THE STATE ${ }^{\circ}$ ALASKA

# February 2, 2016 

The Honorable Paul Seaton
Alaska State Representative
State Capitol Room 102
Juneau AK 99801

Representative Seaton,
This letter is in response to a request you made on January 7, 2016 for a second set of revisions to our analysis of a hypothetical North Slope oil project. You requested that we modify one of the net present value tables at the end of the analysis to reflect not only total State/muni revenue, but to also include an approximation of general fund unrestricted revenue. This modification is shown along with a note about the amount of property tax the State gets from North Slope upstream property tax. We have also added graphs showing total production tax to the State over the life cycle of GVR-eligible and non-GVR eligible fields. And lastly, we added net present value totals for the State/muni revenue and for the State production tax to the bottom of each of the life cycle revenue graphs. For the net present value analyses, we used $6.15 \%$ as the discount rate, which was the earnings rate for the Permanent Fund Corporation in September 2015.

It is also important to know that the entire analysis was prepared using real 2015 dollars, and assumes no inflation for oil prices or costs.

## Analysis requested, assumptions, and description of attached graphs

This letter is in response to your request to the Department of Revenue on January 26, 2015 for modeling of a hypothetical North Slope oil project. Specifically, you requested the following:

An analysis of a new projected lease on a North Slope field producing 15,000 b/d, what would be the potential state investment over 10-year development phase with net operating loss credits if the company had no other production in the state? What is the projected net revenue or loss to the state over the life of the field? Please provide this analysis at oil prices of \$50, \$60, \$80 and $\$ 100$.

Thank you for allowing us to make use of the interim to prepare this analysis. Based on the above request, this analysis assumes the development of known resources from a North Slope oil field by a company that has no other business activity in the state. The oil field is a standalone field that is reasonably close to existing pipeline infrastructure. Over the 30-year life of the field, the company produces approximately 50 million barrels of technically and economically recoverable light conventional oil, with oil production peaking at 15,000 barrels per day.

Capital costs to develop the field total approximately $\$ 900$ million, or about $\$ 18$ per barrel, with most of the costs incurred early in the project life. Operating costs total $\$ 750$ million over the 30year period, and average $\$ 15$ per barrel, although during peak production, operating costs are reduced to $\$ 11-\$ 13$ per barrel. These costs are in the range of a "normal field," although many of the fields on the North Slope left to develop likely have specific challenges that may make them more costly to develop. With respect to State revenue, more costly projects generally lower the overall take for the State, since any net operating losses would be greater and there would be fewer net profits on which to levy production tax.

We also assume that the company that develops the field receives cash refunds from the State for production tax credits received in excess of any production tax liability.

On the following pages are some of the results of the 30-year life cycle modeling given the assumptions above. Please note that the charts assume two classes of fields for production tax purposes: (1) Non-Gross Value Reduction fields, sometimes called "legacy" fields, which are presented in graphs 1-9; and (2) Gross Value Reduction (GVR) fields at the $20 \%$ GVR level, sometimes called "new" fields, presented in graphs 10-18. The end of the report includes a table showing net present values of total State/Municipal Revenues over the 30-year period, as well as an approximation of State General Fund Unrestricted Revenue (GFUR) over the 30-year period. The discount rate for the net present value calculations is the same as the Permanent Fund Corporation's September 2015 earnings rate of 6.15\%.

I hope you find the enclosed analysis to be useful. Please do not hesitate to contact me if you would like further analysis or if you have any questions.

Sincerely,


Ken Alper
Tax Division Director

## NO GVR, Legacy Fields Analysis

Graph 1: Annual State/Muni Net Gains and Losses and NPV 6.15\%, No GVR, \$50 ANS


| Total Annual State/Muni Losses $=\$ 243$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 379$ million |
| Net State/Muni Gain (Loss) $=\$ 136$ million |
| State/Muni NPV 0.0615 $=\$ \mathbf{\$ 1 3}$ million |

Graph 2: Annual State/Muni Net Gains and Losses and NPV 6.15\%, No GVR, \$60 ANS


| Total Annual State/Muni Losses $=\$ 222$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 507$ million |
| Net State/Muni Gain (Loss) $=\$ \mathbf{2 8 5}$ million |
| State/Muni NPV 0.0615 $=\$ 63$ million |

## NO GVR, Legacy Fields Analysis

Graph 3: Annual State/Muni Net Gains and Losses and NPV 6.15\%, No GVR, \$80 ANS


| Total Annual State/Muni Losses $=\$ 204$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 944$ million |
| Net State/Muni Gain (Loss) $=\$ 740$ million |
| State/Muni NPV 0.0615 $=\$ 288$ million |

Graph 4: Annual State/Muni Net Gains and Losses and NPV 6.15\%, No GVR, \$100 ANS


| Total Annual State/Muni Losses $=\$ 195$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 1481$ million |
| Net State/Muni Gain (Loss) $=\$ 1286$ million |
| State/Muni NPV 0.0615 $=\$ 556$ million |

## No GVR, Legacy Fields Analysis - Production Tax Specific

Graph 5: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, No GVR, \$50 ANS


| Production Tax Credits Used $=\$ 254$ million |
| ---: |
| Production Tax Paid $=\$ 61$ million |
| Net Production Tax $=\$-194$ million |
| Production Tax NPV 0.0615 $=\$-165$ million |

Graph 6: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, No GVR, \$60 ANS


| Production Tax Credits Used $=\$ 245$ million |
| ---: |
| Production Tax Paid $=\$ 114$ million |
| Net Production Tax $=\$ \mathbf{- 1 3 2}$ million |
| Production Tax NPV 0.0615 $=\$-132$ million |

