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Board of Water Supply,
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DEPARTMENT OF HEALTH

STATE OF HAWAII

In the Matter of the Emergency Order to
UNITED STATES NAVY

For Emergency Change-In-Service and
Defueling of 20 Underground Storage
Tanks, Red Hill Bulk Fuel Storage Facility

DOCKET NO. 21-UST-EA-02

WRITTEN TESTIMONY OF ERWIN M.
KAWATA; CERTIFICATE OF SERVICE

WRITTEN TESTIMONY OF ERWIN M. KAWATA

1. I provide this written testimony as the Program Administrator of the Water Quality Division at the Honolulu Board of Water Supply (BWS) in the above-captioned contested case before the Hawaii Department of Health (DOH).

2. I have a Bachelor of Science degree in Chemistry and a certificate in Public Administration, both from the University of Hawaii at Manoa.

3. I have been employed by the BWS since 1982. My work over the past 39 years has been in the chemical, microbiological, biological, and radiological testing of the water served by the department and its compliance with all federal and state regulations for safe drinking water. My work also includes: providing technical guidance in the department's design and construction of water treatment facilities; managing the department's compliance with all environmental laws, rules and regulations that apply to its operations; and designing and managing environmental studies to identify and mitigate contamination that could impact the department's water resources and systems and all other scientific studies necessary to protect the quality of the department's water resources.

4. My work with groundwater contamination and its removal from the water began in 1985 when I analyzed water samples from BWS wells in Central Oahu for pesticide contamination and provided technical expertise in the design and operations of granular activated carbon treatment facilities.

5. Previous to these findings of groundwater contamination in Oahu, the possibility of pesticide and other contamination of groundwater in Hawaii was believed to be remote based on the theory that Oahu's soil and geology would prevent contamination from reaching the groundwater. Since then, a number of groundwater wells on Oahu, and the neighbor islands,

have been found to contain pesticide contamination. The data has dramatically reshaped earlier understanding of the soil's protective properties and brought with it new understanding and concerns about the vulnerability of our island's aquifers to contamination by activities taking place on the surface of the land and in the subsurface.

HONOLULU BOARD OF WATER SUPPLY

6. The BWS is the largest municipal drinking water utility in the State of Hawaii and is responsible for managing Oahu's municipal water resources and distribution system. The department is a financially self-sufficient, semi-autonomous agency of the City and County of Honolulu. The BWS' stated mission is to provide safe, dependable, and affordable water now and into the future.

7. The BWS distributes an average of approximately 145 million gallons of potable water per day to around one million people on Oahu. To ensure the water it distributes is safe and potable, the BWS carefully and proactively manages its intricate system of approximately 2,100 miles of pipeline servicing nearly every community on Oahu.

8. The BWS has a Public Trust responsibility to protect the water resources that it manages. Public Trust is the principle embedded in the Hawaii Constitution and state law that recognizes that water is held in trust by the State of Hawaii for present and future generations. Pursuant to the Hawaii State Constitution, Article XI, Section 1, "[f]or the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals, and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State. All public natural resources are held in trust by the State for the benefit of the people."

9. The Revised Charter of the City and County of Honolulu, Article VII, Sections 7-103 and 7-117, empowers the BWS to manage, control, and operate its water systems and infrastructure and to take appropriate legal actions to protect the State's drinking water resources and the interests of the BWS and its constituents.

RED HILL BULK FUEL STORAGE FACILITY (RHBFSF)

10. The RHBFSF is the state's largest field-constructed underground fuel tank complex, located in the south-central portion of the island of Oahu in Hawaii. It is owned and operated by the United States Department of the Navy (Navy). (Exhibit B-1.)

11. The RHBFSF is located approximately 2.5 miles northeast of Pearl Harbor on the island of Oahu and lies along the western edge of the Koolau Mountain Range situated on a topographic ridge that divides the Halawa Valley and the Moanalua Valley. The RHBFSF is bordered to the south by the Salt Lake volcanic crater and occupies approximately 144 acres of land. The surface topography varies from approximately 200 feet to 500 feet above mean sea level. (Exhibit B-2.)

12. The RHBFSF consists of twenty 12.5-million-gallon, field constructed, underground storage tanks (UST) constructed from 1940 to 1943. The USTs are 250 feet tall and 100 feet in diameter, with a domed top and base. The RHBFSF currently stores Jet Propulsion Fuel No. 5 (JP-5), Jet Propulsion Fuel No. 8 (JP-8), and marine diesel (F-76). Historic fuel storage has included diesel oil, Navy Special Fuel Oil, Navy distillate (ND), F-76, aviation gas, motor gas, JP-5, and JP-8. (Exhibit B-2.)

