



# 2019 ANNUAL STATIC LIQUID PRESSURE TESTING REPORT OF THREE SECTIONS (20,706 FEET) OF PETROLEUM PIER PIPELINES

## JOINT BASE PEARL HARBOR - HICKAM, HAWAII



*Prepared for:*  
**Defense Logistics Agency Energy  
Fort Belvoir, Virginia**

*Prepared under:*  
**Naval Facilities Engineering Command Atlantic  
Contract N62470-16-D-9007,  
Delivery Order N6247019F4016**

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*Date:*  
**18 March 2019**

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INTERNATIONAL

*Project: 170482  
Task: 4.1.076*

RDHLCC0024733  
BWS030065

Figure 1-1: JB Pearl Harbor-Hickam Overview

# Critical Infrastructure

Figure 1-2: Hotel and Kilo Piers Overview

# Critical Infrastructure

## 1.5 Project Team

Michael Baker subcontracted [ ] to perform the static liquid pressure testing. Field-testing oversight, coordination with facility fuels representatives, quality assurance/quality controls, and final report preparation and submission were provided by Michael Baker personnel. Additionally, [ ] provided replacement parts to support the testing.

## 1.6 Qualifications of Tester and Testing Procedures Used

Testing was performed per the requirements of 33 CFR 156.170. The test equipment, inspections, procedures, and passing criteria used by [ ] are in conformance with the following:

- American Petroleum Institute Recommended Practice – 1110: Pressure Testing of Liquid Petroleum Pipelines.
- Title 49 CFR Part 195, Subpart E: Pressure Testing.
- California State Fire Marshal's Pressure Testing Requirements for Hazardous Liquid Pipelines.
- American Society of Mechanical Engineers (ASME) B31.3: Process Piping.
- ASME B31.4: Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids.

The equipment used to monitor the test and record test data was third-party calibrated by [ ].  
[ ] Refer to Appendix B for calibration certificates included in the [ ] test report.

The supervisor from [ ] that was on site during testing has over 20 years of static liquid pressure testing experience with a working knowledge of the applicable regulations and test standards.

Table 2-1: Results Summary

Fuel System	Designation	Product	Length (feet)	Volume (gallons)	Reference Pressure <sup>1</sup> (psi)	Test Date	Result	Comments
Transfer Pipelines	Hotel Pier to PH 59 (JP-5) (Inside and Outside Loop & Tank 55 Fill Line)	JP-5	Critical Infrastructure			Not tested <sup>2</sup>	N/A	None
	Hotel Pier to PH 59 (F-24) (Inside and Outside Loop)	F-24				14 January 2019	Pass (see comments)	Identified weeping pipe plugs in the riser blinds at Stations 2, 5, 6, 26, 28, & 31. <sup>3</sup>
						29 January 2019	Pass	Replaced plugs and performed 1-hour confirmation test on affected segment only.
	Hotel Pier to PH 59 (F-76) (Inside and Outside Loop)	F-76				17 January 2019	Pass (see comments)	Identified weeping hose connection swivels at Stations 11 & 14 and weeping riser drain valves at Stations 15 & 29. <sup>3</sup>
						29 January 2019	Pass	Replaced swivels with blind flanges and replaced valves. Performed 1-hour confirmation test on affected segment only.
	Kilo Pier	F-76				18 January 2019	Pass	None
	Mike Pier	F-76				Not tested <sup>2</sup>	N/A	None
	Bravo Pier	F-76				Not tested <sup>2</sup>	N/A	None
	Sierra Pier	F-76				Not tested <sup>2</sup>	N/A	None

Table Notes:

N/A = not applicable

psi = pounds per square inch

1. Basis of reference pressure: 1.5 times the MAWP provided by base personnel.

2. Temporarily out-of-service for repairs.

3. All visually identified weeps were contained in a pipe trench or by absorbent pads.

### 3.0 CONCLUSIONS AND RECOMMENDATIONS

#### 3.1 Conclusions

The three sections **Critical Infrastructure** of petroleum pier pipelines passed the 2019 annual static liquid pressure testing. Four sections **Critical Infrastructure** of petroleum pier pipelines were not tested.

