



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

June 11, 2002

Mark Evans, 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: Draft Operation and Maintenance Manual for Sites 2, 6, and 8 at the Naval Submarine Base - New London Superfund site in Groton, CT

Dear Mr. Evans:

EPA reviewed the *Draft Operation and Maintenance Manual, Area A Landfill (Site 2), DRMO (Site 6), and Goss Cove Landfill (Site 8) at Naval Submarine Base - New London, Groton, Connecticut*, dated May 2002 in light of internal consistency, completeness, and technical accuracy. Detailed comments are provided in Attachment A.

The Draft Operation and Maintenance Manual (O&M Manual) briefly mentions the Groundwater Monitoring Plans for the three Sites in Section 1.0, and provides some additional information in Sections 2.0 through 4.0 that briefly discusses the relationship between the O&M Manual and the Groundwater Monitoring Plans. In summary, the Navy has taken the approach that the O&M Manual and the Groundwater Monitoring Plans should be maintained as separate documents with essentially separate inspections schedules and separate scopes of work for the inspections. EPA respectfully disagrees and would prefer to see the groundwater monitoring plans incorporated into the O&M Program (possibly as appendices). Moreover, EPA believes that the O&M Manual should encompass *all* of the IR sites, not solely the three landfill. This would facilitate a coordinated approach to all O&M activities at the Base, and is consistent with EPA's guidance document "Operation and Maintenance in the Superfund Program", OSWER 9200.1-37FS. Incorporation of the plans would provide a focal point for implementation of the activities critical to maintaining of the effectiveness of the remedial actions at each Site.

The O&M Manual does not contain any discussion of personnel, authority, or responsibilities for implementing its requirements. Without this information, it is difficult to understand how the requirements of the manual will be satisfied. While I do not expect the manual to include personnel names, key personnel by title or department should be identified together with their primary responsibilities. Inspections should only be conducted by personnel that have been properly trained in the inspection requirements and who have experience in conducting similar

inspections. The O&M Manual should contain qualifications and training certifications for personnel who perform the inspections, including contract personnel.

The O&M Manual specifies reporting requirements including a Draft Report of Findings from annual inspections, which includes a Draft Plan of Action to address deficiencies. Because the Plan of Action is to be submitted with the Report of Findings, I anticipate that the Plan of Action will be an overview of the scope of work required to complete the actions identified. A detailed work plan will also be required to properly identify the work elements to be completed, the quality assurance and quality control requirements, the health and safety requirements, and the qualifications of the personnel who will conduct the work. Please edit the O&M Manual to clarify that a separate work plan will be required or that the scope of the Plan of Action document would address the requirements of a detailed work plan.

The O&M Manual should include a copy of the document filed or the specific text and reference to the section and page of the Base Master Plan that describes the institutional controls implemented at each Site. Also, a copy of the Standard Operating Procedure - Administrative New London Instruction 5090.18 should be provided in the O&M Manual. Those responsible for implementing the O&M Manual must know the restrictions placed on each of the Sites.

Proper functioning of storm water management elements is critical to the effectiveness of the remedies. Therefore, I recommend that the storm water management elements at each of the Sites be inspected at least twice per year: once in late winter or early spring before spring rains and once in late fall following defoliation. Additional inspections should also be conducted as specified in the O&M Manual following significant storms or as determined by the team.

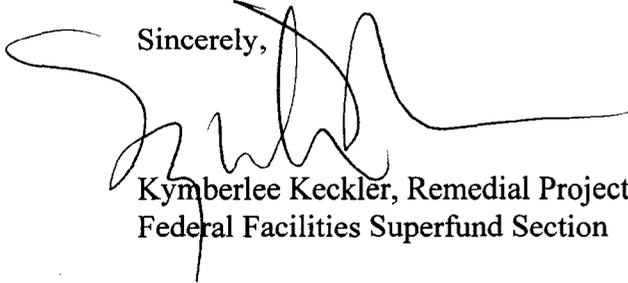
The inspection checklists appear to adequately cover the features at each Site that need to be inspected; however, the elements of the inspections have not been adequately defined. Most of the features will be inspected to assess their general condition as well as the condition of a few other particular elements associated with the feature. However, without a description or checklist to identify what level of detail is required in the inspection of each feature, the inspections might be expected to be superficial and inconsistent from one inspection to the next. Important elements of the feature may not be inspected if not adequately identified as part of the inspection. The O&M Manual should be edited to include, in addition to the checklists provided, more detailed descriptions or checklists for categories of features that the inspectors would use to assess the condition of the features. These descriptions or checklists would include details of the specific elements that need to be inspected during each inspection. The inspections should also address whether the remedy is protective of human health and the environment and is ARAR-complaint.

