



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF OIL & GAS

550 W 7th Avenue, Suite 1100
Anchorage, Alaska 99501-3560
Main: 907.269.8800
Fax: 907.269.8939

July 23, 2021

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Vincent Lelarge
North Slope Development Manager
ConocoPhillips Alaska, Inc.
700 G Street
Anchorage, AK 99501

Re: Kuparuk River Unit 2021 POD – Approved

Dear Mr. Lelarge:

The Department of Natural Resources, Division of Oil and Gas (Division), received the proposed 2021 Kuparuk River Unit (KRU) Plan of Development (POD) from ConocoPhillips Alaska, Inc. (CPAI) on April 30, 2021. The Division notified CPAI by email on May 7, 2021, however, that the POD submittal was deemed incomplete. In that same email, the Division further requested CPAI amend its proposed POD to address the Division's questions and concerns. On June 8, 2021, CPAI provided a written response to the Division's May 10, 2021 questions. The Division subsequently notified CPAI via email on June 17, 2021 that the proposed 2021 KRU POD was deemed complete. CPAI provided a technical review to the Division on June 29, 2021. This Decision approves the proposed 2021 KRU POD.

Unit History

The KRU was formed effective December 1, 1981, and is located immediately west of the Prudhoe Bay Unit and southwest of the Milne Point Unit. The Unit includes five participating areas (PAs); Kuparuk (KPA), Meltwater, Tabasco, Tarn, and West Sak. Currently, there are 798 active wells within the KRU ("active" being defined as having produced or injected fluid in calendar year 2020).

As the field matures, reservoir management strategies and associated operational activities continue to change in addition to locating and drilling additional oil targets. Maximizing production from the KRU relies on maintaining and upgrading facilities, increasing well work to keep existing wells online, employing new technologies, and optimizing current and future Enhanced Oil Recovery (EOR) programs to recover the remaining oil.

CPAI publicly announced in March of 2020 the cessation of KRU drilling activity due to COVID-19 public health concerns. In April 2020, CPAI announced its plan to curtail oil production of approximately 100,000 barrels per day for the month of June 2020 from the KRU and Western North Slope Units. The ramp down to reduce production began in late May 2020, and was part of broader curtailments by CPAI in the Lower 48 and other areas. CPAI's decision to curtail production was made in response to unacceptably low oil prices stemming from global oil demand reduction following both the impacts of the COVID-19 pandemic and global oversupply of oil.

Production was ramped up back to normal in July 2020. CPAI now forecasts that about 50% of the production deferred by the curtailment will be recovered over the next three years with the remainder recovered over the life of the field. Normal drilling operations at KRU are in the process of ramping back up to pre-COVID-19 levels with the start-up of the workover rig occurring sometime in the third quarter

of 2021, and start-up of both the Coil Tubing Drilling (CTD) rig occurring sometime in the fourth quarter of 2021 and the rotary drilling rig sometime in the second quarter of 2022, respectively.

In calendar year 2020 (*i.e.*, as of December 31, 2020), the KRU in total produced an average rate of 91.4 thousand barrels of oil per day (MBOPD), a decrease from the 2019 average rate of 104.7 MBOPD. Cumulative oil production from the KRU (including satellites) at year-end 2020 was 2.80 billion stock tank barrels of oil compared to 2.77 billion stock barrels of oil at year-end 2019. As of April 30, 2021, the average oil production rate was approximately 91.7 MBOPD. The average gas production rate for 2020 was 136.4 million standard cubic feet per day (MMSCFD), down from 173.2 MMSCFD in 2019. As of April 30, 2021, the average gas production rate was approximately 122.6 MMSCFD. NGL imports from the Prudhoe Bay Unit were resumed in September 2018 for blending Miscible Injectant (MI) as part of ongoing EOR efforts at KRU to increase production. The KRU currently operates under full field MI with approximately half being imported and half being indigenous.

2020 POD

The following specific activities took place within the KRU during the 2020 POD period (calendar year January 1, 2020 to January 1, 2021).

Kuparuk PA

- Successful completion of 2 Kuparuk Rotary wells (1 producer and 1 injector);
- Successfully implemented a 3 well Coil Tubing Drilling (CTD) program under which 2 producers were brought back online and 1 well (1R-23A) was returned to injection service;
- Successful execution of non-rig well work activity that includes slickline, electric line, and service coiled tubing jobs that added an incremental oil rate of approximately 9 MBOPD in 2020 compared to 8 MBOPD in 2019; and
- Successful execution of Central Processing Facility 1 (CPF1) turn-around (TAR).

