California Department of Public Health
MEMORANDUM

DATE: April 13, 2011

TO: Stewart Black, Acting Deputy Director
Department of Toxic Substances Control
1001 'I' Street
Sacramento, CA 95814-2828

FROM: Stephen Woods, Department of Defense Project Manager
Center for Environmental Health
California Department of Public Health (CDPH)
Division of Drinking Water and Environmental Management

SUBJECT: U.S. Naval Station at Treasure Island (TI) – California Department of Public Health (CDPH) Environmental Management Branch (EMB)/Department of Toxic Substances Control (DTSC) agreement #10-T1033

I am writing to inform you of several issues that may prevent the California Department of Public Health (CDPH) Environmental Management Branch (EMB) from providing a recommendation to support current and future Finding of Suitability to Transfer (FOST) at US Naval Station at Treasure Island (TI). We previously informed the California Department of Toxic Substances Control (DTSC) Project Manager of the concerns verbally and in a written communication dated October 29, 2010 (Attachment 1). It is our understanding that within the current FOST, Base Realignment and Closure (BRAC) plans to transfer a large area of TI out of federal control this year and possibly within the next 30 days.

The large volume of radiological contaminated material, high number of radioactive commodities (individual items or sources) and high levels of radioactive contamination identified at Site 12 and Building 233 have raised concerns with CDPH regarding the nature and extent of the radiological contamination present at TI. In addition, on February 2, 2011, during a Base Closure Technical Meeting, the Department of Navy (DON) revealed that additional radioactive sources have been found at Site 31, outside of the originally defined potentially impacted areas. This finding was not expected nor was site 31 previously identified as radiologically impacted. These findings point out that the existing TI Historical Radiological Assessment (HRA) does not adequately address the nature and extent of radioactive materials on site. The lack of an adequate radiological conceptual site model raises concerns that some sites included in the FOST may be radiologically impacted as well.

Recent survey finding by CDPH on April 5-7, 2011 of TI found 4 radiological sources outside of controlled areas (site 12), that protect a known radiological impacted site. These were areas that should have previously surveyed and cleared by DON TI Contractors. Inadequate identification of radiologically impacted or contaminated areas calls into question all remediation activities that involve removal, sorting, transport and disposal of soil and debris. Such activities may have resulted in the spread of radionuclide contamination to the proposed FOST areas. The DON needs to address these concerns.

Consequently, with the above considerations and limitations in mind, CDPH recommends that the DON fully characterize TI to determine the nature and extent of radionuclide contamination. In accordance with DON commitments in the HRA, the DON needs to conduct additional surveys, screening, and sampling at TI. Attachment 2 is EMB's review of the complex issues and steps that are necessary in order to move forward on the proposed FOST and related radiological issues.

Open communications among all agencies and other stakeholders are critical to the success of the military cleanup program. CDPH is committed to achieve the common goal of transfer of TI properties for future safe uses. However, if the property specified in the FOST is transferred to recipient(s) under state jurisdiction without EMB concurrence on unrestricted release, then the recipient(s) must apply to the Radiologic Health Branch (RHB) of CDPH for a radioactive materials license. The Application process will require supporting documentation that is not currently available from the DON. Therefore, it is likely that the recipient of the property, without EMB concurrence on unrestricted release, would need to perform much or all of the additional characterization work recommended above. In addition, the recent March 24, 2011 decision by the Nuclear Regulatory Commission (NRC) to regulate radium-226 under military control may require the NRC to review and approve any transfer of the FOST. These issues should be made very clear to the potential property recipients before they accept the property. I recommend that we meet with your staff to discuss our recommendations on a path forward on the TI FOST. If you have any questions or comments on this memorandum, please contact me at (916) 449-5583.

Attachments: 1) EMB memo to DTSC dated October 29, 2010
2) EMB review of the TI FOST and radiological issues

cc: Miren Klein
Leah Walker
Glenn Takeoka

California Department of Public Health
MEMORANDUM

DATE: October 29, 2010

TO: Remedios Sunga
Remedial Project Manager
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FROM: Larry Morgan, Senior Health Physicist
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SUBJECT: Response to Draft Finding of Suitability to Transfer for Parcels 1-9, Submerged Parcel (Excluding Site 27), the Battery Site, Torpedo Building Site 28 and East Site Freeway On-Off Ramps Dated September 28, 2010 at Former Treasure Island Naval Shipyard

It is our understanding at Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) that the ongoing remediation of Ra-226 contaminated soil and discrete radioactive sources, aside from Building 233, began as a non time critical removal action (NTCRA) for chemical contaminants. The work plan and other documents for that removal action defined the area where chemical contaminated soil would be removed and also indicated that soil would be screened for radionuclides to ensure that they were not present. Because of that screening work, EMB was asked to review the related documents.

