Response to Comments on the Draft Work Plan - Removal and Final Status Survey of Historic Avenue "N" Wood Stave Pipe, Former Naval Station Treasure Island, San Francisco, California (October 2015) CBI-2005-0012-0003	
Comments by: Sheetal Singh, PhD, Senior Health Physicist, CDPH, comments dated 11/23/15	
Comments	
General Comments	**Response**
1. CDPH-EMB understands the need of a derived concentration guideline level (DCGL) for developing the "work plan", including the design of survey/sampling, the selection of appropriate instrument for use, and the instrument sensitivity required for determining the cleanup parameters. Please note that CDPH-EMB utilizes Section 30256 in Title 17 of the California Code of Regulations (17 CCR 30256) to render a decision to concur with an unrestricted release. As a result, EMB requires a final status survey report that compares the distribution of data from the excavation site with applicable reference area data and documents the remediation efforts. The final status survey should document and explain reasonable efforts that have been made to remediate the site.	Section 4.2.2 of the Work Plan describes the Final Status Survey (FSS) Report that will be completed at the conclusion of site activities. As with previous Treasure Island FSS reports, this report will include discussion of the remediation activities, the final gamma scanning survey data, an evaluation of the final soil sampling data in relation to the site wide background data set, and a dose model to describe the residual dose and risk of final site conditions to a conservative receptor. The report will document and explain the reasonable efforts that were used to support the release of the site.
2. This memorandum constitutes CDPH-EMB's review of the, "DRAFT WORK PLAN Removal and Final Status Survey of Historic Avenue "N" Wood Stave Pipe, Former Naval Station Treasure Island San Francisco, California", issued October 14, 2015 and received October 15, 2015: and its' companion DRAFT SAMPLING AND ANALYSIS PLAN (SAP) which was issued separately on October 23. Please ensure that all future documents presented to CDPH-EMB are complete when issued.	The Navy appreciates CDPH flexibility in review of the components of this Work Plan.
3. There appears to be two concurrent standards broached by the Department of Navy (DON) in this document for what constitutes the release criteria. In one instance, the standard appears to be, Section 3.3 Anticipated Waste Streams, page 3-3, paragraph one, sentence two, "If screened soil meets the 12 millirem per year criterion for unrestricted release described in Section 3.2, it will be reused for backfill within the wood stave pipe trench." Whereas in another instance, Section 4.1 Radiological Criteria, page 4.1, paragraph two, sentence seven, "Therefore, the screening criterion inclusive of the background for ^{226}Ra in soil is defined as 1.69 pCi/g. Sample results exceeding the soil screening criterion will be considered to be radiologically contaminated, and associated soil will be managed as LLRW." Please be consistent throughout the document.	The criteria as noted in the comment can both be correct concurrently. The ^{226}Ra soil screening criterion of 1.69 pCi/g is used as a field screening tool and disposed as low-level radioactive waste. Release of soil that is below the screening level will be based on the 12 mrem/yr limit. In the unlikely event that soil concentrations are below the 1.69 pCi/g screening level but result in an above-background dose of greater than 12 mrem/yr, additional remediation may be required.
Specific Comments	
4. Section 3.2 Project Objective, page 3-2, Paragraph two, bullet one: "CDPH Environmental Management Branch (EMB) concurs with the	The bulleted list in Section 3.2 has been revised to read as follows: "• A final status survey (FSS) report will be prepared to document

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findings of a final status survey (FSS) report that the CDPH regulatory requirement of "reasonable effort" is met by demonstrating that residual ^{226}Ra levels are at or below the U.S. Environmental Protection Agency (EPA) dose limit of 12 millirem per year (EPA, 2014)." CDPH-EMB does not concur with this statement. CDPH-EMB utilizes Section 30256 in Title 17 of the California Code of Regulations (17 CCR 30256) and not a dose limit to render a decision to concur with an unrestricted release. As noted above in comment one, CDPH-EMB acknowledges the utility of employing DCGL(s) and recognizes that EPA dose limits may be a part of developing DCGL(s) but CDPH-EMB cannot concur with a dose limit. Please revise the statement appropriately.	that the Navy has met the requirements of the California Code of Regulations, Title 17, Section 30256 (17 CCR 30256) for radiological release. • Residual ^{226}Ra levels will be shown to be at or below the U.S. Environmental Protection Agency (EPA) dose limit of 12 millirem per year (EPA, 2014). • CDPH Environmental Management Branch (EMB) performs confirmation surveys and sampling analysis, as required, and results are satisfactory. • EMB issues a Recommendation for Un Restricted Release letter." The CDPH-EMB position on dose-based limits is acknowledged. The Navy believes that use of a conservative dose-based limit of 12 mrem/year based on federal guidance more than meets the "reasonable effort" specified in 17 CCR 30256, paragraph (k).
5. Section 3.3 Anticipated Waste Streams, page 3-3, paragraph one, sentence two: "If screened soil meets the 12 millirem per year criterion for unrestricted release described in Section 3.2, it will be reused for backfill within the wood stave pipe trench." Please refer to comments 1 and 4 above.	The CDPH-EMB position on dose-based limits is acknowledged.
6. Section 4.1 Radiological Criteria, page 4-1, paragraph three, sentence two: "Analytical results from the SU will be compared with a dose-based criterion, which will demonstrate that the potential dose to a receptor from residual radioactivity within the SU meets federal dose standards." Please see comment number one.	The CDPH-EMB position on dose-based limits is acknowledged.
7. Section 4.2 .2 Final Status Survey Report, page 4-2, paragraph one, sentence four: "Data analysis methods may include calculation and comparison of statistical quantities, including statistical comparison to background, review of data distributions, and spatial assessment and mapping of radiological data to identify outliers." CDPH-EMB believes the data analysis methods listed above to be crucial to support radiological characterization and free release of the project area. Please see comment number one.	As noted in this Section, the Navy will prepare a Final Status Survey Report that contains appropriate data analysis and statistical methods, including a comparison with background. No changes have been made to the text.
8. Section 6.3.3 Removal of Current Drainage and Overburden Soil, page 9-4, paragraph four, sentence two: "In-process gamma scans will be performed during excavation of the overburden material and on stockpiled	In-process gamma scanning data will be evaluated using instrument-specific count rate investigation levels. The referenced sentence has been revised to read as follows:

