



September 29, 2017

Delivered by FedEx and electronically via e-mail

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Alaska Department of Natural Resources
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Anchorage, AK 99501-3554

Rex Rock, Sr., President
Arctic Slope Regional Corporation
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Subject: Pikka Unit 2017-2018 Plan of Exploration

Ladies and Gentlemen:

On October 27, 2016, the State of Alaska, Department of Natural Resources, Division of Oil and Gas approved the Pikka Unit ("PKU") 2016-2017 Plan of Exploration ("POE"). The approval requires that the 2017-2018 update to the PKU POE be submitted to your offices on or before October 1, 2017.

Since approval of the 2016-2017 POE, the primary technical efforts have been to refine the static and dynamic reservoir models and to conduct a robust Pre-FEED study of the Nanushuk development. The following discussion will summarize the work completed thus far in 2017, as well as the proposed scope of work for the remainder of 2017 and 2018.

The geomechanics study conducted in 2017 defined the maximum horizontal stress direction within the development area, and was used to predict the azimuth of induced hydraulic fractures within the planned development wells. This data was integrated with frac modeling of the Qugruk 8 and Qugruk 301 wells to explicitly define the hydraulic fracture geometry with the dynamic reservoir model.

The second phase of special core analysis (SCAL) outlined in the 2016-2017 POE was integrated into the static and dynamic reservoir models. The additional relative permeability and capillary pressure analyses proved particularly useful in constraining the fluid flow behavior in the simulator.

Unfortunately, the condition of our existing core samples from the Qugruk 8 well were unsuitable for use in the planned flow assurance related analyses. The flow assurance work is planned to be conducted on fresh core samples from our proposed 2017-2018 drilling program.

Seismic rock physics studies focusing on the Cretaceous and Jurassic reservoirs present in the PKU were completed in 2017. The Cretaceous rock physics study was focused on the Nanushuk reservoir. This study characterized the expected seismic response of variable net to gross sands and variations of in-situ fluids,

i.e. oil, gas, and water, within the reservoir. This study was integrated into the seismic interpretation workflow and aided in the further refinement of Nanushuk reservoir characterization. The Jurassic rock physics study was primarily focused on in-situ fluid response of reservoir quality Jurassic sand. Multiple scenarios were modeled using a range of likely reservoir porosities and known oil properties within the area surrounding and including the PKU.

A simultaneous elastic inversion was completed on the Nigliq-Tabasco Merge 3D seismic survey. The inversion products include acoustic impedance, shear impedance, V_p/V_s ratio, and density volumes. Inversion results are currently being integrated into the characterization of both discovered and prospective reservoirs within the PKU.

The seismic derived stress orientation scoping study using OVT gathers from the Nigliq-Tabasco Merge 3D seismic survey was suspended due to the results of the geomechanics study. Specifically, the geomechanics study showed a minimal amount of anisotropy present within the Nanushuk formation. Due to the low observed anisotropy and relatively high amount of noise in the OVT gathers within the Nanushuk formation, seismic derived stress orientation is deemed to be of negligible value at this time.

Seismic studies completed during the 2016-2017 POE are currently being integrated into reservoir characterization of discovered and prospective resources within the PKU.

A detailed Pre-FEED engineering study was conducted in 2017, concurrent with our refinements to the subsurface basis of design. The pre-FEED study involved several engineering disciplines, including:

- Nanushuk Central Processing Facility (NPF) Pre-FEED engineering design.
- Nanushuk drill site A, B and C (NDA, NDB, NDC) Pre-FEED engineering design.
- Nanushuk infield and export pipelines Pre-FEED engineering design.
- Nanushuk development project gravel roads and pads Pre-FEED civil engineering design.
- Nanushuk development project infrastructure Pre-FEED engineering design.
- Nanushuk development project Colville Delta area hydrology studies.
- Nanushuk development project modules transport route detail survey.
- Sea water treatment plant (STP) debottlenecking and expansion engineering study.

The NPF Pre-FEED engineering was commenced in January of 2017 and completed by August of the same year. The work was performed in conjunction with the NPF Pre-FEED contractor Worley Parsons in Acadia, California.

The Nanushuk drill sites Pre-FEED engineering was commenced in January of 2017 and completed by July of the same year. The work was performed in conjunction with the Nanushuk drill sites Pre-FEED contractor Doyon Anvil in Anchorage, Alaska.

The Nanushuk infield and export pipelines Pre-FEED engineering was commenced in April of 2017 and completed by August of the same year. The work was performed in conjunction with the Nanushuk pipelines Pre-FEED contractor Michael Baker in Anchorage, Alaska.

