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May 10, 2022

The Honorable Raúl M. Grijalva, Chair
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Katie Porter, Chair
Natural Resources Subcommittee on Oversight and Investigations
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Alan Lowenthal, Chair
Natural Resources Subcommittee on Energy and Mineral Resources
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairs Grijalva, Porter, and Lowenthal:

Thank you for your letter of April 26, 2022, to ConocoPhillips' Chairman and Chief Executive Officer, Ryan Lance, requesting information regarding the natural gas release that occurred at the Colville Delta drill site 1 (CD1). I have been asked to respond to your inquiry.

ConocoPhillips recognizes that it is a privilege to operate on the North Slope and in Alaska, and ConocoPhillips has done so safely and responsibly for more than 50 years. Safeguarding this region and preserving its legacy for future generations remains of paramount importance to us. Our employees and supply chain partners live and work in Alaska communities, and we are committed to producing Alaska's natural resources responsibly. These resources strengthen our nation's energy security and contribute substantial revenue to local, state, and federal governments.

Attached please find ConocoPhillips' responses to the questions in your letter. As further explained in those responses, as of May 2, the WD-03 well was cemented to the surface, and operations with Doyon drilling rig 142 were completed. The rig has been moved off location and, as a final step, the well will be sealed with a welded steel plate in compliance with AOGCC regulations. No gas was detected beyond the CD1 pad, and no plants, fish, animals, or people were harmed by the release. We will incorporate learnings from this event in future projects and operations.

If you have any additional questions, please contact Kevin Avery or Kjersten Drager in our Federal Government Affairs office at 202-833-0900.

Sincerely,



Andrew D. Lundquist
Senior Vice President
Government Affairs

Attachment A (Response to Questions)

Attachment B (Figure: Alpine CD1 Natural Gas Source and Migration Pathway)

cc:

The Honorable Bruce Westerman, Ranking Member
Committee on Natural Resources

The Honorable Blake Moore, Ranking Member
Natural Resources Subcommittee on Oversight and Investigations

The Honorable Pete Stauber, Ranking Member
Natural Resources Subcommittee on Energy and Mineral Resources

Attachment A
ConocoPhillips' Response
to U.S. House Natural Resource Committee

Question 1: Why did it take a month to identify the source of the leak and bring it under control?

Response: It took four days from when the natural gas release was first observed to identify the C10-Halo subsurface interval at the WD-03 waste disposal well as a potential source and to capture the flow and route it to facilities.

The natural gas release arose from drilling operations on WD-03 on the Colville Delta 1 ("CD1") pad on the Alaska North Slope. On March 4, 2022, the natural gas release was initially observed. We shut down the drilling rig and limited access to CD1 to essential personnel as a precaution and to focus on incident response. ConocoPhillips Alaska, Inc. ("ConocoPhillips") stood up an incident management team immediately and had a team of engineers and scientists working 24 hours per day to identify, control and remediate the release as quickly and safely as possible.

By March 8, ConocoPhillips had secured the location, determined the most probable gas source, and established a controlled flow path for the gas up the outer annulus¹ of the WD-03 well into the Alpine Central Facility ("ACF"). This prevented additional release of gas into the subsurface strata under the CD1 pad. Residual gas in the subsurface strata under the CD1 pad continued to escape into the atmosphere, but the volume dropped to fluctuating low levels in the days following March 8 and continued to decrease.

By March 12, ConocoPhillips had initiated drilling rig warm-up procedures to prepare for well diagnostics on WD-03. Warming up a rig after a shut-down in sub-zero temperatures is a methodical process that involves extensive safety assurance measures. During the rig warm-up period, experts from around the globe worked on the source control and remediation plan, and gas continued to be safely routed into the ACF via the WD-03 outer annulus. After warm-up was complete, the rig was accepted by state authorities as ready to work on March 21. ConocoPhillips then performed well diagnostics to confirm the source of the gas as the C10-Halo interval. On March 28, the rig commenced operations to stop gas flow at the C-10-Halo interval by circulating kill weight fluid into WD-03. As of March 29, the flow of gas from the C10-Halo source was stopped, and controlled flow to the Alpine Central Facility was no longer required. The flow that occurred from the C10-Halo from March 8 until that time was captured by ConocoPhillips.

