U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
SPECIAL PERMIT

Special Permit Information:

Docket Number:	PHMSA-2017-0155
Requested By:	Hawaiian Electric Power Company, Inc.
Operator ID#:	31057
Original Date Requested:	November 13, 2017
Original Issuance Date:	October 2, 2018
Effective Dates:	October 2, 2018 to October 2, 2028
Code Sections:	49 CFR 195.571 and 195.573

Grant of Special Permit:

By this order, subject to the terms and conditions set forth below, the United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS),[1] grants this special permit to Hawaiian Electric Power Company, Inc. (HECO) owner and operator of the Waiau Pipeline. This permit waives compliance from 49 Code of Federal Regulations (CFR) 195.571 and 195.573.

The 12.7 mile, 8.625-inch diameter Waiau Pipeline transports low sulfur fuel oil from Barbers Point Tank Farm (BPTF) to the Waiau Power Plant in Pearl City, Hawaii. The Affected Segment runs alongside the Hawaii Highway 1 in two short sections, and it crosses the light rail system at various points along the 12.7 miles of in-service pipeline mileage. The Waiau Pipeline was constructed with 8-inch diameter pipe with 0.322 and 0.500-inch wall thickness, consisting of API 5L-X42 grade pipe. The Waiau Pipeline has a maximum operating pressure (MOP) of 1,350 pounds per square inch gauge (psig). The Waiau Pipeline is coated with fusion bonded epoxy coating, with 2-inch urethane foam insulation and a High-Density Polyethylene (HDPE) jacket. The Waiau Pipeline was installed in 2004.

Purpose and Need:

[1] Throughout this special permit, the usage of "PHMSA" or "PHMSA OPS" means the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety.

HECO's request for a special permit of the Waiau Pipeline and proposes waiving compliance from the following corrosion control sections:

1) 49 CFR 195.571, What criteria must I use to determine the adequacy of cathodic protection? and
2) 49 CFR 195.573, What must I do to monitor external corrosion control?

The Federal pipeline safety regulations require hazardous liquid pipeline operators to 1) have adequate cathodic protection to prevent external corrosion of the pipeline, and 2) routinely monitor the level of cathodic protection at sufficient locations to ensure continued corrosion protection for all segments of the pipeline. The Waiau Pipeline has insulation and polyethylene jacket around the 8.625-inch diameter pipe to allow the pipeline to more efficiently transport hot fuel oil. The insulation and polyethylene jacket prevents cathodic protection from reaching significant portions of the pipeline when the jacket becomes compromised and allows moisture (electrolyte) to enter the insulation. The jacket and insulation also prevents the accurate monitoring of the cathodic protection currents due to a phenomenon called "shielding." Ineffective cathodic protection (CP) and CP monitoring due to the insulated pipe allow undetected and rapid corrosion to occur without other safety measures being put into place. The purpose of the Waiau Pipeline special permit is to assure safety and environmental protection through the implementation of other integrity measures to supplement areas of ineffective corrosion control.

The special permit conditions are necessary for operation and maintenance (O&M) activities of the Waiau Pipeline and are consistent with pipeline safety as mandated by 49 CFR Part 195. Specifically, the special permit conditions address HECO's inability to adequately provide cathodic protection of the pipeline as well as to accurately monitor the level of protection of the existing corrosion control system. The special permit requires more frequent in-line inspection (ILI)[2] assessments to monitor the corrosion of the Waiau Pipeline and includes a lower threshold on what ILI reported anomalies must be remediated. In the interest of public safety and environmental protection, PHMSA has previously placed HECO under a Consent Agreement (Agreement), 5-2018-6001S, dated May 18, 2018, that already provides an increased level of protection similar to those special permit conditions being proposed. The Agreement is a safety measure of limited duration, and these special permit conditions

[2] The special permit requires ILI and assessment of the ***special permit segment*** on an annual basis. Section 195.452 requires a high consequence area on a five (5) year interval unless threats require a more frequent assessment interval.

imposes permanent safety assessment measures that are based upon the known integrity threat. This Special Permit will go into effect immediately upon completion and closure of the Agreement.

