | -0.42 | -0.23 | -0.12 |
| 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.

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.

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 |

MARCELLUS

| | | |
|--|---|-----------|
| - % Working Interest Expenses for Vertical Producing Well | = | 30% |
| - Maximum Operating Expenses | = | \$30,000 |
| | | |
| - % Working Interest Expenses for Horizontal Producing Well | = | 20% |
| - Maximum Operating Expenses | = | \$150,000 |

HORIZONTAL WELLS (OTHER THAN MARCELLUS)

| | | |
|--|---|----------|
| - % Working Interest Expenses for Horizontal Producing Well | = | 30% |
| - Maximum Operating Expenses | = | \$20,000 |

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 \$ 4.39/MCF
BBL usage X \$93.26/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 2016 | | | |
|-------------------------------------|------|------------|--------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| BARBOUR | 1 | 1 | \$50.00 |
| | | 2 | \$1.00 |
| | | 3 | \$50.00 |
| | | 4 | \$50.00 |
| | | 5 | \$50.00 |
| | | 6 | \$1.00 |
| | | 7 | \$50.00 |
| | | 8 | \$50.00 |
| | | 9 | \$50.00 |
| | | 10 | \$50.00 |
| | | 11 | \$50.00 |
| 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 | \$20.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$20.00 |
| | | 5 | \$20.00 |
| | | 6 | \$20.00 |
| | | 7 | \$1.00 |
| | | 8 | \$20.00 |
| | | 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 | \$25.00 |
| | | 4 | \$25.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$1.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/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 | \$30.00 |
| | | 2 | \$1.00 |
| | | 3 | \$30.00 |
| | | 4 | \$30.00 |
| | | 5 | \$30.00 |
| | | 6 | \$30.00 |
| CLAY | 8 | 1 | \$20.00 |
| | | 2 | \$1.00 |
| | | 3 | \$20.00 |
| | | 4 | \$20.00 |
| | | 5 | \$20.00 |
| | | 6 | \$20.00 |
| DODDRIDGE | 9 | 1 | \$60.00 |
| | | 2 | \$60.00 |
| | | 3 | \$60.00 |
| | | 4 | \$60.00 |
| | | 5 | \$60.00 |
| | | 6 | \$60.00 |
| | | 7 | \$60.00 |
| | | 8 | \$60.00 |
| | | 9 | \$1.00 |
| FAYETTE | 10 | 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 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| GILMER | 11 | 1 | \$25.00 |
| | | 2 | \$25.00 |
| | | 3 | \$25.00 |
| | | 4 | \$1.00 |
| | | 5 | \$1.00 |
| | | 6 | \$25.00 |
| GRANT | 12 | 1 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$10.00 |
| | | 4 | \$1.00 |
| | | 5 | \$10.00 |
| GREENBRIER | 13 | 1 | \$1.00 |
| | | 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 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$5.00 |
| | | 6 | \$1.00 |
| | | 7 | \$5.00 |
| | | 8 | \$1.00 |
| | | 9 | \$5.00 |
| | | 10 | \$1.00 |
| HANCOCK | 15 | 1 | \$20.00 |
| | | 2 | \$1.00 |
| | | 3 | \$20.00 |
| | | 4 | \$20.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|-------------------------------------|------|------------|--------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| HARDY | 16 | 1 | \$1.00 |
| | | 2 | \$10.00 |
| | | 3 | \$10.00 |
| | | 4 | \$10.00 |
| | | 5 | \$10.00 |
| | | 6 | \$1.00 |
| HARRISON | 17 | 1 | \$60.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$60.00 |
| | | 6 | \$1.00 |
| | | 7 | \$60.00 |
| | | 8 | \$1.00 |
| | | 9 | \$60.00 |
| | | 10 | \$1.00 |
| | | 11 | \$60.00 |
| | | 12 | \$60.00 |
| | | 13 | \$1.00 |
| | | 14 | \$60.00 |
| | | 15 | \$60.00 |
| | | 16 | \$1.00 |
| | | 17 | \$1.00 |
| | | 18 | \$60.00 |
| | | 19 | \$1.00 |
| | | 20 | \$60.00 |
| | | 21 | \$1.00 |
| JACKSON | 18 | 1 | \$35.00 |
| | | 2 | \$35.00 |
| | | 3 | \$1.00 |
| | | 4 | \$35.00 |
| | | 5 | \$1.00 |
| | | 6 | \$35.00 |
| | | 7 | \$35.00 |
| 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 2016 | | | | | |
|--|-------------|-------------------|---------------------|-----------|----------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC | | |
| KANAWHA | 20 | 1 | \$30.00 | | |
| | | 2 | \$30.00 | | |
| | | 3 | \$30.00 | | |
| | | | | 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 | \$30.00 |
| | | | | 16 | \$30.00 |
| | | | | 17 | \$1.00 |
| | | | | 18 | \$1.00 |
| | | | | 19 | \$30.00 |
| | | | | 20 | \$1.00 |
| | | | | 21 | \$1.00 |
| | | | | 22 | \$1.00 |
| | | | | 23 | \$30.00 |
| | | | | 24 | \$30.00 |
| | | | | 25 | \$30.00 |
| | | | | 26 | \$1.00 |
| | | | | 27 | \$1.00 |
| | | | | 28 | \$30.00 |
| | | | | 29 | \$1.00 |
| | | | | 30 | \$1.00 |
| | | | | 31 | \$1.00 |
| LEWIS | 21 | 1 | \$30.00 | | |
| | | 2 | \$30.00 | | |
| | | 3 | \$30.00 | | |
| | | 4 | \$30.00 | | |
| | | 5 | \$1.00 | | |
| | | 6 | \$30.00 | | |
| | | 7 | \$1.00 | | |
| | | 8 | \$1.00 | | |
| | | 9 | \$1.00 | | |
| 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 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| LOGAN | 23 | 1 | \$15.00 |
| | | 2 | \$15.00 |
| | | 3 | \$15.00 |
| | | 4 | \$15.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$15.00 |
| | | 9 | \$1.00 |
| MARION | 24 | 1 | \$55.00 |
| | | 2 | \$55.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$1.00 |
| | | 9 | \$55.00 |
| | | 10 | \$1.00 |
| | | 11 | \$55.00 |
| | | 12 | \$55.00 |
| | | 13 | \$1.00 |
| | | 14 | \$1.00 |
| | | 15 | \$1.00 |
| | | 16 | \$55.00 |
| | | 17 | \$1.00 |
| | | 18 | \$55.00 |
| | | 19 | \$55.00 |
| | | 20 | \$1.00 |
| | | 21 | \$1.00 |
| | | 22 | \$1.00 |
| MARSHALL | 25 | 1 | \$50.00 |
| | | 2 | \$1.00 |
| | | 3 | \$50.00 |
| | | 4 | \$50.00 |
