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Peninsula Clarion

Hilcorp to reduce flow in leaking gasline, halting production on two platforms

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Editor's note: This story has been updated with an estimated future leak rate as a result of the pressure decrease.

Hilcorp [announced plans](#) on Saturday to halve the pressure in [its leaking Cook Inlet natural gas pipeline](#), requiring the halt of oil production from two Cook Inlet platforms powered by fuel gas pumped through the ruptured pipe.

Communications Director Grace Jang of the Office of the Governor said that Gov. Bill Walker had reached out to Hilcorp CEO and founder Jeffery Hildebrand and in the past couple of weeks had held phone conversations with him, as well as meetings with Hilcorp Alaska executives and officials of the Alaska Department of Environmental Conservation, who are regulating the leak's environmental impacts.

"The governor was very concerned about the length of time it had been leaking, and about potential irreversible effects, and he wanted to make sure that there was a plan of action going forward," Jang said.

A [Saturday press release](#) from Walker's office stated that he and the Hilcorp executives "agreed the best course of action at this time is to enact a temporary shutdown of the company's oil and gas production in order to reduce safety risks and environmental impact."

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Hilcorp first announced the leak— from [a pipeline supplying fuel gas to four oil platforms](#) built in 1964 in the Middle Ground Shoal oilfield, about five miles from the coast of Nikiski — on Feb. 7 after confirming it with a helicopter observation. Hilcorp had begun investigating a pressure drop in the pipeline in January, and subsequent analysis suggests the leak started in late December 2016. Hilcorp [has delayed plans](#) for divers to repair the pipeline because of ice that continues to cover the Inlet's surface.

Since the leak's discovery, the two active Middle Ground Shoal platforms — Platforms A and C — have continued to produce crude oil, which they've pumped to shore via a pipeline paralleling the fuel gas line.

Hilcorp [originally disclosed a leak rate of between 225,000 to 325,000 cubic feet](#) of methane per day to the Alaska Department of Environmental Conservation. By Feb. 16, Hilcorp had lowered the leak estimate to 210,000-310,000 cubic feet per day, by “shutting off non-essential equipment on the platforms,” according to [a Hilcorp statement of that date](#).

The reduction had required reducing the pipeline pressure three times since the start of the leak — from its normal 195 pounds per square inch to 165 pounds per square inch, according to [a Feb. 20 letter](#) from Hilcorp Alaska Vice President David Wilkins to the DEC. To do so, the platforms shut down operations such as pumping seawater to pressurize oil wells.

With 145 pounds per square inch of gas pressure presently in the pipeline, the leak rate estimate is now between 193,000 to 215,000 cubic feet per day, according to [DEC's incident webpage](#).

The pressure drop announced Saturday will take the pipeline to about 65 pounds per square inch — according to [a Hilcorp statement](#), the minimum required to prevent the gasline from flooding and to continue powering heaters and platform safety equipment that will prevent other oil lines from freezing or breaking.

[A Hilcorp statement on Saturday](#) cited weather as a reason for not previously attempting the pressure and power reductions.

“Shutting in wells and idling lines and equipment in very cold temperatures create a known risk of freeze-up and potential rupture,” the release states. “Warmer ambient temperatures now permit a safer shut in process of the wells along with the associated lines and equipment.”

Prior to 2005, the fuel gas line carried produced crude from the platforms. Hilcorp has previously stated that residual crude in the gasline could escape into the Inlet if the gas line floods, and that the parallel crude pipe could also freeze and rupture if its contents — about 65 percent water, according to federal regulators of the Pipeline and Hazardous Materials Safety Administration — are unheated.

Hilcorp plans to shut in the platforms this weekend, and based on weather forecasts, “anticipates repair operations to occur in the next two weeks,” according to the statement.

Hilcorp spokesperson Lori Nelson wrote that the two platforms are together producing about 1,600 barrels of crude oil per day, which are piped to the Tesoro petroleum refinery in Nikiski. Tesoro spokesperson Kate Blair said the refinery is able to make up for the lost supply from other sources.

A press release from Walker's office states “Hilcorp executives committed to Governor Walker that they will not be starting up production at the platforms again until federal and state

regulators are satisfied the oil and gas lines can be operated safely and in accordance with all applicable laws.”

Nelson said no platform employees would be laid off during the shutdown.

The pressure drop is expected to bring the leak rate to 88,000 - 110,000 cubic feet of methane per day, according to an email from DEC's Spill Response and Prevention Director Kristin Ryan.

The behavior and the effects of the methane already released into the Inlet are still matters of investigation. On Wednesday Hilcorp submitted to DEC [its first measurements of water quality](#) at the leak site, made by [sensors suspended at three different depths from a buoy](#) that floated above the methane release point.

[Hilcorp's Wednesday report](#) — the first of the weekly monitoring reports it will submit to DEC — details measurements from four trips the sensor buoy made through the leak area on March 18 and March 19, when it measured three water properties — dissolved methane, dissolved oxygen and dissolved carbon dioxide.

While much of the leaked methane may bubble into the atmosphere, enough of it might dissolve in the water to create a deoxygenated state known as hypoxia, in which fish can asphyxiate. Hypoxia exists in water with less than 2 - 3 milligrams of oxygen per liter of water, [according to the Ecological Society of America](#).

The lowest dissolved oxygen reading obtained in the first four runs of Hilcorp's sensor buoy was 7.8 milligrams of oxygen per liter of water. The buoy found this reading in an area 41 feet deep and approximately 492 feet long, in which the dissolved oxygen measured about 27 percent lower than that of the surrounding water, which had 9.3 milligrams of oxygen per liter of water.

Methane toxicity is another concern. In [a Feb. 10 letter to Hilcorp](#), DEC's On Site Coordinator Geoff Merrell wrote that the gas can be lethal to fish if dissolved in concentrations greater than 1 milligram of methane per liter of water.

Hilcorp [has previously predicted](#) the level of dissolved methane at the leak would be one-five hundredth of that lethal amount, citing a computer model it commissioned, which concluded that 84 percent of the leaked methane is likely to reach the atmosphere, while 17 percent will dissolve in the water.

The buoy's highest detected methane concentration — .15 milligrams per liter — was less than the lethal 1 milligram per liter, but three times higher than the model-predicted .05 milligrams per liter.

DEC Program Manager Graham Wood wrote in [a March 23 letter](#) to Hilcorp Environmental Manager William Britt that this methane level is also “above concentrations shown to cause adverse responses to fish” — between .02 and .05 milligrams per liter, according to Wood.

In natural and artificial methane underwater releases, gas dissolved in the water is eventually digested by aquatic microbes. Chemical oceanographer Sue Saupe, Director of Science and Research for the [Cook Inlet Regional Citizen's Advisory Council](#), said there hasn't been much previous research about the methane-digesting microbes of Cook Inlet — where they exist and in what quantity. According to Saupe, uncertainties still exist about the state of released methane in the Inlet, and about how Saturday's pressure reduction could affect its eventual dispersion and decomposition.

“Without more information on the true extent and shape of the plume, it's hard to say how extensive the decreased (dissolved oxygen) levels and increased methane concentrations are,” Saupe wrote in an email. “By halving the flow rate into the pipeline, the flux of gas into the Inlet will decrease but may not have an exactly linear effect on methane and dissolved oxygen concentrations immediately, depending on activity, location, and efficiency of (methane-digesting microbes).”

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