

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
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June 1, 2017

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and

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Dear Messrs. Pallarino and Chang:

Subject: Board of Water Supply (BWS) Comments to the Red Hill Administrative Order on Consent (AOC) Statement of Work (SOW) Tank Inspection, Repair, and Maintenance (TIRM) Procedure Decision Document Section 2.4 Dated April 24, 2017

The BWS has reviewed the subject document and found generally that the document resembles an outline/specification document and lacks specificity as to how decisions were reached and explanations for the rationale for the approaches proposed to be taken. Specifically, the BWS offers the following comments.

TIRM Comment 1: Generally speaking, the decision document does not take into account any of the recommendations and requests outlined in the November 2016 BWS letter (Lau 2016a) regarding the TIRM Report developed under AOC SOW Section 2.2. Specifically, the BWS has provided input on TIRM as it relates to the Red Hill Bulk Fuel Storage Facility (RHBFSF) piping, tank inspection/repair history, current and future tank inspection status, Tank 5 lessons learned, and historic tank repair practices. The BWS would refer the Environmental Protection Agency (EPA) and Department of Health (DOH) to our previous letter on Section 2.2 for detailed comments on these topics.

TIRM Comment 2: Chapter 1-5 of the Decision Document indicates that the draft tank inspection specification (TIRM Report Attachment BD) will be finalized to incorporate “constructive comments to the Draft Specification received from stakeholders and external Subject Matter Experts (SME) prior to the issuance of the next CIR (Clean, Inspect, Repair) contract.” It goes on to indicate that the expected deployment date of the finalized tank inspection specification is 2019. Given that the BWS and its consultants have been providing the Navy with constructive comments regarding tank inspection since 2015 (e.g., Lau 2015), a three-year lag in *possibly* incorporating those into the specification is excessive.

TIRM Comment 3: We offer the same comment as Comment 2 above as it relates to Chapter 2-5 and the schedule for the completion of the tank repair specification.

TIRM Comment 4: The Navy references “continuous process evaluation” in Chapters 3-5 and 4-5 as a means of identifying improvements. The BWS requests that the Navy provide additional detail about the format and structure of the continuous process evaluation that is to be performed.

TIRM Comment 5: Section 1-4.1 bullet (n.) Page 1-3 and Section 1-4.2 bullet (g.) on Page 1-4 discuss the use of visual methods using high definition remote video units to examine inaccessible nozzle piping whereas attachment BD of the previously-published TIRM report (to which we are referred for more information and we feel should also be attached to this TIRM SOW) just mentions “establish geometric data for the inaccessible piping.” (Section 1.6.7 Piping and Nozzle Inspection design, pg. 15). The BWS has previously expressed concerns regarding visual inspections as well as from hydrotests as these methods only indicate what is on the surface or through-wall penetration leaks from the hydrostatic testing. Either method provides any indication of the depth of cracks, pitting, or corrosion induced wall thinning on the outside surface of the nozzle piping. Therefore, there is no way to determine if the nozzle piping is likely to survive in a leak-free condition until the next inspection period. BWS believes that additional attention and inspection techniques be developed to understand the degree of damage to these critical items.

TIRM Comment 6: Section 7-2: Specific Benefits, pg. 7-1 discusses the benefits of increasing the frequency of tightness testing from biennial to annual and that “The Navy and DLA have been compliant with regulatory requirements for tank tightness testing.” and that “This new practice is compliant with new regulatory requirements for tightness testing which will come into effect in 2018.” The BWS notes that compliance with past or impending regulations is not synonymous with leak tightness. The environmentally-sensitive setting of the tanks just above the aquifer elevates the importance of slow but steady leaks. Small, chronic leaks less than 0.5 gallons per hour could be releasing product to the environment and yet be undetected by current testing.

TIRM Comment 7: Chapter 9 – 9-2 Specific benefits regarding spot coat areas where the coating is currently disbonded, implies that only “Areas more susceptible to internal corrosion are coated with a barrier system.” BWS would like to know if this is what is currently planned or is this just an option that is only being considered? In addition, BWS would like to know what is meant by “areas more susceptible to internal corrosion.” Where are these areas located? This section also mentions “coating system is thick and flexible to so it can bridge small discontinuities in the metal surfaces.” What is meant by “small discontinuities”? This section also states that “Minimizes chance of bimetallic corrosion between new and old steel.” Does this mean that the plan is to coat all patches in the bottom dome area which might be exposed to tank bottom water? If so, this should be explicitly stated.