13. Currently, the RHBFSF contains 18 active and 2 inactive USTs operated by the Naval Supply Systems Command Fleet Logistics Center, Pearl Harbor, Hawaii. (Exhibit B-1.)

14. The USTs are constructed of concrete lined with steel. The dome is constructed of ½ inch steel and wall is ¼ inch steel. The reinforced concrete around the outside of the upper dome is 8 feet thick at the springline gradually narrowing to 4 feet thick at the crown. The reinforced concrete surrounding the lower dome is a minimum of 4 feet thick except for the 20 feet diameter flat bottom plate at the center of the lower dome which sits on top of a plug of concrete approximately 20 feet thick. The reinforced concrete surrounding the cylindrical barrel of the UST is an estimated minimum of 2.5 to 4 feet of concrete. The entire UST system is surrounded by basalt bedrock. (Exhibit B-3.)

15. The bottoms of the USTs are located approximately 100 feet above a groundwater aquifer used as a drinking water source by the BWS and the Navy. (Exhibit B-1.)

OAHU'S SOLE SOURCE AQUIFER

16. Groundwater in the area of the RHBFSF is on the boundary of the Waimalu and Moanalua Aquifer Systems of the Pearl Harbor and Honolulu Aquifer Sector, respectively. The aquifers are classified as basal, unconfined, flank-type and are currently used as a drinking water source. The aquifers are fresh, with less than 250 milligrams per liter of chloride, and are an irreplaceable resource with a high vulnerability to contamination. (Exhibit B-4.)

17. The Oahu Sole Source Aquifer (also known as the Southern Oahu Basal Aquifer) includes the basal aquifer beneath the RHBFSF and is designated a Sole Source Aquifer in 1987 under Section 1424(e) of the Safe Drinking Water Act (52 Fed. Reg. 45496). Sole Source Aquifers are those that are the sole or principal drinking water source for an area, and which, if contaminated, would create a significant hazard to public health. (Exhibit B-5.)

18. The basal aquifer beneath the RHBFSF is the groundwater resource from which the BWS provides drinking water to residents and visitors from Moanalua to Hawaii Kai.

IMPACT TO BWS OF ACTUAL AND THREATENED FUEL RELEASES FROM THE RHBFSF

19. Numerous leaks from the RHBFSF USTs have been documented and sampling from under and around the RHBFSF has demonstrated the existence of petroleum contamination in the very aquifer that sustains our island's water supply.

20. In the course of refilling Tank 5 with JP-8 after scheduled maintenance in late 2013 and early 2014, a fuel release was discovered by the Navy. Filling of Tank 5 occurred between December 12, 2013 and January 6, 2014. During the filling, alarms were triggered but operators presumed the alarms were falsely activated and did not immediately react. The Navy also discovered an inventory discrepancy but did not verbally report the release to DOH until January 13, 2014. A release of an estimated 27,000 of JP-8 from Tank 5 was reported to DOH on January 23, 2014. (Exhibits B-1 and B-6.)

21. The Navy did not immediately notify the BWS of the fuel release from Tank 5. The BWS learned of the Tank 5 fuel release from the DOH on January 13, 2014.

22. The fuel releases from the RHBFSF have caused the BWS to incur costs and take responsive actions to address the potential impacts to drinking water resources.

23. In response to the Tank 5 fuel release, the BWS had to stop pumping at certain of its well stations for several days, implement new, rigorous water quality testing protocols, and install a well designed to monitor groundwater quality in order to detect potential petroleum contamination from the RHBFSF. Specifically:

a. On January 14, 2014, the BWS shut off five of its well stations that are in close proximity to the RHBFSF. Four of those well stations remained offline until January 21, 2014. Approximately 300 additional staff hours were necessary to manage the well station shut down. The loss of the use of these wells during this period resulted

in a corresponding loss of water production from these sources of approximately 80 million gallons.

b. On January 14, 2014, the BWS began performing additional water quality testing at the five well stations that are in close proximity to the RHBFSF. This water quality testing is in addition to, and goes above and beyond, the BWS' regular water quality testing. Weekly testing occurred in January 2014, monthly testing occurred in February and March 2014, and quarterly testing has occurred from April 2014 to the present. The total cost to the BWS for this additional water quality testing has exceeded \$500,000.

c. On August 31, 2017, the BWS completed construction of a monitoring well at its Moanalua 405 Reservoir No. 2 property designed to detect potential petroleum contamination from the RHBFSF. The total cost to the BWS for this monitoring well, inclusive of design, permitting, construction, oversight, and reporting, was approximately \$600,000.

