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June 1, 2016

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**DIVISION OF
OIL AND GAS**

Hak Dickenson
Alaska Department of Natural Resources, Division of Oil and Gas
550 W. 7th Ave., Suite 1100
Anchorage, AK 99501

Ninth Plan of Development, Oooguruk Unit

Dear Hak:

Attached please find the tenth plan of development for the Oooguruk Unit filed on behalf of Caelus Natural Resources Alaska, LLC, as unit operator and working interest owner, and Eni Petroleum US LLC, as working interest owner.

Please advise if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dale Hoffman', is written over a light blue horizontal line.

Dale Hoffman

cc: R. Province, Eni



**TENTH PLAN OF DEVELOPMENT
OOOGURUK UNIT**

**Caelus Natural Resources Alaska, LLC, as Operator
Eni Petroleum US LLC**

September 1, 2016-August 31, 2017

Table of Contents

Section	Page
HISTORICAL ACTIVITIES	1
1. NINTH POD UPDATE (September 1, 2015-August 31, 2016)	2
1.1 Facilities	3
1.2 Reservoir Management	3
1.3 Drilling	5
2. TENTH POD PROPOSED OPERATIONS (September 1, 2016 - August 31, 2017)	6
2.1 Facilities	6
2.2 Reservoir Management	6
2.3 Drilling	6
3. PLAN OF EXPLORATION FOR LANDS NOT WITHIN A PARTICIPATING AREA	7
4. REVIEW PROCESS UPDATE-REQUEST FOR ADDITIONAL INFORMATION	9

Attachments

Attachment 1–Oooguruk Unit Wells

Attachment 2A–Plan of Development Oooguruk-Kuparuk wells

Attachment 2B–Plan of Development Oooguruk-Nuiqsut wells

Attachment 2C–Plan of Development Oooguruk-Torok wells

Attachment 3–Nuna Plat

OOGURUK UNIT TENTH PLAN OF DEVELOPMENT

This Tenth Plan of Development (POD) for the Ooguruk Unit (OU) is submitted by Caelus Natural Resources Alaska, LLC (Caelus), as Operator, and on behalf of itself and Eni Petroleum US LLC (Eni), to the Department of Natural Resources Division of Oil and Gas (DOG) as required by Article 8 of the Ooguruk Unit Agreement and 11 AAC 83.343.

HISTORICAL ACTIVITIES

The Ooguruk Unit comprises 25 state leases for a total of approximately 53,000 acres. Caelus and Eni are 70% and 30% working interest owners (WIOs), respectively, in the participating areas currently under development. Cumulative oil production from the Ooguruk Unit totals approximately 25 million barrels through April 2016.

The leases are unitized and developed jointly under the terms of the Ooguruk Unit Agreement (OUA) between WIOs and the State of Alaska. Development drilling and operations are conducted under the terms of the Ooguruk Unit Operating Agreement (OUOA) between the WIOs. Caelus, as Operator, and Eni are 70% and 30% WIOs, respectively, in areas being developed from the Ooguruk drillsite (ODS).

1. NINTH POD UPDATE (September 1, 2015-August 31, 2016)

During the Ninth POD Caelus continued development and appraisal of the Ooguruk-Kuparuk (OKPA), Ooguruk-Nuiqsut (ONPA), Ooguruk-Torok (OTPA) participating areas and other OU lands. To date, 43 wells have been drilled within the OU including 28 ONPA development wells, five OKPA development wells, four OTPA development wells, one Class I & II disposal well and five other wells outside of existing participating areas. Due to the current price environment for crude oil, Caelus needed to make significant and immediate cost reductions. As a result, Caelus has reduced its workforce by 25 percent and suspended near-term drilling operations in the OU.

