RESPONSES TO REGULATORY AGENCY COMMENTS ON DRAFT REPORT ON THE SITE ASSESSMENT (SA) FOR THE STEAM TUNNELS (POI 38) NAVAL TRAINING CENTER, SAN DIEGO, CALIFORNIA

N00247.000403
NTC SAN DIEGO
SSIC # 5090.3

Originator: *Martin Hausladen, USEPA*
Date: *Received by SWDIV on 2 October 1996*

1. (Comment has been paraphrased)

There is inadequate justification for the statement made in the conclusions that "the NTC steam distribution system is not adversely impacting the surrounding groundwater". Please explain how this conclusion was reached. It would appear that there are portions of Areas 1 and 5 where groundwater is higher near the steam tunnels than it is at non-tunnel locations. Because of the elevated concentrations in samples collected from non-steam tunnel areas, it is possible that sample concentrations from Areas 2 and 3 also indicate impact.

The elevated concentrations of copper and lead (above the PSALs) detected in non-steam tunnel groundwater samples must also be explained. Explain why it is believed that these concentrations are representative of site-wide conditions. Compare these results to those from previous groundwater sampling events conducted in upgradient, non-contaminated areas. Elevated concentrations of copper and lead are found in areas where used sandblast grit was stored or disposed, in paint pigment, in anti-fouling additives and other industrial practices. Discuss whether non-tunnel samples were downgradient of areas where industrial practices or disposal may have occurred. Since split spoon samples were not collected, explain how the possible presence of sandblast abrasive can be eliminated. If industrial practices cannot be positively eliminated as an impact to the non-tunnel sample areas, explain why the non-tunnel samples should be acceptable for comparison.

Response 1. A Phase III SA has been proposed to respond to both USEPA and DTSC comments related to the presence of higher concentrations of metals in non-tunnel samples than at tunnel sample areas. However, it should be noted that the non-tunnel groundwater samples are not intended to be representative of site-wide conditions. Instead these locations were chosen to represent the localized groundwater conditions in the vicinity of, but in areas upgradient from and therefore not impacted by, the tunnel/vault section being evaluated. In accordance with this definition, the industrial practices performed in the vicinity of that particular area would be irrelevant because these practices would be expected to impact both the localized non-tunnel sample as well as the tunnel/vault sample.

The intent of this SA is not to characterize groundwater at the installation but rather to evaluate whether or not the system has adversely impacted surrounding groundwater. This objective, along with the explanation of the chosen sample locations provided above, support the use of the localized non-tunnel samples as an acceptable basis of comparison for the steam distribution system SA.

2. It would appear that the recommendation to remove the sediment contradicts the recommendation for no further action for the NTC steam tunnels. The recommendation (for no further action) should be changed to reflect the recommendation to remove the sediment.

Response 2. Comment acknowledged. This comment will be addressed in the final report.

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Originator: Aaron Yue, DTSC *Date: 14 October 1996*	
1. Page 2-2, Section 2.1.4, 1st paragraph. Please revise the last sentence of this paragraph for clarity. Please also define the "target depth" selection as mentioned in the 2nd paragraph. The bore hole logs with estimation of groundwater depth should be provided in the report for evaluation.	**Response 1.** Comment acknowledged and incorporated. The term "target depth", used in the second paragraph of Section 2.1.4, refers to the various depths to which the direct-push tool was advanced at each sample location. These depths are identified for each area in the first paragraph of this section. Borehole logs, which identify when the saturated zone was encountered at each sampling location, will be included in an appendix of the report.
2. Page 2-12, Section 2.2. For continuity between the Phase I site assessment report and the Phase II report, please include the rationale behind choosing the metals of concern for analysis at each specific sampling location.	**Response 2.** Comment acknowledged and incorporated. The rationale for the analysis of each sample collected during the Phase II SA fieldwork will be expanded in Section 2.2.
3. Page 2-13, Section 2.3, 2nd paragraph of page. Please provide additional details on sample handling methods as well as duplicate collection method. For the duplicate collection method, the discussion should state whether the extra volume was pulled at one time, how were the split samples made? The report should also include field notes, i.e., sampling time, temperature, and visual observation of samples, such as color and turbidity.	**Response 3.** Comment acknowledged. Field duplicate samples analyzed during the Phase II SA were collected not as replicates or splits (when large quantities of a sample are pulled at once and then split into separate containers), but rather one after another. This will be clarified in the text of Section 2.3. Field notes can also be made available for review.
4. Page 2-14, Section 2.5, last paragraph. Please note that for proper waste classification for transportation and disposal during the removal action, NTC must also classify the waste as either federally regulated or California only.	**Response 4.** Comment acknowledged.

