

**NAVY RESPONSES TO CTDEP COMMENTS (JANUARY 13, 1993).  
DRAFT PHASE II REMEDIAL INVESTIGATION  
WORK PLAN (NOVEMBER 1992)**

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**GENERAL COMMENTS**

1. Soil samples were obtained and analyzed from an active Pistol Range located adjacent to the Area A Downstream site in 1990. It is our understanding that these soil samples were obtained because the NSB-NLON was contemplating construction of a parking lot on top of the firing range. Based on the elevated concentrations of lead detected in the soil from the Toxicity Characteristic Leachate Procedure (TCLP), any excavated soil from this site would be classified as a hazardous waste under the Resource Conservation and Recovery Act (RCRA). This area must be further evaluated within the proposed Phase II Area A Downstream investigation to determine if ground water is being impacted from the high concentrations of lead detected in the soil. At a minimum, this would involve installation of upgradient and downgradient monitoring wells in order to analyze the ground water for Target Analyte List (TAL) inorganics, specifically lead.

*Evaluation at the Pistol Range under CERCLA is currently under negotiation as part of the FAA between EPA, CTDEP, and the Navy. The Navy will comply with the final FAA.*

2. A question was brought up at the last joint Technical Review Committee (TRC)/Public Meeting held in December 1992 asking if the State Department of Health Services (DOHS) maintained a database containing exposure limits (risk reference doses (RfDs) and/or carcinogenic potency factors (CPFs)) for compounds that were more or less restrictive than federal or other recognized industry limits. The DOHS Division of Environmental Epidemiology and Occupational Health was contacted following the meeting and indicated that they do not maintain a database with exposure limits different from that obtained from standard sources.

However, DOHS does compile Health Risk Determinations in response to requests for evaluating potential drinking and cooking and/or bathing and showering risks from the use of polluted wells. As established under Section 22a-471 of the Connecticut General Statutes, Health Risk Determinations are used in establishing action levels and are applicable to all private water supplies where there are no established standards.

*We appreciate your checking on this point and your response is noted.*

3. It is recommended that Sections 7.0 and 8.0 of the Phase II Remedial Investigation work plan be combined with the Field Sampling Plan and QA/QC work plan, respectively. It appears that most of the information contained in these sections is duplicated in the Field Sampling Plan and QA/QC work plans.

*We agree that these sections are somewhat repetitive, however, as we discussed, this is necessary if EPA guidance is to be followed.*

4. Appendix C contains a memo from Menzie-Cura & Associates, Inc. to Atlantic Environmental Services, Inc. The memo describes the potential target remediation levels for contaminated soils for the following contaminants: polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), DDTR and lead. These target levels were developed based on calculations derived from the risk assessment conducted as part of the remedial investigation/feasibility study (RI/FS). It is important to include within this work plan and the feasibility study all calculations used to determine each cleanup level. These calculated cleanup levels need to be documented and compared to federal and state Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBCs) as these may require more stringent cleanup standards.

*Additional documentation (calculations) will be provided on the derivation of the preliminary target remediation levels.*

*This section will also be revised to show the values of chemical-specific ARARs and TBCs.*

5. Section 5.3.4 (Characterization of the Estuarine Environment of the Thames River) of the Phase II Remedial Investigation work plan describes the tasks that will be conducted under the ecological study to characterize the Thames River in the vicinity of the NSB-NLON. It would be of benefit to include a map or figure identifying the commercial shellfisheries along the Thames River to the north and south of the NSB-NLON. It is our understanding that the member towns on the TRC committee maintain this information.

*The shell fisheries will be more clearly shown in the figure provided.*

6. It is recommended that the contaminants or compounds of potential concern for those sites where soil and/or ground water contamination has been detected be contoured and plotted on site maps. This task could be either incorporated within this work plan or added after completion of the Phase II investigation. This information will aid in visualizing the nature and extent of contamination for each site and assist in remedial efforts during the feasibility study.

