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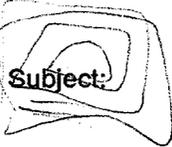
PITT-12-8-081

December 10, 1998

Project Number 7855

Ms. Kim Bellis
Department of the Navy
Engineering Field Activity Chesapeake
Washington Navy Yard, Building 212
901 M Street SE
Washington, District of Columbia 20374-5018

Reference: Clean Contract No. N62472-90-D-1298
Contract Task Order No. 0311



Subject: Site 46 EE/CA
Response to Comments
former Naval Surface Warfare Center, White Oak
Silver Spring, Maryland

Dear Ms. Bellis:

Attached are Tetra Tech NUS's responses to the technical review comments submitted for the Draft Site 46 Groundwater Engineering Evaluation/Cost Analysis Report. The report has been modified where necessary to address the comments.

If you have any questions regarding this information, please call me at your earliest convenience at 412-921-8778.

Very truly yours,

A handwritten signature in cursive script that reads 'Scott A. Nesbit'.

Jeffrey P. Orient, PG
Project Manager

JPO/sn

Enclosures

c: Armalia Berry, EFACHES
Yazmine Yap-Deffler, U.S. EPA
Jeff Thornburg, MDE
Roger Boucher, P.E., NORTHDIV (w/o enclosure)
John Trepanowski, P.E., TtNUS
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Project File 7855

**REVIEW OF DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR SITE 46
AT THE FORMER NSWC – WHITE OAK**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III – FEDERAL FACILITIES BRANCH**

Comment (1): The Site 46 remedial actions recommended in the EE/CA will be implemented with the interim action proposed for Swale W and Building 500. Although the actions will be installed separately, the dynamics of the Swale W and Site 46 actions are interrelated. Any recommended alternatives for Site 46 should be evaluated for the effects on the Swale W interim action. For instance, the recommended alternative in the EE/CA is a groundwater extraction well near the centrifuge area. It is unclear whether this extraction well will adversely affect the trench design proposed for Swale W. It is recommended that the alternatives be reviewed and presented with the Swale W interim action.

Response: As part of the remedial design, a pumping test will be performed in proximity to the centrifuge to provide data with which to design the extraction well network and evaluate its effects on local groundwater. During the pumping test, the radius of influence will be determined and used to evaluate the impact, if any, of the centrifuge area extraction system on the existing treatment systems in place downgradient of the centrifuge.

Comment (2): The EE/CA states that the streams in the Site 46 area and the Building 500 underdrain/storm drain sewer system collected shallow (if not all) groundwater and serve as hydrogeologic boundaries for the study area. Therefore, these areas control the migration of contaminated groundwater from flowing off-site. However, it does not appear that this statement is justified based on sample results presented in the Site Investigation Report and recent sample results collected by the EPA. The storm drain at Building 500 was not designed to capture groundwater. In addition, no justification, beside visible observation, is presented to prove that the storm drain system is so unsound that it can reasonably be expected to capture all groundwater flow near Building 500. Recent sample results of private wells and seeps located immediately downgradient of Building 500 have revealed detectable levels of TCE. This suggests that the Building 500 storm sewer system does not effectively capture all contaminated groundwater near the Site 46 area. Statements regarding this area as total groundwater capture zone should be removed from the text.

Response: The data collected to date strongly suggests the effective capture of the shallow groundwater by local streams and the Building 500 underdrain and storm drain system. However, it is agreed that these shallow groundwater discharge points may not capture all of the contaminated groundwater near Site 46. Contamination potentially present within the deeper aquifers at Site 46 (i.e., bedrock) may not be captured and may migrate further downgradient of Site 46. The text referenced by the comment has been modified to reflect this condition.

Comment (3): Further review of the interim actions proposed for the Building 500 area and Swale W reveals that these actions will not adequately keep all contaminated groundwater from migrating off-site or discharging into surface water bodies. The interim action for Building 500 will only treat any groundwater captured by the storm sewer system. The Swale W interim action will capture groundwater in this area. However, significant levels of TCE were detected in groundwater near the Della Whitaker Building. This groundwater is expected to either discharge to the Floral Drive stream or migrate beyond the stream to areas off-site. The EE/CA should be revised to adequately control the migration of contaminated groundwater to off-site areas.

