



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

12300 W. Dakota Ave., Suite 110
Lakewood, CO 80228

VIA FACSIMILE TO (907) 777-8301 AND CERTIFIED MAIL

March 3, 2017

Mr. Greg Lalicker
President
Hilcorp Alaska, LLC
1201 Louisiana Street
Suite 1400
Houston, Texas 77002

CPF 5-2017-0004S

Dear Mr. Lalicker:

Enclosed is a Notice of Proposed Safety Order (Notice) issued in the above-referenced case. The Notice proposes that you take certain measures with respect to Hilcorp Alaska, LLC's¹ Middle Ground Shoal (MGS) Fuel Gas System located in Cook Inlet, Alaska, to ensure pipeline safety. Your options for responding are set forth in the Notice. Your receipt of the Notice constitutes service of that document under 49 C.F.R. § 190.5.

We look forward to a successful resolution of this integrity issue to ensure pipeline safety. Please direct any questions on this matter to me at 720-963-3160.

Sincerely,

Chris Hoidal
Director, Western Region
Pipeline and Hazardous Materials Safety Administration

Enclosure: Notice of Proposed Safety Order & Attachment A (General Overview Map)

¹ Hilcorp Alaska, LLC, operates as a subsidiary of Hilcorp Energy Company.

cc: Mr. Alan K. Mayberry, Associate Administrator for Pipeline Safety, OPS
Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Ms. Erin McKay, Regulatory Compliance Manager, Alaska Integrity Group, Hilcorp Alaska,
LLC, emckay@hilcorp.com

**U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WESTERN REGION
LAKEWOOD, COLORADO 80228**

In the Matter of)
)
Hilcorp Alaska, LLC,)
a subsidiary of Hilcorp Energy Company,) **CPF No. 5-2017-0004S**
)
Respondent.)
)

NOTICE OF PROPOSED SAFETY ORDER

Background and Purpose

Pursuant to Chapter 601 of Title 49, United States Code, the Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation, has initiated an investigation and information review of the safety of your Middle Ground Shoal (MGS) Fuel Gas System, consisting of approximately 15 miles of in-service gas pipeline mileage located in the Cook Inlet, Alaska. This investigation stems from a gas leak that was first discovered by Hilcorp Alaska, LLC (Hilcorp) on February 7, 2017, and that is ongoing in the waters of Cook Inlet.

The MGS Fuel Gas System provides non-odorized gas (including oil production lift gas) to Hilcorp’s offshore “A Platform,” “Baker Platform,” “C Platform,” and “Dillon Platform,” all utilizing gas from the East Cook Inlet Gas Gathering System (ECIGGS). ECIGGS is a PHMSA-regulated natural gas transmission pipeline system. PHMSA Letter of Interpretation (PI-10-0024) to XTO Energy, Inc., prior owner of the line, dated July 12, 2011, established that the pipeline associated with the MGS Fuel Gas System is a transmission line under PHMSA jurisdiction, as defined by 49 C.F.R. § 192.3.² The MGS pipeline system begins at the three-inch tie-in to the ECIGGS pipeline on Wik Road in Nikiski, Alaska. The pipeline passes through Station O (201 Meter) and the MGS onshore facility before transitioning to the subsea portion

² See 49 C.F.R. §192.3 (defining transmission lines as “a pipeline, other than a gathering line, that: (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not down-stream from a distribution center; (2) operates at a hoop stress of 20 percent or more of SMYS; or (3) transports gas within a storage field. NOTE: A large volume customer may receive similar volumes of gas as a distribution center, and includes factories, power plants, and institutional users of gas.”

that extends to the platforms in Cook Inlet. The MGS pipeline system, as shown on Attachment A, includes 2-inch, 4-inch, 6-inch and 8-inch diameter pipe.³

As a result of the investigation and information review, it appears that conditions exist on your pipeline facilities that pose a pipeline integrity risk to public safety, property or the environment. Pursuant to 49 U.S.C. § 60117(l), PHMSA issues this Notice of Proposed Safety Order (Notice), notifying you of the preliminary findings of the investigation, and proposing that you take certain measures to ensure that the public, property, and the environment are protected from this integrity risk.

