

**NAVY RESPONSES TO EPA COMMENTS (MAY 5, 1993)
ON THE REVISED DRAFT PHASE II
REMEDIAL INVESTIGATION WORK PLAN (MARCH 1993)**

INTRODUCTION

These responses reflect discussions and agreements regarding resolutions of the comments from a phone conference on May 20, 1993 between U.S. EPA, Navy and Atlantic.

GENERAL COMMENTS

1. The Work Plan and the Field and Sampling Plans are unclear with regard to preservation aspects of samples that will be collected from the various areas of concern (AOC) at the site. The Plan needs to include a comprehensive table showing the number of environmental and QA/QC samples collected from the AOCs, the sample containers, and the preservation procedures to be used. Also, the plan needs to identify more of the field equipment that will be used in sampling activities.

Appendix B of the QA/QC plan contains a table arranged by site which shows analyses to be performed, media to be sampled, number of samples to be collected including separate listings for field duplicates, trip blanks, equipment rinsates, field blanks, matrix spikes, and matrix spike duplicates.

Addendum 4 of Appendix A of the QA/QC plan is a table arranged by parameter being tested, showing required sample volume and container type, preservation methods, and holding times.

The only field equipment not adequately defined pertains to sediment sampling. The sediment sampling SOP has been revised to identify all field sampling equipment.

2. Review of the Navy responses indicated that 5 of the 16 comments raised in EPA's January 8, 1993 correspondence were deficient and are identified in the following specific comments section. Each of the specific comments concerning the Navy responses begins with a summarized statement of the original EPA comment followed by an evaluation of the Navy's response.

No response required.

3. An objective of the Phase II Work Plan should be to adequately characterize the extent of VOC contamination in groundwater. In addition, the work plan should identify alternative sampling collection techniques in the event that utilities pose access problems during the advancement of borings. As previously recommended by EPA, the Navy

should consider the use of microwells, angle borings, and geophysical methods in performing the proposed investigations.

This comment refers specifically to the Lower Subbase and is discussed below in our response to comment 23.

4. There are a few points where the text and figures either do not agree, or require clarification. In addition, the specific analysis methods to be used for the TAL and TCL in surface water and sediments should be included in the final work plan.

These concerns are addressed in responses to the following comments 18, 19, 20 and 23.

SPECIFIC COMMENTS

Section 1.0 — Introduction

5. Page 3, Figure 1-3

This is an outdated map. In accordance with Appendix III of the draft NSBNL Federal Facilities Agreement (FFA), several study areas and areas of contamination should be added to the figure. In addition, since the ball field/underground storage tanks, a.k.a. Fuel Farm, is listed in Appendix III of the FFA as a study area, why is it not an Installation Restoration Study site?

EPA had requested in its March 10, 1993 comment letter that the figure be modified to include the locations of several of these study areas/areas of contamination. All site maps in the Work Plan should incorporate these other Installation Restoration Study sites.

All study areas designated in the FFA are added to Figure 1-3.

Section 4.0 — Human Health Risk Assessment

6. Page 81, Section 4.2.1, Paragraph 1

The data evaluation section must clearly identify all sample data which are available for use in the risk assessment. This section must also identify all sample data which are excluded from further consideration in the risk assessment and indicate the reason for the exclusion.

We feel that it is premature to identify all of the data which will be available for use in the risk assessment at this point until the sampling is complete. The data which will be excluded from further consideration will be identified when the sampling is complete.

PREFACE

This document is the *Phase II Remedial Investigation Work Plan* for the Naval Submarine Base—New London. It is prepared as part of the United States Navy Installation Restoration Program. This report was developed to implement recommendations in the *Phase I Remedial Investigation Report* and to address comments raised by the technical review committee (TRC).

The first draft of this report was submitted to the TRC for review in November 1992. Written comments were received from TRC members as listed below:

- EPA — January 8, 1993;
- CTDEP — January 13, 1993; and
- Mr. Robert Fromer — March 14, 1993.

Two new sections of the work plan regarding the CBU and OBDANE sites were sent to TRC members for review on March 1, 1993. The following written comments were received:

- EPA — April 15, 1993; and
- CTDEP — March 24, 1993.

