



**UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY
REGION IX**
75 Hawthorne Street
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**STATE OF HAWAII
DEPARTMENT OF HEALTH**
P. O. BOX 3378
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September 5, 2017

Captain Richard D. Hayes III
Regional Engineer, Navy Region Hawaii
Naval Facilities Hawaii
400 Marshall Road
Joint Base Pearl Harbor Hickam, Hawaii 96860

Re: Approval of Red Hill Administrative Order on Consent (“AOC”) Statement of Work (“SOW”) Section 2.4- Tank Inspection, Repair and Maintenance (“TIRM”) Procedures Decision Document and Clarifications

Dear Captain Hayes:

The U.S. Environmental Protection Agency (“EPA”) and Hawaii Department of Health (“DOH”), collectively the “Regulatory Agencies”, have reviewed the TIRM Procedures Decision Document submitted by the U.S. Department of the Navy (“Navy”) and Defense Logistics Agency (“DLA”) on April 24, 2017 and the subsequent clarifications received on August 15, 2017. The Regulatory Agencies are approving in whole the Decision Document. The Decision Document details tank inspection, repair and maintenance procedures that are currently being implemented, or plan to be implemented, to improve the performance, reliability and integrity of the large underground storage tanks at the Red Hill Bulk Fuel Storage Facility. The clarifications enclosed with this letter and provided by the Navy and DLA in response to inquiries by the Regulatory Agencies and the Honolulu Board of Water Supply satisfactorily address our concerns.

Per section 2.4 of the Red Hill AOC SOW, Navy and DLA shall implement the TIRM Procedures Decision Document and adhere to it unless modified under sections 3.5 or 3.7 of the Red Hill AOC SOW. Please contact either of us if you have any concerns or comments regarding this approval.

Sincerely,

Robert Pallarino

Bob Pallarino
Project Coordinator
EPA Region 9 Land Division

Steven Chang
Project Coordinator
DOH Solid and Hazardous Waste Branch

Enclosure

cc: Mark S. Manfredi, Navy (via email)
John Montgomery, Navy (via email)



DEPARTMENT OF THE NAVY

COMMANDER
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5750
Ser N4/0233
15 AUG 2017

Mr. Bob Pallarino
U.S. Environmental Protection Agency
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75 Hawthorne Street
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Mr. Steven Y.K. Chang, P.E., Chief
State of Hawaii Department of Health
Environmental Management Division
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 210
Honolulu, HI 96814

SUBJECT: CLARIFICATIONS ON ADMINISTRATIVE ORDER ON CONSENT
STATEMENT OF WORK (AOC/SOW) SECTION 2.4 TANK INSPECTION,
REPAIR AND MAINTENANCE (TIRM) PROCEDURE DECISION
DOCUMENT, RED HILL BULK FUEL STORAGE FACILITY, JOINT BASE
PEARL HARBOR-HICKAM, OAHU, HAWAII

Dear Mr. Pallarino and Mr. Chang:

The U.S. Department of the Navy ("Navy") and Defense Logistics Agency ("DLA") received a letter from the U.S. Environmental Protection Agency ("EPA") and Hawaii Department of Health ("DOH") on June 16, 2017 requesting clarification on our TIRM Procedure Decision Document. The letter contained two (2) enclosures: "Enclosure A" which was comprised of comments from EPA/DOH and "Enclosure B" which was a letter from the Honolulu Board of Water Supply dated June 1, 2017. As requested, the Navy/DLA addressed these concerns during the last Face-to-face meetings the week of June 19th.

Enclosed are the formal, written responses to your letter's enclosures. If you have any questions regarding this matter, please contact Mr. Mark S. Manfredi, Red Hill Regional Program Director, at (808) 473-4148, email: mark.manfredi@navy.mil.