<u>ONPA</u>	<u>OKPA</u>	<u>OTPA</u>	<u>Other Unit Wells</u>
ODSN-01A (new)	ODSK-14	ODST-39	ODSDW1-44 (disposal)
ODSN-02	ODSK-33	ODST-45A	ODSK-13 (appraisal)
ODSN-03i	ODSK-35i	ODST-46i	ODSN-40 (inactive)
ODSN-04	ODSK-38i	ODST-47	Nuna 1 (appraisal)
ODSN-06i (new)	ODSK-41		NDST-02 (appraisal)
ODSN-07i (new)			Sikumi 1 (exploration)
ODSN-10i (new)			
ODSN-15i			
ODSN-16			
ODSN-17			
ODSN-18			
ODSN-19i			
ODSN-22			
ODSN-23i			
ODSN-24			
ODSN-25			
ODSN-26i			
ODSN-27i			
ODSN-28			
ODSN-29			
ODSN-31			
ODSN-32i			
ODSN-34i			
ODSN-36			
ODSN-37			
ODSN-42B			
ODSN-43			
ODSN-48			

1.1 Facilities

During the period of the Ninth POD Caelus completed engineering on a coalescing filtration system for the gas supply flow line at the Oooguruk Drill Site (ODS). Pulsation dampeners were also upgraded on the grind and inject disposal pumps to ensure improved disposal operations.

At the Oooguruk Tie-in Pad (OTP), Caelus performed a scheduled replacement of the gas turbine engine and gearbox in the second of three power generation units. Caelus also upgraded the production separator control system at OTP to allow improved liquid and gas flow control to avoid slugging downstream KRU facilities at CPF3.

Engineering work continued on the planned hardware and software upgrade to the Distributed Control System (DCS) scheduled for September 2016. A Measurement Technical Review was completed, ensuring all process metering met or exceeded industry standards. Caelus commenced its five-year Process Hazard Analysis (PHA) revalidation engineering effort during this Ninth POD.

Routine operations allowed Caelus to perform general maintenance, replace critical oil, water and gas valves, test safety systems, and prepare future wells for tie-in at ODS. Additional field-wide maintenance was also performed, including replacement of worn piping and valves and general mechanical integrity inspections of piping and other safety systems.

Caelus directed engineering and operational efforts towards optimizing and debottlenecking existing equipment, including evaluating separator control system optimization, gas partial processing and injection water supply options at OTP.

1.2 Reservoir Management

Subsurface development of the OU is ongoing with dedicated development wells in the Alaska Oil and Gas Conservation Commission (AOGCC)-approved Oooguruk-Nuiqsut, Oooguruk-Kuparuk and Oooguruk-Torok oil pools. Unitized substances are commingled on the surface. During the Ninth POD development progressed as planned in the OKPA, ONPA and OTPA. The ONPA water and immiscible gas flood (under-saturated WAG) was expanded, and the waterflood for secondary recovery continued in both the OKPA and OTPA.

The OKPA production continued as projected from horizontal producers ODSK-14 and ODSK-41. ODSK-38i was the primary injector for the OKPA waterflood for this period as ODSK-35Ai remained shut-in to minimize interference with remedial casing repair work in the offset ODSN-01 well. ODSK-33 production, the dominant and first production well, has been shut-in due to high water-cut and significant hydraulic backout effects to other ODS wells (refer to Attachments 1 and 2A). A simulation model has been maintained and updated to assist in reservoir and flood management decisions in the OKPA.

Within the ONPA three new horizontal wells were drilled and ODSN-01 was sidetracked, being renamed ODSN-01A, following a failed workover to repair casing in the well (refer to Attachment 2B). ODSN-10i was drilled in the southwest proposed ONPA expansion area; ODSN-06i was drilled in the northeast ONPA near the Ivik exploration well, and ODSN-07i was drilled in the northern ONPA to support strong production from offsetting producers in the area, ODSN-02 and ODSN-28 (refer to Attachment 1). ODSN-01A, ODSN-06i, ODSN-07i, ODSN-10i and ODSN-22, drilled during the Eighth POD, were hydraulically fracture stimulated in the 2016 winter season using mechanical diversion techniques to maximize reservoir performance and recovery. ODSN-06i and ODSN-10i are ultimately planned as injectors, but an extended pre-production period is planned to assess reservoir performance in these new development areas of the ONPA.