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overburden soil to confirm that radiation levels are consistent with background." Will this confirmation be based on instrument gamma count rate measurement investigation levels (lls)? Please clarify.	"…In process gamma scans will be performed during excavation of the overburden material and on stockpiled overburden soil to confirm that radiation levels are consistent with background based on the instrument gamma count rate measurement investigation levels (ILs) as discussed in Section 7.4.2. Stockpiled…"
9. Section 6.3.5 Pipe Removal, page 6-5, sentence two: "Specific methods used to characterize the pipe and its contents will depend on its condition following removal, but will likely consist of gamma scanning surveys and material sampling per typical material and equipment release protocol". CDPH-EMB appreciates the difficulty in planning surveys for materials currently buried. Will the survey methods selected be documented? Will the document be shared with CDPHEMB prior to its implementation? Please explain.	No additional planning documents for the survey of the removed pipe segments are anticipated. If specific survey methods beyond the gamma scans and material sampling noted in Section 6.3.5 are determined in the field to be required, the Navy will notify and consult with CDPH-EMB. The survey or sampling methods used will be documented in field notes, survey forms, and daily field activity reports, and will be reported in the project Final Status Survey Report described in Section 4.2.2. The Final Status Survey Report will be provided to CDPH-EMB for review. No changes have been made to the text.
10. 6.3.6 Final Excavation, page 6-6, paragraph one, sentence four: "If the additional 6 inches removed from the sidewalls and excavation bottom meet radiological criteria, then the excavation itself will be concluded to meet radiological criteria." Please see comments one and seven. Additionally, CDPH-EMB expects a MARSSIM survey of the excavation sidewalls and of the excavation bottom.	The MARSSIM process is the guideline that is the basis for this survey. Due to the close proximity of the excavation to the San Francisco Bay, significant water infiltration is expected in the excavation and *in situ* surveys of the sidewalls and bottom following final excavation will not be possible. Therefore, an additional 6" of soil will be over-excavated from the sidewalls and bottom, stockpiled, and radiologically scanned in the RSY pads following MARSSIM as described in 6.3.6.
11. Section 7.3 Survey Instrumentation, page 7-2, paragraph three, sentence one: "Prior to use of the radiological survey instruments, calibration verification, physical inspection, battery check, and a source response QC check are performed daily in accordance with TIWI-12-01, "Operation and Use of Portable Instruments at Treasure Island," (Shaw, 2012a) and other applicable TIWIs." Please ensure that at the conclusion of the final day of survey, each instrument passes the same checks detailed above so as to document, "book end", proper functioning of the instrument at the end of the survey.	The last paragraph of Section 7.3 has been revised to read as follows: "Prior to use of the radiological survey instruments, calibration verification, physical inspection, battery check, and a source response QC check are performed daily in accordance with TIWI 12 01, "Operation and Use of Portable Instruments at Treasure Island," (Shaw, 2012a) and other applicable TIWIs. Only those instruments that meet the response-check requirements, have been found to be free of physical damage and appropriate battery-voltage levels, and have current calibrations may be used in the field. Following the final use of an instrument, a final set of QC checks will also be performed to establish the final working condition of the instrument."
12. SAP Worksheet #11: Project Quality Objectives/Systematic Planning Process Statements, page 29, Step 2, Identify the Goal of the Study, bullet number five: "Do the sampling results support a conclusion that	The CDPH-EMB position on dose-based limits is acknowledged. The Navy believes that use of a conservative dose-based limit of 12 mrem/year based on federal guidance more than meets the "reasonable effort"

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concentrations of ^{226}Ra from the project area meet federal standards for radiological release?" Please see comment number one.	specified in 17 CCR 30256, paragraph (k). No change has been made to the text.
13. SAP Worksheet #11 : Project Quality Objectives/Systematic Planning Process Statements, page 31, Step 5, Develop the Analytic Approach, bullet one: "If the results of the survey meet federal standards for radiological release, then the data will be used to support a conclusion that the site meets the conditions for unrestricted radiological release." Please see comment number one.	The CDPH-EMB position on dose-based limits is acknowledged. The Navy believes that use of a conservative dose-based limit of 12 mrem/year based on federal guidance more than meets the "reasonable effort" specified in 17 CCR 30256, paragraph (k). No change has been made to the text.