| | | 5 | \$50.00 |
| | | 6 | \$1.00 |
| | | 7 | \$50.00 |
| | | 8 | \$1.00 |
| | | 9 | \$50.00 |
| | | 10 | \$1.00 |
| | | 11 | \$1.00 |
| | | 12 | \$50.00 |
| | | 13 | \$50.00 |
| | | 14 | \$50.00 |
| | | 15 | \$50.00 |
| | | 16 | \$1.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| MASON | 26 | 1 | \$25.00 |
| | | 2 | \$25.00 |
| | | 3 | \$25.00 |
| | | 4 | \$25.00 |
| | | 5 | \$25.00 |
| | | 6 | \$25.00 |
| | | 7 | \$1.00 |
| | | 8 | \$1.00 |
| | | 9 | \$1.00 |
| | | 10 | \$25.00 |
| | | 11 | \$1.00 |
| | | 12 | \$1.00 |
| | | 13 | \$1.00 |
| | | 14 | \$25.00 |
| | | 15 | \$25.00 |
| | | 16 | \$25.00 |
| 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 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| MINERAL | 29 | 1 | \$10.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$10.00 |
| | | 5 | \$1.00 |
| | | 6 | \$10.00 |
| | | 7 | \$1.00 |
| | | 8 | \$10.00 |
| | | 9 | \$1.00 |
| | | 10 | \$1.00 |
| | | 11 | \$1.00 |
| MINGO | 30 | 1 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$20.00 |
| | | 4 | \$20.00 |
| | | 5 | \$20.00 |
| | | 6 | \$20.00 |
| | | 7 | \$20.00 |
| | | 8 | \$1.00 |
| | | 9 | \$20.00 |
| | | 10 | \$20.00 |
| | | 11 | \$20.00 |
| | | 12 | \$1.00 |
| MONONGALIA | 31 | 1 | \$25.00 |
| | | 2 | \$1.00 |
| | | 3 | \$25.00 |
| | | 4 | \$25.00 |
| | | 5 | \$25.00 |
| | | 6 | \$1.00 |
| | | 7 | \$25.00 |
| | | 8 | \$25.00 |
| | | 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 | \$25.00 |
| | | 19 | \$1.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| MONROE | 32 | 1 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$10.00 |
| | | 5 | \$10.00 |
| | | 6 | \$1.00 |
| | | 7 | \$10.00 |
| | | 8 | \$1.00 |
| | | 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 | \$15.00 |
| | | 2 | \$15.00 |
| | | 3 | \$15.00 |
| | | 4 | \$15.00 |
| | | 5 | \$15.00 |
| | | 6 | \$1.00 |
| | | 7 | \$15.00 |
| | | 8 | \$1.00 |
| | | 9 | \$15.00 |
| OHIO | 35 | 1 | \$1.00 |
| | | 2 | \$35.00 |
| | | 3 | \$35.00 |
| | | 4 | \$35.00 |
| | | 5 | \$35.00 |
| | | 6 | \$35.00 |
| | | 7 | \$1.00 |
| | | 8 | \$35.00 |
| | | 9 | \$35.00 |
| | | 10 | \$35.00 |
| PENDLETON | 36 | 1 | \$1.00 |
| | | 2 | \$10.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$10.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| PLEASANTS | 37 | 1 | \$35.00 |
| | | 2 | \$35.00 |
| | | 3 | \$35.00 |
| | | 4 | \$35.00 |
| | | 5 | \$35.00 |
| | | 6 | \$1.00 |
| | | 7 | \$35.00 |
| | | 8 | \$35.00 |
| POCAHONTAS | 38 | 1 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$10.00 |
| | | 8 | \$1.00 |
| PRESTON | 39 | 1 | \$35.00 |
| | | 2 | \$35.00 |
| | | 3 | \$35.00 |
| | | 4 | \$35.00 |
| | | 5 | \$35.00 |
| | | 6 | \$35.00 |
| | | 7 | \$35.00 |
| | | 8 | \$35.00 |
| | | 9 | \$1.00 |
| | | 10 | \$35.00 |
| | | 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 | \$1.00 |
| | | 4 | \$20.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$20.00 |
| | | 9 | \$1.00 |
| | | 10 | \$20.00 |
| | | 11 | \$20.00 |
| | | 12 | \$20.00 |
| | | 13 | \$1.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|-------------------------------------|------|------------|--------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| RALEIGH | 41 | 1 | \$20.00 |
| | | 2 | \$20.00 |
| | | 3 | \$1.00 |
| | | 4 | \$1.00 |
| | | 5 | \$20.00 |
| | | 6 | \$1.00 |
| | | 7 | \$20.00 |
| | | 8 | \$20.00 |
| | | 9 | \$20.00 |
| | | 10 | \$1.00 |
| | | 11 | \$20.00 |
| | | 12 | \$20.00 |
| RANDOLPH | 42 | 1 | \$20.00 |
| | | 2 | \$20.00 |
| | | 3 | \$1.00 |
| | | 4 | \$20.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$1.00 |
| | | 9 | \$1.00 |
| | | 10 | \$20.00 |
| | | 11 | \$20.00 |
| | | 12 | \$1.00 |
| | | 13 | \$1.00 |
| | | 14 | \$1.00 |
| | | 15 | \$1.00 |
| | | 16 | \$20.00 |
| | | 17 | \$1.00 |
| | | 18 | \$1.00 |
| RITCHIE | 43 | 1 | \$40.00 |
| | | 2 | \$1.00 |
| | | 3 | \$40.00 |
| | | 4 | \$1.00 |
| | | 5 | \$40.00 |
| | | 6 | \$1.00 |
| | | 7 | \$40.00 |
| | | 8 | \$1.00 |
| | | 9 | \$1.00 |
| | | 10 | \$40.00 |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| ROANE | 44 | 1 | \$30.00 |
| | | 2 | \$30.00 |
| | | 3 | \$30.00 |
| | | 4 | \$30.00 |
| | | 5 | \$30.00 |
| | | 6 | \$30.00 |
| | | 7 | \$30.00 |
| | | 8 | \$1.00 |
| | | 9 | \$30.00 |
| 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 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$55.00 |
| | | 4 | \$55.00 |
| | | 5 | \$55.00 |
| | | 6 | \$55.00 |
| | | 7 | \$55.00 |
| TUCKER | 47 | 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 | \$1.00 |
| | | | |
| | | | |
| | | | |
| | | | |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| TYLER | 48 | 1 | \$55.00 |
| | | 2 | \$55.00 |
| | | 3 | \$1.00 |
| | | 4 | \$55.00 |
| | | 5 | \$55.00 |
| | | 6 | \$55.00 |
| | | 7 | \$1.00 |
| | | 8 | \$1.00 |
| | | 9 | \$1.00 |
| | | 10 | \$55.00 |
| UPSHUR | 49 | 1 | \$50.00 |
| | | 2 | \$50.00 |
| | | 3 | \$1.00 |
| | | 4 | \$50.00 |
| | | 5 | \$50.00 |
| | | 6 | \$50.00 |
| | | 7 | \$50.00 |
| WAYNE | 50 | 1 | \$20.00 |
| | | 2 | \$20.00 |
| | | 3 | \$20.00 |
| | | 4 | \$1.00 |
| | | 5 | \$1.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$20.00 |
| | | 9 | \$20.00 |
| | | 10 | \$20.00 |
| | | 11 | \$1.00 |
| | | 12 | \$20.00 |
| WEBSTER | 51 | 1 | \$1.00 |
| | | 2 | \$1.00 |
| | | 3 | \$1.00 |
| | | 4 | \$15.00 |
| | | 5 | \$15.00 |
| | | 6 | \$15.00 |
| | | 7 | \$1.00 |
| | | | |
| | | | |
| | | | |