The Navy prepared detailed responses to all of these comments and prepared a revised draft for review by the EPA and CTDEP in March of 1993. The EPA submitted a letter responding to the Navy's revised draft work plan. The Navy had discussions with the EPA on May 20, 1993 to resolve outstanding issues. As a result of these discussions, an agreement was reached on the outstanding issues and documented in writing by the Navy. This report has been modified to address comments from the TRC.

The following documents pertaining to comments and responses to the draft report are provided in Attachment 1 to this preface.

- Navy Response to EPA Comments (May 5, 1993) on the *Revised Draft Phase II Remedial Investigation Work Plan* (March 1993)
- Navy Responses to EPA Comments (January 8, 1993) on the *Draft Phase II Remedial Investigation Work Plan* (November 1992)
- Navy Responses to CTDEP Comments (January 13, 1993), *Draft Phase II Remedial Investigation Work Plan* (November 1992)
- Navy Responses to Mr. Robert Fromer's Comments (March 14, 1993) on the *Draft Phase II Remedial Investigation Work Plan* (November 1992)
- Navy Responses to CTDEP Comments (March 24, 1993) on CBU and OBDANE Sections (March 1, 1993) of the *Phase II Remedial Investigation*.

- **Navy Responses to EPA Comments (April 15, 1993) on CBU and OBDANE Sections (March 1, 1993) of the *Phase II Remedial Investigation*.**

All revisions made to the draft report have been highlighted in this final report except for revisions to tables or figures.

7. Page 81, Section 4.2.1, Paragraph 2

Why will "U" qualifiers (indicating the compound was not detected) be considered adequate for risk assessment? Please explain.

The higher of the two measured contaminant concentrations from duplicate samples should be included in the risk assessment.

The Work Plan has been modified as follows: "... "U" qualifiers will be considered adequate for use in the risk assessment. The "U" qualifier indicates that the analyte was not detected in the sample and is an acceptable analytical result. If use of this sample is indicated by the exposure assumptions, and there is reason to believe that the analyte is present at a level below the SQL, then the sample will be assigned a numerical value of one half the SQL. Non-detects with "unusually high SQLs" will generally be excluded from use in the quantitative risk assessment as described in RAGS, Section 5.3.2..."

The Work Plan has been modified to read: "... Field and laboratory control samples will be excluded. The higher of the two measured values from duplicate samples will be included in the risk assessment ..."

8. Page 81, Section 4.2.3, Paragraph 5

The risk assessment must present the rationale for excluding a compound from the risk assessment.

Section 4.2.3 adequately describes the rationale for including a compound in the risk assessment. The rationale for excluding a compound from the risk assessment will be presented in the risk assessment.

9. Page 82, Section 4.3.1, Paragraph 3

This paragraph states that workers will likely be exposed to volatile organic compounds (VOCs) from soil and groundwater, but will these pathways be evaluated quantitatively? Please clarify.

The Work Plan has been modified to read: "... excavation and construction. The assessment of the groundwater inhalation and dermal contact pathways will be addressed qualitatively".

10. Page 82, Section 4.3.3, Paragraph 5

The geometric mean does not indicate or describe the normality of the probability distribution. Normality tests must be performed to determine if the data are normally or log-normally distributed.

We have modified the Work Plan to read: "... events which are then averaged. Average and maximum exposure point ..." by eliminating the sentence in our Work Plan on the

use of the geometric mean.

11. **Table 4-2. Exposure Summary for Potential Human Receptors**

- a. Why is the dermal pathway for soil exposure addressed for some receptors and not for the others? Please explain.

The dermal pathway is addressed when the receptor is exposed to soils directly.

- b. Is exposure to soil vapors one of the exposure pathways? Although discussed in the text (see comment 2 above), the soil vapor pathway is not specified in this table. Also, from the report, it seems that only soil particulate and not soil vapor is actually being assessed by the Navy. Please clarify.

Exposure to soil vapors is one of the exposure pathways. These data will be determined analytically. Soil vapors will be addressed quantitatively only to receptors frequenting the Goss Cove museum.