High pressure breakdown stimulation treatments were performed in injection wells ODSN-26i, ODSN-27i, ODSN-32i and ODSN-34i. The injection well stimulations improved injection which has improved voidage replacement from hydraulically fracture stimulated offset producers. Surveillance equipment was placed in the production liner of the ODSN-42B lateral to assess production conformance along the wellbore via target fluid tracers. The tracer data indicate consistent contribution along the entire lateral section during initial production in 2015. A simulation model has been maintained and updated to assist in reservoir and flood management decisions in the ONPA.

OTPA development progressed as planned. Production continues from horizontal fracture stimulated wells ODST-39 and ODST-45A which was recompleted in April, 2016. ODST-47 is shut-in pending a rig workover to repair a mechanical failure of the lower completion during fracture stimulation treatment; the well has not produced to-date. Horizontal well ODST-46i injected but it has been shut-in for most of the Ninth POD period due to close-approach drilling concerns for wells targeting the southern ONPA (refer to Attachment 1). A simulation model has been maintained and updated to assist in reservoir and flood management decisions in the OTPA.

On December 30, 2015 Caelus submitted an application for the ONPA Third Expansion to include existing developed areas outside the current participating areas and future wells. An in person review of the application was conducted with DNR Division of Oil and Gas technical staff on February 9, 2016. Caelus met with DOG's unit manager on April 26, 2016 to discuss the size of the ONPA given the change in proposed drilling under the Tenth POD.

1.3 Drilling

During the Ninth POD Caelus drilled three horizontal ONPA wells, sidetracked one well, and fracture stimulated five wells including N-22, which was drilled during the Eighth POD. Three workover operations were conducted including one to replace a damaged 4½” upper frac completion, one to replace a failed ESP, and a workover to pull a failed ESP and packer vent valve and run a gas lift completion. The producers and injectors drilled and completed during the Ninth POD are listed below (*=drilled in Eighth POD, H=horizontal well, F=fracture stimulated during Ninth POD, i=injector, ST=sidetrack) and depicted in Attachments 1, 2A, 2B and 2C:

ONPA New Wells and Sidetracks

ODSN-22i (*,H,F)
ODSN-06i (H,F)
ODSN-10i (H,F)
ODSN-07i (H, F)
ODSN-01A (ST,H,F)

Workover Operations

ODN-10i (damaged 4 ½” completion)
ODST-45A (install gas lift completion)
ODSK-41 (replace ESP)

2. TENTH POD PROPOSED OPERATIONS (September 1, 2016 - August 31, 2017)

2.1 Facilities

During the period of the Tenth POD Caelus will continue evaluation of facility upgrades including a new variable frequency drive on OTP Compressor A at OTP.

Caelus will complete the five-year Process Hazard Analysis revalidation engineering effort during the Tenth POD.

A planned seven-day field shut-down will occur in September 2016 to upgrade hardware and software on the DCS. Internal inspections will occur in the waste heat recovery system, production heater, production separator, and tank farm at OTP. Module subsidence adjustments will occur at ODS during this shut-down.

Routine maintenance will also be performed, including replacement of worn piping and valves and general mechanical integrity inspections of piping and other safety systems.

Caelus' engineering and operational efforts will continue in optimizing and debottlenecking existing equipment, including control system optimization to ensure measurement system accuracy.

2.2 Reservoir Management

During the period of the Tenth POD Caelus plans to further optimize the OKPA waterflood, expand the ONPA Under-Saturated Water-Alternating-Gas (US-WAG) and continue the OPA enhanced recovery operation. All OU floods will be managed to maximize voidage replacement. Individual well and pattern surveillance data will be collected in all reservoirs to monitor performance versus expectations. Simulation models will be updated to assist in reservoir and flood management decisions.