As an example, when fencing is inspected, the following elements should be examined: fence posts straight, post foundation not exposed, no erosion around post foundation, fence not leaning, fencing not cut or bowed and in tact from top to bottom, all barbed wire strands in place, fence coating undamaged, privacy slats not damaged or missing, no holes in ground along fence line,

and perhaps additional elements. Please augment the inspection checklist provided in the Draft O&M Manual with the requested inspection details for each category of features to be inspected.

I look forward to working with you and the Connecticut Department of Environmental Protection to ensure that the implemented remedial actions at the base remain protective of human health and the environment. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberlee Keckler', written over the word 'Sincerely,'.

Kimberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CTDEP, Hartford, CT
Dick Conant, NSBNL, Groton, CT
Yoon-Jean Choi, USEPA, Boston, MA
Jennifer Stump, Gannett Fleming, Harrisburg, PA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
Preface	Please correct the second sentence of the second paragraph that incorrectly refers to "...the O&M Plan."
p. 1-1, § 1.1	The elements of the O&M program are summarized in a series of bullets, one of which is, "Sample and monitor leachate, groundwater, and surface water." This seems to imply that the sampling and analysis itself is part of the O&M program, while it is later stated in the individual sections for each landfill (<i>e.g.</i> , §§ 2.3, 3.3, and 4.5) that monitoring is separate from O&M. Perhaps the introductory material could be expanded to clarify the responsibilities of the O&M program with respect to well maintenance, and which specific activities (sampling and analysis?) are managed under the LTM programs. Alternatively, M&M activities and LTM could be combined into a comprehensive plan that addresses both.
p. 2-6, § 2.3	All monitoring well maintenance should be included in the O&M Program and discussed in the O&M Manual. This may be done by incorporating the Groundwater Monitoring Plans as part of the appendix for each Site. Inspections of the interior of the monitoring wells may be done when wells are sampled, as proposed; however, that and the monitoring itself should be a part of the O&M Program. Also, it would not be expected that the scope of work for monitoring would be written to include repair or replacement of monitoring well components. This would more likely be performed as a task separate from groundwater monitoring, which may justify incorporating groundwater monitoring into the O&M Program.
p. 2-7, § 2.4	The third bullet states that the asphalt layer is not intended to be a barrier of the cap system and its condition will not impact the effectiveness of the cap system. EPA strongly disagrees with this statement. The condition of the asphalt layer will have an impact on the performance of the cap system, and the asphalt layer must be properly maintained to ensure the most effective performance of the cap system. Please edit accordingly.
p. 2-7, § 2.4	The sixth bullet states that a depression in the riprap was found in the southwestern end of the landfill and references the figure in Appendix A.4. Review of this figure (Figure 3-1) suggests that the depression may be in the northwestern end of the landfill. Please review the text and correct as appropriate.
p. 2-8, § 2.4	The bullets at the end of this section list recommendations of the first five-year review, but do not include a recommendation to fix the deficiencies noted during the review. What has been done or will be done to correct the deficiencies?

