

**RESPONSE TO COMMENTS FROM
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)
DATED DECEMBER 22, 2005**

**Draft Work Plan for Soil Excavation at the Torpedo Shops, Operable Unit 8 - Site 7
Naval Submarine Base - New London Superfund Site in Groton, CT**

GENERAL COMMENTS

General Comment #1:

The Record of Decision anticipated that the excavations would be approximately 5 to 8 feet deep. However, the work plan does not discuss the target depth proposed for the excavations. Therefore, the volume of soil to be excavated cannot be confirmed. Please edit the work plan to include the target excavation depth for each excavation.

Response General Comment #1:

The Work Plan has been revised based on this comment. Target depths for excavations at both the Building 325 area and the former septic tank location have been included. The target depths have also been used to calculate the estimated volumes of contaminated soil to be excavated.

General Comment #2:

Note also that the number of sidewall samples collected should be related to the excavation depth. For example, if the excavations were five feet deep a single depth layer of confirmation samples at the target depth layer would be adequate. However, if the excavations were eight feet deep, sidewall samples would need to be collected from two separate depth layers, thereby doubling the number of sidewall samples collected. Please address this in the work plan revisions.

Response General Comment #2:

The Work Plan has been revised based on this comment. The number of confirmation samples is related to both the area and depth of the excavation. The target depths of the excavations indicate that only one sidewall sample would need to be collected at each sidewall sample location. A discussion on the protocols for sidewall sampling in the event that the excavations extend past the target depths is included.

General Comment #3:

The work plan needs to better differentiate between the excavation around the septic tank, which is contaminated with volatile contaminants and the excavation south of Building 325, which is contaminated primarily with polycyclic aromatic hydrocarbons (PAHs). Screening and sampling protocols should not be the same at each excavation.

Response General Comment #3:

The Work Plan has been revised based on this comment. Screening and sampling protocols have been modified to reflect the type of contamination present. Soils at the former septic tank area are contaminated with VOCs and PAHs. Soils at the area south of Building 325 are contaminated with PAHs only.

The limits of excavation will be determined by three criteria. 1) VOC pre-screening of soil with a PID, 2) visual inspection for contamination, and 3) estimated limits of excavation based on the delineated area and target depths. Once the minimum limits of excavation have been reached, soil samples will be collected for field testing. VOC screening (with a PID) and immunoassay field testing for PAH contamination will be used to determine that contamination has been removed from the excavations, prior to collection of confirmation samples. Once the field testing indicates that contamination has been removed from the excavations, confirmation samples will be collected for laboratory analysis.

Although it is anticipated that only PAH contamination is present at the area south of Building 325, VOC screening will ensure that VOC contamination does not exist in this area.

SPECIFIC COMMENTS:

Comment #1:

p. 1, §1.1 In the first paragraph, please cite the Record of Decision rather than the Proposed Plan and the selected remedy rather than the proposed remedy.

Response #1:

The text has been revised to cite “Record of Decision” and to state “selected remedy”, rather than proposed remedy.

Comment #2:

pp. 1, §1.1, ¶3, Please include the estimated volume of soil in the vicinity of the septic tank,
p. 2, §1.3, ¶4 which is impacted by volatile organic compounds, that will be excavated under
& p. 4, §2.1, the current scope of work.

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Response #2:

The document has been revised to include the quantity of 1,150 cubic yards of contaminated soil. The following has been added to the document “This estimate is based on an approximate quantity of 830 cubic yards of PAH-contaminated soil from the area south of Building 325 and approximately 320 cubic yards from the former septic tank location. The soils at the septic tank location are contaminated by both volatile organic compounds (VOCs) and PAHs.”

Comment #3:

p. 1, §1.2, ¶3 The third and fourth paragraphs in this section seem to discuss the results of the 2005 pre-design investigation which has not been cited. Please cite the 2005 pre-design investigation when discussing the history and nature of contamination at the Site.

Response #3:

The third paragraph refers to prior field investigations conducted from 1990 through 2000 and the fourth paragraph refers to the Pre-Remedial Study conducted in 2005. This has been clarified in Section 1.2 of the text.

Comment #4:

p. 2, §1.2 The last paragraph in this section discusses the ground-penetrating radar study and the fact that a septic tank was not found at the anticipated location. It is presumed that this study was conducted in 2005, although the pre-design investigation has not been referenced in this section. Also, the disposition of the septic tank needs to be determined. If the tank is indeed located elsewhere on the Site, it needs to be located and investigated before this Site can be closed out.