| OIL & GAS RESERVE RATES FOR TY 2016 | | | |
|--|-------------|-------------------|---------------------|
| COUNTY | CO # | DISTRICT # | TY2016 \$/AC |
| WETZEL | 52 | 1 | \$55.00 |
| | | 2 | \$55.00 |
| | | 3 | \$55.00 |
| | | 4 | \$55.00 |
| | | 5 | \$55.00 |
| | | 6 | \$1.00 |
| | | 7 | \$1.00 |
| | | 8 | \$55.00 |
| | | 9 | \$1.00 |
| | | 10 | \$1.00 |
| | | 11 | \$1.00 |
| | | 12 | \$55.00 |
| | | 13 | \$1.00 |
| WIRT | 53 | 1 | \$30.00 |
| | | 2 | \$30.00 |
| | | 3 | \$30.00 |
| | | 4 | \$1.00 |
| | | 5 | \$30.00 |
| | | 6 | \$30.00 |
| | | 7 | \$30.00 |
| | | 8 | \$30.00 |
| WOOD | 54 | 1 | \$35.00 |
| | | 2 | \$35.00 |
| | | 3 | \$35.00 |
| | | 4 | \$35.00 |
| | | 5 | \$1.00 |
| | | 6 | \$35.00 |
| | | 7 | \$35.00 |
| | | 8 | \$35.00 |
| | | 9 | \$35.00 |
| | | 10 | \$1.00 |
| | | 11 | \$35.00 |
| | | 12 | \$35.00 |
| | | 13 | \$1.00 |
| | | 14 | \$1.00 |
| WYOMING | 55 | 1 | \$20.00 |
| | | 2 | \$20.00 |
| | | 3 | \$20.00 |
| | | 4 | \$20.00 |
| | | 5 | \$20.00 |
| | | 6 | \$1.00 |
| | | 7 | \$20.00 |
| | | 8 | \$1.00 |
| | | 9 | \$1.00 |
| | | 10 | \$20.00 |

**MANAGED TIMBER
PROPERTY ANALYSIS**

Tax Year 2016

August 27, 2015
Mark W. Matkovich
State Tax Commissioner
Department of Revenue

MANAGED TIMBERLAND APPRAISAL RATES TAX YEAR 2016

(based on market 2010-2014)

