



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 17, 2017

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

CPF 5-2017-6006S

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) Hazardous Liquid 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

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

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

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

³ See *id.*

As a result of PHMSA's investigation and information review, it appears that conditions exist on the MSG Hazardous Liquid System 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 "B Pipeline" and consists of the following four sections: 1) the MGS onshore facility to the "A Platform;" 2) the "A Platform" to the "Baker Platform;" 3) the "A Platform" to the "C Platform;" and 4) the "C Platform" to the "Dillon Platform."

Preliminary Findings:

- On March 3, 2017, PHMSA issued to Hilcorp a Notice of Proposed Safety Order, CPF No. 2017-0004S, related to a natural gas leak on Hilcorp's MGS Fuel Gas System. As of the date of this Notice, the gas leak is occurring on Hilcorp's "A Pipeline" segment of the offshore (subsea) portion of the MGS Fuel Gas System. The gas 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).⁴ The MGS onshore facility services both the "A Pipeline" and the "B" Pipeline.
- The gas leak was reported on February 7, 2017, and is still ongoing, with a current estimated leak rate of between 193,000 and 215,000 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 "A Pipeline." 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 "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 to the "Baker Platform" and the other to the "C Platform" and the "Dillon Platform." The "A Pipeline" is an 8-inch

⁴ Hilcorp's 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). 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 that extends to the platforms in Cook Inlet. The offshore (subsea) portion of the MGS Fuel Gas System is identified as the "A Pipeline."

nominal diameter gas transmission pipeline and was converted from liquid to gas service in 2005.

- The “B Pipeline,” is a crude-oil pipeline that is in close proximity to the “A Pipeline.” 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.⁵
- The “B Pipeline” is an 8-inch nominal diameter, steel pipeline with a 0.593” wall thickness. The pipeline is comprised of Grade B seamless pipe with X-Tru Coat and one-inch concrete weight coating. The portion of the “B Pipeline” running from the “A Platform” to the MGS onshore facility was 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 “B Pipeline.”
- The product being transported by the “B Pipeline” is produced liquids (oil and water) from the “A Platform” and the “C” Platform. The pipeline operates continuously and has a normal operating pressure of approximately 150 psig - 260 psig. The Maximum Operating Pressure (MOP) of the “B Pipeline” is 592 psig.
- The majority of the “B Pipeline” is located within the waters of the Cook Inlet, a commercially navigable waterway. The waters of Cook Inlet are a habitat for several species listed by the Endangered Species Act, and is a designated Critical Habitat for the Cook Inlet beluga whales (endangered). There are only an estimated 340 remaining Cook Inlet belugas; therefore, significant impacts to any individual belugas, particularly lethal take, could have population-level effects.
- As a result of the multiple state and federal agencies’ response to the “A Pipeline” natural gas leak incident, the Alaska Department of Environmental Conservation has compiled a list of “Resources at Risk,” which details the environmental risks associated with the ongoing leak.
- The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), has expressed concerns to PHMSA about the potential environmental damage that may result from the continued release of gas in Cook Inlet.

⁵ “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.

By letter dated February 24, 2017, NMFS provided PHMSA with an outline of the species and designated critical habitat that occur in Cook Inlet and documented its concerns regarding the potential effects of the leak on marine mammals, including the critically-endangered Cook Inlet beluga whales. NOAA also provided PHMSA with a map showing the March distribution of satellite-tagged beluga whales in 2002 and 2003. The map shows that the Cook Inlet belugas spend a significant amount of time near the “A Pipeline” and “B Pipeline.”

