Nuna Development
Royalty Modification
Application

Preliminary Findings and Determination of the Commissioner

of the Department of Natural Resources

APPROVAL OF MODIFICATION OF ROYALTY

FOR LEASES: ADL's 355038, 355039, 390434, 390697,392158

October 28, 2014

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I. BACKGROUND

On July 1, 2014, Caelus Natural Resources Alaska, LLC (Caelus) as operator of the Oooguruk Unit and 100 percent interest in leases corresponding to the onshore Nuna development submitted an application to the Commissioner of the State of Alaska Department of Natural Resources (DNR) for modification of royalty under AS 38.05.180(j)(1)(B). This Preliminary Findings and Determination responds to the royalty modification application as required under AS 38.05.180(j)(8).

A. Procedure

The Commissioner will publish this Preliminary Findings and Determination and give public notice of a 30-day public comment period as well as offer to appear before the Legislative Budget and Audit Committee and provide a review of the Findings and Determination and the administrative process. The Commissioner will keep the submitted data confidential under AS 38.05.035(a)(9) at the request of the lessee or lessees making application for the royalty reduction. Within 30 days of the close of the public comment period the Commissioner will prepare a summary of the public comments, make a Final Findings and Determination, and with the Applicant's consent, amend the applicant's lease(s) or unitization agreement(s) consistent with the Final Findings and Determination. The Commissioner's Final Findings and Determination regarding a royalty reduction is final and not appealable to the court.

II. SUMMARY OF CAELUS'S APPLICATION FOR ROYALTY MODIFICATION

Caelus has applied for royalty modification on 11 leases involved in the Nuna development. Four of these leases (ADL 355036, ADL 355037, ADL 355038, ADL 355039) contain a 30 percent net profit share and a 12.5% royalty while seven of these leases (ADL 390434, ADL 390697, ADL 390505, ADL 390506, ADL 392113, ADL 392157 and ADL 392158) just have a 16.6667 percent royalty rate. The application was made under AS 38.05.180(j)(1)(B) asserting royalty modifications were warranted to prolong the life of an oil field or pool as per barrel or barrel equivalent costs increase sufficient to make future production no longer economically feasible. The Torok formation is currently producing from the Oooguruk offshore island facilities and therefore does not qualify for modification under AS 38.05.180(j)(1)(A) (royalty modification for a field or pool that has not "previously produced oil or gas for sale"). The Nuna development is an onshore facility targeting Torok reserves which cannot be recovered without new onshore facilities, wells, and flowlines. The Caelus application requested a fixed, flat, 5% royalty until the Nuna Development project reached payout. After which the base royalty would annually increase by 1.875% for four years at which time the original base royalties would be returned to their respective un-modified rates.

A. Lease summary

The Division of Oil and Gas (Division) issued ADL's 355036, 355037, 355038, and 355039, effective August 1, 1983, on Competitive Oil and Gas Lease Form No. DMEM-4-83 (NET PROFIT SHARE)(REVISED May 5, 1983) DNR 10-1113, with a primary term of ten years, 12.5% fixed royalty rate and 30% net profit share for the State. These four leases were committed to the Kuukpik Unit, which terminated effective June 1, 2001. Prior to lease term expiration, a well was drilled on each lease, and the wells certified capable of producing in paying quantities, thereby extending the leases' primary terms indefinitely. As a result of several assignments of working and royalty interest shares, Caelus owns a 70 percent working interest in these leases, while ENI owns the other 30 percent. For production from Nuna, Caelus has a 100 percent working interest.

On February 1, 2006, DNR agreed to provide royalty modification for production from the Kuparuk and Nuiqsut formations that produced into these four NPSLs, among others. The royalty rate for these NPSLs was put at five percent until ADL 355036 went into payout, at which time the royalty rates on these four leases would increase over four years to the 12.5% lease rate.

The Division issued ADL's 390434, 390697, 390505, and 390506 with a 16.66667% fixed royalty and a seven-year primary term between 2004 and 2005. In the Second Expansion the leases were committed to the Oooguruk Unit effective April 30, 2011. ADLs 392113, 392157, and 392158 were issued in 2012 and 2013 with a primary term of 10 years and a fixed royalty of 16.66667%. As a result of several assignments of working and royalty interest shares, Caelus has a 100% working interest in these leases.