- p. 2-8, § 2.5 The discussion throughout this section pertains to repairs only; however, maintenance activities will also be required. For example, sediment must be removed from catch basins, debris must be removed from other storm water structures, grass and vegetation needs to be maintained, riprap may need to be rearranged, *etc.* The O&M Manual should address these and other identifiable maintenance activities, and not just repairs.
- p. 2-8, § 2.5 The first paragraph should be edited to include a statement such as “Prior to initiation of any operation and maintenance activities, reports shall be submitted and approved documenting the work that needs to be performed and the methods for performing it” as discussed in Section 2.6.
- p. 2-8, § 2.5.1 Please edit the second sentence to state that the scope of the site inspection shall include the features and elements listed on the Inspection Checklist in Appendix A.1 and shall be performed in accordance with the description of the detailed inspection requirements prepared for each category of features to be inspected. Reporting requirements associated with the inspection are described in § 2.6.
- p. 2-8, § 2.5.1 In the last sentence in this section, please change the word “should” to “shall.”
- p. 2-9, § 2.5.3 Regarding repairs to the cap systems, what criteria will be used or how will it be determined whether the surface damage may be significant enough to warrant excavation and inspection of the geomembrane? Some discussion of this in the O&M manual is warranted.
- p. 2-15, § 2.5.5 Because Figure 2-1 is not oriented with North to the top of the page, some of the discussion under *Surface Water Channels* that references directions is confusing, and in some instances does not appear to be correct. Please describe the flow directions differently, such as clockwise and counterclockwise, or use another way to clarify its intent.
- p. 2-16, § 2.5.5 The last paragraph under *Surface Water Channels* discusses Channel D stating that it is associated with Area 4. However, Figure 2-1, at the end of Section 2.0, shows two channels labeled “D”; one associated with Area 1 and another associated with Area 4. The one associated with Area 1 has not been discussed. Please edit the discussion to include it and include some way to differentiate between the two channels, such as editing the identifiers.
- p. 2-16, § 2.5.5 The discussion in the first paragraph under *Storm Water Culverts* does not appear to be correct. It identifies culverts at stations 24+50 and 18+00 that were installed to accommodate vehicular traffic. However, culvert ADS beneath the access to Area 4 also appears to be such a culvert. Based on this, the remainder of the discussion regarding the culverts is unclear. Please review the discussion and edit

it as necessary to better clarify the location, function, and operation of the three culverts: 1, 2, and ADS.

p. 2-17, §2.5.7 The discussion in the last sentence of the first paragraph is not clear. If both the groundwater monitoring and the O&M inspection are both conducted annually, how would one of the O&M inspections coincide with a groundwater monitoring event?

p. 2-17, §2.5.7 In the table of monitoring wells provided, well 2LMW31F was not found on Figure 2-1, and well 4MW4D is shown as abandoned on Figure 2-1, so should not be on the list of wells to be inspected. Please correct as appropriate.

p. 2-19, § 2.6 Please keep EPA informed of the O&M activities as we may wish to perform oversight. Please note that EPA would like to review the Draft Plan of Action and the Draft Completion Report. EPA should receive copies of the Final Report of Findings, Plan of Action, and Completion Report.

Figure 2-1 Monitoring Well SLMW13S should be 2LMW13F. Please correct. Also, please edit the figure to differentiate the idle wells from the wells that will be monitored.

Figure 2-2 The inclusion of the woven geotextile between the landfill material and the gas management layer could not be confirmed from the drawings provided. Drawing C-30, Detail 1 refers to all plateau areas including Area 4, but does not include the lower geotextile. Please confirm that it was installed and provide the final as-built drawing that shows the change.

p. 3-6, § 3.4 The last paragraph on this page appears to contradict the previous text in this section that lists apparent deficiencies identified during the site inspection; specifically, the area of potential settlement and the sub-par condition of the monitoring wells and dedicated sampling equipment. Please edit the text to resolve the apparent contradiction.

Please explain how you plan to implement the recommendations from the first five-year review to correct the deficiencies in the monitoring well equipment and to monitor more frequently the area of possible settlement.

p. 3-7, §3.5 The discussion throughout this section pertains to repairs only; however, maintenance activities will also be required. For example, sediment will need to be removed from catch basins, debris will need to be removed from other storm water structures, grass and vegetation will need to be maintained, riprap may need to be rearranged, *etc.* The O&M Manual needs to address these and other identifiable maintenance activities and not just repairs. Please edit the O&M Manual accordingly.

