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October 19, 2017

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and

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Dear Messrs. Pallarino and Chang:

Subject: Red Hill Bulk Fuel Storage Facility - Tank Upgrade Alternative Decision Process
Document Dated September 29, 2017

The Honolulu Board of Water Supply (BWS) has reviewed the subject document (Navy/DLA, 2017) and offers the following comments. Although we appreciate the Navy's detailed description of the Tank Upgrade Alternative (TUA) decision process, and welcome acknowledgment of the tank relocation option and opportunities for stakeholder input, several aspects of the process are still troubling. As described, the TUA decision process is relying on assumptions that have not been adequately supported by either site-specific data or analyses. And despite mention of a possible role for the Quantitative Risk and Vulnerability Assessment (QRVA), which may be overstated since the first phase will be partially complete, the timeline depicted in the appendix effectively precludes the QRVA from influencing the TUA decision. The comments below expand on these concerns.

1. The BWS has concerns regarding TUA Decision Process Input #5 Environmental. The BWS does not believe that even an accelerated approach to collect data for the groundwater fate and transport interim groundwater model will provide sufficient understanding of the risks from groundwater contaminants to inform the TUA decision. For instance, in groundwater modeling working group meetings attended by the Navy and their consultants, the Navy consultants have stated that **an uncertainty analysis will not be** included in the interim groundwater modeling work. Given the large uncertainties about the direction, rates, and hydrogeologic controls on groundwater flow from Red Hill, an uncertainty analysis is perhaps the most defensible approach for

estimating the risk to our water supplies. We question whether the interim groundwater model will have enough data, enough time, and a defensible approach to estimate the risk of groundwater contamination from Red Hill prior to selection of a TUA. The Regulatory Agencies should require that the Navy spell out how they will estimate the risk to our water supplies using their interim model as soon as possible.

The AOC Parties need to understand this risk before they make a choice about a tank upgrade alternative. From our perspective, if there is a significant risk to Halawa Shaft from Red Hill groundwater contamination (and a small risk can still be significant), then the AOC Parties should choose the lowest risk tank upgrade alternative to counterbalance the groundwater risk. Furthermore, the risk to groundwater from Red Hill releases must be determined for a range of possible release volumes, including volumes larger than the roughly 30,000 gallons of fuel released in January 2014.

2. The BWS has concerns that regarding TUA Decision Process Input #6 Risk Assessment as its impact on the TUA appears to be overstated in the document. The first phase of the Section 8 QRVA report, which is expected to be completed by late 2018 (after the TUA decision has been made), will not provide any comparative risk assessments of the TUAs, nor will it include fundamental risk issues such as seismic risk, risk associated with ongoing tank wall corrosion, or risk of aquifer contamination should there be a leak. Unfortunately, the BWS does not believe that the AOC/SOW QRVA (Section 8) will be able to provide any meaningful information that will help the AOC regarding the TUA decision process. In addition, the language of the decision process document (“... to the extent advance information is available to inform a TUA decision...”) allows for the possibility that the QRVA will be disregarded as an input to the TUA decision process. Finally, Decision Input #6 makes the statement that an “interim human health risk assessment is being conducted to evaluate key pathways, Chemical of Concern (COC) and potential drinking water criteria.” The BWS assumes that this information will be compiled as part of the conceptual site model (CSM) but there is no mention in the CSM plan to conduct any type of human health risk assessment. The BWS requests that an outline for the human health risk assessment document be provided to stakeholders for review and comment.
3. The BWS has concerns about how the ultimate decision will be influenced by how the decisional inputs are weighted. The analysis leading to the Navy decision, starting at the bottom of Page 6 of the referenced memorandum, explains that the decisional attributes will be weighted and binned (and then the bins themselves weighted) as part of the decision-making process. We believe that the decision process will be driven by the weighting, and that absent a quantitative risk assessment, any weighting with respect to the relative leak hazards of the TUA will necessarily be subjective. Moreover, weights assigned by the Navy and its subject matter experts (SMEs) will almost certainly differ from weights assigned by the engaged public stakeholders —whom we expect, when considering the five referenced categories, will be less concerned with construction feasibility, capital costs, and operational performance, than with environmental and community factors (Page 7).

The referenced decision process document mentions seeking and using input from various stakeholders, but does not clearly explain how the BWS and other major stakeholders will participate in the weighting process. Page 1 of the decision documents explains that stakeholders who are not part of the Department of Defense can provide comments by writing letters to the regulatory agencies. On pages 3 and 4, there are multiple but vague mentions of stakeholder inputs during the weighting process, yet on page 5 it states that external stakeholders can comment on the criteria used and the TUA selection. Will BWS be permitted to provide input on its weightings? If not, how will the public know that its interests in a safe and sustainable water supply are protected?

4. The referenced document states that:

“In the absence of clear and definitive evidence, certain assumptions are needed to make a timely TUA Decision. Some initial assumptions include: ... Based on industry standards, current non-destructive evaluation (NDE) Practice is effective.”

It is not clear exactly what this means. BWS believes that if current NDE techniques cannot clearly and reliably indicate the current condition of the tank and which areas need repair, then relocation and the double-wall tank options rise to the top of the list. Furthermore as previously stated in other BWS comment letters, the accuracy/reliability of proposed NDE as disclosed in the Navy's Attachment BD document (Navy 2016) is troubling. For instance the inspection process described would allow for the NDE system and operator to fail to detect metal loss at as many as 5 percent of locations with wall thickness less than 0.05 inches and at as many as 40 percent of locations that have lost 30 to 50 percent of their original wall thickness. Decisions regarding TUA options should not be based on what could be questionable assumptions.

5. Bullet at the top of Page 6 “interim environmental data is sufficient for an initial TUA decision.” BWS believe this is not a good assumption for several reasons. First, as the BWS has previously stated, the lack of sufficient existing monitoring wells makes this an unsafe assumption. The BWS feels it is extremely unlikely that the Navy will possess enough defensible environmental information by early 2018 to use this information to make a reliable TUA decision. As explained in comment number 2 above, the interim models of groundwater flow and contaminant migration should appropriately reflect the range of possible outcomes given the well-known data gaps, i.e., through an uncertainty analysis. However, the Navy's contractor stated that the preliminary model would not include an uncertainty analysis.

Secondly, this assumption does not take into account the possibility that as the tanks age, deteriorate and become more fragile the possibility of significantly larger fuel releases than have been observed in the past will increase. Past and present interim environmental data cannot necessarily applied to such large releases.

The BWS feels that because of the lack of site-specific information (especially in Halawa Valley), the lack of an uncertainty analysis, and the extreme risk to the aquifer posed by an aging facility that stores in excess of 180 million gallons of fuel, the TUA decision

must select the alternative that requires relocating the fuel or selecting a design with double walls in which the interstitial space can be continuously monitored.

6. The document mentioned that decision aid software would be incorporated (top of Page 7). For any software tool the Navy selects to be used in the process, the BWS requests information about its algorithms and their inherent limitations.

Although we share the Navy's interest in timely action on the Red Hill facility, we also reiterate the importance of reaching a TUA decision based on sound assumptions and sound data, with due consideration of the perspectives of stakeholders and the affected community.

Thank you for the opportunity to comment. If you have any questions, please feel free to call Erwin Kawata, Program Administrator of our Water Quality Division at 808-748-5080.

Very truly yours,



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References Cited

Navy. 2016. Attachment BD, Inspection of Fuel Storage Tanks, Section 33 56 17.00 20, dated September 9, 2016.

Navy/DLA. 2017 Red Hill Fuel Storage Facility –Tank Upgrade Alternative Decision Process, September 29, 2017.