- The Alaska Department of Environmental Conservation (ADEC) has also responded to the ongoing leak because it considers the leak to be a discharge of hazardous substance into or upon the waters or lands of the state that 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 four 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 U.S. Fish and Wildlife Service (USFWS).
- PHMSA has consulted with USFWS personnel regarding the potential risks to marine life associated with the ongoing leak from the “A Pipeline”. They indicated that the current risk to birds, sea duck, and water fowl from the gas leak are low at present, but that the risk will increase with the beginning of seasonal migration, which typically begins in late March. In addition, fish migration will begin about mid-April, including hooligan and salmon smelt.
- Hilcorp has taken the following actions since reporting the leak on February 7, 2017: (1) the operating pressure on the “A Pipeline” was lowered to 145 psi; (2) periodic helicopter overflights have been conducted for visual surveillance of the leak area; (3) periodic situational reports were compiled; (4) analyses of different operational options was performed; (5) the estimated gas leak rate was calculated; (6) the company shut down non-essential equipment on the offshore platforms to minimize gas demand; (7) modeling on methane dispersion in Cook Inlet waterway was performed; (8) preliminary preparations for divers and dive boat to perform necessary repairs when ice conditions and weather permitted were made; (9) the company participated in meetings with federal and state agencies to coordinate response efforts; and (10) an initial monitoring and sampling plan was submitted to ADEC. As of the date of this Notice, no sampling of the release site has occurred.
- Since the leak on the “A Pipeline” was discovered, Hilcorp has maintained normal operations on the “B Pipeline,” with a current operating pressure of approximately 175 psi, a flow rate of 3700 barrels per day, and a 63% water cut (63% of flow consists of water).
- 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 on the “A Pipeline.” These alternatives include: (a) immediate

repair of the “A Pipeline;” (b) continued operation of the “A Pipeline” until it can be safely repaired; and (c) shutting in the “A Pipeline” until it can be safely repaired. To date, Hilcorp has indicated it believes the safest alternative is to continue operating the “A Pipeline,” 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 “A Pipeline”. 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 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 more than 5 to 7 knots) and the presence of dynamic sea-ice conditions.
- Hilcorp has further indicated to PHMSA that the company cannot access the failure location on the “A Pipeline” 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 “A Pipeline” will remain impaired until at least this time.
- The ongoing gas leak 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 shedding induced vibrations on subsea pipelines and/or excessive bending of unsupported pipeline spans is a known integrity threat for pipelines within the waters of the Cook Inlet. Both phenomena are generally associated with unsupported pipeline spans. Water currents can potentially scour the supporting seabed below pipelines, causing unsupported pipeline spans. If the length of an unsupported pipeline span is great enough, excessive bending and/or vortex shedding induced vibrations (causing abrasion from relative movement or cyclical loading of the pipe) can impact the integrity of the pipeline. Subsea pipeline operators in Cook Inlet typically monitor subsea pipelines (both hazardous liquid and natural gas pipelines) annually to identify pipeline spans that are unsupported by the seabed and, if necessary, investigate and provide additional support in these areas.

- The “A Pipeline” and the “B Pipeline” have substantially similar pipeline characteristics and operate in substantially similar environmental conditions. Although the cause of the ongoing leak on the “A Pipeline” is unknown, past leaks on the pipeline have occurred due to outside forces, e.g. vibration, vortex shedding, excessive bending, or rock impingement. Accordingly, it is reasonable to conclude that similar conditions are also present on the “B Pipeline”.
- The extreme and dynamic environmental conditions within the Cook Inlet and the nature of the risk conditions on the “A Pipeline” and “B Pipeline” present an elevated likelihood that the risk conditions identified are already present or could develop on multiple areas of the *Affected Pipeline Facility*.
- The three leaks on the “A Pipeline” since 2014 demonstrate the potential that other areas of the MGS pipeline, including the *Affected Pipeline Facility*, could be impacted.
- If a leak or rupture of “B Pipeline” occurred, the environmental damage has the potential to be significantly greater than the presently-known environmental damage from the leak occurring on the “A Pipeline”. In addition, if a leak or rupture on the “B Pipeline” occurred during the winter season, Hilcorp’s oil spill response capabilities could be significantly hampered by the sea ice, weather conditions, and the Cook Inlet’s extreme tides and currents.
- The “B Pipeline” is not In-Line Inspection (ILI) compatible because of piping associated with a manifold sled that is positioned on the sea-floor at the base of the “A Platform.”
- Hilcorp indicates that the “B Pipeline” was successfully pressure tested in 2005, 2010, and 2015.
- 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 one-inch-thick concrete weight coating. However, it is noted that Hilcorp does conduct diver-based inspections, with inspection locations based on the annual side-scan sonar and/or multi-beam echo-sounder surveys.