I. Special Permit Segment:

Honolulu, Hawaii

The Waiau Pipeline ***special permit segment*** is defined as 12.7 miles of 8.625-inch diameter pipeline located from the Barbers Point Tank Farm (BPTF) to the Waiau Power Plant in Pearl City, Hawaii. The ***special permit segment*** runs alongside the Hawaii Highway 1 in two (2) short sections and crosses the light rail system at various points along the 12.7 miles of in-service pipeline mileage.

PHMSA grants this special permit based on the findings set forth in the "Special Permit Analysis and Findings " document, which can be read in its entirety in Docket No.
PHMSA- 2017-0155 in the Federal Docket Management System (FDMS) located on the internet at www.regulations.gov. The final environmental assessment (FEA), which includes a plain-language explanation of the safety conditions, is included in the Docket at www.regulations.gov.

II. Conditions:

PHMSA grants this special permit for the Waiau Pipeline ***special permit segment*** subject to HECO implementing the following conditions:

General:

1) **Applicable Regulations**: The Waiau Pipeline ***special permit segment*** must be operated and maintained in accordance with these special permit conditions and 49 CFR Part 195, with the exceptions of 49 CFR 195.571 and 195.573. In the event of a conflict between the special permit conditions and the applicable requirements under 49 CFR Part 195, the special permit conditions control. The entire ***special permit segment*** must continue to be included as a high consequence area (HCA) and must implement in an integrity management program in accordance with 49 CFR 195.452.

In-Line Inspection and Threat Assessments:

2) **In-Line Inspection (ILI) Assessment**: HECO must conduct ILI surveys with tools appropriate to assess known threats on the Waiau pipeline, and supplement the ILI data with field assessment

or ILI methodologies for identifying and measuring any cracking associated with corrosion anomalies.

a) The ILI tool used must utilize either high resolution magnetic flux leakage (HR-MFL) technologies or crack ultrasonic (UT) detection technologies.
b) Alternating ILI technology must be used to minimize magnetization of the pipe by frequent HR-MFL surveys.
c) A magnetic particle, phased array ultrasonic, or other appropriate non-destructive inspection technology assessment must be performed during any pipeline excavations (including calibration or anomaly digs required by Item 5 and 8) to determine if cracks exist on the pipe at locations concurrent with corrosion anomalies.
d) If cracking exceeding 20% of the original pipe wall thickness is found during excavations of anomalies, an ILI tool capable of assessing cracks must be run during the next assessment interval.

3) **In-Line Assessment Frequency**: ILI surveys of the ***special permit segment*** must be conducted at least once every calendar year, at intervals not exceeding 15 months. ILI surveys must be run at more frequent intervals if the remaining Failure Pressure Ratio (FPR)[3] will be less than 1.25 prior to the next ILI survey, based upon anomaly growth estimates and pressure cycling.

4) **In-Line Data Analyses**: The ILI data generated by the MFL tool for the ***special permit segment*** must be analyzed by HECO's ILI vendor utilizing "6t x 6t"[4] interaction criteria for determining the FPR of the general corrosion anomaly. HECO's ILI vendor must also conduct an ILI analyses to assess for the presence of deep, isolated pitting.

5) **Calibration Digs**: Each annual ILI survey must be calibrated through a minimum of three (3) direct field examinations and measurement of ILI-detected anomalies that represent corrosion features of different sizes and geometry.
a) HECO must share all anomaly examination data and findings with the ILI service provider.
b) The comparison of predicted and actual anomaly dimensions shall be summarized in ILI unity data charts.

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[3] Failure pressure ratio (FPR) is the ratio of the anomaly failure pressure divided by the Waiau pipeline MOP. An anomaly with a FPR of 1.25 has a safety factor of 25 percent above the pipeline MOP.

[4] "6t" means pipe wall thickness times six.

c) HECO must request the ILI service provider to reevaluate the initial ILI-predicted anomaly characteristics (e.g. depth, length and width, along with any possible cracking) and compare them with the in-situ, anomaly measurement collected in the field to determine the accuracy of the ILI tool data.

d) HECO in cooperation with the ILI service provider must determine if additional direct field examinations are required.