As the NTCRA for chemical removal progressed, discrete radioactive sources, broken or damaged radioactive sources, and radionuclide contaminated soil was found. The primary radionuclide found was Ra-226. The NTCRA for chemicals started in 2007 or 2008 and apparently continues as the removal action basis for continued radionuclide remediation work that is ongoing. It is our understanding that the Navy and their contractors have found radionuclide sources and soil contamination outside of the original defined area for the NTCRA for chemicals. In addition, it is our understanding that the conceptual model for these radionuclides found outside the original area defined in the NTCRA is not well understood and it has not been published or made available to the public. In addition, the finding of relatively high level radioactive sources, such as the one that is now shielded by steel plates due to its radioactivity level, raise additional unanswered questions about the conceptual model for this site.

While the original NTCRA for chemicals may be providing a vehicle to continue radionuclide remediation, the lack of a published conceptual model for radionuclides found to date presents additional concerns for EMB. The findings of radioactive sources outside the originally defined area and the lack of typical CERLCA-type documents with associated reviews of documentation such as remedial investigation and characterization documents create concerns whether areas potentially impacted by radionuclides have been properly identified, and subsequent remediation activities such as removal, sorting and transport of soil may result in the spread of radiologic contamination to other areas of Treasure Island.

Consequently, with the above considerations and limitations in mind, CDPH recommends that DTSC proceed very carefully with respect to this or any other FOST or transfer of property currently classified as non-impacted with radionuclides. At this time CDPH cannot concur on or recommend the existing FOST to DTSC.

Attachment 2:
CDPH Environmental Management Branch (EMB) review of Treasure Island Finding of Suitability to Transfer (FOST) and Radiological Issues

One of the following approaches is usually selected when there are questions regarding a FOST and concerns whether or not some sites in the FOST are properly classified or designated as suitable for transfer:

1. Sites listed in the FOST that should be classified as potentially impacted with radionuclides are identified and removed from the FOST. Then the FOST proceeds with the remaining parcels of land.

2. If individual sites or large areas of the proposed FOST are identified as potentially impacted with radionuclides, then the FOST is delayed until critical sites identified as potentially impacted with radionuclides are found suitable for unrestricted release through additional historical research, characterization studies and/or remediation.

In general these two approaches or a combination of both approaches are possible at Treasure Island, but the complexity of the issues identified to date indicate difficulties are likely to occur during implementation.

Background and Current Issues:

- Soil is currently being relocated within Treasure Island or transported offsite for disposal based on the outdated historical site assessment which assumes most areas of Treasure Island are not impacted by radioactive materials. Clearly this conceptual model is outdated and may be leading to improper classification and shipment of soil, since most soil being moved or disposed is not being characterized for radionuclides.

- With Base Realignment and Closure (BRAC) approval and without informing EMB or Radiologic Affairs Support Office (RASO), some sites appear to have been improperly classified and remediated under the assumption that they were not impacted by radioactive materials. An example is the former USS Pandemonium Training site.

- EMB believes that an appropriate conceptual site model assumes that soil with chemical contaminants of concern and/or containing debris also contains radionuclides until proven otherwise. The outdated assumptions currently used at Treasure Island have been contradicted, since radioactive materials have been found in areas previously assumed to not be impacted.

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- Violations noted below during the January 12, 2011 inspection of the Department of Navy (DON) contractor by the CDPH Radiologic Health Branch has potential impacts on the current FOST.
    - Failure to prepare documents for transporting radioactive material prior to transporting over public roads
    - Failure to provide shippers certification of radioactive materials transported over public roads
    - Failure to properly characterize radioactive materials in storage containers to meet 10 CFR Part 20 requirement
    - Failure to allow CDPH personnel access to records and radiologicaly impacted areas

- Problems EMB has had in obtaining adequate documentation of work allegedly done at Treasure Island lead EMB to recommend that review of sites included in the proposed FOST be performed and documented by RASO.

- The Navy has confirmed the finding of radionuclides at Site 31 and preliminary indications are that that it is in the form of soil contamination and may include Cs-137. NRC/AEC radioactive materials licenses previously issued for uses at Treasure Island included very large quantities of Cs-137 and the specific locations of use have not been identified.

- A reference or background data set of gross gamma measurements was used for comparison and for establishing actions levels for actions such as moving a Site 12 fence. The reference data set included data points that were clearly elevated and the data set included multiple distribution components that should have been identified by distribution analysis. This reference data set was being used but clearly had not been adequately analyzed resulting in incorrect conclusions and action levels.