The Oooguruk Unit was expanded to include a Torok Participating Area in 2011. Currently, the Torok Participating Area (PA) consists of three leases: ADLs 355036, 355037, and 355038. The Nuna development would access Torok reserves to the south from an on-shore drill pad. The Nuna Torok reserves come from five leases: ADLs 355038, 355039, 390434, 390697, and 392158.

B. Project development history

The Oooguurk-Torok Oil reservoir lies offshore in the Beaufort Sea and onshore in the Colville River Delta. DNR approved the Torok PA on June 24, 2011. The reservoir is currently being developed from the offshore Oooguruk drillsite. To date Torok has produced around 725 thousand barrels of oil from three wells.

To test the southern part of Torok, a portion of the reservoir that would only be accessible via an on-shore well-pad, in 2012 Pioneer drilled the Nuna-1 well, and in 2013 they drilled an offset well, NDST-2. These wells were drilled form on-shore and to access and evaluate the southern part of the Torok reservoir.

III. SUMMARY OF ROYALTY MODIFICATION AUTHORITIES AS 38.05.180(j)(1)(A), (2), (3), (4)(A), & (5)

A. Royalty modification criteria authority

1. AS 38.05.180(j)(1)(B) provides the DNR Commissioner the authority to provide for modification of royalty to unitized or individual leases. AS 38.05.180(j)(2) provides that the Commissioner may not grant a royalty modification unless the lessee or lessees requesting the royalty modification make a clear and convincing showing that
2. The modification is necessary to prolong the economic life of an oil or gas field or pool as per barrel or barrel equivalent costs increase or as the price of oil or gas decreases, and the increase or decrease is sufficient to make future production no longer economically feasible
3. A modification of royalty is in the best interests of the State

B. Royalty modification terms guidance

1. Under AS 38.05.180(j)(3) the royalty modification terms must provide for an increase or decrease or other modification of the State's royalty share by a sliding scale royalty or other mechanism that shall be based on a change in the price of oil or gas and may also be based on other relevant factors such as a change in production rate, projected ultimate recovery, development costs, and operating costs.
2. Under AS 38.05.180 (j)(4)(B) a modification to royalty may not be granted for the field or pool if the royalty modification would result in a royalty rate of less than three percent in amount or value of the production removed or sold from a lease or leases covering the field or pool.
3. Under AS 38.05 180(j)(5) a royalty reduction must include an explicit condition that the royalty reduction is not assignable without the prior written approval, which may not be unreasonably withheld, by the Commissioner. The Commissioner shall, in the preliminary and final findings and determinations, set out the conditions under which the royalty reduction may be assigned and may not grant a royalty reduction without an explicit condition that the royalty reduction is not transferable.

IV SUMMARY OF STATE'S PROPOSED ROYALTY MODIFICATION

A. Royalty modification criteria applied

Caelus's application for royalty modification on ADL's 355038, 355039, 390434, 390697, 392158 meets the requirements for consideration under AS 38.05.180(j)(1)(B). Caelus has paid the filing fee and submitted a complete application for the royalty modification including financial and technical data that meet the requirements of 11 AAC 88.105, 11 AAC 83.185, 11 AAC 05.010(a)(10)(H), and AS 38.05.180(j)(6).

The lessee requesting the change has made a clear and convincing showing that a modification of royalty meets the requirements of 38.05.180(j)(1)(B), and is in the best interests of the state.

B. Royalty modification terms

1. Five percent royalty rate in effect beginning at first production of the Torok Formation as developed from the Nuna Development facilities. ADL's associated with this modification are ADLs 355038, 355039, 390434, 390697, 392158.

2. Five percent royalty will remain in effect until Caelus has achieved a Gross Revenue Target (GRT) of $1.25 billion associated with gross production and netback wellhead pricing associated with Torok production from the Nuna facilities. Gross Production is defined as sales volume of oil from Torok Nuna with a fixed 6% backout associated with CPAI Kuparuk; and, netback wellhead pricing is equal to the wellhead pricing used for Oooguruk production.