For purposes of this Notice, the term *Affected Pipeline Facility* means the 8-inch-diameter “A Pipeline” and consists of the following four sections: 1) MGS onshore facility to “A Platform”; 2) “A Platform” to Baker Platform; 3) “A Platform” to “C Platform;” and 4) “C Platform” to Dillon Platform. In addition, the term “*Affected Segment*” means the “A Pipeline” segment on which the leak is physically occurring and that runs from the MGS onshore facility to the “A Platform.”

Preliminary Findings:

- The gas leak on the Affected Segment is located approximately 2.6 miles from the “A Platform” and approximately 4.6 miles from the MGS onshore facility (as measured along the pipeline alignment).
- The leak was discovered on February 7, 2017 and is still ongoing, with a current estimated leak rate of between 210,000 to 310,000 cubic feet per day.
- The accident was initially reported by Hilcorp to the National Response Center at 7:49 pm EST on February 7, 2017 (NRC Report No. 1170504), indicating an unknown quantity release of natural gas. In addition, Hilcorp’s Regulatory Compliance Manager left a phone message for a PHMSA Anchorage Office employee on February 7, 2017, at 8:25 pm EST.
- Hilcorp reports that in late January 2017, it noticed an increased trend in pipeline flow data on the Affected Segment. In response to this data, Hilcorp indicates that it conducted aerial pipeline surveillances by helicopter, looking specifically for leaks, and discovered the leak on February 7, 2017. Subsequently, Hilcorp’s flow analysis revealed that the pipeline began leaking in late December 2016.
- The offshore (subsea) portion of the MGS Fuel Gas System is identified as the “A Pipeline.” As noted above, the “A Pipeline” begins at the onshore facility and is routed to the “A Platform.” At the “A Platform,” the pipeline bifurcates, with one leg extending

³ Attachment A, General overview map of the pipeline system.

to the “Baker Platform” and the other to the “C Platform” and “Dillon Platform.” The “A Pipeline” is an 8-inch nominal diameter gas transmission pipeline and was converted from liquid to gas service in 2005.

- In close proximity to the “A Pipeline” is Hilcorp’s parallel “B Pipeline,” a crude-oil pipeline not shown on Attachment A. The “B Pipeline” has similar pipeline characteristics as those of the “A Pipeline” and transports hazardous liquids produced and initially processed by the offshore platforms to the MGS onshore facilities. The “B Pipeline” is operating in an environment substantially similar to the “A Pipeline.”
- The “A Platform” and “C Platform” produce crude oil, conduct initial processing, and are manned 24 hours a day, seven days a week. The “Baker Platform” and “Dillon Platform” are in “light house” mode and are unmanned.⁴
- The “A Pipeline” is an 8-inch nominal diameter transmission pipeline with 0.594” wall thickness. The pipeline is Grade B seamless pipe with X-Tru Coat and one-inch concrete weight coating. The portion of the “A Pipeline” running from the MGS shore facility to the “A Platform” and the portion running from the “A Platform” to “C” Platform were installed in 1965.
- Hilcorp Alaska, LLC (OPID: 32645), purchased oil and gas facilities located in Nikiski, Alaska from XTO Energy, Inc. (OPID: 31178), on September 1, 2015. This purchase included the “A Pipeline.”
- The product being transported by the “A Pipeline” is transmission-quality natural gas (98.67% methane). The pipeline operates continuously and has a normal operating pressure range of 160-250 psig. The pipeline was converted from liquid service to gas service in 2005.
- Since the leak was discovered by Hilcorp on February 7, 2017, the following actions have been taken by Hilcorp: (1) the operating pressure on “A Pipeline” was lowered to 165 psi; (2) periodic helicopter overflights were conducted for visual surveillance of the leak area; (3) periodic situational reports were compiled; (4) the company performed analyses of different operational options; (5) the operator calculated the estimated gas leak rate; (6) the company shut down non-essential equipment on the offshore platforms to minimize gas demand; (7) it performed modeling on methane dispersion in Cook Inlet waterway; (8) it made preliminary preparations for divers and dive boat to perform necessary repairs when ice conditions and weather permitted; and (9) the company participated in meetings with federal and state agencies to coordinate response efforts.