- p. 3-7, § 3.5.1 In the last sentence, please change “should” to “shall.”
- p. 3-9, § 3.5.4 The first sentence refers to a drainage swale in the southern part of the site. From review of Figure 3-1, it appears that the drainage swale is in the northern part of the site. Please review and correct as appropriate.
- p. 3-10, §3.5.5 The discussion in the last sentence of the first paragraph is not clear. If both the groundwater monitoring and the O&M inspection are both conducted annually, how would one of the O&M inspections coincide with a groundwater monitoring event?
- p. 3-11, §3.5.5 Regarding the last sentence in this section that states that the dedicated sampling equipment is currently being inspected during each event of groundwater sampling, is a Report of Findings and a Plan of Action, as required by this O&M Manual, also being submitted to document and remedy deficiencies found during the inspections? Please explain.
- p. 3-11, § 3.6 EPA would like to be kept informed of and perhaps oversee O&M activities. EPA would like to review the Draft Plan of Action and the Draft Completion Report. EPA should receive copies of the Final Report of Findings, Plan of Action, and Completion Report.
- Figure 3-1 Please edit the figure to differentiate the idle wells from those that will be monitored.
- Figure 3-2 The cap configuration shown in this figure includes 3-inches of asphalt installed over the 12 inches of base course. This is not the cap configuration depicted on Sheet C-5, Detail 8 in Appendix B.4. The O&M Manual instructs the contractor to follow the intent of the design and the remedy during planning and implementation of any maintenance activities. The drawings provided will only cause confusion when they are used to conduct operation, maintenance, and repairs to the Site features. Please edit the O&M manual to include in the appendices the final as-built drawings and the specifications for the installed components.
- p. 4-5, § 4.2 The first full paragraph on this page discusses the remedy for Site 8. The second sentence states that the remedy also included the replacement of three 42-inch diameter metal pipes (storm water drainage pipes). This is not correct; the remedy as presented in the Record of Decision does not include replacement of the drainage pipes. Removal and replacement of the pipes was performed coincidentally with implementation of the selected remedy. Please edit the text accordingly. Also, in discussing the 42-inch pipes, please edit the text to state that they were storm water drainage pipes.

p. 4-5, § 4.2 The third full paragraph states that institutional controls were to have been recorded in the Base IR Instruction. The O&M Manual should include a copy of any recorded document and a reference to the specific location (document, book, page, date, *etc.*) where the record can be found. Please incorporate a copy of the recorded document or the reference in the next version of the O&M Manual.

p. 4-9, § 4.7 The discussion throughout this section pertains to repairs only; however, maintenance activities will also be required. For example, sediment will need to be removed from catch basins, debris will need to be removed from other storm water structures, grass will need to be maintained, riprap may need to be rearranged, *etc.* The O&M Manual needs to address these and other identifiable maintenance activities and not just repairs.

p. 4-9, § 4.7.1 In the last sentence, please delete the first “site inspection” phrase following the words “may require repair.” Also, please replace “should” with “shall.”

p. 4-10, §4.7.3 The second bullet states that a 6-inch base course was installed. This is not correct; the base course thickness was changed to 9 inches. Please correct.

The last bullet states that a 6-inch thick select waste and fill layer was installed. That is not correct; the thickness of the select waste and fill layer was changed to a minimum of 3 inches up to 6 inches. Please correct.

p. 4-12, §4.7.3 Under *Geomembrane*, in the second sentence please make the following editorial change: delete the word “used” the first time it appears in the sentence.

p. 4-13, §4.7.4 The last bullet states that a 6-inch thick select waste and fill layer was installed. That is not correct; the thickness of the select waste and fill layer was changed to a minimum of 3 inches up to 6 inches. Please correct.

p. 4-22, §4.7.8 The discussion in the last sentence of the first paragraph is not clear. If the intent is to conduct a quarterly groundwater monitoring event in conjunction with an annual O&M inspection, please edit the text to state this more clearly. If this is not the intent, please clarify the text.

p. 4-23, §4.7.8 The last paragraph on the page states that the original well construction logs are provided in Appendix C.2. Please note that because several of the wells within the landfill footprint were modified during construction, the original well construction logs will not be useful. Please edit the O&M Manual to incorporate revised well construction logs that include the modifications made to the wells.