In 2020, the KPA received 66 MMSCFD of miscible injectant on average. The incremental oil rate from EOR is estimated to be approximately 4.9 MBOPD.

KRU Satellite PAs

The following specific activities also took place at the KRU Satellite PAs during the 2020 period (January 1, 2020 to January 1, 2021).

Tabasco PA

The process of converting the 2T-209 producer well into an injector well, began in 2018 and was completed in 2019 to provide more pressure support and improve the sweep efficiency of the 2T-201 and 2T-217A producing wells in the periphery area. In 2020, however, the 2T-209 was shut-in when a high shut-in bottomhole pressure was measured in the well that suggested inadequate offtake from the 2T-209 pattern. The injector therefore was shut-in as a cautionary measure to prevent any out-of-zone injection.

Tarn PA

Like 2019, routine paraffin scrapes and hot diesel flushes were conducted throughout 2020 on many Tarn wells to maintain production. The producer 2L-311 was converted to gas lift from jet pump service. The producer 2N-315 was shut-in after developing an annular communication, and has been shut-in after securing it downhole. Both 2L-317 and 2L-301 (injectors) were shut-in at the 2L drill site but brought

back on again following successful wellwork. Routine paraffin scrapes and hot diesel flushes also were conducted throughout 2020 on many Tarn wells to maintain production.

Meltwater PA

Two producers (2P-406 and 2P-443) were converted to jet pump operations. Although the former has continued to produce continuously after conversion, the latter had to be shut down due to low productivity. All other Meltwater producers continue operation without any artificial lift mechanism.

West Sak & NEWS PAs

- One new MBE¹ developed between the 1E-1-2 and 1E-121, while the 1E-121 was shut-in;
- Continued evaluation of two MBE treatments attempted in injectors 1C-190 and 1J-105 to reestablish injection support and pattern sweep;
- Injectors 1C-150, 1C-152, 1C-154, 1D-142, 1H-119, and 1J-118 received viscosity reducing injection (VRI) during 2020, suggested positive benefits and pattern-level surveillance efforts are continuing; and
- Field trials of through tubing conveyed ESP motor and pump systems (rig-less ESP) continue and are currently installed in six wells. According to CPAI, the continued running of these systems shows increasing potential of this technology to improve overall uptime and improved drawdown of West Sak producers (additional systems may be considered for future wells upon a showing of continued success with Rig-less ESP field trials).

Proposed 2021 POD Activities

Although the proposed 2021-2022 “Plan assumes a return to regular operating condition following the significant impacts of COVID-19 and market conditions in 2020,” the 2021-2022 proposed POD, like its 2020 predecessor POD, contains the disclaimer in various sections of the proposed 2021 POD stating that “[f]uture investment decisions include evaluation of all factors affecting economic assessment including cost, production, technical, regulatory environment, and fiscal framework.” Several sections of the proposed 2021 POD also repeat CPAI’s commitment “to a safe and environmentally sound operation,” meeting or exceeding the standards specified by applicable state or national codes,” and so on. (*See, e.g.*, Unit Plan of Development Kuparuk Participating Area § 4.0, Unit Plan of Development West Sak and NEWS Participating Areas § 4.0, Unit Plan of Development Tarn Participating Area § 4.0, Unit Plan of Development Meltwater Participating Area § 4.0, and Unit Plan of Development Tabasco Participating Area § 4.0.)

Considering the foregoing, the proposed POD, in addition to indicating “planned wells [] that are expected to be executed in the Kuparuk Participating Area during the Unit Plan of Development period August 1, 2021-July 31, 2022,” provides for the following current plans at the KRU and its Satellite PAs during the 2021-2022 POD period.

¹ An MBE (Matrix Bypass Event) is a dramatic water breakthrough event in the form of a direct flow conduit between an injector and producer whereby the waterflood process is interrupted and water injection cycles directly to the producer without effectively sweeping the rock matrix (*i.e.*, water that is meant to sweep oil into a producing well is diverted away from oil bearing rock and flows directly into the producing well).

Kuparuk

- CPAI plans to resume rig activity within the Kuparuk PA with the startup of a workover rig in Q3 2021, followed by the Coil Tubing Drilling rig in Q4 2021. CPAI plans to resume rotary drilling in Q2 of 2022;
- Continued monitoring two existing Moraine-Torok horizontal producer/injector well pairs at DS-3S, a new well pair is planned to be drilled in Q2 2022);
- Existing wells currently shut-in due to mechanical problems or low production rates may be sidetracked to new bottom-hole locations; both rotary and coiled tubing drilling rigs may be utilized over the plan period to access new resources;
- Operations and support infrastructure will be assessed for upgrade or replacement to target continued production from the Kuparuk; and
- A facility turnaround (TAR) for field maintenance is tentatively planned for the summer of 2022. The length of this TAR is still being determined.