ConocoPhillips notified the Alaska Oil and Gas Conservation Commission ("AOGCC") of the release on March 4, and a technical representative from the AOGCC was actively engaged with the ConocoPhillips incident management team beginning on March 8, serving as a conduit of information to the primary regulatory agency. ConocoPhillips provided regular updates to local residents and other stakeholders and maintained a response website that was updated with daily air monitoring results and other incident response information. By March 14, ConocoPhillips had established structured communications, typically

¹ The "outer annulus" of a well is the space between the two concentric objects, such as between wellbore (rock) and the casing (metal) or between larger casing and smaller casing, where fluid can flow.

on a daily basis, with multiple regulatory oversight agencies, including the AOGCC, the Alaska Department of Environmental Conservation, and the U.S. Environmental Protection Agency ("EPA").

It is important to understand that the gas flow from WD-03 was captured and routed into the ACF by March 8, four days after initial detection of gas on March 4. Although it took until March 29 to stop the flow of gas from the C10-Halo source in WD-03, the flow that occurred from March 8 to March 29 was captured by ConocoPhillips. As of May 2, the WD-03 well was cemented to the surface and operations with Doyon rig 142 were completed. The rig has been moved off location and, as a final step, the well will be sealed with a welded plate in compliance with AOGCC regulations.

Question 2: Have there been any similar incidents at other ConocoPhillips sites on the North Slope?

Response: No. The CD1 natural gas release was a unique incident. There have been no similar incidents at other ConocoPhillips sites on the North Slope.

Question 3: Though the leak reportedly involved at least seven separate wells, it has been reported that the primary source of the leak was a well that was not fully cemented, resulting in the leak of gas from what the company called a "shallow formation." Is it standard industry practice to build wells that are not fully cemented? Will any of the 250 wells anticipated as part of the Willow project be similarly uncemented or only partially cemented?

Response: The release involved only the WD-03 well. No other CD1 wells had indications of surface casing leaks. This is explained in ConocoPhillips' incident investigation report² to the AOGCC, which is publicly available. The gas was released from WD-03 into the subsurface strata under the CD1 pad and appeared at surface locations along the CD1 well row. The figure below, which is figure 5 in the incident investigation report, depicts the natural gas migration path. A larger version of the figure is provided in Attachment B.

² The incident investigation report is posted at <https://alaska.conocophillips.com/alpinecd1event/>.

Alpine CD1 Natural Gas Source and Migration Pathway

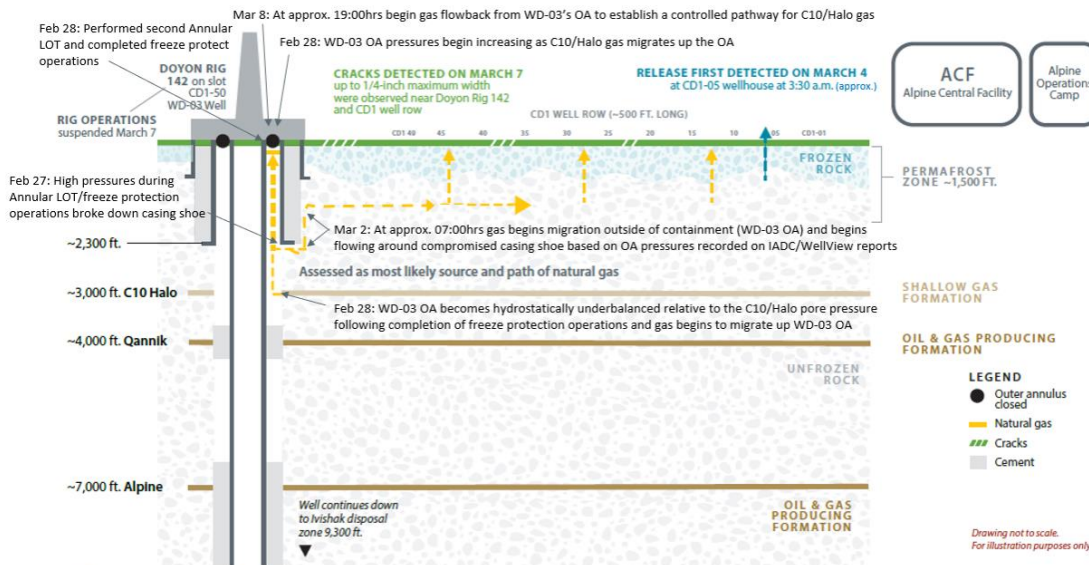


Figure 5.

The WD-03 well at CD1 was constructed in accordance with regulatory requirements, including cementing and casing regulations. EPA authorized construction of WD-03 as an Underground Injection Control Class 1 well, in compliance with Safe Drinking Water Act regulations, and AOGCC approved ConocoPhillips' application for a permit to drill the WD-03 well, in compliance with AOGCC regulations.