2.3 Drilling

Due to the current price environment for crude oil, Caelus made significant cost reductions, resulting in a reduced workforce and suspended near-term drilling operations in the OU. When oil prices recover and investor confidence improves Caelus will re-commence the long-term OU development plan which was presented to DNR staff in early 2016; the drilling activities plan will monetize all well slots at ODS, maximize recovery and provide sufficient investor returns.

No drilling or workovers are currently planned during the Tenth POD.

3. PLAN OF EXPLORATION FOR LANDS NOT WITHIN A PARTICIPATING AREA

Efforts associated with the Kuparuk reservoir, outside the OKPA, were focused in the Ivik fault block to the northeast of the current OKPA (refer to Attachments 1 and 2A). ODSK-13 was drilled in late 2011 as horizontal producer to test the thickness and productivity of the Ivik fault block. A workover was performed in 2013 to repair a failed SSSV. Production testing showed less than economic production rates and the well was converted to injection for short term testing in 2013 and 2014. The well is now shut-in for long term pressure monitoring. Pressures from the ODSK-13 injection and fall off test indicate the Ivik block is not in hydraulic communication with the main Kalubik fault block development area. Analyses of ODSK-13 oil samples show the asphaltene content is significantly higher than the Kalubik fault block producing wells, which may explain the low productivity from the well. Integration of the ODSK-13 performance data with recent data collected while drilling to the Nuiqsut in this area is ongoing (ODSN-29, ODSN-28, ODSN-07i and ODSN-06i).

Caelus sanctioned Phase 1 of the Nuna project (see Attachment 3) which would access resources inaccessible from ODS in and near the Colville River Delta using extended reach drilling from Nuna Drill Site 1 (NDS1). The project lies two miles west of existing facilities at KRU Drill Site 3S (DS-3S). During the first quarter of 2015, Caelus installed NDS1, access road and gravel for the central production facility. These activities were followed by gravel thawing and shaping activities during the summer of 2015 with final civil expansion completed during fall 2015.

During the Ninth POD Caelus performed the following activities as part of its plan of exploration (POE) for lands outside a participating area:

1. Conducted studies in support of NDS1 and Nuna Drillsite 2 (NDS2) permit applications;
2. Continued engineering for the facilities as part of the planned Nuna project;
3. Analyzed approximately 70 sq miles of 3D seismic data over Nuna lands;
4. Integrated the results from drilling, conceptual engineering, and permit stipulations into an assessment of the commercial viability of the Nuna onshore development; and
5. Finalized the scope, costs and schedule of the Nuna Torok Phase 1 Development.

During the POE period of the Tenth POD, Caelus plans to:

