BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
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HONOLULU, HI 96843

March 29, 2016

Mr. Steven Y.K. Chang
Solid and Hazardous Waste Branch
State of Hawaii
Department of Health
919 Ala Moana Boulevard, Room 212
Honolulu, Hawaii 96814-4920

and

Mr. Bob Pallarino
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Dear Mr. Chang and Mr. Palarino:

Subject: Regulatory Agency Approval of the Navy's Chemicals of Potential Concern List Recommendations for the Red Hill Bulk Fuel Storage Facility

The Board of Water Supply (BWS) has recently reviewed documents posted on the United States Environmental Protection Agency (EPA) website related to the implementation of the Administrative Order on Consent (AOC) for the Red Hill Bulk Fuel Storage Facility (RHBFSF). Among the documents are the following, related to the testing of chemicals of potential concern (COPC) in Red Hill groundwater monitor wells:

1. COPC Recommendations, Long Term Groundwater Monitoring, Red Hill Bulk Fuel Storage Facility (RHBFSF), cited as submitted to the Regulatory Agencies via email by Ms. June Shimabuku, NAVFAC Hawaii on January 12, 2016; and

2. Correspondence from the EPA and the Hawaii Department of Health (DOH) (Regulatory Agencies) to Mr. James A. K. Miyamoto, P.E. regarding the above-referenced document, date stamped February 4, 2016.

These documents discuss:

1. A request by the Navy to reduce the COPC list from seventy (70) chemicals tested in groundwater monitor well since 2005 to just ten (10) analytes; and
2. A letter from the Regulatory Agencies that approves the Navy's request to reduce the number of COPCs to 10 analytes.

The BWS does not support the Regulatory Agencies' approval to reduce the Red Hill COPC list, and is providing the following comments regarding the Navy's recommendations and the Regulatory Agencies' approval:

1. While the BWS acknowledges that the Navy has been monitoring groundwater contaminant levels at Red Hill for many years, it is premature for the Navy or Regulatory Agencies to assert that a formal long-term monitoring program has been in place. The BWS contends that documented and suspected releases from the RHBFSF have not been fully characterized to the extent that establishes the disposition of the leaked fuel and environmental impacts to the underlying sole source aquifer. According to the EPA:

   > Long-term monitoring (LTM) is defined...as monitoring conducted after some active, passive, or containment remedy has been selected and put in place, and is used to evaluate the degree to which the remedial measure achieves its objectives (e.g., removal of groundwater contaminants, restoration of groundwater quality, etc.). It usually is assumed that after a site enters the LTM phase of remediation, site characterization is essentially complete, and the existing monitoring network can be adapted, as necessary, to achieve the objectives of the LTM program.[1]

   Indicating that an LTM program is being implemented at the RHBFSF suggests that the release (or in the case of the RHBFSF, multiple documented releases) is fully characterized and that abatement actions have been taken. One of the AOC tasks presently being conducted by the Navy is the drilling and installation of additional groundwater monitoring wells, which demonstrates that LTM, by definition, is premature. The Navy's COPC recommendations indicate that LTM was established as part of the Groundwater Protection Plan[2]; however, this document does not specifically reference an LTM program being implemented. Have DOH and EPA given the Navy permission to implement LTM even though the location of the released fuel remains unknown and the AOC work plans call for more detailed site characterization?

2. Limitation of COPCs to only ten (10) analytes is premature. As noted, the disposition of the leaked fuel and impacts to the underlying sole source aquifer have not been adequately characterized. There is also a lack of understanding related to the movement of leaked fuel to groundwater. Until the Navy demonstrates that the magnitude and extent of contamination in the vadose zone and groundwater have been fully characterized, all compounds associated with the current and historic contents of the tank system, as well as chemicals used for cleaning and repair of the tanks should be considered COPCs. The detection of over 30 analytes in groundwater samples collected from the RHBFSF site is an indicator that these compounds are present in the subsurface, and until the

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[1] U.S. EPA, *Roadmap to Long-Term Monitoring Optimization* (EPA 542-R-05-003, May 2005), 1.
[2] TEC Inc., *Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan* (January 2008)

disposition of the leaked fuel is fully understood, continued monitoring for these compounds is an acceptable consideration.

There is no request from the Navy to modify the applied analytical methods (with the exception of the implied elimination of EPA Method 6020 for Lead). Presumably, the collected groundwater samples will continue to be analyzed using the EPA Methods 8015, 8260B, and 8270C; so there is no significant cost impact to requesting a reduced COPC list, and the same data will be available for reporting. The BWS does not see the propriety in disregarding available data during this phase of the project, particularly when the conceptual site model is to be updated under the AOC work plans.

3. The BWS has previously recommended that the Navy consider analyzing groundwater samples for inorganic compounds such as nitrate, iron, manganese, and sulfate, which are indicators of the degradation of organic compounds. Each of these compounds has an established regulatory groundwater limit. In order to understand the complexities of fate, transport, and attenuation of petroleum hydrocarbons at the RHBFSF, the inclusion of these analytes is essential. These data are also necessary for further development of the conceptual site model.

4. The Navy has reported the detection of lead in nearly a third of the groundwater samples collected at the RHBFSF site; however, the Navy is dismissive regarding the potential occurrence of lead scavengers. The detection of lead is a compelling reason for continued inclusion of lead scavengers as COPCs. Of the possible contaminants of concern at the RHBFSF, 1,2-dibromoethane (EDB) and 1,2-dichlorethane (EDC) are the most toxic and are known human carcinogens. These compounds are also recalcitrant and have limited natural degradation potential. If these compounds are present in the subsurface and are found to impact groundwater, they will likely drive any applied remediation actions. Unless the Navy can demonstrate an alternate source of the lead contamination, continued monitoring for lead scavengers is a nominal investment to ensure that these compounds do not migrate from the site undetected.

5. The Navy indicates that their groundwater monitoring plan was implemented as part of the 2008 "Groundwater Protection Plan". This plan establishes that implementation of the plan is necessary to "prevent unacceptable risks associated with use of the groundwater potentially impacted by releases from the RHBFSF to human health and the environment". Specifically, the plan identifies the following steps associated with these risks:

    a. Implementation of a consistent, documented groundwater monitoring program that will provide adequate warning of any potential unacceptable risks to human health; and

b. Establishment of a decision system, including responsibilities and specific response actions that will be implemented when risk-based groundwater action levels are exceeded.[3]

It is understood that groundwater monitoring is not intended to be a leak detection system for the tanks. Additionally, it is understood that the Navy's requested COPCs would continue to provide an indicator of fuel impacts to groundwater in the event of a new release, or completion of the pathway between fuel from previous releases and groundwater. However, given that the same analyses will continue to be run on groundwater samples, and that the condition of the tank system has degraded and documented leaks have occurred (January 2014) since the development of the Groundwater Protection Plan, the Navy and the Regulatory Agencies should immediately delay the application of an abbreviated COPC list at this time.

Thank you for your consideration of the items above. If you have any questions, please feel free to contact me at (808) 748-5061.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Duane Miyashiro, Board Chair
Jared Blumenfeld, U.S. Environmental Protection Agency
Gina McCarthy, U.S. Environmental Protection Agency
Dr. Virginia Pressler, State Department of Health

[3] TEC Inc., *Groundwater Protection Plan* (January 2008)