- c. Groundwater is listed as exposure point and exposure medium for many receptors, but exposure routes are not specified. The Navy has discussed the possibility of a vapor exposure for workers from VOCs in groundwater (see comment 9 above). However, in both the draft and draft final work plans, the Navy does not seem to address any inhalation pathway from groundwater for workers. Please explain.

As far as groundwater exposure, depending upon the depth of the utility lines, the utility workers might be exposed to VOCs. However, we do not have the data yet to address this. The reader is referred to the response to comment 9.

- d. Outdoor air is also being listed as an exposure point, but is this pathway going to be assessed? Please explain.

Outdoor air is listed but has been corrected to encompass only particulates in air (fugitive dusts). Inhalation of outdoor air will not be addressed quantitatively.

- e. Page 85 — Frequency for residential drinking water for Superfund sites should be 350 days rather than 365 days based on "standard default exposure factors", OSWER Directive 92856.03. Please revise.

The frequency has been changed from 365 days/year to 350 days/year.

- f. Page 86 — Footnote "****" — What is the source for EPA's default frequency of exposure for workers at 48 days/year? EPA's default value for frequency is 250 days/year for workers based on "standard default exposure factors", OSWER Directive 92856.03.

Most of the exposure data for workers is site-specific.

- g. Those pathways for which exposure points and exposure media are listed, but no exposure routes and exposure parameters are specified, should include some discussion as to whether they are going to be assessed quantitatively, qualitatively or not assessed at all.

The definition of the exposure routes and parameters is premature until the data have been collected. This will be done in the risk assessment.

12. Page 89 through Page 91 — Exposure Equations

The equations presented are the equations from the Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual (Part A). However, site-specific equations should be presented. For example, soil particulate is included in the calculation for soil exposure for this site, but how is it incorporated in soil exposure equation is not shown. Moreover, if the Navy intends to assess vapors from groundwater or soil quantitatively, the modified equations for calculations of these routes should be presented. On the other hand, if outdoor air is not assessed quantitatively, why is the equation for inhalation presented? Also, where is the equation for groundwater? According to Table 4-2, groundwater is an important exposure pathway for Area A/OBDA residents through the future use scenario. Please clarify.

We have included the general intake equation as well as the intake equations for pathways for which there are currently data to support. Additional equations will be included in the risk assessment after the exposure routes have been defined.

13. Page 93, Section 4.4.1, Paragraph 1 — Dermal Guidance

- a. Dermal exposure from soils: The following is the modified Region I Superfund dermal guidance for soils.

TCCD: (0.1-3%) For other polychlorinated dibenzo(p)dioxins and polychlorinated dibenzofurans, use upper bound of 3% for absorption.

TCB: (0.6-6%) Apply upper bound of 6% for all PCBs and arochlors.

Cadmium: (0.0-1.0%) For Superfund risk assessments of dermal exposure from soils; quantitatively assess exposure and risk for the above three compounds only. For other compounds, assess qualitatively in the uncertainty section.

- b. Dermal exposure from surface water: For inorganics, Kp values in Table 5-3 of dermal guidance should be used. If there is no Kp value in Table 5-3 for inorganics, then a default Kp value of water at 1×10^3 cm/hr should be used. For organics, Kp value in Table 5-7 of dermal guidance can be used. This is consistent with procedures developed by EPA headquarters to support the calculations for the dermally absorbed dose described in Chapters 5 and 10 of the dermal guidance. These procedures are available in spreadsheet form (on a diskette) that can be

obtained from the EPA Region I Superfund Coordinator in the Superfund Support Section.

We have modified the Work Plan to include only the upper bound values for dermal absorption for soils as per Region I Superfund guidance: "... and cadmium absorbed are 3%, 6% and 1%, respectively.

"For estimating the dermally absorbed dose of inorganic compounds per event from surface water, the permeability coefficient from surface water through skin (cm/hr) can be obtained from Table 5-3 in the dermal guidance document (EPA 1992). If there are no published values for specific compounds, the default value of 10^3 cm/hr will be used. For estimating the dermally absorbed dose of organic compounds from surface water, the permeability coefficient from water through skin from Table 5-7 in the dermal guidance document (EPA 1992) will be used".