Response #4:

The GPR study was conducted in 2005, prior to any intrusive work during the pre-design investigation. This has been clarified in Section 1.2 of the text.

There is no known record of disposition of the septic tank. However, the GPR study indicates that there is no septic tank at the suspected location.

The following sentence has been added to the document. Location of the septic tank other than at the location provided to TtEC is beyond the scope of this Work Plan.”

Comment #5:

p. 2, §1.3 The first sentence of this section is related to the description of the Site and belongs in Section 1.2.

Response #5:

The sentence has been moved to Section 1.2.

Comment #6:

p. 2, §1.3, ¶3 Please refer to the selected remedy, not the proposed remedy.

The first bullet in the third paragraph refers to delineation of contaminated soil. For clarity, please explain that the delineation was completed in July 2005 so the reader does not expect that to be a part of this Work Plan.

Response #6:

The text in Section 1.3 has been revised to state “selected remedy”, not proposed remedy. The text “completed in July 2005” has been added to the first bullet item in the third paragraph, Section 1.3. The text “septic tank not located” has also been added to the first bullet item in the third paragraph, Section 1.3.

Comment #7:

- p. 3, §1.3 For consistency, please add another sentence at the end of this section stating that once all contaminated soil has been removed from the Site, clean backfill will be imported to fill the excavations and the Site will be restored to appropriate pre-excavation conditions.

Response #7:

The statement “Once all contaminated soil has been removed from the site, clean backfill will be imported to fill the areas and the site will be restored to appropriate pre-excavation conditions” has been added to Section 1.3.

Comment #8a:

- p. 4, §2.1, ¶2 a) The text refers to 25 soil samples each. Please clarify whether this text refers to each of two excavations or each of two laboratory analyses.

Response #8a:

The text refers to each of two laboratory analyses. The text in Section 2.1 has been clarified to state 25 soil samples each for USEPA Method 8260B and 8270C.

Comment #8b:

- p. 4, §2.1, ¶2 b) Also, the text states that the excavations will be screened via headspace analysis with a PID to select samples for laboratory testing. This is not an appropriate method to screen soil potentially contaminated with PAHs, which are minimally volatile at best and will not be measurably volatile in cold temperatures. Screening soil samples with immunoassay field test kits would be an appropriate screening method for PAHs. Please supplement or replace the reference to headspace screening with a more appropriate method for PAH screening, such as immunoassay field test kits.

Response #8b:

The text in Section 2.1 has been changed to reflect this comment. It now states “Soil samples will be collected from the four sidewalls and bottom of the excavation. These samples will be field tested for contamination using a Photoionization Detector (PID) with a 10.2 eV lamp for VOCs in the jar headspace and immunoassay field test kits for detection of PAHs.”

Comment #8c:

- p. 4, §2.1, ¶2 c) While it is recognized that this section is a general description of the scope of work, it would be more appropriate to summarize all the significant aspects of the work to be done rather than present only a portion of the required work. Then the details of the work to be done can be presented in the subsequent sections. As written this section is inconsistent with the detailed discussion and therefore confusing to the reader.

Response #8c:

Based on the comment, the scope discussion has been revised in Section 2.1. Section 2.1 has been revised to summarize all the significant aspects of the work to be done.

Comment #9:

- p. 5, §2.2.3 Please include a plan showing the proposed erosion control locations. The second paragraph states that soil and sediment controls will be inspected weekly. This is not acceptable. EPA expects erosion controls to be inspected daily while working actively on the Site. Weekly inspections are only acceptable after active remediation is completed while awaiting full restoration of the Site. Please edit the work plan accordingly.

Response #9:

The text has been changed to state that “sediment controls will be inspected daily” instead of weekly “during active site work”. The sentence “Weekly inspections will be conducted after active remediation is completed and until the site restoration has been completed” has been added to the document.

The document has been revised to state where erosion control measures are to be taken rather than showing where erosion control measures are to be taken. The following sentence has been added to the document “Sediment controls will be installed at the down-gradient edge of each excavation area to prevent run-off and around near-by surface water drainage locations.”