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5. Page 2-13, Section 2.5, Data Evaluation, Decision Rules. The logic behind the decision rules as stated in this report is flawed. Bullet 2 specified that if the results of both the localized non-tunnel/vault sample concentration and the sample concentration adjacent to the steam tunnels are above the project specified action level (PSAL), then no further action will be recommended. This statement does not take into account that the results of the tunnel/vault samples are higher than the localized non-tunnel/vault sample results. In such case, it cannot be determined whether the high concentration at the non-tunnel section is due to "background", other source of contamination, or influenced by an unknown up gradient steam tunnel source. Comparison of relative concentration is important to determine subsequent action. Therefore, it is important to have good reproducible data.

Response 5. The variability inherent in the results of metals analyses from direct-push samples was further exaggerated by the fact the samples collected during the Phase II SA fieldwork were not field-filtered. This comment is acknowledged and, to help respond to the comment, the Navy proposes to perform a third phase of fieldwork. A draft Work Plan Addendum for this Phase III SA, which has been submitted for review and comment, calls for samples to be field-filtered to reduce the level of variability in resultant sample data. Also, the decision rule in question has been modified so that in arriving at a decision for further action, the extent to which the crack sample result exceeds the non-crack sample result will be taken into account. In reference to other potential sources of contamination, it should be noted that the localized non-tunnel sample locations were not located downgradient from cracked tunnel/vault locations where, in the Phase I SA, elevated levels of metals were identified in sediment samples.

6. Page 3-1, Section 3.1, Table 3-1 (comment has been paraphrased). Based on this table, all samples collected during Phase II are above the PSAL for copper and two out of ten samples are above the PSAL for lead. When groundwater monitoring results for Site 1 are compared to results from Area 5, it shows a significant disparity. It is questionable whether the "localized non-tunnel/vault" sampling locations are properly chosen. It may be necessary to gather additional "non-tunnel" samples upgradient and outside of the entire footprint of the NTC steam tunnels. Also, the precision of the results can be challenged. The two sets of duplicate samples collected both show a difference of approximately 300% between duplicate samples. This large difference can only be attributed to poor sampling technique or poor laboratory analysis.

Response 6. Groundwater samples analyzed for the Phase II SA were collected, unfiltered, using a direct-push tool while Site 1 groundwater monitoring samples are collected from existing monitoring wells that have been developed and purged over time. Due to the different methodologies used to collected these two sets of samples, the results cannot be directly compared. The large relative percent difference (RPD) between the duplicate samples collected during the Phase II SA is not due to poor laboratory analysis. Rather, it is attributable to sampling methodology because a larger percentage of sediment was present in the first sample pulled than in the second (duplicate) sample and. Data validation conducted on this data set did not result in any data being rejected and a further independent review of the data will finds the results of data validation to be accurate. Duplicate RPDs will be reduced by sample field-filtration as proposed for the Phase III SA.