- c. Although currently under review, EPA Region I does not require the quantitative assessment of the groundwater dermal pathway.

As per EPA Region I policy, a quantitative assessment of the groundwater dermal pathway will not be included.

14. Page 93, Section 4.4.1, Paragraph 2

The statement "EPA has withdrawn its RfDs for lead..." is inaccurate. Although EPA Region I has accepted the use of an RfD back calculated from the drinking water MCL of lead at 50 ppb in the past, there has not been an RfD for lead verified by EPA's RfD work group.

The Work Plan will be modified to read: "The U.S. EPA has accepted the use of the Integrated Uptake/Biokinetic (TU/BK) Model ..."

15. Page 94, Section 4.4.2, Paragraph 3 — Lead Uptake/Biokinetic Model

- a. The text should include discussion of a lead exposure pathway for children.

In the risk assessment there will be a discussion of a lead exposure pathway in the areas of the site to which children might have access.

- b. If the Navy intends to address lead exposure for adults in the uncertainty section, why has the safe blood lead level for adult not been established yet? Please explain.

There are adverse effects of lead seen in adults. There are exposure and effects data in the literature which can be used to evaluate potential toxicities to workers. A worker and not a child might be a receptor on the site. If this were the case, the calculated blood lead levels can be compared with the 10 to 15 ug/dl benchmark. If there is minimal potential for adverse health effects based upon this level, then there probably will be no potential for adverse health effects in adults.

Section 5.0 — Ecological Risk Assessment Work Plan

16. Page 108. Table 5-1. Area A — Summary of Ecological Sampling

In the seventh row of this column, under "Introduced Earthworms from Bioassays", there are three tissue samples to be taken from the downstream watercourses, with a footnote that this number includes three reference locations. Since the downstream watercourses would not be suitable for reference locations, and there is no mention in the text of three reference locations, it seems likely that either the number of tissue samples or the footnote is in error. Please clarify or correct these numbers.

The footnote was an error and has been removed.

Section 6.0 — Preliminary Identification of Remedial Action Alternatives

17. Page 131. Table 6-1

Expand the table to include the Maximum Contaminant Levels (MCLs) for bis(2-ethylhexyl)phthalate and copper.

Table 6-1 has been revised by adding copper and bis(2-ethylhexyl)phthalate.

Section 7.0 — Remedial Investigation and Feasibility Objectives

18. Page 172. Figure 7-1 — CBU Drum Storage Area Field Sampling Plan

According to the key in Figure 7-1, there are proposed surface soil locations. However, there are no surface soil sampling locations indicated on the figure itself. In addition, there are no surface soil sampling locations indicated in Table 7-3. If the test borings (0-2') in Table 7-3 are intended as surface soil samples, they should be indicated as such. Please clarify.

There are no proposed surface (0-6") soil sample locations at this site. Samples 1MW1S (0-2'), 1TB1 (0-2') and 1TB2 (0-2') shown in Table 7-3 are boring soil samples that will be collected from 0-2 feet below the ground surface.

19. Page 176. Figure 7-2 — OBDANE Field Sampling Plan

Please refer to the above comment on surface soil locations in the CBU Drum Storage Area.

Please refer to the response to comment 18 above.

20. Page 198. Figure 7-5 — Field Sampling Plan. Goss Cove Landfill

A sediment sample location is described in the text of this section (7.2.3, p. 199) along

the bank of the Thames River north and upstream of the pier, yet south and downstream of the storm drain outfall from the ball fields. The Goss Cove Landfill Field Sampling Plan does not show this sample location. If the location described is the location requested, this sample location should be indicated in Figure 7-5.

In addition, the text needs to be revised to reflect that CLP TAL and TCL, TPH, TOC, and grain size determinations will be made.

The reference in this section of the report has been clarified to indicate that all sediment sample locations in the Thames River are shown in Figure 5-3 and listed in Table 5-2.

Table 5-2 has been revised to indicate that sample T3SD1, which is located along the bank of the river north and upstream of the pier, yet south and downstream of the storm drain outfall, will be tested for VOCs.