The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) has expressed concerns to PHMSA about the potential

⁴ “Light house” mode means no active production is taking place at these platforms. The primary operating objectives for light house mode platforms are the continual operation of impressed current cathodic protection systems and navigational-aid lighting.

environmental damage that may result from the continued release of gas in Cook Inlet. By letter dated February 24, 2017 to PHMSA, NMFS provided an outline of the species and designated critical habitat that occur in Cook Inlet and documented its concerns regarding the potential effects of the natural gas discharge on marine mammals, including the critically-endangered Cook Inlet beluga whales.

- The Alaska Department of Environmental Conservation (ADEC) has also responded to the ongoing gas release from “Pipeline A” because it considers the leak to be a discharge of hazardous substance into or upon the waters or lands of the state, which is prohibited unless authorized by ADEC, under Alaska Statute 46.03.745. By letter dated February 27, 2017, ADEC ordered Hilcorp to conduct environmental sampling and monitoring. To date, ADEC has issued three Situation Reports regarding the leak. ADEC also has described the environmentally sensitive areas and wildlife issues in its Incident Report, which was prepared with input from the National Marine Fisheries Service, the Alaska Department of Fish and Game, and the US Fish and Wildlife Service.
- Regarding risks associated with water craft, the United States Coast Guard (USCG) has determined that risk to life and property appear to be low, primarily based on the remote area of the failure, current limited access due to sea ice, and modeling of the flammable area of the vapor cloud. As the sea ice dissipates, USCG estimates that the risk to life and property would likely increase. The USCG has and continues its Very High Frequency radio broadcast to mariners describing the gas leak, its location, and specific requests to mitigate the risk. At this time the USCG has not implemented a safety zone around the leak location; however, if necessary it could. An identified risk condition related to the leaking pipeline itself is that the leak could get worse and potentially fail if the leak was caused by outside forces, e.g. vibration, vortex shedding, excessive bending, or rock impingement.
- Regarding risks associated with commercial aircraft, PHMSA finds that in the event the failure was caused by outside force as noted above, then the leak could potentially worsen and result in further hazard to vessel traffic. The Federal Aviation Administration issued a Notice to Airmen (NOTAM), effective from February 22, 2017 to April 30, 2017, restricting the airspace surrounding the leak location. The NOTAM-restricted airspace surrounds the leak for a radius of one nautical mile up to an altitude of 1500 feet.
- PHMSA has reviewed information from Hilcorp and the state and Federal agencies noted above, suggesting that certain risks are presented by the various alternatives for responding to the failure. These alternatives include: (a) immediate repair of the Affected Segment; (b) continued operation of the Affected Segment until it can be safely repaired; and (c) shutting in the Affected Segment until it can be safely repaired. To date, Hilcorp has indicated it believes the safest alternative is to continue operating the Affected Segment, at reduced pressure and through-put until it can be safely repaired.
- PHMSA acknowledges from assertions made by Hilcorp that immediate repair of the leak would pose an extreme risk to personnel during the current winter conditions where diving operations are required to access, investigate, and repair the Affected Segment.

Because of sea ice, weather conditions, and the Cook Inlet's extreme tides and currents, diving operations cannot be safely conducted at present and, therefore, immediate repair of the leaking pipeline is not a viable option. It is estimated the sea ice and weather condition could allow safe diving operations as early as late March but not later than the end of April 2017.