24. In response to the fuel releases from the RHBFSF, including the fuel release from Tank 5 reported in 2014, the Navy entered into an Administrative Order on Consent (AOC) with the U.S. EPA and DOH, requiring the Navy to implement numerous activities to address fuel releases and implement infrastructure improvements to protect human health and the environment. The AOC, through its Scope of Work, recognizes the BWS as a Subject Matter Expert from which technical advice is to be sought for scoping and review of key deliverables.

25. I have toured the RHBFSF on January 29, 2014, March 10, 2014, April 10, 2014, April 14, 2014, September 15, 2015 and May 9, 2016. I witnessed the oily spot on the wall at

the end of a tunnel in the vicinity of Tank 5 that was created by the fuel release reported in January 2014. (Exhibit B-7.)

26. I have been a participant in the various AOC technical meetings as a representative of BWS providing technical advice and recommendations to the EPA, DOH, and Navy in the areas of drinking water testing, the types and amounts of contaminants being detected, and water treatment technologies to remove contaminants from drinking water.

27. The BWS continues to engage experts to evaluate and provide written comment on Navy AOC deliverables and to evaluate and provide written comment on the Navy's Red Hill UST permit application. To date the BWS has submitted over 140 letters to the AOC parties and at least four written expert testimonies and/or reports to the DOH, contributing valuable expertise on issues with the potential to impact drinking water quality.

28. Over the past two years there have been several fuel releases into the environment from the pipelines at the RHBFSF. Specifically:

a. An active fuel release occurred at the RHBFSF's Hotel Pier from March 2020 through July 2021 (Exhibit B-410);

b. On May 6, 2021, a pressure surge resulted in the release of approximately 1,600 gallons of jet fuel from supply piping in the lower access tunnel tanks during the refilling of Tank 20 (Exhibits B-411, B-412, and B-413);

c. A corrosion-induced hole in a pipeline lead to a fuel release at the RHBFSF's Kilo Pier on July 16, 2021 (Exhibit B-414); and

d. On November 20, 2021, a release of a supposed 14,000 gallons of a mixture of water and fuel occurred from the fire suppression system at the RHBFSF from the Navy's fire suppression system (Exhibit B-415).

29. On October 26, 2021, the DOH issued the Navy a Notice of Violation and Order (NOVO No. 21-UST-EA-01) finding several violations of Hawaii law during a compliance inspection conducted from September 28, 2020 through October 8, 2020 and ordering the Navy to pay a \$325,182 fine. (Exhibits B-408 and B-418.)

30. As a direct result of the Navy's fuel releases into the environment, the BWS has devoted considerable time and resources to addressing the damage to our island's sole-source groundwater aquifer. I have personally spent thousands of hours attending to issues related to the fuel releases from the RHBFSF.

31. The Navy's fuel releases into the environment caused the BWS to incur costs well in excess of one million dollars (\$1,000,000).

32. Based on previous site investigations and associated analytical data, numerous fuel releases dating back to at least 1947 have occurred at the RHBFSF, including the fuel release from Tank 5 reported in January 2014 and fuel releases from RHBFSF pipelines in 2020 and 2021. (Exhibits B-8, B-9, and B-10.)

33. Other Navy studies also provide ample evidence of past releases, the corroding condition of the USTs' steel liners, the inaccuracy and unreliability of the Navy's tank inspection processes, the groundwater contamination underneath the USTs, and the risk to the drinking water aquifer. (Exhibits B-11, B-12, B-13, B-14, and B-15.)

34. Groundwater testing data collected by the Navy since 2005 show petroleum contamination present in the groundwater and rocks underneath the RHBFSF. I graphed the Navy's groundwater monitoring well test results collected from February 2005 to the present as of second quarter 2021 that the Navy had analyzed for various petroleum related chemicals, including, but not limited to, total petroleum hydrocarbons as diesel (TPH-d), xylene,

naphthalene, 2-methyl naphthalene, 3-methyl naphthalene and lead. These graphs show TPH-d levels as high as 6,300 micrograms per liter ($\mu\text{g/L}$) in Red Hill monitoring well #2 (RHMW2) in the groundwater underneath the RHBFSF USTs (Exhibits B-419, B-420, B-421a, and B-421b).

