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NAS SOUTH WEYMOUTH  
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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING 60% DESIGN WORK  
PLAN FOR SITE 1 WEST GATE LANDFILL NAS SOUTH WEYMOUTH MA  
06/08/2010  
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1  
5 POST OFFICE SQUARE, SUITE 100  
BOSTON, MA 02109-3912

June 8, 2010

Mr. Brian Helland, RPM  
BRAC/PMO, Northeast  
4911 South Broad Street  
Philadelphia, PA 19112

Re: 60% Design Work Plan, West Gate Landfill, Naval Air Station South Weymouth

Dear Mr. Helland:

This office is in receipt of the document entitled *60% Design Work Plan, Site 1, West Gate Landfill, Naval Air Station South Weymouth, Weymouth Massachusetts* dated May 2010. Upon review, this office has the following comments which are attached.

If you have any questions about the comments, please do not hesitate to contact me at (617) 918-1388.

Sincerely,

A handwritten signature in cursive script that reads "Paul N. Marchessault".

Paul N. Marchessault, Remedial Project Manager  
Federal Facilities Superfund Section

Attachment: as noted

Cc: Dave Barney, SOWEY  
Ronald Kenyon, Shaw Environmental  
Dave Chaffin, MassDEP  
Bryan Olson, EPA  
Greg Kemp, Gannett Fleming

## **EPA COMMENTS ON DRAFT 60% WEST GATE LANDFILL DESIGN FOR SOUTH WEYMOUTH NAVAL AIR STATION**

### **GENERAL COMMENTS**

1. There is no discussion or analysis in the design documents regarding the 100-year flood elevation. The Draft Final Pre-Design Investigation (PDI) Report originally provided an assessment of the 100-year flood elevation but subsequently that assessment was removed from the Final PDI Report and TetraTech's responses to comments stated that it was the responsibility of the remedial design to evaluate the 100-year flood elevation in relation to the landfill cap. Please supplement the next revision of the design document with the appropriate information about the 100-year flood elevation.
  
2. While the 60% design has provided an infinite slope stability analysis it was limited to the interface between the geocomposite and the geomembrane, which presumably is the weak link for infinite slope stability. Please confirm that. Also, because of the relatively significant presence of peat in some portions of the landfill and the relatively high groundwater elevation (the RI states that the groundwater elevation is at ground elevation in portions of the landfill) there is some concern regarding slope failure associated with these site conditions. The 60% design has provided no information or analysis regarding slope failure associated with these conditions. Recognizing that the slopes are not steep, nevertheless, please supplement the design to address the possibility of slope failure due to the peat and high groundwater elevation.

Also, there is concern regarding slope stability along the east side of the landfill because of the steep slope on the west bank of French Stream. The capping design adds considerable weight to the bank, peat is present on the east side of the landfill and due to the high groundwater elevation, groundwater may break out along the west bank creating a failure zone. Please address this slope stability concern in the design document.

3. Please supplement the next revision of the design to address potential cap settlement due to the presence of peat at various locations in the landfill. The additional soil placed in the landfill is expected to cause compression of the peat, some of which will occur immediately (short-term) and some of which will be long term. Data was collected during the PDI to allow evaluation of potential settlement concerns during the design. Please provide such an analysis and describe the potential impact of long-term settlement and the need if any to take measures during construction to reduce the impacts from long term settlement.
  
4. There is some inconsistency in the total acreage of the West Gate Landfill as identified in the text (5.9 acres in §4.8.1) as compared to the calculations (5.4 acres in Appendix F). The difference is in the area of the western wetlands. The Pre-design Investigation Report (PDI) noted that the historical area of the site was referred to as 5.23 acres; however, re-evaluation during the PDI corrected the area to

approximately 6.3 acres. Please edit the design document to clearly call out the correct site acreage and review and correct the calculations as necessary to use the correct acreages for the several drainage areas evaluated.