*Concentrations of chemicals of concern will be plotted or contoured on site maps after implementation of the Phase II work plan field work.*

7. Performance of a base-wide measurement and contouring of ground water elevations from monitoring wells at the NSB-NLON was requested by EPA and agreed to by the Navy and DEP several months ago. It was decided that the water table measurements should be conducted within a very short time-frame to avoid errors from using existing seasonal data. No task has been incorporated within these work plans to accomplish this

requirement. Please clarify if this task will be accomplished within the framework of these investigations.

*A task will be added to the work plan to produce a basewide ground water elevation map.*

8. All analytical results to date for boron that has been detected in surface and ground waters should be flagged and footnoted within this report. The footnote should indicate that the analytical results for boron may be inaccurate due to lab error.

*The work plan will be revised to indicate that Phase I RI boron data is probably erroneous due to sulfur interference.*

#### **DRAFT WORK PLAN PHASE II REMEDIAL INVESTIGATION COMMENTS**

9. **Page 16. Supplemental Step I Investigation**

Include an explanation within this section as to why Supplemental Step I investigations are not being conducted as part of this work plan for the CBU Drum Storage Area and the Over Bank Disposal Area Northeast (OBDANE) sites.

*The investigation work plans for these two sites are presently being prepared. It is our intention to include these in the final work plan. The draft work plan for these sites will be submitted for review when completed. They were not included in this version of the work plan as a contract modification could not be completed in time to allow their inclusion.*

10. **Page 23. Nature and Extent of Contamination**

The second paragraph should note that 1,1-dichloroethene was detected at 1 ppb and that 1,1-dichloroethane was detected at 30 ppb for the Torpedo Shops site.

*This paragraph will be revised as noted.*

11. **Page 25. Goss Cove Landfill**

Define the saturated thickness and perpendicular cross sectional length used in calculating the ground water flow velocity at the Goss Cove Landfill. This data was supplied for the DRMO site on page 47 and for the Lower Subase site on page 51.

*This information will be provided. The saturated thickness was estimated to be 50 feet and the perpendicular cross-sectional area was estimated to be 50 feet x 230 feet for a total of 11,500 square feet.*

12. **Page 33, Weapons Center**

It is unclear where Building 524 is located. Please depict its location on Figure 2-12.

*Due to the scale of Figure 2-12, Building 524 cannot be shown in this figure. It will be added to Plate 1 and the text will be revised accordingly.*

13. **Page 43, Residential Well Analytical Results**

The top paragraph on this page noted that boron was found in all residential wells above the U.S. EPA health advisory of 600 ppb. This paragraph should be revised to reflect the following information: 1) that the validity of the initial three rounds of sampling data analyzed by N.E.T. Atlantic was found to be unreliable due to lab error, 2) that supplemental sampling conducted by the Navy and DEP in August 1992 found boron levels well below the U.S. EPA health advisory, and 3) that a separate draft Plan of Action and/or Field Sampling Plan to further evaluate boron will be contingent on whether future sampling of residential homes surrounding the NSB-NLON confirms previous analytical data.

*The paragraph will be revised as indicated.*

14. **Page 119, Rubble Fill at Bunker A-86**

Methoxychlor at 370 ppb in the soil exceeds the State Drinking Water Standard of 100 ppb. Therefore, it is not correct to state that no chemical-specific ARAR/TBC values were exceeded during the Step I investigation performed at this site. The DEP guidance for soil cleanup would apply as a TBC value for this site.

*As we discussed, CTDEP written policy pertains only to VOCs and metals. However, based on our discussion and your explanation that unwritten CTDEP policy applies whenever an action level has been adopted, this section will be revised as suggested in your comment.*

15. **Page 120, Table 6-2**

It is noted that chemical-specific ARAR/TBC values exceeded during the Step I investigations are presented in Table 6-2. Boron should be flagged in this table and elsewhere due to the possibility of erroneous lab data.

*We agree and will make this revision.*

16. **Page 128, Risk Assessment**

It is noted in the second sentence on the top of page 128 of the Human Health Risk Assessment section that no potable water supply wells exist in the potentially affected downgradient areas for the Area A site. It is premature to note this until monitoring well

data is obtained southeast of the Area A Landfill. Should ground water be found to be migrating in a southeasterly direction, several residential wells could be affected downgradient of this site. This statement should be clarified.