Comment #10a:

- p. 5, §2.3.1 a) The screening protocol presented in the first paragraph is not consistent with that described in Sections 2.1 and 4.2.3 of the work plan. Please correct as appropriate. Furthermore, as noted in an earlier comment, field screening soil with a PID for PAHs, the primary contaminant on the south side of Building 325, will not be effective, especially in cold temperatures. Screening directly from the bucket in cold temperatures will even be questionable for volatile contaminants and is not a reliable screening approach. Please edit the work plan to include a more appropriate method for PAH screening, such as immunoassay field test kits. Implementing the protocol as written in the work plan could result in repetitive confirmation sampling rounds or the failure to detect and remove contaminated soil.

Response #10a:

The VOC field screening protocol described in Section 2.3.1 differs from the field screening protocol used for confirmation samples as described in Sections 2.1 and 4.2.3.

Section 2.3.1 has been revised to include a clarification as follows. “Field pre-screening for VOCs will be performed using a PID. Soils will be excavated and screened with a PID while still in the excavator bucket. VOC field screening is to be conducted during excavation to measure the VOC contamination in the soil that is being excavated. The data will be used as a pre-screen to ensure that VOC contaminated soils are removed and for worker safety.

Excavation will continue until the minimum limits of the excavation are reached as estimated in this Work Plan and visual observation indicates no obvious staining or discoloration. In addition, the VOC pre-screening results must indicate that soils with greater than 10 parts per million (ppm) VOCs have been removed from the excavation. Excavation will continue until the excavated soil is measured to be less than 10 ppm on the PID. When these conditions have been met, soil samples will be collected from the sidewalls and the bottom of the excavation.

These soil samples will then be screened for VOCs in the jar headspace by PID and for PAHs by immunoassay field test kits, as described in Sections 2.1 and 4.2.3. In the event that the headspace screening or the immunoassay field testing indicates residual contamination, a small quantity of soil will be excavated from the area. Another soil sample will then be collected from the newly excavated area. This subsequent soil sample will be field screened and tested. It is anticipated that up to 50 soil samples will be tested by VOC screening and immunoassay field testing.

A location will be considered free of contamination if the soil sample from the location meets the following criteria listed below.

- VOC headspace screening indicates that the soil headspace is less than 10 ppm on the PID.
- Immunoassay field testing indicates that detected PAHs are below the Remedial goals presented in Table 2.

Once field testing indicates that contamination has been removed, a confirmation soil sample will be collected for laboratory analysis. A total of twenty-five (25) confirmation samples will be sent to the laboratory for analysis of VOCs and PAHs.”

Comment #10b:

- p. 5, §2.3.1 b) The fourth paragraph states that once PID readings are below 10 parts per million (ppm) excavating will stop and confirmation samples will be collected. On the south side of Building 325 where only PAH contamination is expected, that could result in inadequate excavation before confirmation samples are collected because PAHs are minimally volatile at best. If the assumption is that soil has been contaminated by subsurface sources, the Navy should establish a minimum excavation depth before confirmation samples would be collected. For example, the Navy may actually *begin* by digging a five-foot deep excavation (note that the Record of Decision estimated that the excavations would be five to eight feet

deep). The remediation protocol must be designed to reasonably ensure that no contamination is left at depth. Please edit the work plan accordingly to clarify this.

Response #10b:

The following statement estimating the depths of excavation has been added to Section 2.3.1 of the document. "The anticipated depth of the excavation at the area south of Building 325 will be a minimum of 4 feet. The excavation depth at the former septic tank location is anticipated to be a minimum of 5 feet.

As discussed in Comment #10a, the conditions required to cease excavation have been clarified.

Comment #10c:

p. 5, §2.3.1 c) The fourth paragraph further states that if groundwater is encountered it will not be removed from the excavation and sidewall samples will only be collected above the water table. However, the Record of Decision states "Groundwater may also be encountered during excavation of contaminated soil. If encountered, the water may need to be removed from the excavation, pre-treated, and discharged to the publicly-owned treatment works (POTW)." As stated in an earlier comment, the depth at which sidewall samples are collected is dependent on the depth of the excavation. If the depth of the excavation extends more than approximately two feet below the water table, additional sidewall samples will have to be collected from below the water table. Also, the presence of groundwater will not preclude the collection of bottom samples from the excavation. If adequate representative confirmation samples cannot be obtained from an excavation containing groundwater, the groundwater will have to be managed as indicated in the Record of Decision. Please edit the work plan accordingly to address these issues.

Response #10c:

The document has been revised to reflect this comment. Groundwater will not be removed from the excavation or treated, unless directed by the Navy and a scope change is issued to TtEC. Groundwater would then be managed in accordance with the ROD.

