



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

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

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 9, 2018

Mr. Alan M. Oshima
President & Chief Executive Officer
Hawaiian Electric Company, Inc.
900 Richards Street
Honolulu, Hawaii 96813

CPF 5-2018-6001S

Dear Mr. Oshima:

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 Hawaiian Electric Company, Inc.'s Waiiau Pipeline, which travels from Kalaeloa through Kapolei, Waipahu, and Pearl City to the Waiiau Power Plant, 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 to ensure pipeline safety. Please direct any questions on this matter to me at 720-963-3183.

Sincerely,

Dustin Hubbard
Acting Director, Western Region
Pipeline and Hazardous Materials Safety Administration

Enclosures: Notice of Proposed Safety Order

Attachments:

A – General Overview Map

B – Waiiau pipeline map showing proximity to Unusually Sensitive Areas

cc: Mr. Alan K. Mayberry, Associate Administrator for Pipeline Safety, OPS
Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Mr. Ronald R. Cox, Senior Vice President, Operations

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

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In the Matter of)	
)	
Hawaiian Electric Company, Inc.,)	
)	
Respondent.)	CPF No. 5-2018-6001S
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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) has initiated an investigation and information review of the safety of your Waiiau Pipeline, which transports low sulfur fuel oil from Barbers Point Tank Farm (BPTF) to the Waiiau Power Plant in Pearl City, Hawaii, with approximately 12.7 miles of in-service pipeline mileage.¹

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 measures to ensure that the public, property, or the environment are protected from the integrity risks identified in this Notice.

Preliminary Findings

- The Hawaiian Electric, Inc. (HECO) Waiiau Pipeline (Waiiau Pipeline or *Affected Segment*) transports low sulfur fuel oil from the Barbers Point Tank Farm (BPTF) eastwards to the Waiiau power generation plant in Pearl City, Hawaii. There is a spur off the pipeline that goes to the Kahe power plant. The Waiiau Pipeline is considered a hazardous liquids pipeline subject to Federal Pipeline Regulations 49 C.F.R., Part 195.
- The Waiiau Pipeline passes through the towns of Kapolei, Waipahu, and Pearl City, HI.

¹ Attachment A, General Overview Map.

- The pipeline is an 8-inch diameter pipe with 0.322 and 0.500-inch wall thickness, consisting of API 5L-X42 grade pipe. The pipeline is coated with fusion bonded epoxy coating, with 2-inch urethane foam insulation and a High Density Polyethylene (HDPE) jacket. The pipeline was installed in 2004.
- The product being transported by the Waiiau Pipeline is low sulfur fuel oil that is typically introduced into the pipeline at a temperature of 200 °F when it enters the line.
- The Waiiau Pipeline was initially hydrostatically tested in 2004 and put into service as a 1350 psig MOP pipeline later that year. The normal operating pressure for the pipeline is between 150 and 200 psig.
- The Waiiau Pipeline runs alongside much of Hawaii Highway 1, numerous roads, and other transportation corridors. The line crosses near Pearl Harbor and terminates in Pearl City, HI. The Waiiau Pipeline is located in a High Consequence Area (HCA) due to its proximity to the populations of Pearl Harbor and Honolulu, as well as its proximity to Unusually Sensitive Area (USA) drinking water resource and ecological resource.²
- The Waiiau Pipeline crosses geological formations and soils that are potentially abrasive such as volcanic rock and coral sands.
- The following integrity risk conditions have been identified on the *Affected Segment*: HECO installed the Waiiau pipeline, a below ground insulated and HDPE jacketed pipeline, in 2004. A below ground insulated pipeline may eventually have corrosion problems due to the fact that applied cathodic protection (CP) (either impressed or galvanic), is not able to reach the wall of the pipeline. Eventually, the jacket of the pipeline can fail, allowing moisture to ingress into the foam insulation causing corrosion. Although CP may be applied to an insulated pipeline, the CP current typically cannot pass through the insulation and corrosion of the underlying steel pipe may occur where the insulation contains water. Coupled with heat from the pipeline, the corrosion may become accelerated and “corrosion under insulation” (CUI) may occur. CUI can occur despite normally adequate amounts of impressed CP being applied. Furthermore, CP monitoring methods utilizing conventional methods, e.g. test stations, half cells, and close interval surveys, typically cannot detect CUI.
- PHMSA identified these risk conditions as a result of several inspections of the Waiiau pipeline since 2004, from the conclusions of a NACE International (NACE) technical committee report titled “Effectiveness of Cathodic Protection on Thermally Insulated Underground Metallic Structures” dated September 2006 (NACE International Publication 10A392, 2006 Edition) (NACE Report), and from lessons learned from the May 19, 2015 Plains pipeline spill in Santa Barbara County, California that occurred on a heated insulated pipeline where the coating had become compromised (Plains release). The results of that accident report were issued to the public on May 20, 2016. An

² Attachment B, Map of Unusually Sensitive Area’s traversed by the Waiiau Pipeline.