*We agree with your comment and will revise this paragraph as suggested.*

17. **Page 3. References**

Reference to "U.S. EPA, 1988. Contract Laboratory Program Statement of Work for Inorganics Analysis. 7/88." should be noted only once.

*The duplicate reference will be eliminated.*

18. **Page 2. Appendix C**

In developing a maximum target cleanup level for PCBs in surface soils, Menzie-Cura & Associates, Inc. selected a level of 10 mg/kg. It was incorrectly noted that this level is consistent with levels that have been used in Connecticut and other states to guide remediation efforts. It should be noted that 10 mg/kg is consistently applied only at GB classified areas in Connecticut. The NSB-NLON is located in a GA classified area and PCB cleanup in GA areas must attain a level of 2 mg/kg.

*The 2 ppm does not appear to be appropriate to these sites which are closed industrial landfills. We realize, however, that this issue can not be resolved at this time and will include the 2 ppm level as a preliminary remediation target level. At some future date when the extent of contamination has been better defined, we would like to further discuss the appropriateness of this standard in light of the feasibility of remediation to this level.*

**DRAFT FIELD SAMPLING PLAN, QA/QC PLAN  
AND HEALTH AND SAFETY PLAN COMMENTS**

19. **Page 5. Supplemental Step II Investigations**

The last sentence in the second paragraph should be revised to note that the investigation for determining the source of boron may not be conducted. The investigation will be dependent on the results obtained from the first quarterly round of sampling proposed for the residential homes.

*This sentence will be revised per your comment.*

20. **Page 16. Sample Headspace Screening for VOCs**

This section noted that data obtained from the screening of soil samples in the field with a photoionization detector or flame ionization detector will not be used "qualitatively". Substitute quantitatively for qualitatively.

*This change will be made.*

21. **Page 20. Monitoring Well Construction**

It is unclear how a one gallon per minute or greater flow rate will be determined in the field during bedrock drilling. Please clarify.

*This rate is estimated while drilling by observations of the flow of drilling fluids based on the experience of the driller and Atlantic geologist and confirmed prior to completion of the well by pumping.*

22. **Page 25. Rubble Fill at Bunker A-86**

A test boring will be advanced through the Rubble Fill at Bunker A-86 to evaluate potential surficial contamination as part of the Step II investigation. Although it is not stated, it should be indicated that a visual inspection of the rubble fill will be conducted during the test boring to characterize the contents.

*This paragraph will be revised to indicate that a visual inspection of the rubble fill will be conducted.*

23. **Page 32. Table 4-9**

It appears that the location of the deep monitoring well 7MW2D is depicted on Figure 4-4 as sidegradient of the north leachfield system, rather than downgradient (see Table 4-9). Monitoring well 7MW2D should be depicted and installed downgradient of the existing monitoring well 7MW2S in order to monitor the quality of ground water downgradient of the leachfield. In addition, monitoring well 7MW3D should be moved further west of its presently depicted location on Figure 4-4 in order to characterize ground water downgradient of the south leachfield system.

*We agree and the well locations will be depicted in the locations indicated.*

24. **Page 32. Table 4-9**

Based on data contained in the Goldberg-Zoino & Associates, Inc. (GZA) report located in Appendix A, mineral spirits up to 11,000 mg/kg were detected in the area around the waste Otto fuel sump and tank. Total petroleum hydrocarbon (TPH) analysis must be included along with the other proposed analysis for those test borings and wells installed near the former underground Otto fuel tank. In addition, it should be noted within this section whether any visible contamination was evident and samples taken from the tank grave during closure of this tank.