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7. Page 3-8, Table 3-2. This table is confusing. The results for Total Metals should be separated from the results of the WET test. It is difficult to identify the applicable regulatory limits if the results from different analysis are placed together without proper identification.	**Response 7.** Comment acknowledged. The presentation of this table will be revised for clarity.
8. Page 3-13, Section 3.3.1.1, Rinsate Samples. Please review the references within the report, the analytical results for rinsate sample 114RB01 is not included Appendix B, it is in Appendix A. The page labeled Appendix B is found immediately after Appendix A - Chain of Custody Records. However, Appendix B as labeled is not SDG-K9604658, instead it is SDG-K9604244.	**Response 8.** The purpose of Appendix B is to present the analytical laboratory data reports in numerical order by sample delivery group (SDG). As such, the analytical results for SDG-K9604244 are presented before the results for SDG-K9604658, the package within which the results for sample 114RB01 are contained. Also, within each SDG, there is a laboratory package Appendix A which contains laboratory QC data for each SDG. For clarity, the organization of Appendix B will be modified slightly to remove the SDG appendix divider pages. Also, at the beginning of Appendix B, a sheet listing the order of SDGs presented therein will be included.
9. Page 3-13, Section 3.3.1.2, Duplicates. Since only two field duplicates were submitted for analysis and both were outside the control limits, statistically this translates to a 100% failure in precision. It is therefore questionable whether any of the data is usable.	**Response 9.** Evaluation of field duplicate results on unfiltered samples provides information on sampling methodology precision; not laboratory precision. (This was misstated in the last sentence of Section 3.3.1.2 of the document and will be corrected in the Final SA report). At least one laboratory duplicate was analyzed for each SDG package, with the RPD for each of these duplicate sets well within control limits. As such, the laboratory has shown acceptable precision for sample analysis and the data should not be considered questionable. This conclusion has been further confirmed by the data validation process, which rejected none of the data. Please see Response 6 above.

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10. Page 4-1, Section 4.1. The State currently disagrees with the conclusion that the steam distribution system is not impacting the surrounding groundwater and that no further action is necessary. Based on the variability of the reported groundwater data, and the seemingly high concentrations of copper and lead found, we believe the conclusion of "no further action" is premature and unsubstantiated. NTC should reevaluate the sample collection methods, the laboratory analysis and the data set to verify that the concentrations reported are representative of the localized concentration in the groundwater.

The State recommends that NTC compare the analytical results from this Phase II report with other groundwater data accumulated within the base for elevated levels of copper and lead. If the result in this report is significantly above the concentration measured at other location or event, NTC should rerun several random samples to verify the laboratory analysis. If the result does not indicate a lab analysis flaw, NTC should consider collecting additional non-tunnel samples upgradient and away from all NTC steam distribution tunnels to establish additional background level for comparison of results. If the Navy believes that a background concentration can not be achieved due to hydraulic fill at NTC, a fill location map and soil analysis data to identify and justify the variability of metal concentrations in the fill soil should be provided.

If NTC can demonstrate that the data as provided is accurate and reproducible, and NTC can further demonstrate that the concentrations of the vault/tunnel samples are within the same magnitude as the background samples, the State, at that time, will reconsider whether additional action is necessary. Please note that if the concentrations of metals in groundwater are truly above the PSAL, NTC should consider additional study of the groundwater.

Response 10. Comment acknowledged. NTC has compared the Phase II SA data to other unfiltered groundwater samples collected at NTC and, based on the variability of results reported, has found this comparison to be inconclusive. Also, based on the results of data validation and independent reviews of the analytical results, the Navy feels that re-analysis of the Phase II SA samples would not be greatly beneficial at this time. Finally, due to the extent of the NTC steam distribution system across the installation, the Navy feels that it will not be possible to gain a true representation of background concentrations of copper and lead from a few additional non-tunnel samples.

Therefore, in response to this comment the Navy proposes to conduct another phase of fieldwork as described in the Draft Phase III SA Work Plan Addendum. The Navy is anxious to discuss this proposal with the State so that the steam tunnel evaluation process may proceed.