Recommended steps to move forward:

1) Identification of potential soil storage areas.

2) Identification of roadway and paths over which soil has been transported.

3) Surface scans of all FOST areas and representative soil sampling.

4) An independent review and report of all soils movement needs to be conducted since remediation work began at Treasure Island. The report would also provide options for investigation and resolution of areas where soil was not characterized or inadequately characterized for radionuclides and address potential cross contamination at proposed FOST sites.

5) Update conceptual site model. It must be assumed that soils with chemical contaminants of concern or debris also contain radionuclides. Submit work plans and results from surface scans and representative soil sampling.

6) Submit a report that supports a recommendation for unrestricted release to be reviewed by DTSC and CDPH.

7) Suspend all movement and transfer of soil at Treasure Island which is classified as potentially radiologicaly impacted including chemical contaminants or radionuclide contaminants or debris (or any combination of chemicals, radionuclides and debris) until the report in Item 4 is complete and concurred upon by DTSC and CDPH.

Recommended approach to implement attachment 2

A. Since it appears that radioactive materials have been found in most areas where accurate measurements and sample analysis has been performed for radionuclides, it is unclear which, if any, areas of Treasure Island are not impacted by radionuclide contaminants of concern. Because of this, areas or parcels of land previously uncharacterized for radionuclides will now need to be considered. For example, parcels of land that were previously transferred, underwater parcels and sewer or storm drain outfalls that have not been characterized for radionuclides will now need to be considered for radionuclide characterization. Also, imported soil will need to be characterized for radionuclides.

B. Characterization and Investigation: Update the conceptual site model based on current knowledge of the site and utilize it as input while drafting a characterization and investigation plan for radionuclides at Treasure Island. The plan will utilize for input; historical information, radioactive materials licenses issued for work at Treasure Island in the past, and knowledge and records of all soil movement at Treasure Island since BRAC activities began. The resulting characterization and investigation plan will need to be reviewed by regulators and revised as needed until approved prior to the beginning of characterization and investigation measurements and sampling. The characterization and investigation plan will need to include a plan for measurements, sampling and analysis that addresses applicable scanning and representative soil sampling needed for the characterization work specified in the plan.

C. Soils Management: Draft a Treasure Island soils management plan with respect to radionuclides that takes into account existing soil conditions, previous soil movement and controls future soil movement including import of soil so that characterization and investigation work is not compromised by additional soil movement. The soils management plan

will need to be reviewed by regulators and revised as needed until approved prior to using the plan. The soils management plan needs to cover identification of soil storage areas and roadways or pathways over which soil has been transported since BRAC began work at Treasure Island.

D. Soil movement stand down: In order to avoid contamination of additional sites, improper disposal and change in state of Treasure Island with respect to radioactive materials contaminants of concern, all soils movement should be stood down until the characterization and investigation plan and the soils management plan have been approved. This includes excavation, back-filling and soil import at areas not considered to be impacted by radioactive materials based on the invalid 2006 HRA. In other words, this really does mean that "all soil movement" on Treasure Island should be stood down and one should not observe trucks or loaders moving soil on Treasure Island during the stand down.

E. Work plans and reporting of data: Draft applicable work plans to perform measurements and sampling in accordance with approved characterization and investigation plans and report the characterization data in structured reports for review by regulators and revision as needed.

F. Assessment and update of conceptual site model: Assess the characterization and investigation data to determine which areas of Treasure Island may not be impacted by radionuclides and perform additional data collection to fill existing data gaps. Update the conceptual site model based on the assessment and provide the assessment and revised conceptual site model to regulators for review. Once regulators have concurred on a revised assessment and conceptual site model, utilize them along with additional data needed to support FOSTs for areas that are not impacted by radionuclides.

G. Implement soils management plan: Implement the approved soils management plan and resume soil movement in areas determined to not be impacted by radionuclides.

H. Remediation planning and remediation: Draft remediation plans for areas that are impacted by radionuclides and provide the plans to regulators for review. Revise the plans as needed and perform remediation activities after regulator review and approval of revised plans.

I. Final status surveys: Perform final status surveys in accordance with regulator approved final status survey plans for all areas that are potentially impacted with radionuclides and for areas that have been remediated after the areas are remediated. Report the final status survey

data in final status survey reports, which will be provided for regulator review and concurrence.

By following an implementation plan as described above, the DON would provide plans to DTSC and CDPH that specify details regarding sampling, analysis and scanning that would allow the FOST to move forward.