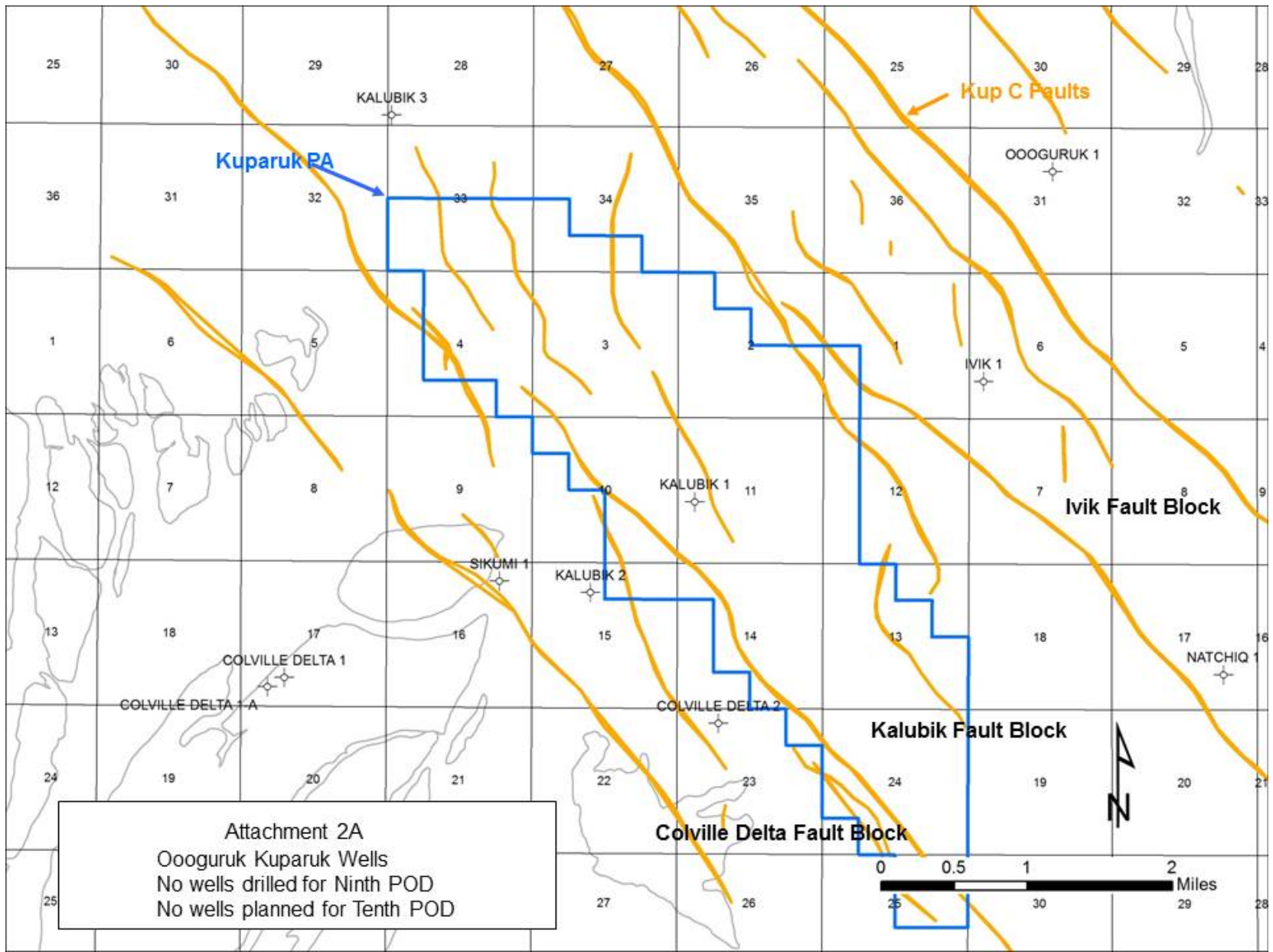
1. Continue the Nuna Torok Phase 1 Development by completing the facility design and integration with OTP and KRU in anticipation of start-up in 2018 or later. Equipment and material procurement will be ongoing, followed by module fabrication. Flowline installation will occur in first quarter of 2018 or later and facility installation will occur prior to start up in 2018;
2. Continue geologic and geophysical analyses in association with development drilling to enhance the understanding of sub-surface characteristics and assessing exploitation opportunities in the acreage immediately outside current development areas and at varying horizons;
3. Continue long lead procurement efforts; and
4. Reevaluate and continue to optimize facility construction schedule and cost in light of oil price and tax structure environment.

