



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION I**

**J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211**

May 16, 1995

Deborah Carlson, Remedial Project Manager  
U.S. Department of the Navy  
Naval Facilities Engineering Command  
Northern Division  
10 Industrial Highway  
Code 1823, Mail Stop 82  
Lester, PA 19113-2090

Re: Work Plan for On-Shore Site Assessment Screening Evaluation of Derecktor Shipyard for the Naval Education and Training Center ("NETC"), Newport, RI

Dear Ms. Carlson:

I am writing in response to your request for EPA to review the *Work Plan for On-Shore Site Assessment Screening Evaluation of Derecktor Shipyard* dated March 1995. In general, EPA has several questions concerning the data collection, validation, and evaluation procedures described therein. Our detailed comments are on Attachment A.

The on-shore site assessment screening evaluation must characterize the biology/ecology of the site and explain why ecological risk was not evaluated. The work plan should include a plan to evaluate whether habitat at the site could support terrestrial receptors. One method to determine whether ecological receptors occur on-site is by a site walkover by a qualified ecologist who can characterize the presence or absence of biology/ecology on-site and evaluate whether potential habitat, ecological receptor(s), and a complete exposure pathway may exist on-site.

It is unclear how the onshore and offshore investigative results will be evaluated with regard to the potential effects to Coddington Cove from both the direct and groundwater discharges in the vicinity of Derecktor Shipyard. The work plan needs to explain how this data will be jointly evaluated.

The report should discuss where bilge water was pumped out and its relationship to sample locations. Bilge water is a source of contaminants and could help in selecting sample locations.

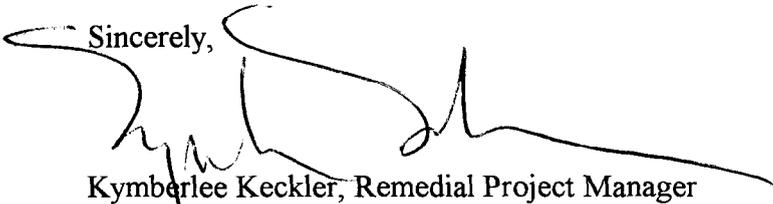
For quality assurance, a minimum of ten percent of the samples screened in the field should be confirmed with the same analyses in the laboratory. The results of these analyses typically can be obtained in less than 48 hours from the time of receipt and used to determine if the field screening data are reliable.



Based on the number of analytical fractions submitted for chemical analysis, the split-spoon sampler/tube should be at least three inches in diameter to accommodate all of the analytical fractions required for chemical analysis. If limited sample recovery prohibits the collection of all analytical fractions during the sample homogenization process, what action will be taken to ensure that data quality objectives are not affected adversely?

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of Derecktor Shipyard. Please do not hesitate to contact me at (617) 573-5777 should you have any questions or wish to arrange a meeting.

Sincerely,



Kimberlee Keckler, Remedial Project Manager  
Federal Facilities Superfund Section

cc: Paul Kulpa, RIDEM, Providence, RI  
Brad Wheeler, NETC, Newport, RI  
Bob DiBiccaro, USEPA, Boston, MA  
Susan Svirsky, USEPA, Boston, MA  
Mary Pothier, CDM, Boston, MA  
Ken Finkelstein, NOAA, Boston, MA