Based on the target depth of the excavations, it is not anticipated that groundwater will be encountered.

Comment #10d:

p. 5, §2.3.1 d) The fifth paragraph discusses the smaller excavation, which is the excavation around the septic tank, according to Figure 2. Since the soil has presumably been impacted by the septic tank, the target depth of the samples should correspond with that depth but also include other depth intervals where evidence of contamination exists. Although the work plan does not allow for the collection of confirmation samples from more than one depth interval, it may in fact be necessary to collect confirmation samples from more than one depth interval to ensure that the extent of contamination has been adequately addressed. The work plan should be edited to acknowledge this. The deeper the excavation, the more important it will become to collect confirmation samples at different depth layers.

The number of sidewall and base samples collected for the smaller excavation should be increased for reasonable due diligence and for conformance with the large excavation sampling protocol. Review of Figure 2 indicates that the perimeter of the smaller excavation (around the septic tank) is approximately 268 feet and the area is approximately 4,100 square feet (not 1,725 square feet as shown in the work plan). Sidewall samples collected at 30-foot intervals (which would be in accordance with the plan for the larger excavation) would necessitate the collection of 9 sidewall samples for the smaller excavation. The four sidewall samples proposed in the work plan results in one sample collected for each 67 feet of excavation perimeter, which is not adequate. Also, eight base samples should be collected based one sample per approximately 500 square feet (as proposed for the larger excavation). Please edit the work plan accordingly.

Response 10d:

After review of Figure 2, it was determined that the scale of the figure was incorrect. The figure has been revised to include the correct scale. Based on the revised Figure 2, the estimated area of the excavations and the estimated quantities are correct as written in the Work Plan. The number of confirmation samples need not change.

Comment #10e:

p. 5, §2.3.1 e) It was noted previously that contaminant concentrations exceeding the cleanup goals were detected at the bottom of the borings in the vicinity of the septic tank. Consequently, the pre-design investigation did not identify either the vertical or horizontal extent of contamination exceeding the cleanup goals in the vicinity of the septic tank. The work plan protocol needs to account for this.

Response 10e:

Text has been added to Section 1.1 of the Work Plan summarizing the findings of the Pre-Remedial Study. Also a new Table 1 has been added to the Work Plan summarizing the locations and the depths of the samples in exceedance of the remedial goals. This data was used to identify the vertical and horizontal extent of contamination at the former septic tank location.

Comment #11:

p. 6, §2.3.1 Regarding the larger excavation (located south of Building 325), review of Figure 2 suggests that the perimeter of the larger excavation is approximately 590 feet and the area is approximately 9,400 square feet (not 5,578 square feet as the text indicates). Consequently, a minimum of 20 sidewall samples and 19 base samples (one every approximately 500 square feet) will need to be collected. Please edit the work plan accordingly.

If snow cover does exist, snow removal will be required to locate the painted markers identifying the locations of any underground utilities. Please confirm that, if snow cover exists, snow removal will be performed to the extent necessary to properly identify utility locations and to prevent any impact on the excavations from blowing or melting snow.

Response #11:

As discussed in Response #10d, Figure 2 has been revised to include the correct scale. The estimated area of the excavations and the estimated quantities are correct as written in the Work Plan. The number of confirmation sample need not change.

The document has been revised to include the statement “If snow cover does exist during the project, TtEC will remove the snow to properly identify utility locations and to prevent any impact to the excavation due to blowing or melting snow.”

Comment #12:

- p. 6, §2.3.2 The text states that excavations will be filled to grade with gravel. Please clarify if this is intended to include the septic tank area. As appropriate, please edit the work plan to clarify that a suitable amount of soil and topsoil will be applied over the gravel in areas where grass cover needs to be restored.

Response #12:

The statement has been revised as follows. The area south of Building 325 and the former septic tank excavations will be backfilled to grade with gravel and topsoil, as appropriate. The document has been revised to include the statement “TtEC will place a suitable amount of gravel and topsoil in areas where grass cover needs to be restored.”

Comment #13:

- p. 7, §3.1 Please edit the text to indicate that soil stockpiles will be securely covered with 6 mil polyethylene sheeting when not being actively restocked and that all stockpiles will be completely enclosed within appropriate erosion controls. Also clarify whether representative composite stockpile samples will be collected for proper characterization of each stockpile.