5. REVIEW PROCESS UPDATE-REQUEST FOR ADDITIONAL INFORMATION

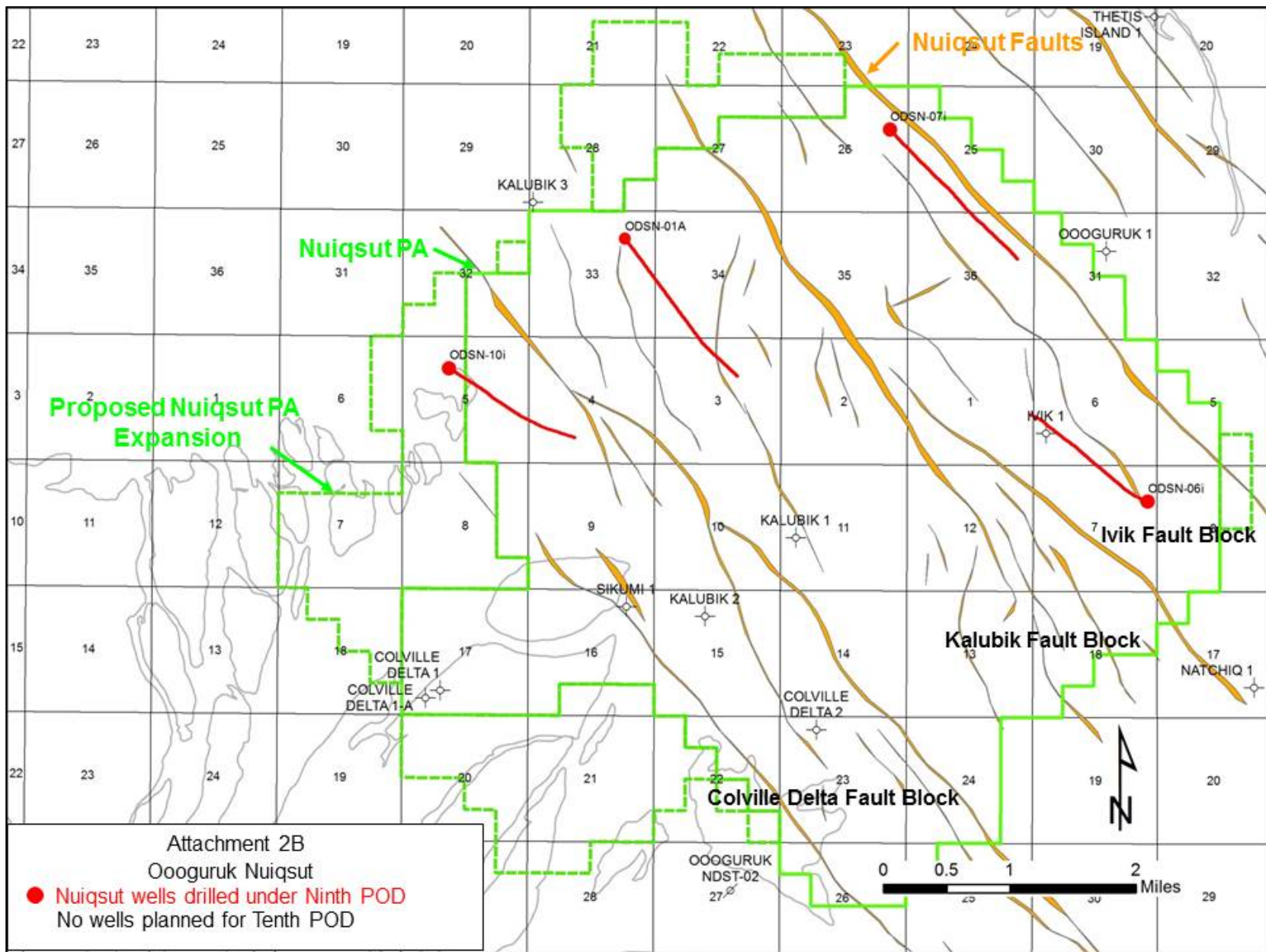
On January 14, 2016 the Commissioner of the Alaska Department of Natural Resources sent Caelus Natural Resources Alaska, LLC a letter requesting information regarding marketing and facility access and sharing.