## ATTACHMENT A

<u>Page</u>	<u>Comments</u>
p. 1-4, ¶2 last sentence	It is EPA's understanding that the offshore activities are being addressed in Addendum B of the Work/Quality Assurance Project Plan - Narragansett Bay Ecorisk and Monitoring for Navy Sites. This offshore effort should be referenced.
p. 1-5, § 1.2	Should Figure 1-3 be updated to include the health and safety manager and the quality assurance/quality control coordinator identified on page 1-6?
p. 2-3, § 2.3, ¶4	Change "grawacke" to "graywacke" and "stacrolite" to "stauroelite."
p. 2-7, § 2.6, 3rd Bullet	Please explain further why the subsurface soil sampling (recommended in the PA to determine if contamination was released) is no longer required.
p. 2-9	Samples in the South Waterfront area (discussed on page 1-3) should be added. Otherwise, it will be difficult to determine whether this area should be retained as an area of concern.
p. 3-6, § 3.3.1.1, ¶2	The soil piles referenced in this paragraph should be depicted in Figure 3-1.
p. 3-6, § 3.3.1.1, ¶4	The text indicates that three test pits will be excavated along the east side of Building 42, and one on the south side of Building 42. However, Figure 3-1 shows a test pit in Room B of Building 42.
p. 3-6, § 3.3.1.2	Clarify whether the samples obtained from the specified depths will be obtained by compositing an aliquot of soil from each of the four sides of the test pit. Will the sample from the base of the pit also be a composite sample? The text should indicate that the test pit samples will be analyzed for metals using an X-ray fluorescence ("XRF") detector. As indicated in Section 2.4, solvents and fuels were used during operations at Derecktor. Therefore, chlorinated solvents and BTEX should be analyzed as part of Task 3 activities. (This change would require the addition of benzene and toluene to the list of screening parameters outlined in Section 4.5.2.) If elevated levels of fuel constituents are detected, how will the samples be transmitted to the fixed-base laboratory for TPH analyses?
p. 3-6, § 3.3.1.2	At least one sample from each test pit should be analyzed by the fixed-base laboratory.
p. 3-7, § 3.3.1.2, ¶2	Relying on the olfactory sense is not safe and does not guarantee that odors will be identified. Either a photoionization detector or a flame ionization

detector should be used to qualitatively test for the presence of organic compounds.

- p. 3-11, § 3.3.2.1, ¶1 Clarify whether the PA identified six areas or seven areas.
- p. 3-11, § 3.3.2.1, ¶3 Clarify that the well screen will be installed in the *saturated zone*, in the interval that shows the highest level of contamination.
- p. 3-12, § 3.3.2.1 A well should be installed along the South Waterfront in the area with the highest level of contamination based on test-pit screening data.
- p. 3-12, § 3.3.2.1 Outside this section of the report, the text does not describe a boring/well west of the steam plant. Please clarify whether existing wells MW-101 through -103 are expected to fulfill this requirement or whether an additional well will be installed as part of this program.
- p. 3-13, § 3.3.2.2, ¶3 If, MW-9 is cored at a minimum of five feet, the screen used should not exceed the length of the cored hole. The well screen should not straddle the overburden and bedrock aquifer.
- p. 3-13, § 3.3.2.2, ¶4 Please include rock quality designations for the cored sections for wells MW-5 and MW-9 in the boring logs.
- p. 3-13, § 3.3.2.3, ¶6 The work plan should specify the analyte list for VOCs and SVOCs. These samples should be analyzed for Target Compound List ("TCL") VOCs and SVOCs.
- p. 3-14, § 3.3.2.3, top of page The text states that selection of samples for laboratory analysis will be based on the highest concentrations of organics and/or metals detected by the field GC and XRF. A 20 percent sample frequency will allow approximately two samples per borehole shipped for laboratory analysis, based on an expected 20-30 feet of overburden. This selection process may not provide representative data that are adequate for the risk assessment. Typically for risk assessments, samples collected from depths of 0 to 1 foot are used to represent chemical distribution for exposure to surface soils; and samples collected from depths from 1 to 10 feet are used to represent chemical distribution for exposure for subsurface soils. A 20 percent sample frequency of the highest concentrations could theoretically result in the selection of only subsurface soil samples from only the most contaminated boreholes. Therefore, analysis of all boreholes should include a surface soil sample (0 to 1 foot), and a subsurface soil sample (1 to 10 feet) selected according to the highest contaminant concentrations.