Response #13:

The text has been revised to indicate that the soil stockpiles will be securely covered with 6-mil polyethylene sheeting when not being actively restocked and that all stockpiles will be completely enclosed within appropriate soil erosion and sediment controls.

The document has been revised to include the following statement. “It is anticipated that a total of five (5) samples will be collected and analyzed for waste classification. Three (3) composite samples will be collected from the soils excavated from south of Building 325. Two (2) composite samples will be collected from the soils excavated from the former septic tank location. Sample fractions for VOC analysis will be a discreet grab, rather than a composite.”

Comment #14a:

- p. 9, §4.2.3 a) The soil screening protocol should be robust enough so that soil screening samples collected are representative of the entire final sidewall and final base excavation surfaces. These data will be required to support the limited number of confirmation samples collected.

Please indicate how many final screening samples will be collected from each completed excavation.

Response #14a:

The following statement has been added to the document. “It is anticipated that up to 50 soil samples will be tested by VOC screening and immunoassay field testing.” See Response #14b for more information on sample collection.

Comment #14b:

p. 9, §4.2.3 b) The discussion in the third sentence is not apparently correct and is not consistent with Sections 2.1 and 2.3.1 that indicate that 25 confirmation samples are planned. Please correct as appropriate. (However, please refer to comments on this work plan regarding the number of confirmation samples required.)

Response #14b:

The document has been revised to include the protocols and criteria, including immunoassay field testing for PAHs. The following statements have been added to the document. “Soil samples will be collected for both field testing and for laboratory analysis. Soil samples for all analyses other than VOCs will be collected into a pan, homogenized, and then apportioned into sample containers. Soil for VOC analysis will not be homogenized or composited, instead a discreet grab of the soil (before homogenization) will be placed into the container for VOC analysis. An Encore sampler will be used for VOC samples to be submitted to the laboratory.”

“Soil sample field testing will involve both jar headspace analysis by PID for VOCs and immunoassay testing for PAHs”

“Immunoassay field testing will be performed per the manufacturer’s instructions for the PAH of concern. Immunoassay field testing must indicate that detected PAHs are below the remedial goals presented in Table 2. If immunoassay results indicate PAH concentrations below the remedial goals, a sample will be collected from the highest reading location and sent off-site for laboratory analysis. If the PAH concentrations are above the remedial goals, additional soil will be removed from that sample location and the location will be re-sampled and tested.”

“Samples for laboratory analysis will be stored and shipped in iced and sealed coolers under proper Chain-of-Custody.”

Comment #15:

p. 10, §4.3.1 Please explain that duplicate samples for volatile organic contaminants (VOCs) will not be homogenized but rather collected separately from the same location using accepted sampling techniques for VOCs, such as Encore samplers or equal.

Response #15:

The document has been modified to include the following statement. “Soil for VOC analysis will not be homogenized or composited, instead a discreet grab of the soil (before homogenization) will be placed into the container (i.e., Encore Sampler) for VOC analysis.”

Comment #16:

p. 11, §4.4 In Table 2, please revise the number of confirmation and quality control samples required based on consistency with the large excavation protocol presented in this work plan and on the corrected excavation dimensions as discussed in comments on this work plan.

Response #16:

As discussed in Response #10d, Figure 2 has been revised to include the correct scale. The estimated area of the excavations and the estimated quantities are correct as written in the Work Plan. The number of confirmation sample need not change.

Comment #17:

p. 16, §6.1.1 For clarity, the first sentence should apparently read "...non-hazardous RCRA solid waste." Also, please add a qualifier to the end of the first sentence to the effect: "... unless analytical results indicate otherwise."

Response #17:

The change to "non-hazardous RCRA solid waste" has been made in the text.

The text "unless analytical results indicate otherwise" has been added to indicate that the classification of the waste as non-hazardous or RCRA hazardous is based on the analytical results of the waste classification samples.

Comment #18:

Appendix B The proposed use of an 11.7 EV lamp for the photoionization detector appears to be inappropriate since all the contaminants of concern have an ionization potential less than 10.2 EV. A 10.2 EV lamp appears to be a better choice because it will be more sensitive to the contaminants of concern. Please correct as appropriate, considering the limitations of a photoionization detector as indicated in comments on this work plan.

Response #18:

The document has been changed to reflect that a PID with 10.2 EV lamp will be used instead of a 11.7 EV lamp because of the ionization potential of the VOCs of concern.