6) **In-Line Assessment Reporting**: The results (draft and final reports) of the ILI surveys required by this Condition must be sent to the PHMSA Western Region Director within 30 days of receipt of each ILI vendor's report by HECO. Documentation of all subsequent anomaly assessments and associated repairs, must be sent to the PHMSA Western Region Director within 30 days following completion of each anomaly assessment and/or repair.

7) **Third Party Review**: A third party expert review of ILI reports, verification dig data integration, development of unity plots, and measured field findings must be conducted within six (6) months of each ILI assessment.

8) **Anomaly Assessment and Repair:** Permanent anomaly repair is required of any section of pipe with more than 40% wall loss.

a) All anomalies must be evaluated and remediated in accordance with 49 CFR 192.452(h)(4) and the requirements in Conditions 8(b) and 8(c) below.

b) All metal loss anomalies that have a failure pressure ratio (FPR) below 1.39 or exceed 40% of the nominal wall thickness must be excavated and remediated within 60 days of discovery.

c) All cracking exceeding 30% of the pipe wall thickness or has a FPR below 1.39 must be remediated within 60 days of discovery.[5, 6]

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[5] Should any cracking anomalies above 20% of the pipe wall thickness be found in the ***special permit segment***, HECO must remediate the cracks or have a crack anomaly evaluation procedure submitted to the PHMSA OPS Western Region Director with a "no objection" reply prior to using the crack evaluation procedure for cracking anomalies left in the pipeline above 20% of the pipe wall thickness without remediation. If HECO does not receive a "no objection" letter or request for additional review time from PHMSA within 90 days of the notification, HECO may proceed.

[6] A fracture mechanics and pressure cycling evaluation is required where an un-remediated crack of 20% or more (of wall thickness) is detected by ILI or direct inspection tools. The pipe must have toughness tests (Charpy V-notch impact values) of the pipe body and seam so that fracture mechanics modeling can be used, if needed.

d) A coating repair procedure, that will not foster corrosion under the insulation (CUI), must be developed for any excavated or remediated corrosion anomalies.

9) **Patrolling**: The ***special permit segment*** right of way must be patrolled weekly, not to exceed 10-days, and with methods specified by 49 CFR 195.412(a) to detect product releases that may occur below the detection threshold of the leak detection system or during idled periods that cannot be accurately monitored.

   a) After completion of the ILI assessment and remediation of anomalies as required in **Conditions 2, 3, 4, 5, 6, 7 and 8**, HECO may propose to PHMSA's Western Region Director, as an alternative to the above weekly patrolling of the ***special permit segment*** right-of-way, to monitor the ***special permit segment*** for product releases with patrolling frequency as directed in 49 CFR 195.412(a) and usage of pressure sensors on each side of the mainline valves and remote closure of the six (6) mainline valves all tied into a supervisory control and data acquisition (SCADA) system. Prior to a change in weekly patrol intervals to 49 CFR 195.412(a) patrol intervals in the ***special permit segment***, HECO must submit a right-of-way monitoring procedure to PHMSA's Western Region Director and receive a letter of "no objection" for usage of the monitoring procedure from PHMSA's Western Region Director.

10) **Cathodic Protection Interference Survey:** HECO must utilize a NACE-certified expert to evaluate whether any alternating current (AC) or direct current (DC) interference or shorting is occurring that could contribute to external corrosion. Any required interference/shorting remediation must be completed within one year after HECO receives the report from the NACE-certified expert. The expert shall recommend the frequency of subsequent interference surveys.

Reporting, Documentation, and Certification:

11) **Annual Report:** Within twelve (12) months following issuance of the Waiau Pipeline special permit, and annually[7] thereafter, HECO must develop and submit annual reports that include the below information. The reports must be sent to the PHMSA Western Region Director, and HECO must provide copies to the PHMSA Engineering and Research

[7] Annual reports must be received by PHMSA by the last day of the month in which the special permit is dated. For example, for a special permit dated March 4, 2018, the annual report must be received by PHMSA no later than March 31st each year beginning in 2019.

Division Director, the PHMSA Standards and Rulemaking Division Director and to the Federal Register Docket (PHMSA-2017-0155) at www.regulations.gov. [8] The annual reports must include the following information:

a) Any integrity threats identified, such as through ILI or data integration, during the previous year in the ***special permit segment***;
b) Results of any ILI or direct field assessments performed (including corrosion and cracking assessments that are greater than 30% wall loss) during this or the previous year in the ***special permit segment***;
c) Any reportable incident or leak reported on the DOT Annual Report in the ***special permit segment***; and
d) Any mergers, acquisitions, transfers of assets, or other events affecting the regulatory responsibility of the pipeline operating company.