The Nanushuk Development Project gravel roads and pads Pre-FEED engineering was commenced in March of 2017 and completed by July of the same year. The work was performed in conjunction with the Nanushuk civil engineering Pre-FEED contractor PND Engineers in Anchorage, Alaska.

The resulting engineering Pre-FEED design for the NPF, drill sites, pipelines, and gravel roads and pads are now entering the optimization phase of design.

The Nanushuk Development Project infrastructure Pre-FEED engineering work cannot be initialized until more clarity of the ongoing environmental impact statement (EIS) has been achieved.

The Nanushuk Development Project Colville Delta area hydrology studies were carried out from November of 2016 to November 2017 with contractor Michael Baker in Anchorage, Alaska.

The Nanushuk Development project modules transport route survey was initialized in March of 2017 and completed by August 2017 in conjunction with contractor PND Engineers in Anchorage, Alaska. The resulting survey work is now entering detail engineering consideration for road repair work and commercial negotiations with area road owners.

The STP debottlenecking and expansion engineering study was initialized in 2016 and the FEL-0 was completed in March of 2017 in conjunction with STP operator Conoco Phillips in Anchorage, Alaska. Commercial negotiation is ongoing to enter into contract for FEL-1 and engineering Pre-FEED.

In an effort to progress the Nanushuk project as expeditiously and efficiently as possible, we have conducted Pre-FEED engineering prior to finalizing the subsurface basis of design. The Pre-FEED engineering studies conducted to date may need to be revised if the results of the 2018 Pikka 2 wells and/or the ConocoPhillips PUTU wells (which we are contractually entitled to receive the data) necessitate significant modification to the current subsurface basis of design.

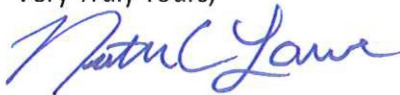
Armstrong Energy, LLC, as Operator of the PKU, requests this letter serve as the 2017-2018 POE as outlined below.

- On or about February 1, 2018, Armstrong intends to commence the Pikka 2 and Pikka 2A sidetrack wells in the southwestern portion of the PKU in sections 34 and 35 of T11N, R5E (Exhibit A). No wells currently exist within the southern half of the planned Nanushuk development area. The Pikka 2 wells are critical to the delineation of this area, and have the potential to have significant impact on the subsurface basis of design. Acquisition of conventional core is planned in both wells along with a full suite of LWD and/or wireline logs, including fluid sampling where appropriate. A production test is planned for the Pikka 2A sidetrack, contingent upon results of the log evaluation.
- Routine and special core analysis (SCAL) is planned to be conducted on the conventional core acquired in the Pikka 2 and Pikka 2A wells. SCAL conducted on the nearby Qugruk 8 well has identified key uncertainties with respect to reservoir quality distribution and water saturation as predicted by capillary pressure experiments. The objective of the routine and SCAL work will be to reduce these uncertainties and narrow the range of outcomes in the Nanushuk reservoir model. In addition to a robust set of routine analyses, we plan to run a number of SCAL, including relative permeability, capillary pressure, fluid flow velocity, and fluid sensitivity analyses.

- Fluid sampling is planned for the Pikka 2A sidetrack via wireline-conveyed MDT. Single-phase fluid samples will be used to address key remaining uncertainties identified in the recent pre-FEED engineering study, including asphaltene precipitation and miscible gas injection. Initial modeling of enhanced recovery through miscible gas injection has been encouraging, but additional testing of single-phase oil samples is required in order to confirm the results.
- All data acquired in the Pikka 2 and 2A wells will be integrated into the existing reservoir model. Adjustments will be made to the stratigraphic framework and distribution of reservoir properties within the static model. Fluid analyses and SCAL will be integrated into the dynamic model through refinement of the relative permeability and capillary pressure curves.
- The well results will also be integrated into our existing 3D seismic interpretation. If necessary, adjustments will be made to the existing elastic inversion and AVO models. The results of geophysical modeling will be used to guide the distribution of reservoir properties with the static reservoir model.

Should you have any questions or require additional information, please don't hesitate to call the undersigned at (303) 623-1821, or email Nate@armstrongoilandgas.com.

Very Truly Yours,



Nathan C. Lowe
Land Manager

Cc: Teresa Imm, Arctic Regional Slope Corporation

EXHIBIT A

To the 2017-2018 PKU Plan of Exploration

REDACTED