#### 3.2 Recommendations

In accordance with 33 CFR 156.170, annual static liquid pressure testing of the following four sections **Critical Infrastructure** of petroleum pier pipelines must be performed prior to returning to service:

- *Hotel Pier to PH 59 (JP-5) (Inside and Outside Loop & Tank 55 Fill Line)* **Critical Infrastructure**
- *Bravo Pier* **Critical Infrastructure**
- *Sierra Pier* **Critical Infrastructure**
- *Mike Pier* **Critical Infrastructure**

In accordance with 33 CFR 156.170, annual static liquid pressure testing of seven sections **Critical Infrastructure** of petroleum pier pipelines must be initiated on or before the anniversary date of 14 January 2020 or not less than 30 days prior to the first transfer conducted past one year from 14 January 2019. The annual static liquid pressure testing will be repeated in 2020, under the DLA Energy's Leak Detection Centrally Managed Program, in accordance with 33 CFR 156.170; other regulatory obligations are the responsibility of the base and the service.

***APPENDIX A***

***CITED REGULATIONS***



## Coast Guard, DHS

## § 156.170

under §§154.710 and 155.700 of this chapter, has filled out and signed the declaration of inspection form described in paragraph (c) of this section.

(b) No person in charge may sign the declaration of inspection unless he or she has determined by inspection, and indicated by initialling in the appropriate space on the declaration of inspection form, that the facility or vessel, as appropriate, meets §156.120.

(c) The declaration of inspection may be in any form but must contain at least:

(1) The name or other identification of the transferring vessel or facility and the receiving vessel or facility;

(2) The address of the facility or location of the transfer operation if not at a facility;

(3) The date and time the transfer operation is started;

(4) A list of the requirements in §156.120 with spaces on the form following each requirement for the person in charge of the vessel or facility to indicate by initialling that the requirement is met for the transfer operation; and

(5) A space for the date, time of signing, signature, and title of each person in charge during transfer operations on the transferring vessel or facility and a space for the date, time of signing, signature, and title of each person in charge during transfer operations on the receiving facility or vessel certifying that all tests and inspections have been completed and that they are both ready to begin transferring product; and

(6) The date and time the transfer operation is completed.

(d) The form for the declaration of inspection may incorporate the declaration-of-inspection requirements under 46 CFR 35.35-30.

(e) The vessel and facility persons in charge shall each have a signed copy of the declaration of inspection available for inspection by the COTP during the transfer operation.

(f) The operators of each vessel and facility engaged in the transfer operation shall retain a signed copy of the declaration of inspection on board the

vessel or at the facility for at least 1 month from the date of signature.

[CGD 75-124, 45 FR 7177, Jan. 31, 1980, as amended by CGD 86-034, 55 FR 36256, Sept. 4, 1990; CGD 93-056, 61 FR 41461, Aug. 8, 1996]

### § 156.160 Supervision by person in charge.

(a) No person may connect or disconnect a hose, top off a tank, or engage in any other critical procedures during the transfer operation unless the person in charge, required by §156.120(s), supervises that procedure.

(b) No person may start the flow of oil or hazardous material to or from a vessel unless instructed to do so by either person in charge.

(c) No person may transfer oil or hazardous material to or from a vessel unless each person in charge is in the immediate vicinity and immediately available to the transfer personnel.

[CGD 75-124, 45 FR 7177, Jan. 31, 1980, as amended by CGD 86-034, 55 FR 36256, Sept. 4, 1990]

### § 156.170 Equipment tests and inspections.

(a) Except as provided in paragraph (d) of this section, no person may use any equipment listed in paragraph (c) of this section for transfer operations unless the vessel or facility operator, as appropriate, tests and inspects the equipment in accordance with paragraphs (b), (c) and (f) of this section and the equipment is in the condition specified in paragraph (c) of this section.

(b) During any test or inspection required by this section, the entire external surface of the hose must be accessible.