21. Page 210, Table 7-19

In a March 10, 1993 comment letter, EPA requested that the Work Plan be revised to ensure that surface water samples and sediment samples were collected prior to the actual draining of the lake. However, the action plans as described in the table for both water and sediment samples indicate that samples will be collected after the lake is drained. The table needs to be revised to clearly state that the water and sediment samples will be collected before the lake is drained.

As discussed during our phone conversation on May 20, 1993, these samples will be collected when the lake is drained and that the surface water sample will be collected at an area where groundwater seeps into North Lake.

22. Page 215, Table 7-21 — Area A Field Sampling Plan

The sediment samples from locations 2DSD24 through 2DSD29 are proposed at a depth of 0' to base of sediments. Benthic organisms are only exposed to contaminants in the top few inches of sediments. To best represent exposure to benthic organisms, samples should be collected at the least from the top few inches and no more than one foot in depth.

Three sediment samples are listed for groundwater seeps into North Lake, at a depth of 0 to 1 foot. Earlier Navy comments have indicated an intent to sample sediments while the lake is empty. The sediment chemistry may change in the absence of overlying water. Therefore, in order to be considered sediment samples, these samples must be taken either while the lake is full or, if desired, immediately after draining of the immediate area of the sample locations.

As discussed, the plan is acceptable as written as sediment samples in the Area A Downstream will be collected from the following intervals: 0-1', 1-3', and 3-5'. A note has been added to Table 7-2 for clarification.

Please refer to the above response (21) regarding the second paragraph of this comment.

23. Page 228, Table 7-25

EPA has requested in its March 10, 1993 comment letter that additional groundwater monitoring wells be installed in the area of well 13MW5 and the tanks so as to determine the extent of floating layer. Also, it was recommended that the Phase II Work Plan include provisions for the complete identification of the extent of VOC contamination in groundwater at the site.

The table shows no additional groundwater wells in the area of well 13MW5 nor does it address VOCs contamination in the groundwater. The table should be revised to show the installation of additional wells in the area of well 13MW5. The table also needs to include the determination of VOCs contamination in groundwater.

Table 7-25 has been revised to indicate that defining the extent of VOC contamination is an objective of the Phase II RI.

Wells 13MW18 and optional wells 13MW19-25 have been added to Table 7-27 to determine if free product exists near the power house (Building 29), which is where 13MW5 is located.

24. Appendix C

- a. The average cleanup levels listed in the memorandum in Appendix C for PCBs and PAHs are said to be developed based on EPA's toxicity value and risk level. However, the cleanup levels developed and presented in the table are based on three different routes, and it is unknown as to which one is chosen for the cleanup level. For PCBs, it appears as though the cleanup level of 4 mg/kg stated in the memorandum is chosen from the ingestion route based on 10^{-5} target risk level which is 3.69 mg/kg. However, for PAHs, it is impossible to relate the 24 mg/kg average cleanup level stated in the memorandum to the cleanup level developed in the table for PAHs.
- b. Page 6 of the memorandum: The statement "If a lower soils ingestion rate of 100 mg/day is assumed (as suggested by EPA's reviewers), then the target level will be 33 mg/day" is misleading, because EPA always recommends 200 mg/day soil ingestion rate for children, and 100 mg/day soil ingestion rate for adult. Also, it should be noted that cleanup level for DDTR is not presented in any table of this appendix.
- c. According to equations presented in RAGS, Human Health Evaluation Manual, Part B: "Development of Risk-Based Preliminary Remediation Goals", the cleanup level for the contaminant in one medium (soil) is developed based on all the possible routes combined. For example, cleanup level for PCBs in soil for this site should be based on the equation with three routes combined. For PAHs, if dermal pathway is not applicable for soil absorption, then dermal routes should be omitted

from the equation.

- d. The parameters used for development of cleanup levels should be the same as the ones used for risk assessment.
- e. Since the CPF of 7.3 per mg/kg/day for benzo(a)pyrene has replaced the CPF of 5.8 per mg/kg/day, it is unwise to present cleanup level based on both. The reason is that the letter is a result of a mathematical error and will unlikely be used again.
- f. Lead Uptake/Biokinetic Model: It is inappropriate to present cleanup level for adult workers only. Based on the public health point of view and based on the application of Lead Uptake/Biokinetics Model to children, the priority is to develop a cleanup level of lead for children.