Rates Per Acre

Class II Parcels

| | <u>Grade 1</u> | <u>Grade 2</u> | <u>Grade 3</u> |
|----------|----------------|----------------|----------------|
| Region 1 | \$200 | \$140 | \$50 |
| Region 2 | \$200 | \$140 | \$50 |
| Region 3 | \$280 | \$185 | \$50 |
| Region 4 | \$265 | \$180 | \$55 |
| Region 5 | \$210 | \$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 | \$250 | \$165 | \$75 |
| Region 4 | \$235 | \$160 | \$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 Grades

| | <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 II Rates

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 1.6410 | 26.67% | 0.4377 |
| 2013 | 1.1725 | 13.33% | 0.1563 |
| 2012 | 0.7608 | 6.67% | 0.0507 |
| 2011 | 1.5225 | 20.00% | 0.3045 |
| 2010 | 1.9275 | 33.33% | 0.6424 |

1.592 %

B. Nonliquidity Rate

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 0.0883 | 33.33% | 0.0294 |
| 2013 | 0.0733 | 26.67% | 0.0195 |
| 2012 | 0.1292 | 20.00% | 0.0258 |
| 2011 | 0.1817 | 13.33% | 0.0242 |
| 2010 | 0.3200 | 6.67% | 0.0213 |

0.120 %

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 1.6992 | 33.33% | 0.5663 |
| 2013 | 2.2758 | 26.67% | 0.6070 |
| 2012 | 2.1600 | 20.00% | 0.4320 |
| 2011 | 2.3883 | 13.33% | 0.3184 |
| 2010 | 2.3233 | 6.67% | 0.1550 |

2.079 %

D. Management Factor of 0.5%

0.500 %

E. Property Tax Component

(60% of Class II Rate)

| Year | Rate | W/A % | W/A Rate |
|------|-------|--------|----------|
| 2014 | 0.714 | 33.33% | 0.2380 |
| 2013 | 0.708 | 26.67% | 0.1888 |
| 2012 | 0.714 | 20.00% | 0.1428 |
| 2011 | 0.708 | 13.33% | 0.0944 |
| 2010 | 0.708 | 6.67% | 0.0472 |

0.711 %

F. Inflation Rate:

(Bureau of Labor Statistics)

| Year | Rate | W/A % | W/A Rate |
|------|-------|--------|----------|
| 2014 | 0.760 | 33.33% | 0.2533 |
| 2013 | 1.500 | 26.67% | 0.4001 |
| 2012 | 1.700 | 13.33% | 0.2266 |
| 2011 | 3.000 | 6.67% | 0.2001 |
| 2010 | 1.500 | 20.00% | 0.3000 |

(1.380) %

TOTAL REQUIRED RATE OF RETURN (REAL)

3.622 %

LESS: PROPERTY TAX COMPONENT

(0.711)

TOTAL DISCOUNT COMPONENT

2.911 %

Stumpage Prices:

| | | |
|----------------------------------|------------------|-----------------|
| | <u>Sawtimber</u> | <u>Pulpwood</u> |
| Stumpage Price Adjustment Factor | 0.00% | 1.86% |

| <u>SAWTIMBER</u> | Current | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
|------------------|---------|---------------|---------------|---------------|---------------|
| | | \$/MBF at age | \$/MBF at age | \$/MBF at age | \$/MBF at age |
| Region | \$/MBF | 35 | 45 | 55 | 80 |
| Region 1 | 174.30 | 174.30 | 174.30 | 174.30 | 174.30 |
| Region 2 | 169.80 | 169.80 | 169.80 | 169.80 | 169.80 |
| Region 3 | 248.26 | 248.26 | 248.26 | 248.26 | 248.26 |
| Region 4 | 231.30 | 231.30 | 231.30 | 231.30 | 231.30 |
| Region 5 | 195.10 | 195.10 | 195.10 | 195.10 | 195.10 |

| <u>PULPWOOD:</u> | Current | 1.9060 | 2.2917 | 2.7555 | 4.3681 |
|------------------|---------|--------------|--------------|--------------|--------------|
| | | \$/cd at age | \$/cd at age | \$/cd at age | \$/cd at age |
| Region | \$/Cord | 35 | 45 | 55 | 80 |
| Region 1 | 5.62 | 10.72 | 12.89 | 15.49 | 24.56 |
| Region 2 | 6.85 | 13.06 | 15.71 | 18.89 | 29.94 |
| Region 3 | 6.14 | 11.71 | 14.08 | 16.93 | 26.84 |
| Region 4 | 8.41 | 16.03 | 19.27 | 23.17 | 36.73 |
| Region 5 | 6.46 | 12.31 | 14.80 | 17.79 | 28.20 |

Management Costs:

| Region | \$/acre (1) |
|--------|-------------|
| 1 | 3.17 |
| 2 | 3.17 |
| 3 | 3.17 |
| 4 | 3.17 |
| 5 | 3.17 |
| 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 (2.78% * (1-.35)) | 1.81% |

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 III & IV Blended Rates

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 1.6410 | 26.67% | 0.4377 |
| 2013 | 1.1725 | 13.33% | 0.1563 |
| 2012 | 0.7608 | 6.67% | 0.0507 |
| 2011 | 1.5225 | 20.00% | 0.3045 |
| 2010 | 1.9275 | 33.33% | 0.6424 |

1.592 %

B. Nonliquidity Rate

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 0.0883 | 33.33% | 0.0294 |
| 2013 | 0.0733 | 26.67% | 0.0195 |
| 2012 | 0.1292 | 20.00% | 0.0258 |
| 2011 | 0.1817 | 13.33% | 0.0242 |
| 2010 | 0.3200 | 6.67% | 0.0213 |