BWS believes there should be special considerations made regarding coating the bottom tank areas that may be exposed to tank bottom water and to the areas above the normal fuel area (the upper barrel and the upper dome) that are likely exposed to more severe corrosive conditions since they are not normally fuel wetted.

Furthermore, currently is not clear to the BWS why there are three Coating sections. The first coating section is Chapter 9 regarding spot coating. The second is Chapter 13 regarding “Coat Entirety of Tank.” The third is Chapter 16 “Coat the Lower Dome and Barrel to the Top of the Barrel Region.” BWS believes these three coating chapters could be better addressed in one chapter.

TIRM Comment 8: Chapter 12 provides an overview of the tell-tale system, including several statements about its potential benefits. It appears that the decision regarding the re-installation of the telltale system had been deferred until decisions have been made regarding the Section 3 Tank Upgrade Alternatives (TUA) and Section 4 Release Detection/Tightness Testing decision are made. The BWS has previously expressed concerns over re-instating the tell-tale system on numerous occasions (Lau 2016a). In November 2016, the BWS indicated that prior experience had indicated that the tell-tales had limited effectiveness and reliability through the years and that a double-wall tank is a much more reliable method for detecting tank leaks.

TIRM Comment 9: Chapter 19-5(a) indicates that non-destructive examination (NDE) of the Tank 17 patch plate welds can be accomplished in one day. This may be overly optimistic with respect to the time required. BWS would like to know how many patch plates, the length of weld for each patch plate, and the NDE inspection methods to be used upon which this time estimate is based.

TIRM Comment 10: While the BWS does not support the reinstallation of a tell-tale system, it is unclear what the basis is for claiming that such a system “will take several weeks to install while the tanks are out of service” (Chapter 19-5(b)). Any new mechanical leak detection system would require extensive design, installation, and evaluation work before deployment. If the Navy is, in part, basing its decision to

potentially reinstall the tell-tales on their perceived ease of reinstating such a system, that belief should be revisited.

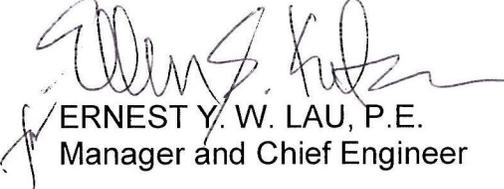
TIRM Comment 11: Attachment A: "Errata" corrects some paragraphs in Section 2.2 TIRM report dated October 11, 2017. On page A-2 the Errata states "After 17 unrepaired gas test holes through the tank shell were found, the underlying cause of the release was clear and the forensic phase ended." BWS has previously stated in meetings that the cause was twofold. First, the holes were not welded closed, and second, that there also had to be a leak in the weld patch as well. BWS still has concerns regarding previous repair welds that have been made on other tanks where similar conditions may have existed (i.e. unrepaired gas test holes and repair patch welds containing defects).

TIRM Comment 12: Attachment B "Brief Background on Red Hill Tank Construction" refers readers to a Wikipedia page for "[m]ore information on Red Hill tank construction." The Navy should be aware that Wikipedia is not considered a credible or authoritative source for technical information, especially given that its content can be edited without appropriate review and approval. The Navy should immediately modify Attachment B to cite a reputable technical source for more information on the construction of the RHBFSF.

TIRM Comment 13: TIRM Appendix BF "Tell-tale Leak Detection and Leak Collection System" indicates that Mr. Boerner had recommended "... added precaution to protect the fresh water aquifer would be a series of two- inch diameter horizontally drilled holes into the porous rock under each tank to intercept and drain into the lower tunnel leaking fuel which may not have been picked-up by the tell-tale system." BWS would like to know if his recommendation was ever acted upon, documented in additional reports, or is being considered in the TUA task.

If you have any questions, please feel free to contact me at 808-748-5061.

Very truly yours,



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References

Lau, E. Y. W. (2015). Board of Water Supply Recommendations to Consider in the Development of the Red Hill Administrative Order on Consent (AOC) Work Plans, To: United States Environmental Protection Agency (EPA), State of Hawaii Department of Health (DOH), Department of Navy (Navy) and the Defense Logistics Agency (DLA), Board of Water Supply, Honolulu, HI., December 3.

Lau, E. Y. W. (2016a). Letter to Mr. Bob Pallarino, United States Environmental Protection Agency (EPA) and Mr. Steven Y.K. Chang, State of Hawaii, Department of Health regarding: Board of Water Supply (BWS) Comments to the Tank Inspection, Repair and Maintenance (TIRM) Report Being Developed Under the Red Hill Bulk Fuel Storage Facility (RHBFSF) Administrative Order on Consent (AOC) Statement of Work (SOC) Section 2, November 21.