These cleanup levels will be revisited during preparation of the feasibility study and will be based upon the parameters used in the risk assessment and the site data. The cleanup levels will be calculated using the Risk Assessment Guidance for Superfund, Volume I — Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals). For purposes of finalizing the Work Plan, we have stated that any cleanup levels presented in the Work Plan are preliminary and are only to be used in scoping the field investigations to be performed.

FIELD SAMPLING PLAN

- 25. The work plan and the field and sampling plan are unclear with regard to preservation aspects of samples that will be collected from the various areas of concern (AOC) at the site. The plan needs to include a comprehensive table showing the number of environmental and QA/QC samples collected from the AOCs, the sample containers, and the preservation procedures to be used. Also, the plan needs to identify more of the field equipment that will be used in sampling activities.

A comprehensive table is provided as Addendum 4 to Appendix A of the QA/QC Plan. The plan has been modified to indicate the type of equipment that will be used for sediment sampling.

- 26. Pages 52 and 53, Section 4.2.2.3

Two rounds of air sampling are anticipated in and around the Nautilus Museum Building. Each round will consist of three samples. Duplicate sampling requirements are not indicated. At least one sampling event must be collected in duplicate according to the procedure outlined in Section 8.2 of Atlantic Environmental's SOP No. 1256-D.

Appendix B of the QA/QC Plan has been revised to indicate duplicate sampling during each air sampling event.

27. Page 53, Section 4.2.2.4

EPA has requested in its March 10, 1993 comment letter that a complete round of monthly water level measurements be obtained from all monitoring wells on the base to produce a series of groundwater elevation maps. However, the text in the draft final work plan does not indicate that such samples will be collected nor is such collection identified in accompanying tables for this section. The text or tables need to be revised to show that a complete round of monthly water level measurements will be made for all monitoring wells on the base.

Table 4-2 in Section 4.1.16 of the Field Sampling Plan shows the wells that will be monitored on a monthly basis for groundwater elevation.

28. Page 71, Section 4.2.3, Paragraph 5

Based on previous telephone conversations between the Navy, CTDEP and EPA, it is EPA's understanding that several additional monitoring wells were to be installed during the Phase II investigation, upgradient of the downstream watercourses/downgradient of the pistol range to better define groundwater quality in the downstream watercourse area. However, the installation of these additional monitoring wells was not discussed in the work plan nor were the proposed well locations found in Figure 4-8 or Plate 1. What is the Navy's current position with regard to the advancement of this additional groundwater monitoring well?

The work plan has been revised to indicate the installation of three wells (one upgradient and two downgradient) at the pistol range.

29. Page 72, Section 4.2.3.1, Paragraph 4

The second sentence states that surface water samples will be taken when the lake is drained. General practice for taking sediment and surface water at the same location dictates that the samples be taken concurrently. The surface water sample is taken first, followed immediately by the sediment sample. This would indicate the need to take these surface water samples and the above-mentioned sediment samples prior to draining of the lake.

Please refer to our response to comment 21 regarding sampling at North Lake.

**APPENDIX A
FIELD SAMPLING PLAN
ATLANTIC STANDARD OPERATING PROCEDURES**

30. Procedure No. 1022, Page 8 of 11, Section 6.4.2 — Sediment Samples

This SOP indicates that a stainless steel spoon is to be used for collection of sediment samples. There are two concerns raised by this approach.

In order to avoid losing the surface layer of sediment while the sample is being raised through the overlying water and to obtain the appropriate sediment depth, a hand corer should be used.

This SOP has been revised to indicate that when sediment samples are submerged, they will be collected with a core sampler provided with a core catcher.

31. **Procedure No. 1023. Page 6 of 8. Section 6.3**

The text states that either dedicated Teflon bailers or peristaltic pumps may be used for groundwater sampling. The procedure needs to be revised to show that peristaltic pumps must not be used to sample VOCs in water samples.