0.120 %

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

| Year | Rate | W/A % | W/A Rate |
|------|--------|--------|----------|
| 2014 | 1.6992 | 33.33% | 0.5663 |
| 2013 | 2.2758 | 26.67% | 0.6070 |
| 2012 | 2.1600 | 20.00% | 0.4320 |
| 2011 | 2.3883 | 13.33% | 0.3184 |
| 2010 | 2.3233 | 6.67% | 0.1550 |

2.079 %

D. Management Factor of 0.5%

0.500 %

E. Property Tax Component

(60% of Blended III&IV Rates)

| Year | Rate | W/A % | W/A Rate |
|------|-------|--------|----------|
| 2014 | 1.314 | 33.33% | 0.4380 |
| 2013 | 1.314 | 26.67% | 0.3504 |
| 2012 | 1.326 | 20.00% | 0.2652 |
| 2011 | 1.326 | 13.33% | 0.1768 |
| 2010 | 1.314 | 6.67% | 0.0876 |

1.318 %

F. Inflation Rate:

(Bureau of Labor Statistics)

| Year | Rate | W/A % | W/A Rate |
|------|-------|--------|----------|
| 2014 | 0.760 | 33.33% | 0.2533 |
| 2013 | 1.500 | 26.67% | 0.4001 |
| 2012 | 1.700 | 13.33% | 0.2266 |
| 2011 | 3.000 | 6.67% | 0.2001 |
| 2010 | 1.500 | 20.00% | 0.3000 |

(1.380) %

TOTAL REQUIRED RATE OF RETURN (REAL)

4.229 %

LESS: PROPERTY TAX COMPONENT

(1.318)

TOTAL DISCOUNT COMPONENT

2.911 %

Stumpage Prices:

| | | |
|----------------------------------|------------------|-----------------|
| | <u>Sawtimber</u> | <u>Pulpwood</u> |
| Stumpage Price Adjustment Factor | 0.00% | 1.86% |

| | | | | | |
|------------------|---------------|---------------|---------------|---------------|---------------|
| | | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| SAWTIMBER | Current | \$/MBF at age | \$/MBF at age | \$/MBF at age | \$/MBF at age |
| | Region | \$/MBF | 35 | 45 | 55 |
| | Region 1 | 174.30 | 174.30 | 174.30 | 174.30 |
| | Region 2 | 169.80 | 169.80 | 169.80 | 169.80 |
| | Region 3 | 248.26 | 248.26 | 248.26 | 248.26 |
| | Region 4 | 231.30 | 231.30 | 231.30 | 231.30 |
| | Region 5 | 195.10 | 195.10 | 195.10 | 195.10 |

| | | | | | |
|------------------|---------------|----------------|--------------|--------------|--------------|
| | | 1.9060 | 2.2917 | 2.7555 | 4.3681 |
| PULPWOOD: | | \$/cd at age | \$/cd at age | \$/cd at age | \$/cd at age |
| | Region | \$/Cord | 35 | 45 | 55 |
| | Region 1 | 5.62 | 10.72 | 12.89 | 15.49 |
| | Region 2 | 6.85 | 13.06 | 15.71 | 18.89 |
| | Region 3 | 6.14 | 11.71 | 14.08 | 16.93 |
| | Region 4 | 8.41 | 16.03 | 19.27 | 23.17 |
| | Region 5 | 6.46 | 12.31 | 14.80 | 17.79 |

Management Costs:

| | |
|---------------|--------------------|
| Region | <u>\$/acre (1)</u> |
| 1 | 3.17 |
| 2 | 3.17 |
| 3 | 3.17 |
| 4 | 3.17 |
| 5 | 3.17 |
| 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 (2.78% * (1-.35)) | 1.81% |

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 |
|------|------------------|--------|--------|---------------|
| 2014 | 12,162.06 | 176.34 | 33.33% | 58.78 |
| 2013 | 19,017.77 | 177.45 | 26.67% | 47.32 |
| 2012 | 12,628.15 | 186.56 | 20.00% | 37.31 |
| 2011 | 11,195.24 | 144.89 | 13.33% | 19.32 |
| 2010 | 15,157.58 | 173.52 | 6.67% | 11.57 |
| | 70,160.80 | | | 174.30 |

REGION 1 - Pulpwood *

| Year | Volume | \$/CORD | W/A% | \$/CORD |
|------|------------------|---------|--------|-------------|
| 2014 | 464.40 | 5.40 | 33.33% | 1.80 |
| 2013 | 6,102.20 | 2.96 | 26.67% | 0.79 |
| 2012 | 45,387.00 | 6.42 | 20.00% | 1.28 |
| 2011 | 48.10 | 9.67 | 13.33% | 1.29 |
| 2010 | 1,859.30 | 6.90 | 6.67% | 0.46 |
| | 53,861.00 | | | 5.62 |

REGION 2 - Sawtimber

| Year | Volume | \$/MBF | W/A% | \$/MBF |
|------|-------------------|--------|--------|---------------|
| 2014 | 22,001.80 | 182.47 | 33.33% | 60.82 |
| 2013 | 25,896.85 | 177.79 | 26.67% | 47.41 |
| 2012 | 25,640.98 | 149.01 | 20.00% | 29.80 |
| 2011 | 12,639.41 | 156.26 | 13.33% | 20.83 |
| 2010 | 56,575.40 | 163.96 | 6.67% | 10.93 |
| | 142,754.44 | | | 169.80 |

