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TREASURE ISLAND  
SSIC NO. 5090.3.A

California Department of Public Health  
**MEMORANDUM**

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**DATE:** October 4, 2012

**TO:** Remedios Sunga, Project Manager  
Department of Toxic Substances Control  
Brownfields and Environmental Restoration Program - Berkeley Office  
700 Heinz Avenue  
Berkeley, CA 94710-2721

**FROM:** Larry Morgan, Senior Health Physicist  
Environmental Management Branch  
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A handwritten signature in black ink, appearing to read "Larry Morgan", is written over the typed name and address of the sender.

**SUBJECT:** California Department of Public Health Review of the Draft Historical Radiological Assessment – Supplemental Technical Memorandum, Naval Station Treasure Island, San Francisco, California, August 6, 2012

Based upon a request by the Department of Toxic Substances Control (DTSC), the Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) reviewed the *Draft Historical Radiological Assessment – Supplemental Technical Memorandum, Naval Station Treasure Island, San Francisco, California, August 6, 2012* prepared by the Department of Navy (DON). Attached are general and specific comments from EMB regarding radiological issues for the submitted supplemental technical memorandum.

If you need further assistance about this response please contact Tracy Jue and Matthew Wright of my staff at 916-324-4804 and 916-449-5687, respectively.

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### General Comments

The Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) appreciates the opportunity to review the submitted Draft Historical Radiological Assessment – Supplemental Technical Memorandum.

1. EMB recommends identification and listing of radionuclides of concern for all radiological impacted sites and buildings. The Department of Navy (DON) needs to identify the use of radionuclides, and where and how disposed. Please establish if there were any known radionuclide sealed sources or radiological contamination prior to DON's ownership of Treasure Island (TI), and whether your records indicate the fate and transport of such items.
2. The Historical Radiological Assessment Supplemental Technical Memorandum (HRA-STM) needs to adequately address EMB current concerns regarding the higher level activity Ra-226 items found on Treasure Island (TI) in the form of radium foils and buttons, commonly referred to as commodities.

EMB stated in a Memorandum of May 17, 2012, "Understanding the presence, use and location of disposal for all these items (foils and buttons) needs to be the primary focus of the Technical Memorandum (TM) to the Historical Radiological Assessment (HRA)." The updated Conceptual Site Model, 5.2.1.1 states, "Based on the research conducted to date, the source of the radioactive foils and buttons is unclear..." Please further elaborate their use, location, and disposal. Please detail how many cubic feet of Low Level Radioactive Waste (LLRW) have been shipped from TI and its point of origin. Please detail how many radioactive waste shipments whose contents were greater than LLRW have been made from TI, their nature and point of origin.

3. DON previously excavated approximately 580 trenches presumably for characterization purposes, and collected over 1,500 soil samples; of which four soil samples were analyzed for radionuclides. EMB has not seen characterization plan(s) that included analysis of a large fraction or all of the 1,500 samples. If the previously collected samples are unavailable for analysis now, the locations where samples were collected and chemicals, debris, staining or odors were found need to be incorporated into upcoming characterization plans. Since CDPH's stated conceptual model is that these sites are potentially impacted by radionuclides, these characterization plans need to be developed soon.

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4. Based on a preliminary review, EMB has found DON did not provide radiological information about the extent of contamination for all radiologically impacted buildings or sites from the following:
    - Industrial waste lines,
    - Outfalls to the San Francisco Bay,
    - Characterization of surface below asphalt,
    - Removal of surface anomalies,
    - Excavation of sewer drainage system,
    - Plume footprint from incinerator, and
    - Solid waste disposal areas for the entire island.

5. For future reference, please provide EMB with a summary table of Site 12, Solid Waste Disposal Area (SWDA) sites. The table should include the following information: all buildings, potentially impacted buildings and building sites. At a minimum, display the following information; Area of Interest (AOI), surface area m<sup>2</sup>, total number of soil samples collected, elevated Radionuclide of Concern (ROC), total soil remediated, and backfill soil data and analysis for all buildings, building sites and sites.

It is important for EMB to understand past and current soil movement by DON and their contractors. EMB's conceptual model views the presence of debris, odors or soil discoloration, as an indicator of potential presence of radionuclides. EMB welcomes future review of a revised and complete conceptual site model.

The revision to the HRA document does not list the sites at TI where debris, odors or soil discoloration has been observed. Please list these sites in a summary table and provide a corresponding legend. This table would guide further scoping and characterization work that EMB has indicated will be needed at TI.

6. In reference to soil movement on TI, EMB recommends including information gained from public interviews of current and past contract workers who worked or remediated during site operation or after site closure.
7. There are no Applicable or Relevant and Appropriate Requirements (ARARS) in the HRA-STM that describe radiological ARARS. Please provide radiological ARARS information in a prescribed section. See Title 17 of California Code of Regulations Section 30256, which EMB uses to determine Radiological Unrestricted Release Recommendation (RURR) for buildings and sites.

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8. Provide an assessment for the likelihood of contamination migration from surface to subsurface, sediment, soil types, ground water, airborne, and drainage systems for all impacted sites.
9. During past discussions at Base Closure Team (BCT) meetings and Technical meetings, DON staff mentioned possible disposal of radio-nuclides used at Treasure Island (TI). Please provide documentation and resolution about a DON contracted report (NBy-61078) submitted in 1965, and other reports if they exist, that provide further information about "...radioactive and poisonous wastes had been buried west of the abandoned landing strip in a future construction area."
10. Area of Interest (AOI) boundaries should follow streets or natural landmarks. AOI boundaries currently cut through buildings making identification difficult.
11. There is no general discussion about release of radiological contaminants from the outfalls to the San Francisco Bay. Please explain potential storm drain and sanitary sewer contamination.
12. HRA-STM needs to address the potential contamination migration via sanitary sewer and storm drains. For example, Building 233 sanitary sewer system extends beyond the boundaries of Building Site 233 and its terminus is as yet unknown.