This SOP has been previously revised to indicate that groundwater samples for VOC analysis will be collected with a bailer. Site-specific modifications to all of Atlantic's SOPs are presented in a table at the front of Appendix A to the Field Sampling Plan.

32. **Procedure No. 1256-D**

The SOP primarily discusses the sampling aspect and not the analytical requirements of Method TO-1. Appendix A does reference a "Technical Procedure" for Method TO-1, *Determination of Volatile Compounds in Ambient Air Using Tenax Adsorption and Gas Chromatography/Mass Spectrometry (GC/MS)*, however it is not included in the Appendix. Following are a list of items pertaining to Method TO-1 that must be addressed in the analytical and sampling SOPs.

This SOP was only intended to address sampling procedures. An analytical laboratory has not been selected at this time, therefore, it would be difficult to provide a laboratory SOP. To address this concern, a new section regarding laboratory analysis will be added to this SOP and Method TO1 will be included as a part of Appendix A. This section will reference the analytical Method (TO1) and add a provision that when a laboratory is selected, its SOP for TO1 analysis will be submitted to EPA for review and approval.

- The SOP fails to include a target analyte list and quantitation limits for this site. Also, the maximum sampling flow rate must be established according to the procedures outlined in Section 7.1, *Flow Rate and Total Volume Selection* of Atlantic procedure No. 1256-D.

A target analyte list is included. The laboratory SOP to be provided later will include quantitation limits. The laboratory will provide the Tenax cartridges, therefore, these computations cannot be made until the cartridge weight is known. The SOP details the calculations that will be used to determine the maximum flow rate.

- The SOP must delineate the analytical method to be used.

The analytical method will be Method TO1. This has been specified in the new section in the SOP regarding analysis.

- What calibration process will be utilized? There are three potential calibration procedures 1) direct syringe injection of dilute vapor phase standards, 2) injection of dilute vapor phase standards into a carrier gas stream directed through the Tenax cartridge, and 3) introduction of permeation or diffusion tube standards onto a Tenax cartridge. These standardization techniques are explained in detail in method TO-1, Sections 13.1, 13.2 and 13.3.

This will be addressed in the laboratory analytical SOP which will be submitted at a later date.

- Discuss the mechanism for the preparation and conditioning of the Tenax cartridges. Specify if the laboratory or Atlantic Environmental will be supplying pre-conditioned cartridges with a minimum of one sample per batch verified clean by GC/MS analysis.

The laboratory will supply the cartridges. These cartridges will be verified clean by testing one sample per batch by GC/MS analysis.

- Specify if the internal standard (IS) or the external standard method of quantitation will be utilized. If the IS method is to be used, specify what IS(s) will be used and what the acceptance criteria for the IS(s) will be. Also, specify how the internal standards will be introduced onto the Tenax adsorbent.

This will be addressed in the laboratory analytical SOP which will be submitted at a later date.

- Specify if surrogates will be introduced onto the Tenax prior to shipment to the field. These procedures must be described in detail and include acceptance criteria and corrective actions.

This will be addressed in the laboratory analytical SOP which will be submitted at a later date.

- The constituency of the sampling lines used to collect the air samples must be provided. Tygon tubing must not be used upstream of the sampling train. Therefore, to eliminate potential analytical interferences, Teflon or stainless steel tubing is required.

We agree and the SOP has been revised to specify only Teflon or stainless steel tubing.

- Page 4, Section 7.1.1 — Approximate breakthrough volumes should be provided in Table 1.

The breakthrough volumes will be added to Table 1.

- Page 10, Section 8.3 — Backup cartridges should be used for each sample taken at this site. If the level of target analytes in the backup section exceeds 20 percent of the level of target analytes in the front half, resampling at a lower flow rate is required.

Backup cartridges are specified for each sampling event. At a minimum, a backup cartridge for each ten sampling stations will be provided.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) AND DATA MANAGEMENT PLAN

33. The QA/QC Plan lists several possible methods to be used when analyzing surface waters or sediments for the CLP TCL and TAL. The Final Plan should list the specific methods to be utilized for each medium and analysis. When selecting analytical methods for surface waters and sediments, it is important for ecological risk assessment purposes, to obtain practical quantitation limits (PQLs) that are below any biological effects levels. Please check with the following two references with respect to determining these limits.