Consistent with these regulations and approvals, it is standard industry practice in Alaska not to fully cement wells. Keeping the outer annulus of the intermediate section of a well uncemented allows for freeze protection and for well diagnostics to be carried out during the life of the well, which enhances well integrity. Wells that cross intervals deemed to constitute a "significant hydrocarbon zone" or an "abnormally geo-pressured strata," require cement isolation for the intermediate and production casing as provided for in AOGCC regulations. As relevant here, however, the C10-Halo interval was determined not to be a "significant hydrocarbon zone" or an "abnormally geo-pressured strata" in the area of the WD-03 well.

ConocoPhillips' incident investigation report to the AOGCC identifies two causal factors of the incident, neither of which relate to well design. The investigation team determined that (1) the cause of the natural gas release was a surface casing shoe in WD-03 that broke down when pressure limits were exceeded during freeze protect operations and that (2) subsequent pressure increases in the WD-03 outer annulus were not recognized or addressed, which could have led to more immediate investigation or remedial action. The report, however, includes five corrective measures, one of which relates to cement isolation zones: "Conduct a review of the overburden and adjust the associated log models as necessary to improve identification of drilling risks, flowability assessments, and zones requiring cement isolation." ConocoPhillips is committed to implementing this corrective action in an effort to ensure a similar incident does not occur in the future.

With respect to Willow, the C10 interval is present at Willow at a shallower depth. This is further discussed below in response to question 5. To answer your specific question about Willow wells: the surface casing of Willow wells will be fully cemented to surface, which means Willow wells will be cemented across the C10 interval at Willow. There are no identified significant hydrocarbon zones outside the targeted reservoir sections at Willow. The portions of reservoir sections that will not be actively produced will be isolated by intermediate casing and cement.

Question 4: ConocoPhillips obtained permission to undertake emergency seismic surveys after the leak began because it reportedly was not aware initially of this shallow gas-bearing formation. This raises questions about the completeness of the survey process at the Alpine site prior to development. Have all areas of the Willow project been fully seismically surveyed? Is ConocoPhillips aware of all geologic formations that bear hydrocarbons? How many other remedial seismic surveys has ConocoPhillips undertaken in the wake of an incident? How did this formation go unnoticed for more than 20 years?

Response: ConocoPhillips was aware of the C10-Halo interval at CD1 prior to drilling the WD-03 well. As described in the incident investigation report, the technical team determined that the C10-Halo was not a significant hydrocarbon zone or an abnormally geo-pressured strata in the area of the WD-03 well. Such determinations may be made differently in the future upon implementation of the corrective action measure to improve identification of drilling risks, flowability assessments, and zones requiring cement isolation.

Multiple routine seismic surveys have been completed in the Alpine area over the last 20 years. None of those surveys were conducted as a result of an incident. We conducted an additional seismic survey after the CD1 incident to gather up-to-date shallow subsurface information in the area of the CD1 gravel pad. Seismic data takes months to process, and ConocoPhillips does not yet have the results of the CD1 seismic data acquisition.

With respect to Willow, the entire Willow development area has been covered with a state-of-the-art 3D seismic survey. We also have data from 13 Willow appraisal wells and studies undertaken by ConocoPhillips and third-party experts on potential hydrocarbon-bearing intervals that provide a well-informed awareness of geologic formations at Willow that bear hydrocarbons.

Question 5. Is any of the Willow formation similar to or the same as the geologic formation at Alpine?

Response: The Willow area is about 20 miles from the CD1 pad in the Alpine area. Some of the overburden formations in the Willow area are similar to the Alpine area in the sense that they are sand, silt, and clay layers with similar time-equivalent stratigraphic sections. The C10 interval is present at both the Alpine and Willow areas, although it is not geologically continuous from Alpine to Willow. The C10 interval is not hydrocarbon-bearing in the Willow area.

At Willow, the C10 interval is about 1800 feet shallower than it is at CD1, which means the C10 is in the surface casing section of Willow wells. The surface casing is fully cemented, so there will be cement across the C10 interval in all Willow wells. A comprehensive shallow hazards assessment has already been performed at Willow with high-quality 3D seismic data, showing no indication of hydrocarbon intervals above the formations that are targeted for production at Willow. In other words, Willow has been

comprehensively evaluated over the past six years and all technical studies indicate the absence of shallow hydrocarbon intervals in the Willow area similar to the interval that contributed to the CD1 gas release.

Question 6: ConocoPhillips reportedly evacuated some 300 of its own personnel even as it publicly denied that the leak represented a threat to human health and safety. How close was this leak to becoming something more severe such as a blowout or explosion?