- p. 3-14, § 3.3.2.4, ¶4 The Navy should review the grain-size data collected in the vicinity of Building 42 and obtained by TRC as part of the Environmental Assessment of the Derecktor Shipyard, December 1994. Based on these data, a sand pack should be chosen that is appropriate for the formation. Driscoll, *Groundwater and Wells*, 1987, pp. 438-443, outlines the methodology for determining the proper filter pack and screen size to use, based on formation grain-size. Based on this information, the appropriateness of a 10-slot screen can be determined.
- p. 3-15, § 3.3.2.4, ¶1 The text does not describe a sand drain layer above the bentonite grout as depicted in Figures 3-2 and 3-3.
- p. 3-15, § 3.3.2.4, ¶2 Native soil should not be used as backfill around the annulus.
- p. 3-15, § 3.3.2.4, ¶4 Field parameters such as pH, temperature, conductivity, turbidity, and salinity should be monitored during development activities. Limits should be set to determine when development criteria are met. Typically, development can cease when pH, temperature, conductivity, and salinity differ within 10% from reading to reading and turbidity is below 10 NTUs. Often when wells are constructed improperly turbidity readings may not go below 10 NTUs (*see also* comment to Section 3.3.2.4, page 3-14, ¶4).
- p. 3-18, § 3.3.2.6 If the well screens are partially saturated, then a falling head test cannot be used to determine in situ hydraulic conductivity. In these instances, only rising head tests are applicable. Please explain whether the water levels measured during the slug test will be obtained manually or using a pressure transducer and datalogger.
- p. 3-18, § 3.3.2.7, ¶1 The text describes twelve monitoring wells, but Table 3-1 indicates that thirteen wells will be sampled.
- p. 3-18, § 3.3.2.7, ¶3 The work plan should specify the analyte list for VOCs and SVOCs. These samples should be analyzed for TCL VOCs and SVOCs.
- p. 3-19, § 3.3.2.7, ¶3 EPA Region I prefers that the regional SOP for Groundwater Purge and Sampling be used as part of this investigation.
- p. 3-25, § 3.6 Please explain further how this equipment will be decontaminated.

- p. 4-2, § 4.1.1 The statement that indicates that the Navy has adopted three analytical quality levels (C, D, and E) does not sufficiently describe the desired data quality level for each analytical parameter. For each analytical parameter, briefly describe the following:
- the analytical method and Method Detection Limits;
  - the desired data quality level and requirements;
  - the intended use of the analytical data; and
  - the QA/QC requirements to establish the quality of the data collected or produced. Also, limits should be set to determine when data quality criteria are met.
- p. 4-2, § 4.1.1 The analytical quality levels (C, D, and E corresponding to EPA levels III, IV, and V) listed in this section do not define the quality level of field-screening analytical support, which is EPA quality level II. Please specify the data quality level and requirements of the field-screening data.
- p. 4-2, § 4.1.2.1 The second paragraph states that analytical precision will be measured as the relative standard deviation of the data from the laboratory duplicates. Please correct the statement to note that the measure of analytical precision is evaluated using the following calculations:
- Relative Percent Difference from duplicate measurements, and
  - Relative Standard Deviation from three or more replicates.
- p. 4-2, § 4.1.2.1 The data quality indicators, precision and accuracy, were not specified for field-screening generated data. Please clarify how these quality indicators will be evaluated for the field-screening data.
- p. 4-2, § 4.1.2.1 The text discusses the measure of accuracy using matrix spike and matrix spike duplicate analyses, but the frequency of MS/MSD analyses were not specified in Section 4.1.3.1 nor listed in Table 4-2. Please specify the frequency of the MS/MSD analyses and the required quality criteria.
- p. 4-3, § 4.1.2.2 Representativeness refers to the extent that data used to estimate exposure point concentrations define the true nature, extent, and concentrations of the contaminants of concern. Please specify the representativeness of the data generated using the measurements of concentration in one medium to estimate the concentrations in a different medium, as done in headspace screening of contaminated groundwater and soil.

p. 4-4, §§ 4.1.2.3  
& 4.1.2.4

Completeness indicates whether the range of contaminant concentrations, the suite of contaminants detected, and the extent of contamination in environmental media at the site are fully represented in the data set. The analytical approach cited in this work plan does not fully characterize the suite of contaminants on site. The headspace screening of contaminated groundwater and soil for VOCs using a Photovac gas chromatograph as stated in Appendix C has the following limitations:

- May generate potentially biased low data. (*See* comments on the Analytical Methodology.)
- Limited TCL of only ten target compounds may not be fully representative of contamination at this site. A limited TCL is acceptable for a site that has been characterized. The preliminary assessment of this site using site inspection and observations and historical activities does not provide sufficient information for characterization of contamination on site. A more comprehensive TCL should be investigated.
- Lack of comparability between laboratory generated data, which include VOA, BNA, and pesticide/PCBs using CLP SOW OLM01.8, and those generated in field-screening, which include 10 VOCs and a few metals.

p. 4-9, § 4.1.3.4

Trip blanks are used to assess contamination by VOCs during shipping and handling. For this reason, trip blanks must accompany the field samples. If, for example, there are multiple sampling crews out at one time, then trip blanks should accompany each group. If, during shipment, the samples are "pooled" in a single cooler, then the trip blanks accompanying each respective sampling group should be submitted for VOC analysis.