35. I have reviewed the laboratory reports from samples taken from the Navy's Red Hill Shaft on December 5, 2021. These laboratory reports show TPH-d levels as high as 140,000 $\mu\text{g/L}$ in the Navy's Red Hill Shaft. (Exhibit B-409.)

36. The amount of TPH-d present in certain samples from the Navy's Red Hill Shaft, RHMW2, and other monitoring wells exceed existing DOH environmental action limits (EALs) for gross contamination and drinking water toxicity which are 500 $\mu\text{g/L}$ and 400 $\mu\text{g/L}$ respectively. The EAL is that amount below which the contaminants are assumed to not pose a significant threat to human health or the environment. (Exhibit B-16.)

37. The amount of TPH-d present in certain samples from the Navy's Red Hill Shaft, RHMW2, and other monitoring wells also exceeds the screening levels developed in connection with a toxicology assessment study conducted by the BWS. The study commissioned two experts in toxicology who independently calculated TPH-d screening levels of 210 $\mu\text{g/L}$ and 162 $\mu\text{g/L}$, respectively. Screening levels are tools used to evaluate the threats posed by environmental contamination at a site. The screening levels are similar to drinking water standards and guidelines for TPH-d established by the States of Massachusetts and Minnesota. Screening levels, like EALs, are developed to be protective of public health and are used as the first step in assessing potential impacts on health from the groundwater contamination. (Exhibits B-17, B-18, B-19, and B-20.)

38. Testing conducted to date indicates that the water served from the BWS' drinking water wells remains compliant with standards for safe drinking water.

39. In response to the contamination detected in the Navy's Red Hill Shaft, the BWS had to again stop pumping at certain of its well stations, reinstitute rigorous water quality testing protocols, and begin planning for the installation of additional groundwater monitoring wells. Specifically, in December 2021, the BWS shut off three of its well stations that are in close proximity to the RHBFSF, increased water quality testing at five well stations that are in close proximity to the RHBFSF from quarterly to weekly, and began the process for approving the construction of another groundwater monitoring well in Halawa Valley. The total cost to the BWS for these response actions is not yet known.

40. In response to the contamination detected in the Navy's Red Hill Shaft, the Navy shut off its Red Hill Shaft drinking water well, procured thousands of gallons of replacement drinking water, and relocated over 1,000 families. (Exhibits B-416 and B-417.)

41. I agree with the past DOH statement that "it views the storage of up to 187 million gallons of fuel, 100 feet above a drinking water resource, is inherently dangerous." (Exhibit B-21.)

42. Based on my work experience at BWS and knowledge about the RHBFSF, I have concluded that the RHBFSF poses a risk to Oahu's groundwater aquifer and drinking water resources because of:

- a. Its close proximity (100 feet) to the groundwater table and the groundwater's vulnerability to contamination;
- b. The large volume (approximately 187 million gallons) of petroleum fuel stored in it;

- c. Records of past fuel leaks in addition to the at least 27,000 gallons reported released in January 2014 from USTs that are corroding and more than 75 years old;
- d. Records of recent fuel releases from RHBFSF pipelines, including the May 6, 2021 release of approximately 1,600 gallons of jet fuel from supply piping in the lower access tunnel tanks during the refilling of Tank 20, the 2020 and 2021 releases from the Hotel Pier and Kilo Pier pipelines fed by the RHBFSF, and the November 2021 release of a supposed 14,000 gallons of a mixture of water and fuel from the Navy's fire suppression system at the RHBFSF;
- e. Destructive testing has confirmed that the Navy cannot reliably and accurately find all the areas of the RHBFSF USTs that need repair;
- f. A risk assessment report prepared by the Navy's own consultant concludes that we can expect greater than a 27% probability of an acute, sudden release of up to 30,000 gallons each year from the RHBFSF and chronic, undetected fuel releases of 5,803 gallons per year, facility-wide;
- g. The presence of petroleum contamination detected in the groundwater underneath the RHBFSF since at least 2005;
- h. The presence of petroleum contamination detected in the Navy's Red Hill Shaft drinking water well in December 2021 at levels up to 350 times the DOH's EAL; and
- i. The amount of contamination in the Navy's drinking water well and at least one area of the groundwater under the RHBFSF shows levels that may pose an unacceptable threat to human health and the environment.