*TPH will be added to the list of parameters in samples collected to characterize the Otto fuel area at locations 7MW5S, 7MW5D, 7TB11, 7TB12, 7TB13, and any necessary supplemental borings.*

25. **Page 30. Torpedo Shops**

It is noted on this page that a soil gas survey will be conducted at specified grid points in areas surrounding the Torpedo Shop buildings and storage areas. It is advised that methane be analyzed as well as volatile organic compounds (VOCs) during the soil gas survey. The October 1989 analytical results from the GZA report revealed that methane was detected in the auger cuttings for GZ-1 and GZ-3 up to 9.5 ppm adjacent to Building 450. It is not clear where and/or why the methane is being generated, but screening is recommended due to the proximity of the buildings.

*As we discussed, the 9.5 ppm of methane is neither indicative of a significant source of methane or near levels of concern regarding toxicity or flammability. In addition, there is no indication that organic wastes have been disposed at this location. For these reasons, we do not propose to analyze for methane during the soil gas survey at this site.*

26. **Page 34. Figure 4-4**

It does not appear that surface water sample location 7SW1 is depicted on Figure 4-4. Please correct.

*It is shown, however, as an existing sample location and its symbol should be changed to indicate it is a proposed sample location.*

27. **Page 38. Table 4-11**

It is recommended that methane monitoring be conducted in addition to the proposed air sampling for VOCs within and around the Nautilus Museum Building. Monitoring of methane is also recommended during installation of monitoring wells 8MW6S&D due to proximity to the museum.

*The work plan will be revised to provide for methane monitoring in soil gas around the building and during the installation of 8MW6S and 8MW6D.*

28. **Page 57. Area A Landfill**

It is noted that detection of PCB concentrations at or above 10 ppm in any or all of the borings drilled within or around the concrete pad will prompt the initiation of supplemental boring(s) to better delineate the outermost extent of contamination. State cleanup levels for PCB-contaminated soils to 10 ppm is consistently applied only to areas with a GB ground water classification. The NSB-NLON is located in an area with a ground water classification of GB/GA or GA. DEP will require that PCB-contaminated soils be remediated to 2 ppm at the NSB-NLON. In addition, core samples should be obtained from the concrete pad to determine whether PCBs are leaching from the pad into the subsurface and potentially contributing to ground water contamination.

*See Comment 18. The plan will also be revised to obtain and analyze core samples from*

*the concrete pad for PCB. Four samples will either be collected from oil stained areas of the pad or randomly if no such areas are evident.*

29. Page 58. Area A Landfill

It is noted that bedrock monitoring wells 2WMW21D, 2LMW20D, 2LMW19D and 2DMW23D will be installed to a minimum open hole depth of approximately 100 feet below the surface of the bedrock. This depth was chosen so that ground water samples collected from these wells would be representative of, and comparable to, those collected from residential wells located off the NSB-NLON. It is recommended that continuous packer testing and sampling at a specified interval be conducted for one or more of the proposed deep monitoring wells to identify high yielding water bearing zones and any potential contamination. The selected deep bedrock well(s) should then be screened at the appropriate depth based on highest yields. The residential wells located off the NSB-NLON are most likely not screened, thus it would be more reasonable to screen at those intervals where the highest yields are obtained within the bedrock as this will be representative of the primary source of water to the residential wells.

*Both EPA and CTDEP commented on the bedrock well design. EPA suggested to drill the bedrock wells to the depth at which they are capable of providing a yield greater than 1 gpm and stated that the objective of simulating water withdrawal is not appropriate. CTDEP suggested that continuous packer tests be performed in one or two wells and that well screens be set in the highest water yielding zone. CTDEP also stated that the zones of highest yields will be representative of the primary source of water to residential wells. During our phone conference, EPA felt after discussion, that the CTDEP packer testing approach was preferable. Packer testing would be capable of defining the highest yield zone in a well, however, whether or not this is the most appropriate zone to sample bears some discussion. The highest yielding zone may not be the most contaminated zone or contaminated at all. Sampling every zone is not feasible and will not substantially add to our understanding of the site. We disagree with EPA that the objective of simulating well water withdrawal does not appear to be appropriate. Remediation standard for this area will be based on MCLs which are measured at the tap, not in situ. We feel the objectives of these wells should be to simulate residential wells and detect contamination. Packer testing and screening at the highest yielding zone may not detect contamination in low yielding zones. Drilling to the first water bearing zone could result in the non-detection of contaminants in deeper zones. The effects of dilution of any particular water bearing zone in a deep well must be evaluated regarding contaminant detection. In a hypothetical 100-foot deep bedrock well containing ten different zones, one yielding 1.0 gpm and the others yielding 0.1 gpm, dilution factors are 1.9 to 1 for contaminants in the high yield zone and 19 to 1 for each of the low yielding zones. With this in mind and after consideration of EPA and CTDEP comments, the design in the work plan seems preferable to either alternative as it will detect any significant contamination and it accurately simulates a residential well for comparison to MCLs.*