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Comments by: Remedios Sunga, Project Manager, DTSC, comments dated 11/24/15	
Comments	
General Comments	**Response**
1. None.	Acknowledged.
Specific Comments	
1. Approval/Signature Page: Please have the final Work Plan and SAP signed and stamped by a California registered environmental engineer or geologist.	The Final Work Plan will be stamped by a registered California Civil Engineering PE. The SAP is signed by the Program Chemist and the Navy Quality Assurance Officer.
2. Section 2.0-Site History and Description, Page 2-1: Please clarify that the former NSTI included portions of YBI.	The first paragraph of Section 2.0 has been revised to read as follows: "…gained full ownership of NSTI. YBI, a 147 acre natural island, has been under military control since 1898; and NSTI included portions of YBI. In addition to other uses, the…"
3. Section 3.0-Regulatory Framework, Page 3-1: Please include the U.S. Environmental Protection Agency in the list of agencies that provide support to the BCT. Like CDPH, the California Department of Fish and Wildlife also provide technical support to DTSC.	The last paragraph of Section 3.0 has been revised to read as follows" "…radiological program. Other agencies and organizations also provide support to the BCT and the environmental program, including the Treasure Island Development Authority (TIDA), the Treasure Island Community Development, the Restoration Advisory Board, U.S. Environmental Protection Agency, California Department of Fish and Wildlife, and other public groups."

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4. Section 3.1-Permitting Requirements, Page 3-2. First Paragraph: Please clarify the type of permits that are not required for removal actions under CERCLA since other regulatory permits are still required such as the TI dig permit and hot work permit that have been identified at other TI removal actions.	Section 3.1 has been revised to read as follows: "…on site. Because the work under this Work Plan will be conducted entirely on site, permits are not required for the action, with the exception of Treasure Island excavation permits or internal CB&I safety or radiological permits. However, all substantive requirements will be met."
5. Section 4.3.4-Environmental Protection Plan, Page 4-3: Please explain why waste management is addressed in the Environmental Protection Plan in Appendix B. Waste Management is addressed in the Waste Management Plan in Appendix C.	"Waste management" was included in Section 4.3.4 in error and has been removed.

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Comments by: Dale Smith, RAB Member, comments dated 11/02/15	
Comments	
General Comments	**Response**
1. Figure 4 shows the locations of the background reference areas. Three of those areas appear to be in the Job Corps parcel that contained radioactive material that required removal. This would seem to make the selection of the Job Corps parcel a poor choice for background standards, as it can't be guaranteed the readings are representative of background conditions because of poor site characterization.	The Navy does not have any data that would refute the use of that area for background soil sampling.
2. In order to fully excavate all contamination shoring would be preferable to halting the investigation because the sidewalls collapse. It's a given that shoring is called for when extensive excavation is carried out as shown in the presentation last month on the soil removal in Site 12. Is cost what is driving the decision to limit the excavation? "For elevated materials identified as originating from the excavation sidewalls, an additional 6 to 12 inches (depending on the stability of the sidewall) will be excavated from the original 30-foot section, with benching of non-impacted soil performed above as needed."	It is acknowledged that sidewall collapse is a possibility; however, this excavation will be benched to avoid significant vertical faces on the sidewalls. The extent of excavation for impacted soil is based on a reasonable assumption of the potential contamination associated with a contaminated pipe (if present). If the soil sampling and scanning indicates that the extent of contamination exceeds the planned excavation, additional soil will be excavated.
3. If soil is found to contain ^{226}Ra above regional levels but below TI levels, will it be reused, leaving it for the City and its developer to remove, thus adding to the cost of development. How and where will it be disposed?	The objective of the project is unrestricted radiological release with concurrence from State of California regulators. When this objective is met, additional soil removal would not be required.
4. In the SAP a triangular grid is used because it will be more accurate. Although I can't picture how the grid is much different from the square, except that the boundary points are shifted, why wasn't this used at Site 12, especially as the RAB spent hours expressing concern that the sampling would not be discrete enough to locate contamination (we were right)?	The triangular grid results in a smaller unsampled area than a square-based grid. Typically, based on industry standards, radiological soil sampling at TI has been performed using a triangular grid, while chemical sampling is performed using a larger square or rectangular grid. Sample grid design and spacing is performed using peer-validated software (Visual Sample Plan).