43. I have reviewed the emergency order issued by the DOH to the Navy on December 6, 2021 requiring the Navy to immediately suspend fuel storage operations at the RHBFSF, expeditiously install a drinking water treatment system at the Navy's Red Hill Shaft drinking water well, and promptly take action to defuel the RHBFSF USTs (Emergency Order). (Exhibits B-408 and B-418.) Failure to enforce the Emergency Order would directly impact the BWS' interests and threatens to continue to injure the BWS. Another fuel release to the environment from the RHBFSF will further contaminate with petroleum the sole-source groundwater aquifer beneath the RHBFSF, possibly causing irreparable damage to our critical drinking water resources.

44. The only way to ensure that our critical drinking water resources are protected from potential petroleum contamination is to defuel the RHBFSF and relocate the fuel to a new facility away from our sole-source groundwater aquifer.

45. Enforcement of the Emergency Order to ensure the RHBFSF is defueled and relocated would reduce the potential for further damage to our island's sole-source groundwater aquifer and would provide relief to the BWS and its constituents.

I, ERWIN M. KAWATA, do declare under the penalty of law that the foregoing is true and correct to the best of my knowledge.

DATED: Honolulu, Hawaii, December 18, 2021.

A handwritten signature in dark ink, appearing to read "Erwin M. Kawata", is written over a horizontal line.

ERWIN M. KAWATA

EXHIBIT LIST

Exhibit	Document Reference
B-1	Work Plan / Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility JOINT BASE PEARL HARBOR-HICKAM, O’AHU, HAWAI’I Administrative Order on Consent in the Matter of Red Hill Bulk Fuel Storage Facility, EPA Docket Number RCRA 7003-R9-2015-01 and DOH Docket Number 15-UST-EA-01, Attachment A, Statement of Work Section 6.2, Section 7.1.2, Section 7.2.2, and Section 7.3.2, January 4, 2017 Revision 02 (https://www.epa.gov/sites/production/files/2017-01/documents/revised_section_6-7_scope_of_work_4_january_2017.pdf)
B-2	Section 8.2: Risk/Vulnerability Assessment Scope of Work, Red Hill Bulk Fuel Storage Facility NAVSUP FLC, Pearl Harbor, HI (PRL), Joint Base Pearl Harbor-Hickam, Administrative Order on Consent In the matter of Red Hill Bulk Fuel Storage Facility EPA Docket No. RCRA 7003-R9-2015-01, DOH Docket No. 15-UST-EA-01, April 13, 2017 (https://www.epa.gov/sites/production/files/2017-04/documents/red_hill_risk_assessment_scope_of_work.pdf)
B-3	RED HILL FACILITY CORROSION AND METAL FATIGUE PRACTICES REPORT Administrative Order on Consent (AOC) and Statement of Work (SOW) Section 5.2. April 4, 2016 (https://www.epa.gov/sites/production/files/2016-07/documents/final_corrosion_and_metal_fatigue_practices_report_april_4_2016.pdf)
B-4	Mink, J. F., and L. S. Lau. 1990. Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawai’i. Technical Report No. 179. Honolulu, HI: Univ. of Hawaii, Water Resources Research Center. November 1987; rev. February 1990. (https://scholarspace.manoa.hawaii.edu/bitstream/10125/1961/wrrctr179.pdf)
B-5	Monitoring Well Installation Work Plan, Red Hill Bulk Fuel Storage Facility JOINT BASE PEARL HARBOR-HICKAM, O’AHU, HAWAI’I, July 17, 2016 Prepared for: Defense Logistics Agency Energy, 8725 John J Kingman Rd Suite 4950, Fort Belvoir, VA 22060-6222, Prepared by: AECOM Technical Services, Inc. 1001 Bishop Street, Suite 1600, Honolulu, HI 96813-3698 (https://www.epa.gov/sites/production/files/2016-12/documents/revised_monitoring_well_installation_workplan_july_17_2016.pdf)
B-6	NAVFAC Naval Facilities Engineering Command Engineering and Expeditionary Warfare Center. SITE SPECIFIC REPORT, SSR-NAVFAC EXWC-CI-1655, 11 October 2016, Red Hill Facility, Tank Inspection, Repair, and Maintenance Report, Administrative Order on Consent (AOC) Statement of Work (SOW), Section 2.2. Prepared by Ms. Terri Regin, PE, Mr. Frank Kern, PE, Mr. James Gammon, and Mr. Lean-Miquel Sanpedro (https://www.epa.gov/sites/production/files/2016-10/documents/red-hill-aoc-section-2-2-tirm-report-2016-10-11.pdf)
B-7	Honolulu Star Advertiser. “More Tiny Holes Found in Leaking Red Hill Storage Tank.” Photograph Courtesy of US Navy / Senior Chief Mass Communications Specialist Michael B. Lewis. June 22, 2014. (https://www.staradvertiser.com/2014/06/22/breaking-news/more-tiny-holes-found-in-leaking-red-hill-fuel-storage-tank/)