Meltwater PA

- After analyses of Meltwater operations, low production, and associated impacts (back-out) on other production, CPAI plans to indefinitely shut-in Meltwater production to eliminate backout of production at CPF2. Detailed plans for effecting the shut-in are in process. The DNR, AOGCC and other relevant agencies will be involved in the development of those plans. Meltwater is expected to continue to produce at least through the summer of 2021.

Tabasco PA

- Study of waterflood optimization strategies in order to maintain, or improve current field performance is the goal both over the next five years, as well as the long term; and
- Replace progressive cavity pump (PCP) (an assisted lift mechanism for producing wells) in 2T-215 and bring well online; no rig workover is needed.

Tarn PA

- Although there are no current plans for drilling activity within the Tarn PA during the plan period, CPAI is considering “[t]he feasibility of frac’ing or refrac’ing Tarn wells, along with process of “history match[ing] a new full field model for Tarn” with the purpose of identifying drilling opportunities.

West Sak & NEWS PAs

In addition to continue to evaluate other opportunities within the KRU for West Sak development and various wells planned to be drilled in the West Sak PA during the plan period, CPAI states in the 2021-2022 POD that it commits to:

- Drill two CTD sidetrack wells at DS-2Z using abandoned Kuparuk wells as donor wellbores; and
- Evaluate future West Sak development wells, which would include four rotary wells at DS-3R to complete nine well program.

As with the Kuparuk, operations and support infrastructure will be assessed for upgrade or replacement to target continued production from the KRU satellite fields.

Tract Operations – Other Reservoirs

- The overlying Moraine-Torok interval continues to be evaluated for productivity and waterflood performance from two existing horizontal producer and injector well pairs drilled from DS-3S;
- Two additional Moraine-Torok wells (producer and injector pair) are planned to be drilled in Q2 2020 to further de-risk waterflood performance.

Finding and Decision

When considering a POD, the Division must consider the criteria in 11 AAC 83.303(a) and (b). Accordingly, the Division considered the public interest, conservation of natural resources, prevention of economic and physical waste, protection of all interested parties including the state, environmental costs and benefits, geological and engineering characteristics of reservoirs or potential hydrocarbon accumulations, prior exploration activities, plans for exploration or development, economic costs and benefits to the state, and any other relevant factors, including mitigation measures. 11 AAC 83.303(a), (b).

In approving the prior POD(s) for the KRU, the Division considered the 11 AAC 83.303(b) criteria and found that the PODs promoted conservation of natural resources, promoted prevention of waste, and protected the parties' interests. The Division incorporates by reference those findings.

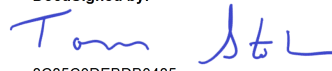
The public has an interest in diligent exploration and development of the State's resources. The plans set forth in the 2021-2022 POD protect this public interest by continuing and increasing production throughout the KRU both through the continued production for existing wells and the addition of new development wells thereby maximizing revenues and preventing waste. The 2021-2022 POD therefore is necessary and advisable to protect the public interest.

Based upon the Division's prior POD approvals and analysis of the 11 AAC 83.303(b) criteria, the Division finds the 2021-2022 POD protects the public interest, promotes conservation, prevents waste, and protects the parties' interests. The 2021-2022 POD for the KRU therefore is approved for the period of August 1, 2021 through July 31, 2022.

This approval is only for a general plan of development. Specific field operations require separate approval under 11 AAC 83.346, Unit Plan of Operations. Under 11 AAC 83.343, the 2022-2023 POD is due May 2, 2022, 90 days before the 2021-2022 POD expires.

If you have questions regarding this decision, contact Ken Diemer with the Division at 907-8784 or via email at ken.diemer@alaska.gov.

Sincerely,

DocuSigned by:

8C85C0DEBDB0485...

Tom Stokes
Director

CC: Dr. Sara Longan, Deputy Commissioner, Department of Natural Resources
Jessie Chmielowski, Commissioner, Alaska Oil and Gas Conservation Commission
Lucinda Mahoney, Commissioner, Department of Revenue
Lisa Cross, Vice President, Joint Interest & Operations Technical Manager, ExxonMobil Alaska
Gary Selisker, Senior Advisor Reservoir Engineer/PE, Chevron Joint Ventures - Alaska

An eligible person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040(c) and (d), and may be mailed or delivered to Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by electronic mail to dnr.appeals@alaska.gov. This decision takes effect immediately. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.