Response: The nature of the CD1 gas release was not immediately apparent, and ConocoPhillips took a cautious and safety-focused approach consistent with our incident response protocols. We shut down the drilling rig and limited access to CD1 to essential personnel as a precaution and to focus on incident response.

The CD1 pad and nearby camps and facilities remained occupied and operational at a level consistent with prudent incident response. Throughout the incident, ConocoPhillips continued to supply natural gas to the community nearest to CD1, Nuiqsut, for power generation, heating, and cooking. Nuiqsut is approximately nine miles from the CD1 pad, and was not at risk during the incident, as gas was not detected off the CD1 pad.

Any comparison to a more severe event would be hypothetical or speculative. The CD1 gas release was recognized early, and the response was immediate and effective. Although operational events are rare, we prepare for unexpected occurrences for the express purpose of limiting their severity. Because we were prepared, ConocoPhillips was able to respond effectively to the CD1 natural gas release, including taking immediate steps to mitigate and control the intermittent, low pressure gas releases observed at the surface. No tundra damage occurred, and no wildlife was affected by the incident or incident response activities. We take the incident very seriously and will incorporate learnings into our future work processes, including at Willow.

Attachment B
ConocoPhillips Response
to U.S. House Natural Resource Committee

Alpine CD1 Natural Gas Source and Migration Pathway

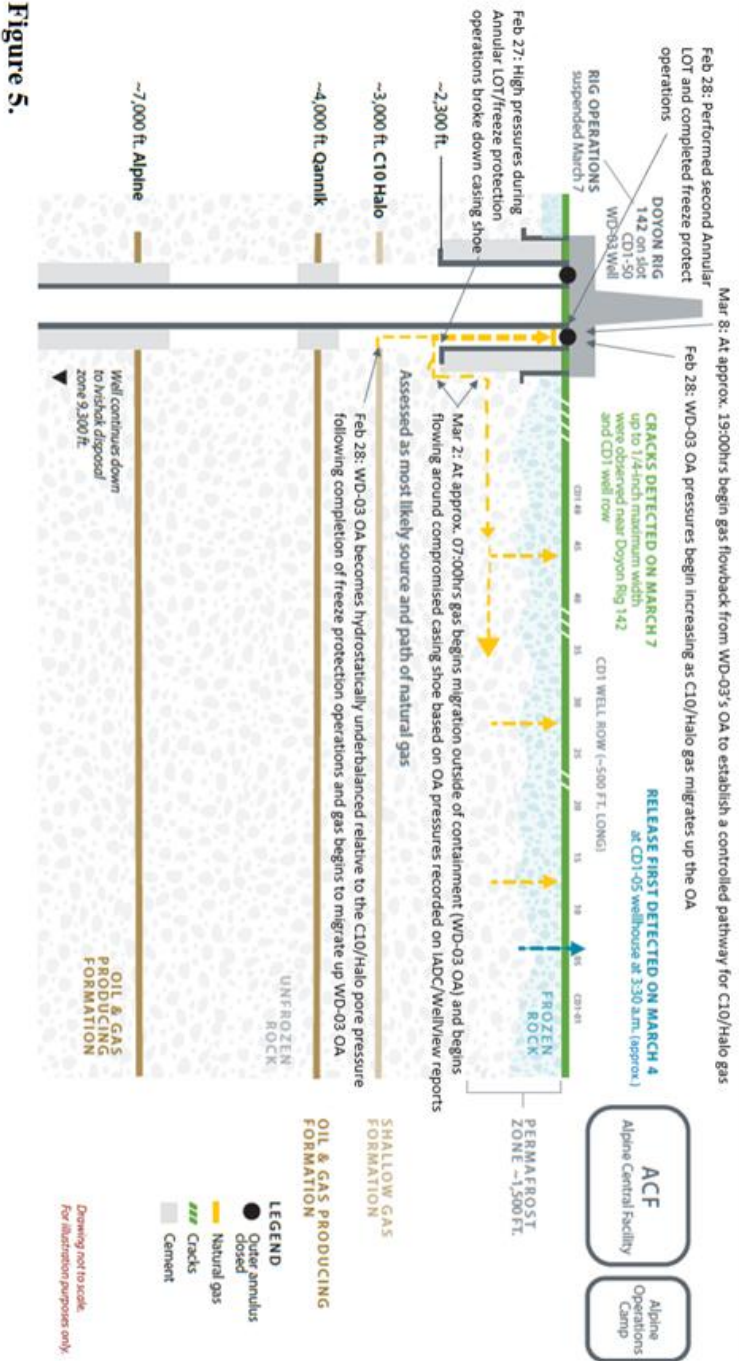


Figure 5.