B-8	2007. Red Hill Bulk Fuel Storage Facility Final Technical Report, Pearl Harbor, Hawaii. Prepared by TEC, Inc., Honolulu, HI. Prepared for Naval Facilities Engineering Command, Pacific, Pearl Harbor, HI. August.
B-9	2002. Red Hill Bulk Fuel Storage Facility Investigation Report (Final) for Fleet Industrial Supply Center (FISC), Oahu, Hawaii. Prepared by AMEC Earth & Environmental, Inc., Huntsville, AL. Prepared for Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, HI. August.
B-10	Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan, Pearl Harbor, Hawaii, Prepared for: Department of the Navy, Commander Naval Facilities Engineering Command, Pacific Pearl Harbor, HI 96860-3134, January 2008 (https://health.hawaii.gov/shwb/files/2014/08/2008-Final-Groundwater-Protection-Plan.pdf)
B-11	Naval Audit Service, 2010, Audit Report: Department of the Navy Red Hill and Upper Tank Farm Fuel Storage Facilities, Report Number N2010-0049, August 16, 2010.
B-12	Engineering Survey of U.S. Navy Petroleum Facilities at Pearl Harbor for U.S. Navy Bureau of Yards and Docks, May 1949, Bechtel Corporation.
B-13	Red Hill Complex Fire, Life Safety and Environmental Risk Assessment and Analysis by Willbros Engineers, Inc. dated August 1998.
B-14	NAVFAC Naval Facilities Engineering Command Engineering and Expeditionary Warfare Center. SITE SPECIFIC REPORT, SSR-NAVFAC EXWC-CI-1941, 7 July 2019, Red Hill Fuel Storage Facility, Destructive Testing Results Report, Administrative Order on Consent (AOC) Statement of Work (SOW), Section 5.3.3 (https://www.epa.gov/sites/production/files/2019-07/documents/red-hill-destructive-testing-results-report-20190707.pdf)
B-15	2018. Quantitative Risk and Vulnerability Assessment Phase 1 (Internal Events without Fire and Flooding). Red Hill Bulk Fuel Storage Facility NAVSUP FLC Pearl Harbor, HI (PRL). Administrative Order on Consent in the matter of Red Hill Bulk Fuel Storage Facility EPA Docket No. RCRA 7003-R9-2015_01, DOH Docket No. 15-UST-EA-01. Prepared by ABS Consulting. November 12.)
B-16	2017. Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater. Volume 2: Background Documentation for the Development of Tier 1 Environmental Action Levels. Appendix 1: Detailed Lookup Tables. Prepared by Hawaii Department of Health, Environmental Management Division. Page 39 of 152. Fall 2017. (https://health.hawaii.gov/heer/files/2019/11/Volume-2-App-1-HDOH-2017.pdf)
B-17	Development of Drinking Water Screening Levels for TPHs and Associated Chemicals, prepared for the Honolulu Board of Water Supply by Exponent, Inc., 1800 Diagonal Road, Suite 500, Alexandria, VA 22314, December 10, 2016
B-18	Calculation of Groundwater Screening Levels and a Groundwater Baseline Risk Assessment, prepared for Board of Water Supply by INTERA, Inc., 3240 Richardson Rd, Suite 2 Richland, Washington 99354, December 13, 2016
B-19	2020. Standards and Guidelines for Contaminants in Massachusetts Drinking Waters (https://www.mass.gov/doc/2020-standards-and-guidelines-for-contaminants-in-massachusetts-drinking-waters/download)