Response: As defined for the purposes of the EE/CA, off-site includes those areas beyond the property line of the Army Adelphi Laboratory Center, including the private properties to the south and east of the Della Whitaker Building area. Groundwater contamination has been detected near the Della Whitaker Building, as evidenced in the Site 46 Site Investigation Report (TtNUS, November 1998), however significant contaminant levels have not been detected off-site in either the Floral Drive stream or in shallow groundwater across the stream. The potential for off-site migration within deeper aquifers at Site 46 has been identified as a data gap that will be addressed during a Remedial Investigation to be conducted in 1999.

Comment (4): Removal of the centrifuge is a component of each alternative except No Action and AS/SVE. The EE/CA states that demolition and removal of the centrifuge and associated contaminated soil would remove a potential source area and comply with ARARs and RAOs. However, the centrifuge is not the only suspected source area at Site 46. Furthermore, a review of soil gas data and soil samples collected near the centrifuge during the SI (B&RE, 1998b) does not reveal significant evidence that the centrifuge is a source area. Additional justification should be provided for removal of the centrifuge, since the EE/CA considered this primary source area at Site 46. The text should also be expanded to specifically state how removal of only the centrifuge would satisfy ARARs and RAOs, since other suspected source areas exist at Site 46.

Response: Additional data has been collected within the centrifuge to confirm the presence or absence of significant contaminant sources. The investigations conducted included a soil gas survey and the collection of additional groundwater and soil samples. The results of the investigation are provided in the revised report.

Comment (5): The effectiveness criteria for all alternatives states that receptors face an imminent threat due to groundwater contamination. However, it has been shown that groundwater is discharging significant levels of TCE into surface waters. These surface waters are flowing off-site, possibly affecting ecological receptors and potential human receptors. This statement should be removed from appropriate sections in the EE/CA.

Response: As evidenced in the Site 46 Site Investigation Report (TtNUS, November 1998), no significant threat to either human health or ecological receptors is present given the level of contamination found to date. It is not believed that an imminent threat to human health and the environment is currently associated with Site 46.

Comment (6): Table 1-2, pages 1-24 and 1-25. This table compares sediment analytical data for Site 46 to USEPA Region III RBC concentrations for industrial and residential soil criteria. It is inappropriate to compare sediment data with soil criteria. The RBC screening criteria should be removed from the table and the appropriate screening values provided.

Response: The references made to USEPA Region III RBC soil concentrations were made for comparison purposes only. These references have been removed from the revised text.

Comment (7): Section 2.1.2, page 2-2, 2nd paragraph. The text states metals concentrations detected in filtered surface samples may be due to turbidity and are not readily migrating and discharging to surface water bodies. It is assumed that this sentence should refer to unfiltered not filtered samples. In addition, the fact that high levels of metals were detected in unfiltered surface water samples does suggest that metals are migrating and discharging from groundwater to surface water. The inorganics are just not in the dissolved phase. The text should be revised.

Response: The text is referring to unfiltered samples and will be revised to reflect this. It is not believed likely that the particulate metals would travel through the groundwater system to be discharged to the surface water. It is more likely that the metals detected in the unfiltered surface water samples were present as a result of surface runoff and sediment transport, which is to be

expected given the nearby mixed residential/commercial land use and the stream's presence in proximity to local roads.

Comment (8): Section 2.1.2, page 2-3, 1st paragraph. The text states that levels of cadmium, chromium, and mercury exceeded screening criteria in sediment. The text further states that these compounds are not expected to be related to site activities. However, cadmium, chromium, and mercury exceeded screening criteria in unfiltered surface water samples. Cadmium and mercury also exceeded screening criteria in groundwater samples. This reveals an apparent correlation between possible groundwater discharge to surface water and sediments. Further justification should be provided for dismissing the inorganics in sediment or the statement should be removed from the text.

Response: Based on the results of qualitative screening level ecological risk assessment and human health risk assessment provided in the Site 46 SI Report (TtNUS, November 1998), there are no potential risks to aquatic receptors and human health from exposure to the levels of cadmium, chromium and mercury detected in the site sediment. In addition, of the eight metals present in groundwater in excess of the screening levels, only iron and lead exceeded the screening levels in surface water. Therefore it does not appear apparent that a correlation exists between the discharge of groundwater to surface water and the sediment metals levels.