Also, please clarify what plan is being referenced in this sentence.

p. 4-24, § 4.8 Please keep EPA informed of the O&M activities at the three Sites that might have an impact on the performance of the remedy. Discussions of upcoming O&M activities between the Navy and EPA may be necessary to identify those activities that EPA would take an active role in. For those activities, EPA would like to review the Draft Plan of Action and the Draft Completion Report. For all other activities, EPA should receive copies of the Final Report of Findings, Plan of Action, and Completion Report.

Figure 4-1 Several light poles are missing identification numbers. Please add the numbers.

Figure 4-2 The cap was installed with a 9-inch thick base course layer, not 6 inches as shown in this figure. Also, the select waste/fill layer was installed with a minimum thickness of 3 inches up to a thickness of 6 inches, not 6 inches as shown. Please correct.

Figure 4-3 The select waste/fill layer was installed with a minimum thickness of 3 inches up to a thickness of 6 inches, not 6 inches as shown. Please correct.

Appendix A.1 In the inspection checklist, under item 3) Sideslope Riprap Area, please correct the following: item e) change the reference from (b) to (c); and item h) delete, because this is not applicable to riprap. Add a line item to look for evidence of leachate seeps at the toe of the slope.

In the inspection checklist, under Storm Water Features, add line items to check the condition of the headwalls, and to check for heaves or settlement in the drainage swale.

The identification of the two Channels D as “East” and “West” should be incorporated into Figure 2-1 and the discussion of the channels in Section 2.0.

Appendix A.2 Two well construction logs are presented for @LMW20S. Please delete the original well construction log for 2LMW20S, dated 12/18/93 unless groundwater monitoring has been conducted at the old well to satisfy the ROD.

It does not appear that any of the wells that have been included in the groundwater monitoring program were modified during completion of the remedy. However, if wells to be monitored have been modified, the O&M Manual needs to be edited to incorporate updated well construction logs for these wells because the old logs will no longer be applicable. Please edit the O&M Manual accordingly.

Appendix A.4 There are numerous references in the red line as-built drawings provided in this appendix to the SAI as-built drawings; however, the SAI as-built drawings have not been provided. Several items mentioned in the O&M Manual text could not

be confirmed with the drawings provided. Please include the final as-built drawings in the next version of the O&M Manual.

Appendix B.2 Well construction logs are missing for the following wells for which groundwater sampling is planned: 6MW01S, 6MW02D, 6MW02S, 6MW06D, and 6MW06S. Please include construction logs for these wells.

Appendix B.4 The O&M Manual needs to include the final as-built drawings for the Site. Several inconsistencies were noted between the drawings provided in this appendix and the information in Section 3.0 of the O&M Manual (text and figures). Please include the final as-built drawings in the next version of the O&M Manual.

Appendix C.1 Gas vents should be monitored for contamination with a PID, and periodically sampled for laboratory confirmation of PID readings.

Appendix C.2 For wells that have been modified during the remedial action, the old well construction logs are no longer valid and not very useful. These logs should be replaced with updated well construction logs that reflect the changes made to the wells during remediation. Also, the well construction log for HNUS-23 (tank farm) is missing. Please include a copy of the well log in the next version of the O&M Manual.

Appendix C.3 The list of specifications not included with the O&M Manual needs to be supplemented to explain why the specific specification sections were not provided.

The Material Properties sheets presented near the end of this appendix do not correspond with the table of contents sheet provided for these sheets. There is a problem with the geosynthetic clay liner (only one sheet provided). Also two unidentified geotextile sheets (one is a woven geotextile) follow the one clay liner sheet. Please review and correct the data sheets and/or their order of presentation.

Appendix C.4 Many of the drawings provided in this appendix are not useful because the drawing scale is too small. Either provide full-scale drawings in the O&M Manual or provide a CD containing the drawings.

The Draft Remedial Action Report for Site 8 contained some drawings that did not have complete or accurate as-built annotations. The final version of the O&M Manual should contain drawings properly annotated to show the correct as-built conditions.