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 *Affected Pipeline Facility* has conditions that, without corrective measures, pose 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 Hilcorp 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."*

Definitions:

The *Affected Pipeline Facility* means the 8-inch-diameter "B 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."

Proposed Actions:

1. The *Affected Pipeline Facility* must be externally inspected to assess the safety of its continued operation within 21 calendar days from the issuance of a final Safety Order. Hilcorp must send to the Director, Western Region (Director), for approval, the results from its inspection of the *Affected Pipeline Facility* within three (3) calendar days after the inspection required by this paragraph is complete. The inspection required by this paragraph must include the following:
 - a. Hilcorp must conduct high-resolution side-scan sonar inspection, or equivalent technology, the use of which is expressly approved in writing by the Director, of the "B Pipeline" to identify pipeline sections that are not adequately supported and to prevent excessive bending or current-induced vibrations that may damage the pipeline.
 - b. 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 identify pipeline surfaces that 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.

- c. If Hilcorp is unable to inspect the *Affected Pipeline Facility* as required by this paragraph within 21 calendar days from the issuance of a final Safety Order, or the Director determines, based on a review of the results of the inspection, that the continued operation of the *Affected Pipeline Facility* poses a pipeline integrity risk to public safety, property, or the environment, then the *Affected Pipeline Facility* must be shut down and purged within seven (7) calendar days from receipt of written notice by the Director.
 - d. If the *Affected Pipeline Facility* is to be shut down and purged pursuant to this paragraph, Hilcorp must submit a purging plan to the Director, Western Region (Director), for approval, within three (3) calendar days after the Director's written notice.
- 2. Hilcorp must purge and clean the *Affected Pipeline Facility* sections that are inactive, such that if the wall of the inactive pipeline sections on the *Affected Pipeline Facility* are perforated, hazardous material will not release into the environment.
- 3. Hilcorp must notify responders from the United States Coast Guard, the Environmental Protection Agency, ADEC, the Alaska Department of Natural Resources, and the Cook Inlet Spill Prevention and Response, Incorporated, at least 48 hours prior to commencing any purging operations on the *Affected Pipeline Facility*.
- 4. 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 "B Pipeline."
 - a. Hilcorp must modify the "B 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 "B 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 again conduct the external inspection and evaluation methods required by paragraphs 1a and 1b in the summer of 2018 to ensure continued pipeline support and integrity.
- 5. Hilcorp must conduct a review and modify, as appropriate, its oil spill response plan⁶ (OPA Plan) in light of the environmental barriers and restraints, or both (e.g., response capabilities during ice covered conditions), as experienced during its response to the leak on the "A Pipeline." Hilcorp must conduct the review and make appropriate modifications to its OPA Plan required by this paragraph prior to November 1, 2017. Hilcorp must submit its modified OPA Plan for review and approval to David Lehman,

⁶ As required under the Oil Pollution Act of 1990 (OPA), 33 U.S.C. § 2701 *et seq.*

Director, Oil Spill Preparedness and Emergency Support Division, Office of Pipeline Safety, upon completion of the requirements of this paragraph.

6. Hilcorp must provide the Director with documentation of compliance and supporting data, to all Items above.
7. If the *Affected Pipeline Facility* is shut down for any reason, Hilcorp must develop a start-up plan for the *Affected Pipeline Facility*. The plan required by this paragraph must be submitted to the Director for approval at least two weeks prior to the requested start-up date.
8. Hilcorp must revise all plans identified in Items 1, 4, 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 1, 4, and 7 above, once approved by the Director, will be incorporated by reference into any final Safety Order issued by PHMSA.
9. Hilcorp may only implement the plans identified in Items 1, 4, and 7 above, only after they have been approved, in writing, by the Director, including any revisions to the plan(s).
10. 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.
11. 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.
12. 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. 5-2017-6006S for each document you submit, please provide a copy in electronic format whenever possible.