B-20	2017. Guidance for Evaluating Health Risks from Gasoline and Diesel Contaminated Drinking Water. Minnesota Department of Health. February. (https://www.health.state.mn.us/communities/environment/risk/docs/guidance/tphguidance.pdf)
B-21	2015. Report to the Twenty-Eighth Legislature State of Hawaii, 2015. Pursuant to Senate Concurrent Resolution 73 Requesting the Department of Health to Convent a Task Force to Study the effects of the January 2014 Fuel Tank Leak at the Red Hill Fuel Facility. Prepared by State of Hawaii Red Hill Fuel Storage Facility Task Force. December 2014. (https://health.hawaii.gov/shwb/files/2015/01/Senate-Concurrent-Resolution-73.pdf)
B-408	Notice of Violation and Order. State of Hawaii, Department of Health, Solid and Hazardous Waste Branch, Underground Storage Tank Section. NOVO No. 21-UST-EA-01. 26 October 2021.
B-409	Analytical Report. Eurofins Calscience LLC. Environment Testing America. 9 December 2021.
B-410	Red Hill Bulk Fuel Facility, Pearl Harbor, Hawaii, Hotel Pier Near Arizona Street, Pearl Harbor, Hawaii, UST Facility ID No. 9-102271, UST Release ID No. 210011, HEER Incident Release Case Nos. 2020317-0914 and 20200602-1345. State of Hawaii, Department of Health. 30 June 2021.
B-411	Red Hill Fuel Facility Pipeline Failure Full System Integrity Report. Encl: (1) Contractor's Root Cause Analysis dtd 07 September 2021.
B-412	Command Investigation Into The Fuel Spill At The Red Hill Bulk Fuel Storage Facility On Or About 6 May 2021. 14 October 2021.
B-413	Red Hill Bulk Fuel Storage Facility JP-5 Piping Mitigations Report. NAVFAC. October 2021.
B-414	Fuel Tank Advisory Committee meeting, October 28, 2021; F76 Marine Diesel. https://www.youtube.com/watch?v=2OECvnseijk .
B-415	Navy Responds to a Release from a Fire Suppression Drain Line at Red Hill. Commander, Navy Region Hawaii, Public Affairs Office. 21 November 2021.
B-416	JBPHH Water Response Fact Sheet. 11 December 2021. https://www.cpf.navy.mil/Portals/52/JBPHH-FACT-SHEET-11-DEC-21.pdf .
B-417	Some JBPHH CNIC-housing registered personnel to be assigned to new accommodations. 14 December 2021. https://www.cpf.navy.mil/News/Article/2873725/some-jbphh-cnlic-housing-registered-personnel-to-be-assigned-to-new-accommodatio/
B-418	Following inspection, Hawai'i Department of Health issues Notice of Violation and Order to U.S. Navy with over \$325,000 in penalties. Department of Health. 27 October 2021.
B-419	Water Quality Report, Joint Base Pearl Harbor-Hickam Water System (Waiawa, Halawa & Red Hill Sources). NAVFAC. 2021 Annual Report.
B-420	Notice of Interest 20210507-0852 JP-5 spill that occurred on 6 May 2021.
B-421a	Final Second Quarter 2021 – Quarterly Groundwater Monitoring Report Red Hill Bulk Fuel Storage Facility, Part 1. September 2021. https://health.hawaii.gov/ust/files/2021/12/2021-09-2nd-qtr-gw-monitoring-rpt-1-.pdf .

B-421b	Final Second Quarter 2021 – Quarterly Groundwater Monitoring Report Red Hill Bulk Fuel Storage Facility, Part 2. September 2021. https://health.hawaii.gov/ust/files/2021/12/2021-09-2nd-qtr-gw-monitoring-rpt-2-.pdf .
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DEPARTMENT OF HEALTH

STATE OF HAWAII

In the Matter of the Emergency Order to

UNITED STATES NAVY

For Emergency Change-In-Service and
Defueling of 20 Underground Storage Tanks,
Red Hill Bulk Fuel Storage Facility

DOCKET NO. 21-UST-EA-02

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing documents were served upon the
following, via email, to their last known email address on December 18, 2021:

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DOCKET NO. 21-UST-EA-02, IN THE MATTER OF THE EMERGENCY ORDER TO
UNITED STATES NAVY FOR EMERGENCY CHANGE-IN-SERVICE AND DEFUELING
OF 20 UNDERGROUND STORAGE TANKS, RED HILL BULK FUEL STORAGE
FACILITY - WRITTEN TESTIMONY OF ERWIN M. KAWATA; CERTIFICATE OF
SERVICE