## No GVR, Legacy Fields Analysis - Production Tax Specific

Graph 7: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, No GVR, \$80 ANS


| Production Tax Credits Used $=\$ 211$ million |
| ---: |
| Production Tax Paid $=\$ 372$ million |
| Net Production Tax $=\$ 161$ million |
| Production Tax NPV 0.0615 $=\$ 13$ million |

Graph 8: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, No GVR, \$100 ANS


| Production Tax Credits Used $=\$ 192$ million |
| ---: |
| Production Tax Paid $=\$ 743$ million |
| Net Production Tax $=\$ 551$ million |
| Production Tax NPV 0.0615 = \$204 million |

## NO GVR, Legacy Fields Analysis

Graph 9: State/Muni \& Producer Net Cash Flow over Project Life, No GVR


Please see the following pages for analyses of new fields receiving the Gross Value Reduction of 20\%.

## WITH 20\% GVR, New Fields Analysis

Graph 10: Annual State/Muni Net Gains and Losses and NPV 6.15\%, With 20\% GVR, \$50 ANS



Graph 11: Total Annual State/Muni Net Gains and Losses and NPV 6.15\%, With 20\% GVR, \$60 ANS


| Total Annual State/Muni Losses $=\$ 239$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 483$ million |
| Net State/Muni Gain (Loss) $=\$ \mathbf{2 4 4}$ million |
| State/Muni NPV 0.0615 $=\$ 41$ million |

## WITH 20\% GVR, New Fields Analysis

Graph 12: Total Annual State/Muni Net Gains and Losses and NPV 6.15\%, With 20\% GVR, \$80 ANS


| Total Annual State/Muni Losses $=\$ 209$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 861$ million |
| Net State/Muni Gain (Loss) $=\$ 652$ million |
| State/Muni NPV 0.0615 $=\$ 242$ million |

Graph 13: Total Annual State/Muni Net Gains and Losses and NPV 6.15\%, With 20\% GVR, \$100 ANS


| Total Annual State/Muni Losses $=\$ 201$ million |
| ---: |
| Total Annual State/Muni Gains $=\$ 1263$ million |
| Net State/Muni Gain (Loss) $=\$ 1062$ million |
| State/Muni NPV 0.0615 $=\$ 444$ million |

## WITH 20\% GVR, New Fields Analysis - Production Tax Specific

Graph 14: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, With 20\% GVR, \$50 ANS


$$
\begin{array}{|r|}
\hline \text { Production Tax Credits Used }=\$ 269 \text { million } \\
\hline \text { Production Tax Paid }=\$ 9 \text { million } \\
\hline \text { Net Production Tax }=\$-\mathbf{2 6 0} \text { million } \\
\hline \text { Production Tax NPV } 0.0615=\$-198 \text { million } \\
\hline
\end{array}
$$

Graph 15: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, With 20\% GVR, \$60 ANS


## WITH 20\% GVR, New Fields Analysis - Production Tax Specific

Graph 16: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, With 20\% GVR, \$80 ANS


| Production Tax Credits Used $=\$ 234$ million |
| ---: |
| Production Tax Paid $=\$ 300$ million |
| Net Production Tax $=\$ 67$ million |
| Production Tax NPV 0.0615 $=\$-36$ million |

Graph 17: Production Tax Credits Cashed / Production Tax Payments and NPV 6.15\%, With 20\% GVR, \$100 ANS


## WITH 20\% GVR, New Fields Analysis

Graph 18: State/Muni \& Producer Net Cash Flow over Project Life, with GVR


Net present values for State/Muni total revenues and an approximation of General Fund Unrestricted Revenue to the State at the prices you indicated for fields with no GVR and fields with a $20 \%$ GVR are shown below. Following that is a table with net present values for production tax only. The discount rate used in the analysis is $6.15 \%$-- the earnings rate used Permanent Fund for investments as of September 2015.

Net Present Value of $30-$ Year Project
Total Revenues to State/Muni at NPV6.15\%

| $\begin{aligned} & \text { Oil } \\ & \text { Price } \end{aligned}$ | NO GVR <br> State/Muni Total Revenues NPV 6.15\% in \$Millions | With 20\% GVR <br> State/Muni <br> Total Revenues <br> NPV 6.15\% in <br> \$Millions | NO GVR GFUR* Approximation NPV 6.15\% in \$Millions | With 20\% GVR GFUR* <br> Approximation NPV 6.15\% in \$Millions |
| :---: | :---: | :---: | :---: | :---: |
| \$50 | -13 | -44 | -72 | -103 |
| \$60 | 63 | 41 | -4 | -26 |
| \$80 | 288 | 242 | 205 | 160 |
| \$100 | 556 | 444 | 459 | 346 |

Note: The values shown in columns two and three of this table include all State and muni revenues from this project, including all taxes (production, corp income and property), and and all royalties. The fourth and fifth columns are the same as the previous two columns, minus $25 \%$ of royalties and minus the municipal share of property tax (about $92.5 \%$ ), approximating General Fund Unrestricted Revenue from the project. The State currently receives about $7.5 \%$ of property tax collected from North Slope properties.

Net Present Value of 30-Year Project
Production Tax Only to State at NPV6.15\%

| $\begin{gathered} \text { Oil } \\ \text { Price } \end{gathered}$ | NO GVR <br> Production Tax Only NPV 6.15\% in \$Millions | With 20\% GVR <br> Production Tax Only NPV 6.15\% in \$Millions |
| :---: | :---: | :---: |
| \$50 | -165 | -198 |
| \$60 | -132 | -155 |
| \$80 | 13 | -36 |
| \$100 | 204 | 84 |

Note: The values shown in this table include only production tax revenue.