Sincerely,

R. D. HAYES, III
Captain, CEC, U.S. Navy
Regional Engineer
By direction of the Commander

Enclosure: Response to Enclosures A and B from EPA/DOH Itr of June 16, 2017

Item	Source	Type	Page No	Para No	Line	Comment	Rationale	Decision (A/R/M)
16 Jun 2017 Letter Enclosure A, EPA/DOH to CAPT Hayes, Request for Clarification								
1	EPA/DOH		2	1		<p><u>Chapter 1</u> <i>1-2 g. Require establishment of a professional data management system</i> The Regulatory Agencies encourage the Navy and DLA to implement a data management system that allows for the analysis of inspection data across multiple tanks accessed by various contractors. Please describe the data management characteristics practices and functions that Navy and DLA will incorporate to analyze inspection data across tanks that may be assigned to different contractors.</p>	<p>Concur. Software will be commercial off-the-shelf type. Concur the organization of data will allow analysis of results across tanks. Primary factors to be implemented are:</p> <ol style="list-style-type: none"> 1) Comprehensive serialization of indications 2) Backup capability to provide continuity in the event of malfunction or error 3) Capability to audit the provenance of repairs back to inspection indications 4) Secure and limited access to ensure data integrity 5) Consistent methodology of registering indications to tank geometry to ensure repeatability across tanks 	A
2	EPA/DOH		2	2		<p><u>Chapter 2</u> <i>2-2 h. Establish repair requirements for gas test holes</i> The Regulatory Agencies acknowledge the critical practice of properly managing gas test holes during tank repair work. Please clarify that these management practices are going to be required in both tanks awarded under this specification for tank inspection, and tanks currently undergoing inspection and repair while the specification is still draft.</p>	<p>Any gas test holes will become serialized into the database. Attachment BE addresses design of gas test holes, installation, specific repair requirements, materials, welding, and nondestructive examination frequency and acceptance criteria of welded gas test holes.</p> <p>Attachment BD addresses gas test holes in a manner duplicative of Attachment BE. Future concept designs are planned to include a gas test hole repair detail.</p>	A
3	EPA/DOH		2	3		<p><i>2-4 Current Implementation</i> This paragraph notes that inspection and repair contracts for tanks 14, 17, 18, 4 and 13 exceeded contract requirements and incorporate the desired elements of TIRM Report Attachment BE. It is our understanding that tank 5 is undergoing warranty work. Nevertheless, it is critical that tank 5 reflect the best repair practices established thus far. Please clarify how tank 5 repairs reflect the improvements of TIRM Report Attachment BE.</p>	<p>Tank 5 is undergoing inspection. Should repair be required, the best practices of Attachment BE incorporating EPA/DOH comments will be implemented.</p>	M

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4	EPA/DOH		2	4		<p><u>Chapter 5</u> The Regulatory Agencies believe that the intent of this chapter is to explain that the contractor's quality control manager will report directly to a corporate officer instead of the job foreman. However, it is not clear from the discussion in this chapter that using the Navy's standard design- build contract specific to petroleum, oil and lubricant results in this improvement. The Navy should clarify this improvement and list it as a specific benefit.</p>	<p>The NAVFAC design-build contract model includes Division 01 General Requirements. These are minimum contract requirements for contractor quality control, safety, and schedule. Adherence to contract requirements will require the Quality Control Manager role to be independent of production, safety, and project management.</p>	M
5	EPA/DOH		2	5		<p><i>5-2 Specific Benefits</i> Please explicitly clarify what the specific benefits are from parts a) and c).</p>	<p>5-2(a): UFGS Section 01 45 00.05 20 is the NAVFAC implementation of Contractor Quality Control pursuant to NAVFAC P-445 Construction Management Program. The specification section requires a plethora of quality control activities which must take place. See http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs for further information.</p> <p>5-2(c): Performing Quality Assurance of contract General Requirements is standard across the NAVFAC construction enterprise. Aligning a fuels specialty contract with existing NAVFAC practice leverages the knowledge skills and experience of the local construction manager, engineering technician, and contracting officer representative who are charged with primary Quality Assurance duties.</p>	M
6	EPA/DOH		2	6		<p><u>Chapter 9</u> The Regulatory Agencies are encouraged by the Navy's proactive plan to spot coat areas where the coating is currently disbanded. coat patch plates, and spot or stripe coat selected areas. The Regulatory Agencies seek clarification regarding the conditions when and where coatings will be applied. To encourage an effective coating, the Regulatory Agencies encourage the Navy to follow manufacturer's specifications which typically involve adequate surface preparation and finish of near white or white metal by way of sand blasting.</p>	<p>Concur. Navy will follow UFGS 09 97 13.15. See http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs for further information.</p> <p>Coating is planned to be applied on the lower dome, patch plate welds, and other areas noted during inspection that should be coated.</p>	A