Comment (9): Section 2.8, page 2-13. Removal of soil beneath the centrifuge is considered as a possible removal action in each of the alternatives. However, Section 1.9.2, page 1-23, 1st paragraph states that the centrifuge could not be eliminated as a potential source of contamination because the area was inaccessible for sampling. This statement should be clarified.

Response: Additional investigation has been performed within the centrifuge to address this comment. The investigation included a soil gas survey and the collection of soil and groundwater samples in proximity to the centrifuge. The results of this survey are provided in the revised report.

Comment (10): Section 3.2.4., page 3-4. The cost determined for Alternative 2 does not appear to include any costs associated with a natural attenuation study. Before natural attenuation can be verified for Site 46, detailed study must occur. This study must include site characterization to provide a quantitative understanding of source mass including collection of data define the nature and spatial distribution of contamination; contaminant phase distribution and partitioning between soil, groundwater, and soil gas; rates of biological transformation; and an understanding of how these factors vary over time. Refer to EPA OSWER Directive 9200.4-17 (EPA, 1997) and Weideimeier (1996) for further direction on natural attenuation. The cost estimate should be revised to reflect the costs associated with studying and monitoring natural attenuation.

Response: Costs associated with the performance of natural attenuation study have been included in the cost estimate for Alternative 2 as requested. However, the basic costs for Alternative 2 represent a natural attenuation study.

Comment (11): Section 3.4, page 3-11, 2nd paragraph. The text states that groundwater samples would be collected quarterly from ten monitoring wells. However, only two monitoring wells are identified in the text. The text should be revised to include all monitoring well locations.

Response: The monitoring program proposed included the sampling of wells 46-GW-123 and 46-GW-123D plus 8 other wells that are to be selected during preparation of a performance monitoring plan for the groundwater extraction system. Until the system is designed, it is premature to select all of the wells to be monitored (for example, three wells will be installed for a predesign pumping test – one or more of these wells may be useful in performance monitoring). For EE/CA cost comparison purposes, it is not necessary to identify all of the wells.

Comment (12): Section 3.4, page 3-18, Costs. The present worth cost estimate for the for Alternative 4B does not make sense. According to Section 4, page 4-4, the summary of the cost estimates associated with each alternative show Alternatives 4b at \$1,500.055. Please clarify this discrepancy.

Response: The discrepancy between Section 3.4 and Section 4 has been resolved in the revised report.

Comment (13): Appendix A, Cost Estimate

- a. The disposal cost for contaminated soil from the centrifuge area is estimated at \$65/ton. This appears to be too low an estimate for hazardous soil that must be transported to Model City for disposal. Additional justification or a vendor estimate should be provided for this cost.
- b. The quarterly monitoring well sampling is assumed to take over one person, ten days to complete. This is an unreasonable estimate. At a minimum, two people are needed for the monitoring well sampling. The estimate should be revised accordingly.

Response:

- a. The disposal fee excludes transportation. The transportation costs are identified separately within the cost estimating spreadsheets. The disposal fee is based on past project experience.
- b. The costs associated with the groundwater sampling are based on the use of 2 people for 5 days, resulting in 10 man-days.

Comment (14): The document provides justification for the preferred alternative for the remediation of contaminated groundwater at Site 46. In the current plan Alternative 4a was selected as the preferred remedial alternative for Site 46, and involves groundwater extraction, air stripping and surface water discharge. The BTAG agrees with the selected remedial alternative although we have concerns regarding the discharge of groundwater to surface water following treatment. The preferred treatment only removes VOCs from the contaminated groundwater whereas elevated levels are not removed prior to discharge to surface water.

Response: As stated in response to comment 8, inorganics are not believed to be a concern for Site 46 groundwater. However, to assist in the operation of the air-stripping unit, bag filters will be installed along the treatment path, which will aid in the removal of particulates within the unfiltered groundwater.