- PHMSA also finds that the risk conditions for shutting in the pipeline until it can be safely repaired include a potential crude-oil spill in Cook Inlet. According to Hilcorp, shutting in the "A Pipeline" could result in residual crude oil leaking into the environment due to the infiltration of seawater into the leaking pipeline and flushing out any remaining residual crude oil contained within the "A Pipeline" from its prior use as a crude-oil pipeline. Hilcorp has further indicated that if the "A Pipeline" were shut down so that the platforms could not continue production, then the crude-oil line ("B Pipeline"), which lies directly next to the Affected Segment, could freeze during colder temperatures due to such low- or no-flow conditions and potentially cause a breach in the "B Pipeline" and a potential oil spill.
- PHMSA recognizes that the majority of the MGS pipeline system is located within the waters of the Upper Cook Inlet, which is known for extreme tides (average tides of 20 feet, maximum tides of 35 feet, and currents in excess of 5 to 7 knots) and the presence of dynamic sea ice conditions.
- Hilcorp has further indicated to PHMSA that the company cannot access the Affected Segment until the ice clears, at which time diving operations can safely be conducted to access, investigate, and repair the leak. According to Hilcorp, the ice could clear as early as late March or as late as the end of April 2017. The serviceability of the pipeline will remain impaired until at least this time.
- This is the third leak on the "A Pipeline" since June 2014. The two previous leaks were in June 2014 and August 2014, during ice-free conditions. The previous operator determined that those leaks were caused by rocks contacting the pipeline in areas where the pipeline was not continuously supported by the seabed. The rocks contacting the pipeline deteriorated the steel pipe wall by abrasion, resulting from relative movement between the pipeline and rocks contacting the pipeline. Both leaks were repaired by installation of bolt-on, split-sleeve clamps. The 2014 leaks were 42 yards apart and the current leak is approximately 2/3 mile from the previous two leaks.
- Vortex-induced vibrations of subsea pipelines within the Cook Inlet have been a known integrity threat for years. Subsea pipeline operators in Cook Inlet typically monitor subsea pipelines annually to identify pipeline spans that are unsupported by the seabed and, if necessary, provide additional pipeline supports within these areas. It is believed that vortex-induced vibrations are one of the motive forces responsible for the relative movement between pipeline and rocks contacting the pipeline in areas where the pipeline is unsupported by the seabed.

- According to Hilcorp, pipeline pressure on the Affected Segment prior to the leak fluctuated between 195-205 psig, with flow rates between 1,600,000 and 2,500,000 cubic feet per day. After the leak was discovered, platform operations have been curtailed and have contributed to the recent reductions in operating pressures and flow and leak rates.
- The “A Pipeline” is not compatible with In-Line Inspection (ILI) tools because of piping associated with a manifold sled that is positioned on the sea-floor at the base of “A Platform.”
- Hilcorp indicates the “A Pipeline” was successfully pressure-tested in 2005 during the conversion of service of the Affected Segment from liquid service to gas service.
- The annual side-scan sonar or multi-beam echo-sounder survey, or both, that Hilcorp currently performs do not provide sufficient information to determine whether there are external loads on the pipe, eroded pipe, rock impingements, metal loss, dents, gouges, dielectric coating deterioration, and/or missing 1-inch-thick concrete weight coating.

Proposed Issuance of Safety Order

Section 60117(l) of Title 49, United States Code, provides for the issuance of a safety order, after reasonable notice and the opportunity for a hearing, requiring corrective measures, which may include physical inspection, testing, repair, or other action, as appropriate. The basis for making the determination that a pipeline facility has a condition or conditions that pose a pipeline integrity risk to public safety, property, or the environment is set forth both in the above-referenced statute and 49 C.F.R. § 190.239, a copy of which is enclosed.

After evaluating the foregoing preliminary findings of fact and considering the age of the pipe involved, the hazardous nature of the product transported and the pressure required for transporting such product, the characteristics of the geographical areas where the pipeline facility is located, the environmentally sensitive area with endangered and threatened species marine life in and around the location of the leak, and the likelihood that the conditions could worsen or develop on other areas of the pipeline and potentially impact its serviceability, PHMSA finds that the continued operation of the Affected Pipeline Facility, without corrective measures, poses a pipeline integrity risk to public safety, property, and the environment.

Accordingly, PHMSA issues this Notice of Proposed Safety Order to notify Respondent of the proposed issuance of a safety order and to propose that Respondent take measures specified herein to address the potential risk.