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7	EPA/DOH		3	1		<p><u>Chapter 10</u> The Regulatory Agencies understand the benefit of having slotted tubes installed in tanks where slots may be absent. The Regulatory Agencies recommend that the Navy install slotted tubes with the material that is best equipped to assist with automatic tank gauging for the Red Hill underground storage tanks, whether it is carbon steel, aluminum or stainless steel, regardless of DLA policy that applies to large aboveground storage tanks</p>	Concur.	A

Column 9 – DECISION (to be used in reconciliation)

A - Accept

R – Reject (Rationale required for rejection)

M - Accept with modification (Rationale required for modification)

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01 Jun 2017 Letter HBWS to EPA/DOH								
1	HBWS		1	2		<p><u>TIRM Comment 1:</u> 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.</p>	All comments were considered. The Tank Inspection Repair Maintenance Section does not address piping beyond the first isolation valves.	R
2	HBWS		2	1		<p><u>TIRM Comment 2:</u> 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 <i>possibly</i> incorporating those into the specification is excessive.</p>	Comment misstates the facts. There is no three-year lag. The TIRM Procedure Decision Document clearly states the tank inspection specification is an improvement currently being implemented. It will be incorporated into the next tank inspection contract without delay.	R

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3	HBWS		2	2		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.	Comment misstates the facts. There is no three-year lag. The TIRM Procedure Decision Document clearly states the tank repair specification is an improvement currently being implemented. It will be incorporated into the next tank inspection contract without delay.	R
4	HBWS		2	3		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.	It is NAVFAC best practice to incorporate lessons learned as a means to improve service to supported commands.	M
5	HBWS		2	4		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.	Misstates facts. Attachment BD paragraph 1.6.7 contains inspection design requirements for tank nozzle piping in five subparagraphs. Paragraph 2.2 contains hydrostatic test product requirements in six subparagraphs. Attachment BD Part 3 provides numerous subparagraphs which address the execution of inspection of tank nozzle piping.	R

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6	HBWS		2	5		<p><u>TIRM Comment 6</u>: 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.</p>	<p>This comment should be directed to AOC SOW Section 4 and not Section 2.</p>	M
7	HBWS		3	1		<p><u>TIRM Comment 7</u>: Chapter 9 - 9-2 Specific benefits regarding spot coat areas where the coating is currently disbanded, 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.</p>	<p>The Design-Build Contract Part 3 will identify all areas that are to be coated. The area most susceptible to corrosion is the lower dome. Coating the lower dome is required in the current repair contracts, and is planned to be required in future contracts. The coating system is not designed to be applied over corrosion. Corroded areas are to be repaired prior to coating</p>	M

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8	HBWS		3	2		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.	Navy practice is to coat tank lower dome and not the upper dome. It is not Navy practice to fill the tank into the upper dome.	R
9	HBWS		3	3		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.	Chapter 9 is in Part B "TIRM Improvements Planning to Be Implemented." Chapter 13 is in Part C "TIRM Improvements – Dependent on Other AOC SOW Sections." Chapter 16 is in Part D "Considered TIRM Improvements – Not Recommended."	R
10	HBWS		3	4		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.	Noted.	R
11	HBWS		3	5		TIRM Comment 9: Chapter 19-5(a) indicates that non-destructive examination (NOE) 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 NOE inspection methods to be used upon which this time estimate is based.	Approximately twelve patch plates are expected to be required as a result of destructive testing. This magnitude of repair is not on the TIRM critical path.	R

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12	HBWS		3	6		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.	Noted.	R
13	HBWS		4	1		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).	Paragraphs identified in the Attachment A Errata are repeated in their entirety solely for purposes of clarity. The only change made by Errata No. 2 is the addition of two words which are underlined in the Errata.	R
14	HBWS		4	2		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 RHBFSE.	TIRM Section 2.4 Attachment B was provided as an aid to readers. Numerous open sources exist which document historical tank construction activities.	R

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15	HBWS		4	3		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.	Not a part of AOC SOW Section 2.4 TIRM.	R

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