3. Upon reaching the GRT the original, un-modified, royalty terms will be re-established.

4. The project must be sanctioned by December 31, 2014. If project sanction documents and AFEs are not provided to DNR before December 31, 2014, this royalty relief is rescinded.

5. The royalty modification is rescinded if "facilities capex" (to include surface equipment, flowline bundle, drilling, etc.) is not initiated by March 31, 2015 and does not amount to at least $260 million by March 31, 2017.

6. This royalty modification is rescinded if sustained production from the Nuna drillsite from Torok does not commence by March 31, 2017.

7. The NPSL accounting practices for 11 AAC 83.201 – 11 AAC 83.295 remain in full force and effect.

8. This royalty modification is not assignable without prior written approval of the Commissioner. The Commissioner will approve a transfer of the royalty modification

unless he or she makes a written finding that the transfer would adversely affect the best interests of the State or does not comply with applicable regulations.

9. Twenty four months following the commencement of sustained commercial production from Nuna Drill Site 1, Caelus shall deliver to DNR a non-confidential written project summary similar in form to an SPE paper that includes development activities, construction costs, well designs and costs, fracture stimulation designs and costs, waterflood recovery designs and future development plans and rate projections. The purpose of this document will be to share the project learnings with DNR and the North Slope Operators free of charge to enable all developers to better develop the State's natural resources.

V. DISCUSSION OF ROYALTY MODIFICATION CRITERIA

A. Leases are eligible for consideration.

Caelus applied for royalty modification for 11 leases. However, only five of these leases are anticipated to include production from the Nuna development. For that reason, only leases with ADLs 355038, 355039, 390434, 390697, and 392158 should be considered for royalty modification.

B. Oil or gas production would not otherwise be economically feasible.

Under AS 38.05.180(j)(1)(B) royalty modification must be necessary to prolong the economic life of the field. Here, Caelus proposes making an investment to add reserves and thereby extend the Torok field's economic life. To determine if royalty modification is necessary, DNR must determine first whether the investment is economically feasible in the absence of royalty modification, and second, whether that investment would prolong the economic life of the field. This showing must be made by clear and convincing evidence.

Caelus has represented to DNR that it would not do the project without royalty relief. In addition, Caelus has shared data with DNR clearly showing that the project has marginal economics and, with the project, the field life of Torok and other participating areas in Oooguruk would be extended.

Caelus provided an economic model of their Nuna development. They also provided other documents that detailed the basis for their cost and production assumptions. Upon request, they provided additional and updated information to incorporate into the model. Caelus also requested that the model and the information it contains, including updates, be held confidential in accordance with AS 38.05.035(a)(9). For this reason, this discussion of the applicant presentation of project development economics does not discuss any confidential information concerning Caelus's geologic, engineering and cost data

DNR carefully reviewed this model, and revised this model in a number of ways. First, DNR revised the model to allow for a stochastic rather than deterministic analysis of economic feasibility. That is, instead of looking at just one possible scenario for price, production, and costs, DNR revised the model to include a full range of possible outcomes. Statistical distributions for each primary variable were established and used to capture uncertainty. DNR incorporated a distribution of recoverable reserves including 1P, 2P (proven + probable) and 3P (proven + probable + possible) in order to fully assess the economics of the full range of possible outcomes rather than just that of the most conservative reserve potential.

In addition to utilizing cost and production profiles provided by the lessee, DNR revised the model to use in-house price forecasts and TAPS tariff projections rather than the forecasts provided by Caelus. DNR also evaluated the risk that the development would fail due to inadequate investigation of possible reservoir properties, and incorporated a "failure leg" in its analysis to address this uncertainty.

In determining economic feasibility a hurdle rate or target return is used. DNR considered Caelus's need to obtain financing for the project in the capital markets rather than with reference to an established oil company's cost of capital.

