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GOVERNMENT & POLITICS

Gas leak at ConocoPhillips field reviewed a year later, with enforcement action possible

The incident, traced to a geologic formation previously considered harmless, has heightened concerns in Nuiqsut about expanding oil development

BY: **YERETH ROSEN** - MARCH 24, 2023 5:24 PM



 The entrance to the Alaska Oil and Gas Conservation Commission office in Anchorage is seen on Thursday. The AOGCC is considering whether to take enforcement action against ConocoPhillips for last year's natural gas leak at the CD1 field. (Photo by Yereth Rosen/Alaska Beacon)

A year after a [gas leak](#) at a North Slope oil field prompted a temporary evacuation of about 300 workers, the sealing and abandonment of a well and heightened concerns about health impacts of expanding development in Nuiqsut, a nearby Inupiat

village, state regulators are considering whether to take any enforcement action over the incident.

At a [hearing](#) on Thursday of the Alaska Oil and Gas Conservation Commission, chair Brett Huber said a written decision “regarding any potential enforcement action” will be issued after testimony, public comments and other information are considered. There is no set date for that report to be released, he said.

The [leak](#) happened at a well at ConocoPhillips’ CD1 field, located in the Colville River area on the western side of the North Slope. The gas was detected March 4, 2022, and the leak continued for about three weeks after that discovery, according to information presented to the AOGCC.

At the hearing, ConocoPhillips representatives reviewed the leak, its causes, the company’s response, as well as details of their internal investigation, which had previously been summarized in a [report](#) submitted to the AOGCC in May.

“ConocoPhillips takes this event very seriously. We do see value in publicly revisiting the incident itself,” Erica Livingston, chief engineer for wells, told the commission at Thursday’s hearing.

The source of the gas was identified as a shallow formation referred to as Halo, located about 3,000 feet below the ground’s surface and 4,000 feet above the Alpine formation that holds the oil that the CD1 field produces. It was previously thought to contain little gas.

Ultimately, up to 7.2 million cubic feet of natural gas streamed into the air from the incident a year ago, and ConocoPhillips was able to capture another 24.3 million cubic feet that leaked out of the well but was prevented from getting into the atmosphere, company representatives said.

Two operational mistakes caused the leak, Livingston said. Maximum pressure limits were exceeded during the work just days earlier to protect the well against freeze, and operators failed to detect or respond immediately to the increased pressure, she said.

No people or wildlife were harmed, she said. However, several actions were deemed necessary as a remedy and have been taken since the leak was detected, she said.

These fixes included improved standards for freeze protection, better monitoring of pressure within wells and communication within work groups, improved planning of new wells and a closer

evaluation of the Halo layer and any other wells that might be vulnerable to leaks from it, Livingston and other company representatives said at the hearing.



📍 Homes in Nuiqsut, a North Slope village of about 500 people, are seen in 2007. The Inupiat village lies near oil facilities and projects in the Colville River Delta area and the eastern part of the National Petroleum Reserve in Alaska. It is about 8 miles from the ConocoPhillips pad where natural gas leaked into a well in 2022. (Photo provided by Alaska Division of Community and Regional Affairs)

Investigation of the Halo formation found that it is concentrated around the area where the leak occurred, though it extends a bit to CD2, a related field, said geologist Jeff Allwardt, part of the ConocoPhillips team presenting to the AOGCC. “We believe that CD1 is kind of the center of it,” he said.

Aside from its work on the now-plugged well that produced the leak, ConocoPhillips has now placed cement along the edges of two other wells to protect them from potential leaks from the Halo layer, Allwardt said.

Another contributing factor was permafrost thaw, according to the ConocoPhillips report submitted in May to the AOGCC.

What’s known as a “thaw bulb” was discovered beneath the affected CD1 area, Allwardt said at the hearing. That shallow area of thaw “provides little to no resistance both vertically and horizontally” for escaping gas into the well hole, “so it did play a role in transferring the gas laterally across the pad,” he said.

Shivan Pande, a ConocoPhillips project manager involved in the company's review, told the AOGCC that thaw can be stimulated by well operations. The layer of permafrost goes down to about 1,500 feet below the surface, and warm fluids that are injected or produced flow through the zone between 80 and 1,000 feet below the surface, Pande said.

“They can melt the permafrost and coalesce into thaw bulbs. We recognize this as a part of our operation and take multiple steps to mitigate,” he said.

That mitigation includes the use of insulation, thermosyphons – devices that pull heat out of the ground – and the standard use of 5-foot-thick pads, Pande said. ConocoPhillips also regularly monitors any sinking that might result from permafrost thaw, he said.

For residents of Nuiqsut, a village of about 500 people located about 8 miles from CD1, the episode was unsettling and shows the need for better safety, communication and air-quality monitoring, said Mayor Rosemary Ahtuanguak.

“We still have a lot of questions from our village,” she said at the AOGCC hearing. “We really want to know that this process isn't going to put us at risk. The rapid changes to our environment, the concerns we have with the severe changes that are occurring every year with erosion and permafrost thaw. These are very, very important issues being very close to where these issues are occurring.”

At the time, as residents “watched busloads of people leave from nearby our village,” some families decided on their own to leave Nuiqsut temporarily because of health concerns. And even before the CD1 leak, Nuiqsut residents witnessed many days of gas flaring. “We can see the flares from our houses,” she said.

More oil development is likely in the area, with ConocoPhillips' giant Willow project receiving [approval](#) earlier this month from the Biden administration. Ahtuanguak said Nuiqsut needs better protection from impacts of that development.

“We want to fully understand and prevent this from happening with the new development that will be nearby our community,” she said.



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