

Prepared Testimony of David Roby, Sr. Reservoir Engineer

Representing the Alaska Oil and Gas Conservation Commission

Topic: The role of the Alaska Oil and Gas Conservation Commission in approving gas sales.

Before I begin, Commissioner Foerster asked me to express her regrets that she couldn't be here today.

The AOGCC is a quasi-judicial regulatory agency that is tasked with overseeing certain aspects of oil and gas and geothermal activity on all lands within the State of Alaska. The AOGCC's authority includes issuing permits to drill wells and perform work on existing wells, regulating the injection of fluids for enhanced recovery, underground storage, and some waste disposal operations, and regulating operations to prevent waste and maximize ultimate recovery.

That last part is what is of relevance to today's discussion. The AOGCC has a statutory obligation to ensure that oil and gas resources are not wasted and that total hydrocarbon recovery is maximized for fields and pools. I'm going to talk today a little about what the AOGCC has done in the past, is doing today, and will do in the future in regards to gas offtake and ensuring we meet our mandate to prevent waste and increase ultimate recovery. I will focus on gas offtake from oil fields because by far the two largest known accumulations of conventional gas in the state, Prudhoe Bay and Point Thomson, are classified by the AOGCC as oil fields.

On June 1st, 1977, the AOGCC issued Conservation Order No. 145 establishing pool rules for the Prudhoe Oil Pool and set maximum offtake rates of 1.5 million barrels of oil per day and 2.7 billion cubic feet of gas per day, which was to cover the field's fuel gas needs and provide 2 BCFPD for gas sales that were expected to begin about 5 years after oil production commenced. Obviously, those initial plans changed. Over the years the pool rules for the Prudhoe Oil Pool have been amended several times, but the offtake rates have never been modified and are still in effect today.

About 8 years ago the AOGCC began to seriously look into whether the gas offtake rate for the Prudhoe Oil Pool should be revised. This ended up being a multi-year process that involved the AOGCC hiring a contractor to help us evaluate the reservoir model that the Prudhoe Bay working interest owners have developed and various gas sales scenarios that were run through the simulation model. In a nutshell we found that there is a large variation in the total hydrocarbon recovery between the various scenarios and some of the key factors are when the gas sales start, what the rate of gas sales are, and what is done to accelerate oil production prior to commencement of gas sales. On July 10th, 2007, the AOGCC issued a decision that no revision to the gas offtake rate was necessary at that time. A key conclusion from that decision was that there was “insufficient information on which to justify increasing the offtake rate above 2.7 bscfd, but [the Prudhoe Oil Pool Gas Offtake Study] concluded that an early, high rate gas sale could result in the loss of a substantial volume of hydrocarbons, but even greater volumes could be lost if gas sales are too delayed.” The AOGCC still believes this conclusion to be valid and we don’t believe there’s any point in looking in to revising the offtake rate until a firm plan can be presented since there are so many variables to consider when determining if a gas offtake plan is a good one or a bad one.

Additionally, it has been the AOGCC’s position that any gas sales plan from Prudhoe, even one that called for gas offtake rates less than the 2.7 BCFPD currently “authorized” would require AOGCC review because the conditions and assumptions that the 2.7 BCFPD rate were based on are no longer valid. For example, the Prudhoe Oil Pool is now expected to produce around 14 billion barrels instead of the 9 billion that was originally expected, the reservoir pressure is now significantly lower than it was then, the gas composition has changed due to cycling gas through the reservoir, and the method of field development has changed from a waterflood to an enhanced oil recovery process using miscible gas injection.

There are actually numerous small sales of gas occurring on the North Slope that the AOGCC has authorized because either the rates involved are de minimis, this includes the “sale” of gas from the Colville River Unit to the village of Nuiqsut that was necessary to meet a contractual obligation to provide the village with free gas and sales of fuel gas from the Kuparuk River Unit to the Oooguruk and Nikaitchuq Units, or because it was expected that the sale from one field to another would allow for a net increase total hydrocarbon recovery, this includes gas shipped from Prudhoe Bay to the Kuparuk River and Northstar Units that is used for enhanced oil recovery purposes.

In order to receive a gas offtake allowable an operator must make an application to the AOGCC and provide supporting documentation that shows that waste will be prevented and that ultimate recovery of hydrocarbons will be maximized. The AOGCC will then schedule a hearing on the matter and provide the opportunity for public comments and testimony. We will then review all the information available to us and make a decision on whether or not to grant a gas offtake allowable, and if so what rate to authorize.

The amount of time it would take the AOGCC to complete its review is dependent on many factors. Generally speaking, the larger the gas offtake volume requested and the larger the volume of hydrocarbons in the field the more complex, in depth, and time consuming the AOGCC review process will be. The AOGCC’s review process will also be impacted by the completeness and quality of the application received from the operator.

In anticipation of someday receiving applications for very high gas offtake rates for the Prudhoe Bay and Point Thomson fields the AOGCC undertook reservoir studies of both fields so that we would have a better understanding of the impacts that major gas sales might have on those fields. The study of Prudhoe Bay was completed in 2007 and the Point Thomson study is ongoing but nearing completion. Both of these studies were multi-year projects, so completing them ahead of an application for a gas offtake allowable should allow for the AOGCC to act upon those applications much more quickly than would otherwise be possible.

This concludes my prepared testimony and I would be happy to answer any questions you may have.