DNR has examined the project's projected cash flows (revenue and costs), and computed the expected market value (EMV) - a probability weighted Net Present Value- for the project. The DNR examined a range of possible inputs (prices, costs, production levels) for the Nuna development, and derived a P50 result (a result where 50% of the outcomes lie below this point and 50% of the outcomes lie above this point). The DNR Model uses @Risk proprietary software to run the simulations and generate charts, graphs and reports used in the analysis. DNR determined that the Nuna development's P50 EMV was negative in the absence of royalty modification. Therefore, DNR verified Caelus's assertion that they would not do the Nuna project in the absence of royalty modification. While the royalty modification did not turn the P50 positive, it improved the economics of the project, and Caelus has committed to do the Nuna project if it receives royalty modification.

The additional reserves and production that Nuna brings will extend the field life not only of the Torok PA, but of the other two PA's (Nuiqsut and Kuparuk) that use common facilities. Production currently at the Torok PA's is at very low levels, and will decline to uneconomic levels sooner if the Nuna project isn't completed.

C. Tailoring royalty modification to price, costs, and production

The State must tailor its royalty relief to be sensitive to oil prices, costs, and production levels.

Since oil production levels and price impact revenue, the timing of the benefits conferred by this royalty modification depends on oil prices and production levels. The DNR decided not to use an NPSL-based royalty modification because the DNR did not want the State to assume the risk of a cost overrun. The cumulative revenue target is measured at the entry to the Kuparuk River pipeline, with the exception of a fixed percentage estimate of "backout". How quickly the target is reached will not be affected by costs incurred upstream of this point of valuation; drilling and facility costs at Nuna will not directly impact gross revenue. Unlike with the payout of an NPSL, the State is not assuming the risk that higher than expected costs will extend the time period for the royalty reduction. The focus was on supporting the project by recognizing there are factors not specifically in the operator's control and balancing the value of royalty reduction on those.

A royalty reduction based on an oil price will not provide the lessee with certainty that they'll get some benefit, nor the State with some certainty that the period of royalty reduction will be limited. A royalty modification based on a gross revenue target provides this certainty.

Under AS 38.05.180(j)(7)(A)&(B), DNR has the option of contracting with an independent consultant to provide additional analysis of a royalty modification application. The value of the contract is limited to $150,000.00, to be paid by the applicant. DNR did not contract with an outside consultant for the analysis of this application.

VI. THE ROYALTY MODIFICATION IS IN THE BEST INTERESTS OF THE STATE.

A. State economically benefits from Nuna project

Analysis of the economics of the Nuna project indicates that without modification of the royalty rate, the project economics would not provide sufficient return for Caelus to pursue the development. With royalty modification, the project economics improve, which should enable Caelus to develop the project and the State to receive around $1.4 billion in net present value (using a discount rate of three percent) based on expected revenues from severance tax, property tax, corporate income tax, crude conservation tax, royalty, and net profit share. If the State denied Caelus's application for royalty modification, Caelus has stated they will not do the project. If Nuna development is delayed for a few years, the State's loss in present value would exceed the loss incurred in comparing State revenue with and without royalty modification.

B. Sharing of information

Caelus has committed to sharing information about the Nuna development with other parties interested in North Slope development, prompting more well-informed investment in the State's oil and gas resources. Nuna develops a Brookian play, and a successful development at Nuna might prompt more interest in currently undeveloped Brookian plays on the North Slope. In developing Nuna, Caelus plans to use some drilling and reservoir development strategies that haven't been tried on the North Slope, which if successful, will potentially make other resource plays on the North Slope economic.

C. Environmental, social, and cultural impacts

DNR develops lease stipulations through the lease sale process to mitigate the potential environmental, social and cultural impacts from oil and gas activity. The leases that are proposed to be granted royalty modification contain many stipulations designed to protect the environment and address any outstanding concerns regarding impacts to the area's fish and wildlife species and to habitat and subsistence activities. They address the protection of primary waterfowl areas, site restoration, construction of pipelines, seasonal restrictions on operations, public access to, or use of the leased lands, and avoidance of seismic hazards. The granting of royalty modification will not result in additional restrictions or limitations on access to surface lands or to public and navigable waters.

The approval of the royalty modification has no environmental impact itself. The Commissioner's approval of the royalty modification is an administrative action, which by itself does not convey any authority to conduct operations on the leases, within the development area, unit or participating area. Caelus must still obtain approval of a Unit Plan of Operations and various permits from state agencies before initiating activities.

10/29/14

Joe Balash
Commissioner

Date

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