Comment (15): Based on their concentrations in groundwater (Table 4-4 of the May 1998 Site Investigation Report), cadmium (19 ppb), chromium (298 ppb), and mercury (2.5 ppb) exceed BTAG surface water screening level (EPA 1995) that are protective of freshwater organisms suggesting that these inorganic contaminants could impact that biota in Paint Branch Creek. The BTAG recommends pretreatment of groundwater that prevents the release of soluble forms of these metals prior to discharge to Paint Branch Creek. A discussion as to how this is to be achieved should be provided.

Response: To assist in the operation of the air stripping unit, bag filters will be installed along the treatment path, which will aid in the removal of particulates within the unfiltered groundwater prior to their discharge to surface water and eventually to Paint Branch.

Comment (16): The BTAG also recommends instituting erosion controls in the design and construction of the treatment facility to prevent or minimize the movement of soils or sediments to aquatic habitats. Additionally, it is recommended that the Navy minimize impacts and restore habitat destroyed by the selected remedy.

Response: Agreed. Erosion and sediment controls will be provided during the implementation of the remedial action selected. In addition, site restoration activities will be undertaken after implementation of the remedial action to restore affected habitats.

**MARYLAND DEPARTMENT OF THE ENVIRONMENT
WASTE MANAGEMENT ADMINISTRATION**

SPECIFIC COMMENTS

Comment (1): This section explains that Navy personnel consider the centrifuge area the most likely source of trichloroethene contamination. Alternative 4a, the recommended course of action, includes the removal of the centrifuge and possibly a large volume of the surrounding soil. The means by which the Navy intends to delineate the extent of contaminated soil associated with this structure should be described.

Response: Additional studies to further delineate contaminated areas at the centrifuge have been undertaken. The results to follow....

Comment (2): Section 1.9.2. Soil, page 1-21: The detection of trichloroethene at 351 ug/l groundwater near the stormwater retention basin indicates a localized source. The narrative in the first paragraph on page 1-21 states that a historical discharge could have occurred in this area. Additional investigation may reveal the presence of an additional source contributing to a downgradient groundwater contamination within Site 46. If such a source exists, removal of the source would be prudent. The Navy should consider soil sampling west of the stormwater retention basin to address this issue.

Response: The BRAC Cleanup Team is scoping the further investigation of Site 46 and the completion of a Remedial Investigation. Consideration will be given to the further characterization and identification of source areas within Site 46, specifically potential contaminant sources associated with the stormwater retention basin.

Comment (3): Section 1.9.3 Surface Water/Sediment, page 1-26, second paragraph: No reference is made as to the U.S. Army document from which the listed values were derived. The AFHA Phase II Geohydrologic Study, 1994 is listed in the reference section. Please specify in the text if this is, in fact, the referenced document.

Response: The appropriate reference has been provided in the text.

Comment (4): Section 3.4 Alternative 4, page 3-10, second paragraph. As discussed in comment 2, the Navy is considering the removal of contaminated soil along with the centrifuge. Please include the criteria that will govern the extent of the soil removal. Field testing procedures for analysis of soil during excavation should also be described. In addition, confirmation sampling should follow that removal action.

Response: The cleanup criteria to be used during source removal activities will be identified in the detailed design report and action memorandum for the selected remedial action. In addition, a plan for the collection of confirmation samples will be provided to the BCT for review and approval prior to the initiation of the remedial actions.

Comment (5): Section 3.4 Alternative 4, page 3-10, third paragraph: The groundwater extraction system includes one six-inch diameter extraction well installed downgradient of the centrifuge at a depth of 40 feet below ground surface, a 15-foot well screen. Please provide sufficient rationale that the capture zone created by the proposed single well configuration will adequately capture the downgradient contaminated groundwater plume.

Response: Field activities (i.e., a pumping test) will be conducted to further characterize the site conditions for final design use. For EE/CA purposes, the conceptual design presented is adequate for comparative costing. The pre-design testing will be used to determine the actual

number and location(s) of extraction wells, the pumping rates, and other factors affecting the implementation of the remedial actions.

Comment (6): Section 5.0, page 5-1, Suspected Source Removal/Recommended Removal Action. As discussed during the August 25, 1998 partnering session, soil gas sampling around the centrifuge would help to characterize the soil. The Navy should clarify whether it intends to conduct this sampling prior to the removal action.

Response: This testing has been performed, the results of which are included in the revised report text.