(c) For the purpose of paragraph (a) of this section:

(1) Each nonmetallic transfer hose must:

(i) Have no unrepaired loose covers, kinks, bulges, soft spots or any other defect which would permit the discharge of oil or hazardous material through the hose material, and no gouges, cuts or slashes that penetrate the first layer of hose reinforcement as defined in §156.120(i).

(ii) Have no external deterioration and, to the extent internal inspection



is possible with both ends of the hose open, no internal deterioration;

(iii) Not burst, bulge, leak, or abnormally distort under static liquid pressure at least  $1\frac{1}{2}$  times the maximum allowable working pressure; and

(iv) Hoses not meeting the requirements of paragraph (c)(1)(i) of this section may be acceptable after a static liquid pressure test is successfully completed in the presence of the COTP. The test medium is not required to be water.

(2) Each transfer system relief valve must open at or below the pressure at which it is set to open;

(3) Each pressure gauge must show pressure within 10 percent of the actual pressure;

(4) Each loading arm and each transfer pipe system, including each metallic hose, must not leak under static liquid pressure at least  $1\frac{1}{2}$  times the maximum allowable working pressure; and

(5) Each item of remote operating or indicating equipment, such as a remotely operated valve, tank level alarm, or emergency shutdown device, must perform its intended function.

(d) No person may use any hose in underwater service for transfer operations unless the operator of the vessel or facility has tested and inspected it in accordance with paragraph (c)(1) or (c)(4) of this section, as applicable.

(e) The test fluid used for the testing required by this section is limited to liquids that are compatible with the hose tube as recommended by the hose manufacturer.

(f) The frequency of the tests and inspections required by this section must be:

(1) For facilities, annually or not less than 30 days prior to the first transfer conducted past one year from the date of the last tests and inspections;

(2) For a facility in caretaker status, not less than 30 days prior to the first transfer after the facility is removed from caretaker status; and

(3) For vessels, annually or as part of the biennial and mid-period inspections.

(g) If a facility or vessel collects vapor emitted to or from a vessel cargo tank with a vapor control system, the system must not be used unless the fol-

lowing tests and inspections are satisfactorily completed:

(1) Each vapor hose, vapor collection arm, pressure or vacuum relief valve, and pressure sensor is tested and inspected in accordance with paragraphs (b), (c), and (f) of this section;

(2) Each remote operating or indicating device is tested for proper operation in accordance with paragraph (f) of this section;

(3) Each detonation arrester required by 33 CFR 154.2105, 154.2108(b), 154.2109, 154.2110, 154.2111, and 154.2204, or 46 CFR 39.4003, and each flame arrester required by 33 CFR 154.2103, 154.2105(j), and 154.2203 has been inspected internally within the last year, or sooner if operational experience has shown that frequent clogging or rapid deterioration is likely; and

(4) Each hydrocarbon and oxygen analyzer required by 33 CFR 154.2105(a) and (j), 154.2107(d) and (e), and 154.2110 or 46 CFR 39.4003 is calibrated:

(i) Within the previous two weeks, or

(ii) Within 24 hours prior to operation when the vapor control system is operated less frequently than once a week.

(h) Upon the request of the owner or operator, the COTP may approve alternative methods of compliance to the testing requirements of paragraph (c) of this section if the COTP determines that the alternative methods provide an equal level of protection.

(i) Notwithstanding the general provisions of 33 CFR 156.107(a) relating to the authority of the Captain of the Port to approve alternatives, the owner or operator may request the written approval of the Commandant (CG-ENG), U.S. Coast Guard, 2100 2nd St. SW., Stop 7126, Washington, DC 20593-7126, for alternative methods of compliance to the testing and inspection requirements of paragraph (g)(3) of this section. The Commandant (CG-ENG) will grant that written approval upon determination that the alternative methods provide an equivalent level of safety and protection from fire, explosion, and detonation. Criteria to consider when evaluating requests for alternative methods may include, but are not limited to: operating and inspection history, type of equipment, new