Advisory Bulletin, (ADB-2016-04) (PHMSA-2016-0071) dated June 15, 2016, (ADB), was also issued alerting pipeline operators to the potential corrosion risks associated with insulated pipelines.

- The NACE Report was prepared as a guide for external corrosion control of thermally-insulated underground metallic surfaces and considerations of the effectiveness of CP. The NACE report made the following conclusions: (1) “Generally, the application of external CP to thermally insulated metallic surfaces has been ineffective; (2) The principal or primary means of corrosion control of thermally-insulated metallic surfaces is the application of an effective coating on the metallic surface; (3) Care is typically taken in the application of the external jacket and during pipe installation to minimize water ingress, which causes corrosion at imperfections in the primary coating; (4) When practical, the thermally insulated metallic surfaces need to be inspected at routine time intervals for metal loss (e.g., an internal pipeline inspection tool could be used).”³
- As discussed in the ADB, insulated coatings on buried pipes can result in a corrosion byproduct that occurs between the insulation and the exterior pipe wall and results in In-Line Inspection (ILI) surveys that underestimate the amount of corrosion present. This was identified by PHMSA as a contributing factor to the Plains release and is a documented integrity risk on below ground insulated pipelines.⁴
- PHMSA conducted construction inspections during the installation of the Waiiau pipeline in 2004. Standard inspections were conducted in 2005 and 2008. An Integrated Inspection was conducted in March, 2016. As a result of the inspection, PHMSA determined that the foam insulation and HDPE jacket on the pipeline would shield any CP from reaching the pipe wall if the jacket was compromised, and water infiltrated the insulation. Accurate CP monitoring of the entire pipeline would also not be possible.
- The last ILI was conducted in November 2013 utilizing a Magnetic Flux Leakage (MFL) tool. The results of the inspection activities indicate the Waiiau Pipeline is affected by metal loss corrosion anomalies with the majority of the metal loss indications between 10 and 19% wall loss.
- By letter dated November 13, 2017, HECO made a formal request to PHMSA for a Special Permit for its Waiiau pipeline for the purpose of addressing the issues identified in this Notice and to ensure compliance with 49 CFR § 195.571. PHMSA is currently evaluating HECO’s special permit application.
- The serviceability of the Waiiau Pipeline is currently impaired because the risk conditions identified above could result in a failure of the pipeline. A failure on the Waiiau Pipeline could result in the release of low sulfur fuel oil into HCA locations in and around Honolulu, HI and Pearl Harbor, HI. The potential spill would affect commercial

³ See NACE Report.

⁴ See ADB.

properties, residential properties, and tourism in the area in and around the Waiiau Pipeline. The Pearl Harbor area is a National Monument and tourist attraction.

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 in and around the location of the Waiiau pipeline, the likelihood of CUI occurring, and the likelihood that the conditions could worsen or develop on other areas of the pipeline and potentially impact its serviceability, it appears that the continued operation of the *Affected Segment* without corrective measures poses a pipeline integrity risk to public safety, property, or 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.

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 official who issued the Notice. 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 Safety Order. In your response, you may notify that official 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 safety order is issued). Informal consultation provides you with the opportunity to explain the circumstances associated with the risk condition(s) 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, we may enter into a written consent agreement (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 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 5-2018-6001S and for each document you submit, please provide a copy in electronic format whenever possible.

Proposed Corrective Measures

Pursuant to 49 U.S.C. § 60117(l) and 49 C.F.R. § 190.239, PHMSA proposes to issue to HECO a safety order incorporating the following remedial requirements with respect to the *Affected Segment*:

1. To ensure continued safety, HECO shall conduct biennial ILI surveys, and investigate all anomalies that exceed more than 40% of the nominal wall thickness. The tool used for the first ILI run must utilize ultrasonic technologies, subsequent ILI runs will alternate technologies between magnetic flux leakage (MFL) and ultrasonic technologies.
2. The entire length of the *Affected Segment* shall be patrolled at least two times per week.
3. The first ILI run referenced in this Notice shall be conducted no later than 60 days after the issuance of a final safety order, and subsequent ILI surveys shall be conducted at the intervals not exceeding 30 months, but at least once each two calendar years.
4. There should be at least two calibration digs and anomaly assessments conducted for the ILI surveys required under this Notice to ensure that the ILI assessment is accurate.
5. HECO shall provide the Acting Director, Western Region, with documentation of compliance and supporting data, to all Items above.
6. HECO shall submit quarterly reports to the Acting Director, Western Region, 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.
7. The Acting Director, Western Region, may grant an extension of time for compliance with any of the terms of the safety order upon a written request timely submitted demonstrating good cause for an extension.