REGION 2 - Pulpwood

| Year | Volume | \$/CORD | W/A% | \$/CORD |
|------|-------------------|---------|--------|-------------|
| 2014 | 2,168.10 | 5.04 | 33.33% | 1.68 |
| 2013 | 119,279.40 | 12.83 | 26.67% | 3.42 |
| 2012 | 22,647.40 | 2.86 | 20.00% | 0.57 |
| 2011 | 5,235.20 | 6.78 | 13.33% | 0.90 |
| 2010 | 23,291.90 | 4.15 | 6.67% | 0.28 |
| | 172,622.00 | | | 6.85 |

REGION 3 - Sawtimber

| Year | Volume | \$/MBF | W/A% | \$/MBF |
|------|-------------------|--------|--------|---------------|
| 2014 | 91,467.44 | 280.52 | 33.33% | 93.51 |
| 2013 | 161,397.70 | 275.63 | 26.67% | 73.50 |
| 2012 | 111,920.60 | 201.57 | 20.00% | 40.31 |
| 2011 | 102,218.30 | 201.45 | 13.33% | 26.86 |
| 2010 | 145,592.20 | 211.21 | 6.67% | 14.08 |
| | 612,596.24 | | | 248.26 |

REGION 3 - Pulpwood

| Year | Volume | \$/CORD | W/A% | \$/CORD |
|------|-------------------|---------|--------|-------------|
| 2014 | 170,736.30 | 3.57 | 33.33% | 1.19 |
| 2013 | 153,197.40 | 7.78 | 26.67% | 2.07 |
| 2012 | 183,132.60 | 6.39 | 20.00% | 1.28 |
| 2011 | 159,040.70 | 7.34 | 13.33% | 0.98 |
| 2010 | 123,858.50 | 9.34 | 6.67% | 0.62 |
| | 789,965.50 | | | 6.14 |

REGION 4 - Sawtimber

| Year | Volume | \$/MBF | W/A% | \$/MBF |
|------|------------------|--------|--------|---------------|
| 2014 | 5,020.90 | 303.89 | 33.33% | 101.30 |
| 2013 | 12,820.20 | 211.47 | 26.67% | 56.39 |
| 2012 | 4,808.73 | 193.47 | 20.00% | 38.69 |
| 2011 | 15,517.51 | 178.40 | 13.33% | 23.79 |
| 2010 | 24,125.85 | 167.02 | 6.67% | 11.13 |
| | 62,293.19 | | | 231.30 |

REGION 4 - Pulpwood

| Year | Volume | \$/CORD | W/A% | \$/CORD |
|------|------------------|---------|--------|-------------|
| 2014 | 7,765.20 | 8.16 | 33.33% | 2.72 |
| 2013 | 15,488.60 | 8.32 | 26.67% | 2.22 |
| 2012 | 7,382.20 | 9.61 | 20.00% | 1.92 |
| 2011 | 21,074.10 | 8.64 | 13.33% | 1.15 |
| 2010 | 26,223.70 | 5.93 | 6.67% | 0.40 |
| | 77,933.80 | | | 8.41 |

REGION 5 - Sawtimber

| Year | Volume | \$/MBF | W/A% | \$/MBF |
|------|-------------------|--------|--------|---------------|
| 2014 | 21,661.40 | 265.95 | 33.33% | 88.65 |
| 2013 | 31,859.00 | 198.20 | 26.67% | 52.85 |
| 2012 | 10,887.05 | 138.63 | 20.00% | 27.73 |
| 2011 | 24,760.43 | 122.43 | 13.33% | 16.32 |
| 2010 | 56,603.00 | 143.15 | 6.67% | 9.54 |
| | 145,770.88 | | | 195.10 |

REGION 5 - Pulpwood

| Year | Volume | \$/CORD | W/A% | \$/CORD |
|------|------------------|---------|--------|-------------|
| 2014 | 10,191.40 | 6.19 | 33.33% | 2.06 |
| 2013 | 18,292.60 | 7.13 | 26.67% | 1.90 |
| 2012 | 8,296.30 | 6.93 | 20.00% | 1.39 |
| 2011 | 6,432.30 | 6.26 | 13.33% | 0.83 |
| 2010 | 19,223.30 | 4.06 | 6.67% | 0.27 |
| | 62,435.90 | | | 6.46 |

COAL PROPERTIES ANALYSIS

Tax Year 2016

August 27, 2015
Mark W. Matkovich
State 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.

| | | |
|------------------|-----------------------|------------------|
| Safe Rate | 90 day Treasury Bills | Safe Rate |
| January | December 2014 | 0.033% |
| January | December 2013 | 0.058% |
| January | December 2012 | 0.086% |

| | | | |
|-------------------|---|-----------------------|--|
| Risk Rate | Interest differential between Loan Rate and 90 day Treasury Bills | | |
| Loan Rate* | | Debt Risk Rate | |
| 2014 | 5.25% | 5.217% | |
| 2013 | 5.25% | 5.192% | |
| 2012 | 5.25% | 5.164% | |
| | *Prime plus 2% | | |

| | | | |
|----------------------|---|-------------------------|--|
| Equity | Differential between Equity Rates and 90 day Treasury Bills | | |
| Equity Rate** | | Equity Risk Rate | |
| 2014 | [15.50%/(1-.30)]-0.033 | 22.110% | |
| 2013 | [13.25%/(1-.30)]-0.058 | 18.871% | |
| 2012 | [13.25%/(1-.30)]-0.086 | 18.843% | |
| | ** Value Line Investment Survey Analysis | | |

| | | | |
|----------------------------|--|-----------------------|------------|
| Composite Risk Rate | Loan and Equity Rates weighted by industry estimated capital structure | | |
| Equity Rate | Debt Rate | Composite Risk | |
| 2014 | 15.477% | 1.565% | 17.042% |
| 2013 | 11.322% | 2.077% | 13.399% |
| 2012 | 11.306% | 2.066% | 13.372% |
| Note: Debt Equity Ratio | Debt | 30% | Equity 70% |

| | | | | | |
|---------------------------|---|------|-------------------|--------------------|---------------------------|
| Non Liquidity Rate | Interest differential between a 90 day Treasury Bill and a 1 year Treasury Bill which reflects a reasonable time necessary to sell active property. | | | | |
| | | | 1yr T Bill | 90 d T Bill | Non Liquidity Rate |
| January | December | 2014 | 0.121% | 0.033% | 0.088% |
| January | December | 2013 | 0.132% | 0.058% | 0.074% |
| January | December | 2012 | 0.175% | 0.086% | 0.089% |