30. **Page 58. Area A Landfill**

The first paragraph on this page indicates that select residential wells will be "measured" twice. This seems inconsistent with proposals to sample and measure water tables of offsite residential homes on a quarterly basis for a period of one year. Please clarify.

*As we discussed, we are limiting the collection of water level measurements to twice due to the difficulty in obtaining these measurements. Quarterly water samples will be taken at the same time water levels are measured.*

31. **Page 58. Area A Landfill**

It is noted that the pump well proposed within the northwest section of the Area A Landfill site will be screened approximately 40 feet throughout the entire saturated thickness of the overburden aquifer. It should be explained where the four proposed observation wells will be located and whether they will also be screened the full length to measure average hydraulic heads in the overburden.

*Additional detail regarding the pump test, including observation well location and screening, will be added to the work plan.*

32. **Page 58. Area A Wetland**

The section covering the Area A wetland should note that proposed sediment sample locations are depicted on Figure 4-7, not Figure 4-8.

*The figure reference will be changed to Figure 4-7.*

33. **Page 59. Area A Wetland**

It is noted that the deep bedrock monitoring well 2WMW5D will be installed to the depth of the first water bearing zone of fracture concentrations. Explain in this section how the water bearing zone will be determined.

*It will be determined as described in our above response to Comment 21.*

34. **Page 59. Area A Wetland**

It may be more reasonable to measure the water table for each Area A Wetland well on a quarterly basis in conjunction with residential wells.

*We agree and in our response to EPA comments have proposed to change the frequency of water level measurements to quarterly.*

35. Page 61. Area A Downstream/OBDA

The third paragraph notes that sediment and surface water samples located at the ground water seeps into North Lake will be sampled and analyzed for TCL parameters. This action is being taken to determine if any upgradient, contaminated ground water may be impacting the lake. With this in mind, it is recommended that a limited soil gas survey and subsurface sampling be performed at monitoring well 2DMW15S. Phase I investigations found TCE, PCE and other compounds at elevated levels within subsurface soils at this location. This area is located just upgradient of North Lake and should be further investigated to define the extent of contamination. The non-detect analytical results of the ground water from this well is not sufficient justification for discontinuing any further characterization at this location.

*We will revise the report to provide for a limited soil gas survey in this area. As the depth to bedrock is around four feet in this area, the soil gas survey should be capable of finding any contaminant source areas. If any areas of contamination are detected by the soil gas survey, a soil sample will be collected from any such area and analyzed for VOC.*

36. Page 63. Defense Reutilization and Marketing Office (DRMO)

Explain the rationale for replacing existing upgradient monitoring wells 6MW5S&D with wells 6MW6S&D at the DRMO site. In addition, test boring 6TB24 should be converted into a monitoring well to analyze ground water in this area. Remediation of this area may be required due to the high soil gas and subsurface soil sample contaminant concentrations detected in this area from the Phase I investigation.

*During the Phase I investigation, we did not want to place any wells in the area near 6MW6S and 6MW6D as they probably would be destroyed during the construction activities proposed for this area at that time. There are presently no construction activities proposed for this area and this location is directly upgradient rather than farther upgradient. For these reasons, well 6MW5S and 6MW5D have been replaced by 6MW6S and 6MW6D.*

*Regarding location 6TB24, a shallow well will be added at this location and sampled for VOC to better define this area.*