### Specific Comments

13. Page ES-1, Executive Summary, paragraph four, bulleted radiological impacted areas should have included the following:
  - Site 33 Sailboard pad and drain lines,
  - Ash Incinerator, and
  - Roads, storm drains and ditches adjacent to roads and wash down areas used in soil transport
14. Page 9, Section 2.2.2 , AOI 2: Former Hospital Area, second paragraph "The Waterline Replacement Area, Site 33,(Figure 4) is currently undergoing additional investigation ... the work will be published in a Remedial Action Completion Report after the work is done". A final status survey report of Site 33 should also be provided.

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15. Page 11, Section 2.2.2, AOI 2: Former Hospital Area, paragraph three, states "AOI 2 was built out by the end of WWII and because it was already developed by that time, there is little likelihood for debris to be disposed of in the AOI during that period". What is DON's rationale for this statement? What are the soil subsurface conditions? Does DON still maintain that it stored the more than 200 drums of radiological waste originating from Building 233 (Final Treasure Island Naval Station Historical Radiological Assessment, Former Naval Station Treasure Island, San Francisco, California, February 2006, page 6-21, Section: 6.6.1, paragraph two, sentence five) prior to being loaded aboard USS *Independence*? Please review to see if this statement still reflects DON assessment.

16. Page 16, Section 2.2.6, AOI 6: Sewage Treatment Area, paragraph three, states "After the HRA, and unrelated to the USS *Pandemonium* Site II, a removal action was completed in 2009 at Site 32 that included the footprint of the USS *Pandemonium* Site II". It further noted soil was removed to a depth of two to twelve feet; please include the fate and transport of removed soil. The USS *Pandemonium* itself was dismantled and shipped from site. Please include a radiological assessment of the vessel at time of disassembly as well as fate and transport of remains.

The infrastructure to wash or remove radiological contamination at both sites needs further clarification. Radiological decontamination by washing or some other means indicates that the affected pipes, containers, ditches etc. are considered contaminated. Please expand the discussion about areas or buildings that are potentially contaminated during radiological training.

17. Page 18, Section 2.2.6, AOI 6: Sewage Treatment Area, paragraph one, sentence four, please clarify the period of use, and potential trips per day for the "...end loader bucket..." used to transport potential radiologically contaminated soil from Site 12 to Site 6.

18. Page 18, Section 2.2.7, AOI 7: Northern Housing Area of Interest, first paragraph states that a radiological survey performed in North Point and Bayside Areas in 2009 provide the data and insert those data and results in the HRA-STM, perhaps as an appendix. Gamma walkover surveys will not address the subsurface contamination or the debris underneath the building and soil beneath telephone poles.

19. Page 20, Section 2.2.7, AOI 7: Northern Housing Area of Interest, photograph 19, this is a picture of the former incinerator, provide an assessment of the conceptual site model for the ash from the incinerator that includes standard meteorological data and wind-flow information. The seasonal plume areas need to be identified, especially adjacent to the incinerator. Please identify how the ash from the incinerator was transported and deposited on the island. Please provide maps or diagrams of ash distribution. Please

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detail the extent of burn pits to which the ash might have been transported, including the methodology on how those pits were bounded.

The conceptual model should include historical background, nature and extent of the contaminant release, environmental media impacted, fate and transport of radionuclides of concern in the environment, potential receptors, exposure pathways and risk assessment. In this description please include the high activity foils, the buildings and debris locations, the adjacent incinerator's plume impact on this site, demographics of ash and burn debris, radiological fall out, wind flow diagrams, sanitary sewer and industrial waste lines, the crawl space below the building and the area surrounding the building.

20. Page 30, Section 4.1.3, USS *Pandemonium* Site II (NE), paragraph two, states, "...the contractor did periodic radiological scans on the hands and feet of personnel and on rubber tires of heavy equipment demobilizing from the site...No elevated radiation was detected." Health and Safety scans for remediation staff do not qualify as a characterization scan for any site. Please eliminate this statement from the HRA-STM text.
21. Page 36, Section 4.3.4, Building 233, first paragraph, the text fails to mention discovery of additional radiologically impacted terra cotta pipe.  
The Final Status Survey (FSS) must demonstrate a preponderance of evidence that there are no other impacted lines associated with Building 233. The remediation of a newly discovered impacted pipe, encountered while remediating a known impacted pipe, does not meet this standard.
22. Page 39, Section 5.2.1.4, Human Receptors and Exposure Pathways, please include Building 233, Site 6, Site 32, as bulleted items.
23. Page 43, Section 6.1.1.1, Building 233, paragraph one states "This HRA-STM did not identify any changes from the previous findings of the HRA for this building and sanitary sewer system other than the plan to conduct an FSS for the Building footprint, the sanitary sewer system associated with the building and surrounding areas." This statement fails to identify the Building 233 parking lot and additional sanitary sewer pipes adjacent to Building 233 as items to be covered in a FSS. What additional sites or building drainage systems are impacted by the contaminated pipelines?