p. 4-12, § 4.5.1

The quality of the analytical data generated using non-standard methodology is dependent on the QA/QC steps employed in the process. Please provide the SOPs with descriptions of analytical procedures and the QA/QC steps employed for the analysis of butyltin compounds using methods specified by Wade *et al.* (1990).

p. 4-12, § 4.5.2

The quality of the analytical data generated using field-screening analytical techniques is dependent on the QA/QC steps employed in the process. Please provide the SOPs with descriptions of analytical procedures and the QA/QC steps employed for the analysis of target metals using XRF.

p. 4-12, § 4.5.2

The target VOC 1,4-dichloroethene listed in ¶3 is not a legitimate compound.

- p. 4-13, § 4.6 Please state the validation process for the field-screening data.
- p. 4-13, § 4.7 Please identify the quality control criteria, acceptance windows, for evaluation of data quality. The method cited in Appendix C only lists the quality control analyses.
- p. 4-13, § 4.8 Please specify or reference correction action procedures.
- p. 4-15, § 4.10 Please specify the validation process for field-screening data.
- p. 4-15, § 4.10.2 The most recent version of the National Functional Guidelines for Organic and Inorganic Data Review must be used. (The guidelines for organic data are dated February 1994 and for inorganic data are dated February 1993.)
- p. 5-1, § 5.0 The report must include a section on geology/hydrogeology.
- p. 5-1, § 5.0, ¶5 Regulatory agencies should be advised *prior to* implementing any significant changes. At minimum, any changes in the field program as denoted by a task modification request should include a distribution to the regulatory agencies.
- p. 5-1, § 5.0, ¶6 The text should specify the criteria that will be used for the preliminary identification of primary site contaminants. The following page indicates only that persistence will be used to add or delete contaminants from the list of primary site contaminants.
- p. 5-2, § 5.0, ¶3 The text states that the assessment will provide risk-based selection of contaminants of concern that will be compared with the primary site contaminants. The text should clarify what is meant by "risk-based" and explain the objective of such a comparison. It is unclear whether the risk-based contaminants of concern are a subset of the primary site contaminants.
- p. 5-3, § 5.0,  
7th Bullet The most recent version of HEAST FY-1994 Annual should be used.
- Appendix A The text refers to the investigation as a remedial investigation. However, the study is actually a site assessment.
- Appendix A,  
p. A-5-1, § 5.0 Since benzene may be present, Draeger tubes designed to detect benzene should be used as part of intrusive activities. According to the *NIOSH Pocket Guide to Chemical Hazards* (June 1994) a SCBA should be used if benzene is detected above 1 ppm.

Appendix A,  
p. A-7-1, §7.1,  
¶1

Identify the contamination reduction zone.

Appendix A,  
p. A-8-1,  
§ 8.2, ¶3

It is unclear whether a hexane rinse (as part of the sampling equipment decontamination procedure as described in Section 3.6) will be implemented.

Appendix C

Please elaborate on the following analytical considerations that affect data quality:

*Instrument Calibration:* The headspace analysis SOP indicates that the instrument will be calibrated using only one standard rather than by performing a multi-point calibration curve. The use of only one calibration standard assumes linearity. Without proof of linearity all quantitated results are biased. The bias is difficult to assess without further information.

*Sample/Standard Equilibration:* The SOP states that samples and standards will be shaken and then allowed to sit at room temperature for at least 30 minutes before analysis. "Room temperature" is very non-specific, especially when referring to a field procedure, and could compromise consistency of sample volatilization. Unless the field laboratory has very good climate control, equilibration temperatures for individual samples and standards could vary dramatically. Cooler temperatures in the early part of the day could yield results that are biased low when compared to results of samples analyzed when temperatures are warmer. The use of an air conditioner in a field lab trailer could also affect consistency of volatilization.

"Room temperature" probably is not sufficient to volatilize most VOCs. For this reason, headspace analyzers typically have a heated zone (60° - 80° C) for sample and standard equilibration. Heating of this nature will help assure adequate and consistent volatilization.

*Check Standard Integrity:* The SOP does not indicate what will be done about check standard storage throughout the day. If the check standard is allowed to sit at room temperature throughout the day, there may not be consistent headspace concentrations as a result of temperature fluctuations from extended equilibration time.