- U.S. Environmental Protection Agency, Ambient Water Quality Criteria, 1986, Freshwater Chronic Criteria.
- National Oceanic and Atmospheric Administration, *The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program*, NOAA Technical memorandum NOS OMA 52, August 1991.

Specific methods are specified in Section 5.1 of the QA/QC Plan. These methods are presented in Tables 8-1, 8-2 and 9-1 of the Laboratory Quality Assurance Project Manual (Appendix A of QA/QC Plan) and for VOC analysis in Table 5-5 of the QA/QC Plan.

Your comment regarding quantitation limits versus biological effects levels brings up an important issue. As we discussed, it is proposed to use CLP methods and we will obtain the lowest quantitation limits possible with these procedures. It is acknowledged, however, that some effects levels (e.g., chronic AWQC for DDT and mercury) are much lower than can be achieved with CLP methods. This issue is most important when performing the ecological risk assessment. Any limitations of the analytical methods will be discussed in the uncertainty section of the ecological risk assessment. Both contract required and method detection limits will be evaluated. Section 5.1.1 of the QA/QC plan has been revised to address this issue.

34. Page 9, Table 3-1

The table shows that rinsate samples will be collected at a frequency of one per day. The table needs to be corrected to show that rinsate samples will be collected at a frequency of one per piece of equipment per matrix per parameter per day.

Note 4 in Table 3-1 states that one equipment rinsate sample per day means one per day per matrix per piece of equipment for non-dedicated equipment.

35. Page 27, Section 9.1, Paragraph 5

The data package should be provided as an Appendix to the RI report.

Complete data packages will be provided to EPA. Due to the size of these data packages (several thousand pages), it is not practical to include them as an appendix to the report.

OTHER COMMENTS DISCUSSED

During the phone conference, the Navy's responses to U.S. EPA comments (April 15, 1993) regarding the CBU and OBDANE sections of the Work Plan were also discussed. The Navy's original responses are provided in this document. The issues discussed along with resolutions are presented below.

General Comment 1.)

The U.S. EPA indicated that the response appears acceptable, however, they would like to completely evaluate the QA/QC Plan as it relates to the CBU and OBDANE sites prior to giving their final concurrence.

Specific Comment 11.). Second Paragraph

The U.S. EPA indicated that this response was acceptable regarding the CBU and OBDANE sites, however, they would like us to re-evaluate the depth of borings selected at all other Phase II RI sites. In general, the U.S. EPA indicated that drilling to a depth of four feet below any evidence of contamination was only acceptable if some type of thermally enhanced headspace analysis for VOC was used in the field.

The Navy indicated that they would further evaluate this issue. Presented below by site for all sites except CBU and OBDANE is a table showing proposed boring depth and type of field screening proposed.

SITE	BORING DEPTH	FIELD SCREENING
Rubble Fill at Bunker A-86	Refusal	OVA
Torpedo Shops	Refusal	OVA
Goss Cove	Base of fill	OVA, XRF
Spent Acid and Disposal Area	15' and two borings to refusal	XRF
Area A Landfill	15' or water table	OVA, Field GC
Weapons Center	15', water table, or limit of contamination	OVA
DRMO	Base of fill	OVA, XRF
Lower Subase	Base of fill and two borings to refusal	XRF

The Navy agrees that all borings should be advanced below any evidence of contamination and that this decision should be based on the results of reliable field screening. As a result, the Work Plan has been revised to add an additional criteria that all borings will be advanced to a depth at least four feet below any evidence of contamination. After re-evaluating the field screening methods proposed, the Work Plan was revised to indicate a thermally enhanced OVA method will be used at the Weapons Center. All other sites either complete borings to refusal or already use an accurate and more appropriate field screening technique (based on type of contamination present) such as XRF or field GC techniques.

Specific Comment 13

The Navy agrees to analyze this sample for pesticides in addition to the other parameters proposed (i.e., TCL, VOC and SVOC, and TAL constituents).