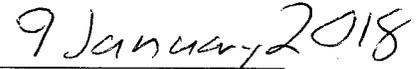
8. The items required by the safety order shall remain in effect unless and until HECO obtains a special permit for the Waiiau pipeline that addresses the safety concerns identified in this Notice.
9. Respondent may appeal any decision of the Acting Director, Western Region, to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator shall 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.

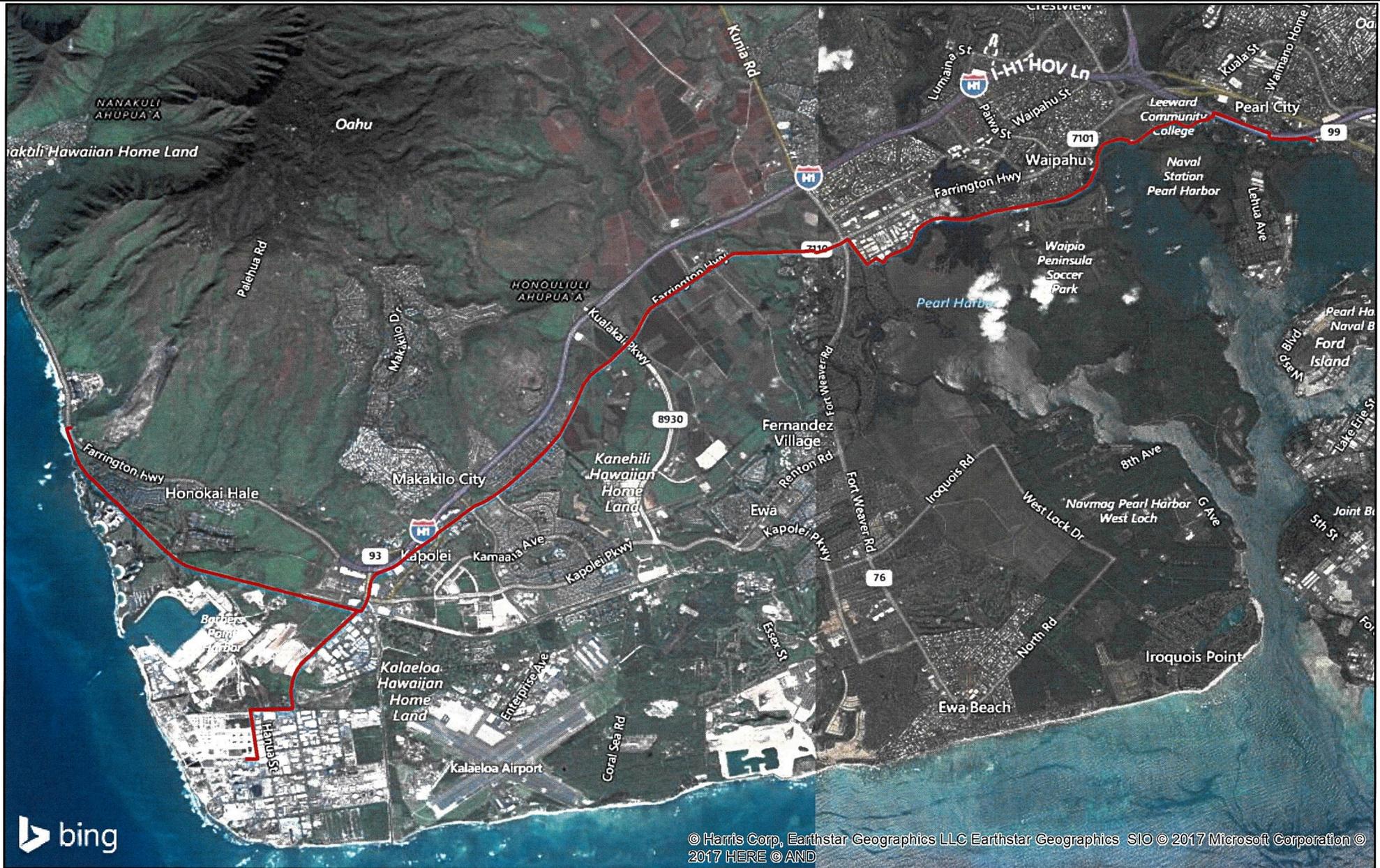
After receiving and analyzing additional data in the course of this proceeding and implementation of the work plan, PHMSA may identify other safety measures that need to be taken. In that event, Respondent will be notified of any proposed additional measures and, if necessary, amendments to the work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



Dustin Hubbard
Acting Director, Western Region
Pipeline and Hazardous Materials Safety Administration



Date issued



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

— Waiau Pipeline (Unit 84169)