Proposed Corrective Measures

Pursuant to 49 U.S.C. § 60117(l) and 49 C.F.R. § 190.239, PHMSA proposes to issue to Hilcorp Alaska, LLC, a safety order incorporating the following remedial requirements with respect to the “*Affected Pipeline Facility*” and the “*Affected Segment*.”

Definitions:

The *Affected Pipeline Facility* means the 8-inch diameter “A Pipeline” shown on Attachment A and consists of the following four sections: 1) MGS onshore facility to “A Platform”; 2) “A Platform” to Baker Platform; 3) “A Platform” to “C Platform;” and 4) “C Platform” to Dillon Platform.

The *Affected Segment* means the “A Pipeline” segment on which the leak is physically occurring and running from the MGS onshore facility to the “A Platform.” The leak is located approximately 2.6 miles from the “A Platform” and approximately 4.6 miles from the MGS onshore facility (as measured along the pipeline alignment).

Proposed Actions:

1. The failed *Affected Segment* must be permanently repaired by May 1, 2017. If the “A Pipeline” is not permanently repaired by May 1, 2017, Hilcorp must shut down the “A Pipeline” and keep it shut down until authorized to resume operation by the Director, Western Region (Director).
2. Hilcorp must notify the Director by telephone within one hour of a confirmed discovery of any abnormal operating conditions, as defined in Part 192, or other issues regarding the safe operation of the *Affected Pipeline Facility* at any time, 24 hours a day/7 days a week, after the issuance of this Notice. In the event the Director is unavailable, Hilcorp must notify the Alaska Operations Supervisor, PHMSA, within the time requirement set forth in this paragraph.
3. Prior to making the permanent repair, Hilcorp must use its best efforts to reduce and maintain the pressure of the *Affected Segment* as low as practical to ensure that water does not intrude the oil-contaminated line or otherwise jeopardize safety or the environment. In no event, however, may Hilcorp increase the pressure above 165 psi without prior written approval from the Director.
4. Hilcorp must develop and implement a “Pipeline Leak Inspection and Repair Plan” for the *Affected Segment*. Hilcorp must submit the “Pipeline Leak Inspection and Repair Plan” for approval to the Director no later than two weeks from the issuance of a final Safety Order.
5. Hilcorp must develop and submit a “Termination of Offshore Fuel Gas Deliveries Plan” provided by its fuel gas system in the event the pipeline must be shut down. Hilcorp must submit to the Director a “Termination of Offshore Fuel Gas Deliveries Plan” for approval no later than two weeks from the issuance of a final Safety Order. At a minimum, the plan must address the following:
 - i. The ramifications to people, environment, wildlife, offshore platforms, and the “B Pipeline” system of terminating fuel gas delivery;

- ii. The purging of the “A Pipeline” of natural gas and maintaining pipeline pressure to prevent water intrusion with a product that is non-hazardous to the life, environment, and wildlife;
 - iii. The maintenance of minimum flow in the “B Pipeline” to prevent damage to the pipeline; such as, freezing of water within the pipeline, or in the alternative, providing for the purging of the “B Pipeline.”
6. If Hilcorp’s environmental sampling and monitoring obligations ordered by ADEC change, or if Hilcorp fails to comply with ADEC’s order, Hilcorp must immediately notify the Director in writing. PHMSA reserves the right to request the information provided under ADEC’s order at any time.
7. Hilcorp must develop and implement a “Modification and Inspection Plan” for the *Affected Pipeline Facility*. Hilcorp must submit the plan to the Director for approval no later than 45 days from the issuance of a final Safety Order. At a minimum, the plan must include the following for the “A Pipeline:”
 - a. Hilcorp must modify the “A Pipeline” to accommodate the use of ILI methods or alternative technologies approved by the Director. Hilcorp must conduct an ILI or alternative technology referenced above on the “A Pipeline” and make all necessary repairs by September 30, 2018. The ILI results, and documentation of all subsequent associated repairs, must be sent to the Director within 30 days of receipt of the report by Hilcorp and 30 days following completion of each repair.
 - b. Hilcorp must conduct high-resolution side-scan sonar inspection, or equivalent technology with the express written approval of the Director of the “A Pipeline” to identify pipeline sections which are not adequately supported to prevent excessive bending or current induced vibrations that may damage the pipeline no later than 90 days after the ice freeze has subsided and the “A Pipeline” becomes accessible by divers. The results of such testing must be sent to the Director no later than 30 days after inspection is complete.
 - c. For areas where the pipeline is not continuously supported by the seabed (unsupported span) for 10 feet or more and the gap between the seabed and pipeline is one foot or more, Hilcorp must inspect the pipeline by diver, or equivalent, to determine pipeline surfaces which lack a one-inch-thick concrete weight coating. On pipeline surfaces without intact concrete weight coating, Hilcorp must inspect exposed pipeline surfaces to determine the condition of the dielectric coating, and to check for the presence of dents, gouges, metal loss, or other anomalies. The inspections required by this paragraph must be performed no later than 90 days after the ice freeze has subsided and the “A Pipeline” becomes accessible by divers.
8. Hilcorp must provide the Director with documentation of compliance and supporting data, to all Items above.