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

| | | | |
|-----------------------|----------|------|--------|
| Inflation Rate | | | |
| January | December | 2014 | 0.760% |
| January | December | 2013 | 1.500% |
| January | December | 2012 | 1.700% |

| | | | |
|----------------------------|--|-------------|-------------|
| Capitalization Rate | Since the valuation of active coal property is predicated on a three ye production average, the capitalization rate is considered in a similar manner. | | |
| | 2014 | 2013 | 2012 |
| Inflation Rate | -0.760% | -1.500% | -1.700% |
| Safe Rate | 0.033% | 0.058% | 0.086% |
| Composite Risk Rate | 17.042% | 13.399% | 13.372% |
| Non Liquidity Rate | 0.088% | 0.074% | 0.089% |
| Management Rate | 0.500% | 0.500% | 0.500% |
| Total | 16.903% | 12.531% | 12.347% |

Three Yr Average: 13.927 Rounded to: **13.90%**

| | | | |
|------------------------------------|----------|----------|----------|
| CAPITALIZATION RATE - 13.9% | | | |
| MULTIPLIERS: | % | % | % |
| 1YR | 0.937 | 9YR | 5.298 |
| 2YR | 1.760 | 10YR | 5.589 |
| 3YR | 2.482 | 11YR | 5.844 |
| 4YR | 3.116 | 12YR | 6.067 |
| 5YR | 3.673 | 13YR | 6.264 |
| 6YR | 4.162 | 14YR | 6.437 |
| 7YR | 4.591 | 15YR | 6.588 |
| 8YR | 4.967 | | |

COAL

Price and 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. Coal lease rates have been derived from transaction information provided by county assessors, tax auditors, producers, and by individual lessors/lessees involved in the specific transaction. The prices for mined coal, as per 110-CSR-11, have been calculated from information provided by the WV Public Service Commission and U.S. Energy Information Administration concerning power plant fuel purchases. Prices provided by producers as part of tax filing and from data obtained from market summaries are included for comparison. 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 CY2014 FOR TY2016 APPLICATION

| GRAND SUMMARY ALL SOURCES 2014 | STEAM SPOT | STEAM TERM | MET |
|--------------------------------|------------|---------------------------|----------------------|
| PSC | \$63.58 | \$56.85 | |
| FERC | \$58.77 | \$62.58 | |
| Coal Market Publication | | \$57.61 (Platts-CAPP-CSX) | |
| Active Return Summary | | \$58.36 52.7 MM tons | \$103.35 7.6 MM Tons |

STATE STEAM PRICE (SPOT Market)
STATE MET PRICE

\$60.35 FERC & PSC, 3 YR AVE
\$103.35 Active Return

| 2014 WVPSC Tons reported in millions | Spot Sales | Term Sales | Total |
|--------------------------------------|------------|------------|------------|
| | 2,170,351 | 15,503,854 | 17,674,205 |

COAL TY2016 ROYALTY RATES

| | 2014 | | 2013 | | 2012 | | 2011 | | 2010 | |
|-----------------------------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| | %S | %D | %S | %D | %S | %D | %S | %D | %S | %D |
| TOTAL RECORDS | 1,447 | 905 | 1,354 | 599 | 1,908 | 2,756 | 1,677 | 2,241 | 2,448 | 3,197 |
| SUM of PERCENT | 8,869.07 | 4,695.25 | 8,087.34 | 3,313.93 | 11,881.66 | 14,663.03 | 8,924.28 | 11,181.05 | 14,406.71 | 16,405.76 |
| STRAIGHT AVERAGE | 6.13 | 5.19 | 5.97 | 5.53 | 6.23 | 5.32 | 5.32 | 4.99 | 5.89 | 5.13 |
| MEDIAN | 6.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.13 | 5.00 | 5.00 | 5.22 | 5.00 |
| WEIGHTED AVERAGE(by Mineac) | 6.94 | 5.49 | 6.58 | 5.84 | 6.45 | 6.28 | 6.27 | 5.72 | 6.24 | 5.66 |
| TENTATIVE RATE DEEP (%) | 5.80 | | | | | | | | | |
| TENTATIVE RATE SURFACE (%) | 6.50 | | | | | | | | | |

ROYALTY RATE CALCULATIONS

| | | | | | | |
|----------------------------------|----------|-----------|-------|---|--------|---------|
| Steam Coal/ Deep Mine | \$60.35 | per ton X | 5.80% | = | \$3.50 | per ton |
| Metallurgical Coal/ Deep Mine | \$103.35 | per ton X | 5.80% | = | \$5.99 | per ton |
| Steam Coal/ Surface Mine | \$60.35 | per ton X | 6.50% | = | \$3.92 | per ton |
| Metallurgical Coal/ Surface Mine | \$103.35 | per ton X | 6.50% | = | \$6.71 | 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 October 15 of each year. Please refer to the State Register, Legislative Rules, Title 110, Series II 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 requiring biennial (every other year) updating of the geostatistical basis for several valuation factors used in the Reserve Coal Valuation Model. To satisfy that requirement, maps and data files concerning the Market Interest Factor, the Market Mineability Factor, the Use Conflict Factor and the Environmental Factor have been revised for Tax Year 2015. Preliminary research has been conducted to determine the effects of the factors on coal valuation. 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 >= 20 Then TransFactor = 20

If Trans_Ct < 20 And Trans_Ct >= 10 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 = 2.5 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 mile.