12) **Documentation:** HECO must retain documentation of all special permit condition requirements for the ***special permit segment***. If requested by PHMSA Western Region Director, HECO must provide copies of the documentation to PHMSA.

13) **Notifications**: HECO must notify the Director, PHMSA OPS Western Region, at least 14 days prior to conducting all field activities for **Conditions 5 and 8** of this special permit in the ***special permit segment***.

14) **Certification**: A senior executive officer, vice president or higher of HECO must certify the following in writing:

a) The ***special permit segment*** meets the conditions described in this special permit;
b) The written manual of Operations and Maintenance (O&M) procedures for the Waiau Pipeline has been updated to include all additional O&M requirements of the special permit conditions for the ***special permit segment***;
c) A compliance documentation summary showing HECO implemented all conditions as required by this special permit;
d) HECO must send the certifications required in **Condition 14(a) through (c)** with completion date, compliance documentation summary, and the required senior executive signature and date of signature to the PHMSA OPS Associate Administrator

[8] Upon notice to HECO, PHMSA may update the reporting contacts for Condition 8.

for Pipeline Safety with copies to the Deputy Associate Administrator, PHMSA OPS Policy and Programs; PHMSA OPS Western Region Director; Director, PHMSA OPS Standards and Rulemaking Division; Director, PHMSA OPS Engineering and Research Division[9]; and to the Federal Register Docket (PHMSA-2017-0155) at www.regulations.gov within one (1) year of the issuance date of this special permit.

e) Documentation of compliance with all conditions of this special permit must be kept for the applicable life of this special permit.

III. Limitations:

This special permit is subject to the limitations set forth in 49 CFR 190.341 as well as the following limitations:

1) PHMSA has the sole authority to make all determinations on whether HECO has complied with the specified conditions of this special permit for the Waiau Pipeline ***special permit segment.***

2) Any work plans and associated schedules for the Waiau Pipeline ***special permit segment*** are automatically incorporated into this special permit and are enforceable in the same manner.

3) Failure by HECO to submit the certifications required by **Condition 14 (Certifications)** within the time frames specified may result in revocation of this special permit.

4) As provided in 49 CFR 190.341, PHMSA may issue an enforcement action for failure to comply with this special permit. The terms and conditions of any corrective action order, compliance order or other order applicable to a pipeline facility covered by this special permit will take precedence over the terms of this special permit.

5) If HECO sells, merges, transfers, or otherwise disposes of all or part of the assets known as the Waiau Pipeline, HECO must provide PHMSA with written notice of the change within 30 days of the consummation date. In the event of such transfer, PHMSA reserves the right to revoke, suspend, or modify the special permit if the transfer constitutes a material change in conditions or circumstances underlying the permit.

6) PHMSA grants this special permit to limit it to a term of no more than ten (10) years from the date of issuance. If HECO elects to seek renewal of this special permit, HECO must submit its renewal request at least 180 days prior to expiration of the ten (10) year period to the PHMSA Associate

[9] Upon notice to HECO, PHMSA may update the reporting contacts for Condition 14.

Administrator for Pipeline Safety with copies to the Deputy Associate Administrator, PHMSA Field Operations; Deputy Associate Administrator, PHMSA Policy and Programs; PHMSA Western Region Director; Director, PHMSA Standards and Rulemaking Division; and Director, PHMSA Engineering and Research Division.[10] All requests for a renewal must include a summary report in accordance with the requirements in **Condition 11 (Annual Report)** above and must demonstrate that the special permit is still consistent with pipeline safety. PHMSA may seek additional information from HECO prior to granting any request for special permit renewal.

AUTHORITY: 49 U.S.C. 60118 and 49 CFR 1.97.

Issued in Washington, DC on OCT 2 2018.

Alan K. Mayberry,
Associate Administrator for Pipeline Safety

[10] Upon notice to HECO, PHMSA may update the reporting contacts for Limitation 6.