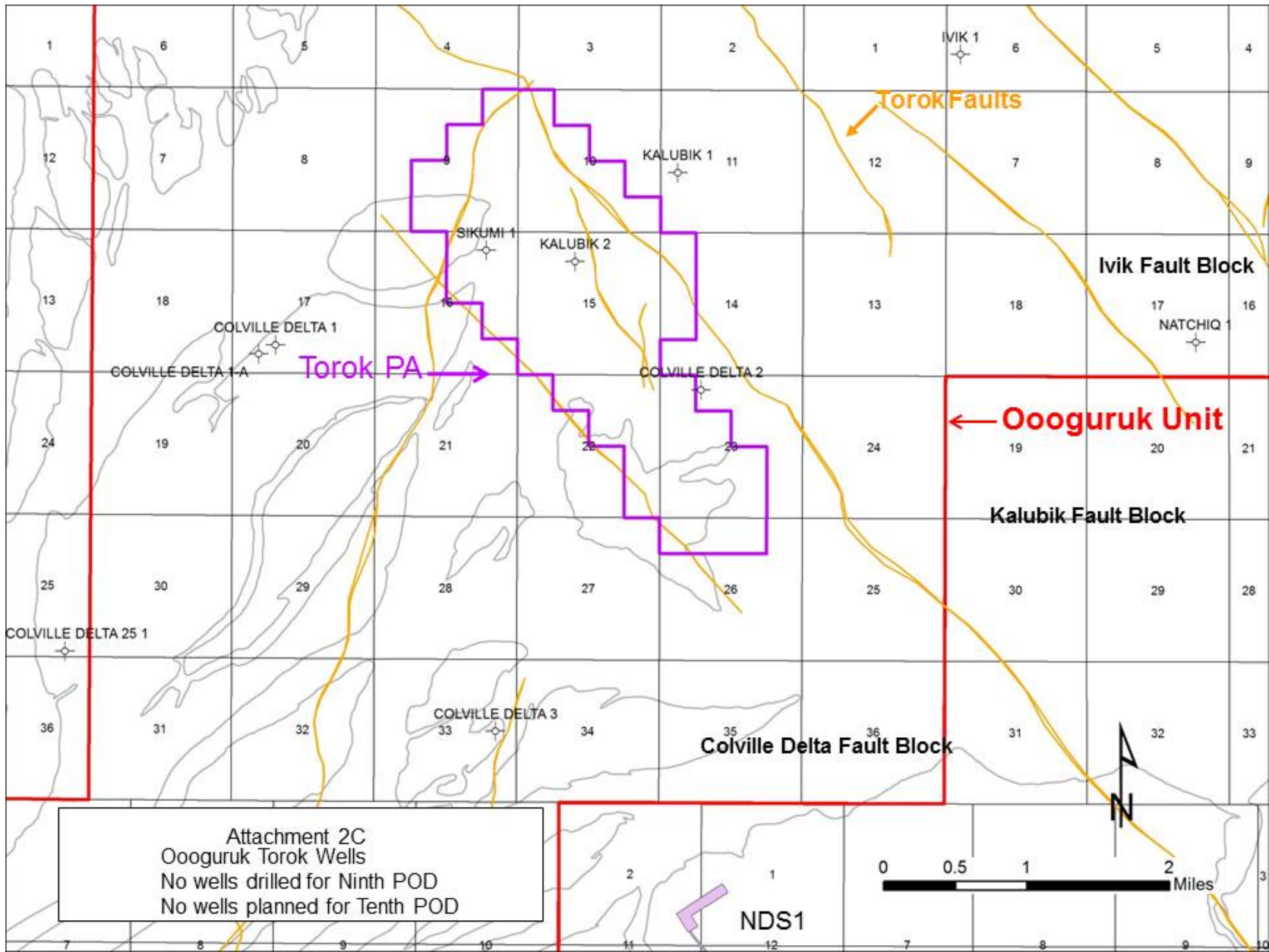
Regarding marketing for the OU, the information sought in the letter is already available to DNR.

As to facility access and sharing, the proprietary Production Processing and Servicing Agreement (PPSA) between the OU and KRU WIOs provided OU WIOs access to KRU infrastructure and services relating to the processing of Ooguruk production. Other services on the North Slope are shared cooperatively through the use of ad hoc and other commercial agreements with various operators to the satisfaction of Caelus.



Attachment 2A
 Oooguruk Kuparuk Wells
 No wells drilled for Ninth POD
 No wells planned for Tenth POD





Attachment 3 Nuna Plat