WellDensity < 5 Then WellFactor = 0

WellDensity >= 5 And WellDensity < 10 Then WellFactor = 20

WellDensity >= 10 And WellDensity < 20 Then WellFactor = 40

WellDensity > 20 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 <= 10 and Null Then EnvFactor = 0

Envrate > 10 and Envrate <= 30 Then EnvFactor = 20

Envrate > 30 and Envrate < 60 Then EnvFactor = 40

Envrate >= 60 Then EnvFactor = 80

**OTHER MINED MINERAL
PROPERTY ANALYSIS**

Tax Year 2016

August 27, 2015
Mark W. Matkovich
State 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.

| | | | |
|------------------|-----------------------|------|------------------|
| Safe Rate | 90 day Treasury Bills | | Safe Rate |
| January | December | 2014 | 0.033% |
| January | December | 2013 | 0.058% |
| January | December | 2012 | 0.086% |

Risk Rate

Interest differential between Loan Rate and 90 day Treasury Bills

| | | |
|-------------------|-------|-----------------------|
| Loan Rate* | | Debt Risk Rate |
| 2014 | 5.25% | 5.217% |
| 2013 | 5.25% | 5.192% |
| 2012 | 5.25% | 5.164% |

*Prime plus 2%

Equity

Differential between Equity Rates and 90 day Treasury Bills

| | | |
|----------------------|------------------------|-------------------------|
| Equity Rate** | | Equity Risk Rate |
| 2014 | [11.75%/(1-.30)]-0.033 | 16.753% |
| 2013 | [11.75%/(1-.30)]-0.058 | 16.728% |
| 2012 | [11.75%/(1-.30)]-0.086 | 16.700% |

** Value Line Investment Survey Analysis

Composite Risk Rate

Loan and Equity Rates weighted by industry estimated capital structure.

| | | | |
|------|--------------------|------------------|-----------------------|
| | Equity Rate | Debt Rate | Composite Risk |
| 2014 | 10.052% | 2.087% | 12.139% |
| 2013 | 10.037% | 2.077% | 12.114% |
| 2012 | 10.020% | 2.066% | 12.086% |

Note: Debt Equity Ratio Debt 40% Equity 60%

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.

| | | | | | |
|---------|----------|------|-------------------|--------------------|---------------------------|
| | | | 1yr T Bill | 90 d T Bill | Non Liquidity Rate |
| January | December | 2014 | 0.121% | 0.033% | 0.088% |
| January | December | 2013 | 0.132% | 0.058% | 0.074% |
| January | December | 2012 | 0.175% | 0.086% | 0.089% |

Management Rate

Charges for the management of investment portfolios.

Fixed Rate (by Rule) 0.500%

Inflation Rate

| | | | |
|---------|----------|------|--------|
| January | December | 2014 | 0.760% |
| January | December | 2013 | 1.500% |
| January | December | 2012 | 1.700% |

Property Tax Rate

Sixty percent (60%) of State average Class III property tax rate.

| | | | | |
|---------|----------|------|----------------|--------|
| January | December | 2014 | 60% of 2.190 = | 1.314% |
| January | December | 2013 | 60% of 2.190 = | 1.314% |
| January | December | 2012 | 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.

| | | | |
|---------------------|----------------|----------------|----------------|
| | 2014 | 2013 | 2012 |
| Inflation Rate | -0.760% | -1.500% | -1.700% |
| Safe Rate | 0.033% | 0.058% | 0.086% |
| Composite Risk Rate | 12.139% | 12.114% | 12.086% |
| Non Liquidity Rate | 0.088% | 0.074% | 0.089% |
| Management Rate | 0.500% | 0.500% | 0.500% |
| Property Tax Rate | 1.314% | 1.314% | 1.326% |
| Total | 13.314% | 12.560% | 12.387% |

Three Yr Average: 12.754% Rounded to: **12.80%**

CAPITALIZATION RATE - 12.80%

| | | |
|---------------------|----------|------------|
| MULTIPLIERS: | % | % |
| 1YR | 0.942 | 9YR 5.491 |
| 2YR | 1.776 | 10YR 5.809 |
| 3YR | 2.516 | 11YR 6.092 |
| 4YR | 3.172 | 12YR 6.342 |
| 5YR | 3.754 | 13YR 6.564 |
| 6YR | 4.269 | 14YR 6.761 |
| 7YR | 4.727 | 15YR 6.935 |
| 8YR | 5.132 | |

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 only of this review is shown below in order to protect the confidentiality of parties involved.

| RESOURCE | DATA SOURCES | AVERAGE ROYALTY | MEDIAN ROYALTY | TY2016 RATE |
|-------------|--------------|-----------------|----------------|---------------|
| LIMESTONE | 15 | \$0.22 | \$0.20 | \$0.22 |
| SANDSTONE | 8 | \$0.31 | \$0.25 | \$0.30 |
| CLAY/SHALE | 34 | \$0.12 | \$0.10 | \$0.11 |
| SAND/GRAVEL | 10 | \$0.35 | \$0.40 | \$0.40 |
| SALT BRINE | 1 | N/A | N/A | \$0.10 |

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 |