9. Hilcorp must revise all plans identified in Items 4, 5, and 7 above, as necessary to incorporate new information obtained during the evaluations and associated remedial activities. Hilcorp must submit any such plan revisions to the Director for prior approval. The Director may approve plan elements incrementally. The plans identified in Items 4, 5, and 7 above, once approved by the Director, will be incorporated by reference into any final Safety Order issued by PHMSA.
10. Hilcorp may only implement the plans identified in Items 4, 5, and 7 above, only after they have been approved, in writing, by the Director, including any revisions to the plan(s).
11. Hilcorp must submit quarterly reports to the Director that: (1) include analysis of all available data and results of the testing and evaluations required by the safety order; and (2) describe the progress of the repairs and other remedial actions being undertaken. The first report will be due 45 days from issuance of a final Safety Order.
12. The Director may grant an extension of time for compliance with any of the terms of the final Safety Order upon a written request timely submitted demonstrating good cause for an extension.
13. Respondent may appeal any decision of the Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator will be final.

The actions proposed by this Notice of Proposed Safety Order are in addition to and do not waive any requirements that apply to Respondent's pipeline system under 49 C.F.R. Parts 190 through 199, under any other order issued to Respondent under authority of 49 U.S.C. § 60101 *et seq.*, or under any other provision of Federal or state law.

After receiving and analyzing additional data in the course of this proceeding and implementation of the work plan, PHMSA may identify other safety measures that need to be taken. In that event, Respondent will be notified of any proposed additional measures and, if necessary, amendments to the work plan or safety order.

Response to this Notice

In accordance with § 190.239, you have 30 days following receipt of this Notice to submit a written response to the Director. If you do not respond within 30 days, this constitutes a waiver of your right to contest this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a final Safety Order. In your response, you may indicate that you intend to comply with the terms of the Notice as proposed, or you may request that an informal consultation be scheduled (you will also have the opportunity to request an administrative hearing before a final Safety Order is issued). Informal consultation provides you with an opportunity to explain the circumstances associated with the risk conditions alleged in the Notice and, as appropriate, to present a proposal for a

work plan or other remedial measures, without prejudice to your position in any subsequent hearing.

If you and PHMSA agree within 30 days of informal consultation on a plan and schedule for you to address each identified risk condition, the parties may enter into a written consent agreement, in which case PHMSA would then issue an administrative Consent Order incorporating the terms of the agreement. If a consent agreement is not reached, or if you have elected not to request informal consultation, you may request an administrative hearing in writing within 30 days following receipt of the Notice or within 10 days following the conclusion of an informal consultation that did not result in a consent agreement, as applicable. Following a hearing, if the Associate Administrator finds the facility to have a condition that poses a pipeline integrity risk to the public, property, or the environment in accordance with § 190.239, the Associate Administrator may issue a final Safety Order.

Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b).

In your correspondence on this matter, please refer to CPF No. 5-2017-0004S for each document you submit, please provide a copy in electronic format whenever possible.



Chris Hoidal
Director, Western Region
Pipeline and Hazardous Materials Safety Administration

3/3/17
Date Issued