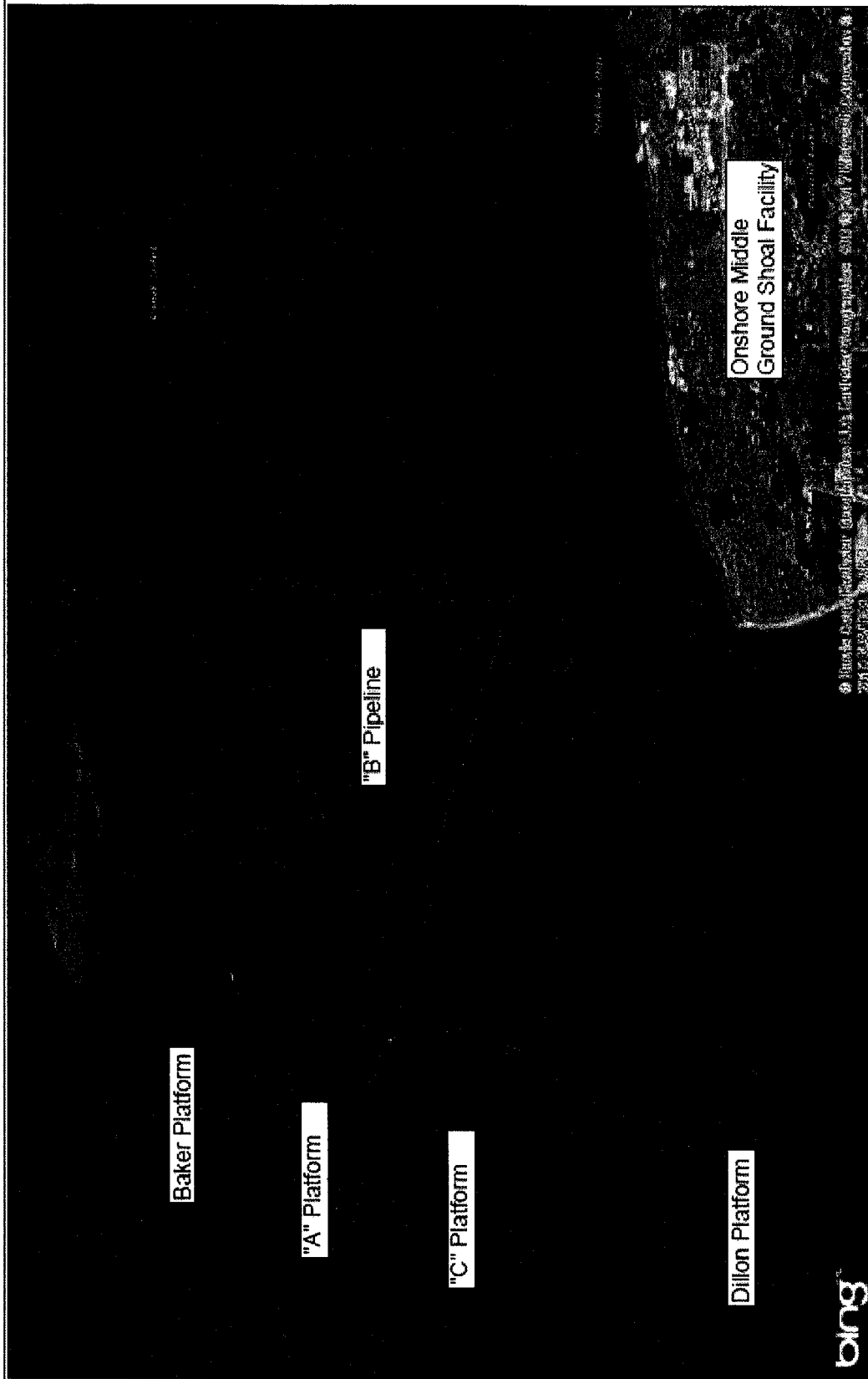
Chris Hoidal
Director, Western Region
Pipeline and Hazardous Materials Safety Administration

3/17/17
Date Issued



Hilcorp Middle Ground Shoal Crude Oil Pipelines

For Official
Use Only



U.S. DEPARTMENT OF TRANSPORTATION
Pipeline & Hazardous Materials Safety Administration
Office of Pipeline Safety-Western Region



Unit 14245