5. In Appendix C the relative sizes of the sub-watershed (SWS) areas as depicted in the figures and as identified in the calculation tables are not consistent. It appears that the areas have been calculated incorrectly and if so the calculations in Appendix C will have to be corrected. Please review and correct as appropriate.
6. It is not clear from the design documents how large debris is intended to be managed and/or disposed of. Will large debris items such as appliances, large concrete blocks, etc. be disposed of off site? If not, please identify special measures that will be required of the Contractor to ensure these items do not create settlement areas within the landfill.
7. The design documents need to clarify what the design intent is for the drainage along the northwestern perimeter of the completed landfill cap. The drainage calculations have included this area in the drainage to the western wetlands; however, the grading plans do not provide direction to the contractor as to how this area needs to be graded for drainage considering that the existing swale will be removed. Existing grades in this area are greater than the top of the landfill drainage berm in several places.
8. Because the existing drain line in the northwestern perimeter of the landfill will be cut and capped, please clarify if any action will also be required under this contract to address the associated catch basin.
9. The Record of Decision (ROD) states that approximately 10,000 cubic yards of waste and debris are impacting the wetlands based on an area of 45,000 square feet with a depth of approximately six feet. The 60% remedial design proposes to excavate to a depth of only two feet to remove waste and debris impacting the wetlands. Apparently this depth is based on information obtained during the Pre-Design Investigation (PDI). If the depth impact is only two feet rather than six feet, presumably the volume of waste and debris to be consolidated is closer to 3,500 cubic yards rather than 10,000. Please provide information regarding the assumptions made for the 60% design as to the amount of waste and debris to be consolidated, the volume of additional fill material that will be required to establish the proposed subgrade elevations after consolidation of the waste and debris, and the proposed source for this fill material. Are the proposed cap grades consistent with the amount of material to be consolidated and imported for fill?
10. Please clarify whether MassDEP Presumptive Certainty QA/QC requirements will be required for the analytical tasks. If so include that in the requirements for Appendix G.
11. Dioxins are identified in the ROD as chemicals with cleanup goals; however, dioxins have not been identified as analytes for soil or sediment. Please amend the analyte list for soils and sediments to include dioxin analyses.

## **SPECIFIC COMMENTS:**

**Page 1-2, §1.2** The reference in the last sentence of this section should be to Section 5.0 not 4.0.

**Page 3-7, Section 3.7** In addition to the monitoring listed, initially the monitoring should also include gas vent monitoring. The frequency and duration can be detailed in the LTM plan.

**Page 4-4, §4.4** The references to specification Section 02500 Geocomposite Drain are not consistent with the specification number used in Appendix E. The specifications refer to this section as Section 02599. Please review and correct as appropriate.

**Page 4-6, §4.8** The storm intensities cited at the end of this section are not correct. Please coordinate with the drainage calculations: the 2-year event should be 3.3 inches and the 25 year event should be 6.1 inches (due to the 1.13 factor to convert 1 day events to 24-hour events).

**Page 5-4, §5.4** The text in this section does not discuss replacement of monitoring wells; therefore, correct the title of this section.

**Page 5-4, §5.5.1** Please correct the first sentence to read "... to the west of the top of slope ...."

**Page 5-4, §5.5.1** The last sentence in this section states that a geotextile will be placed over the completed subgrade. This sentence is not consistent with the text in Section 4.5 or the design in general which indicates that a geotextile will not be placed between the subgrade and the gas venting sand layer. Please review and correct the design as appropriate to clarify the intent.

**Page 5-5, §5.5.3** The text discusses locating confirmatory grab samples at where the greatest PID readings are detected. This should not be the sole criterion for sample locations because metals and PCBs in particular will not be detected by a PID. Some discretion needs to be used in addition to PID readings so that representative grab samples are collected from the excavations. Also, GPS coordinates need to be collected for each grab sample location. Please edit the text accordingly.

**Page 5-6, §5.5.4** The first full sentence on this page refers to testing to comply with the wetlands restoration area. Because excavations are planned in both wetlands and the uplands, please revise the test to refer to satisfying the criteria for both wetlands and non-wetlands, which are both presented in the SAP/QAPP.

**Appendix A** The schedule will need revision, as the current schedule shows regulatory review complete by June 1, 2010 and final design submitted by June 14, 2010.

**Appendix A** Under item E1000, does this item include the submittal of the Remedial Action Closeout Report noted in Section 8.0? If not, a separate item should be included for this report.

**Appendix B, Exhibit X-1** Please check this exhibit for completeness; it appears some items may not be listed.

**Appendix C** This appendix requires review and sign off for the Health and Safety Addendum but does not require review and sign off for the original Health and Safety Plan upon which the addendum is based. That does not appear to be appropriate. Please review and correct as appropriate.

**Appendix C, p. 4** The second paragraph refers to a December 2009 Shaw HASP. This does not appear to be consistent with the earlier discussion of a Small Landfill HASP and HASP addendum. Please clarify the intent and reconcile the difference in the referenced HASPs.

**Appendix C, §2.2** Please change regarding to regrading in the first sentence.

**Appendix C, §4.1.1** The last sentence in this section states that landfill gas will not be collected; however, a passive gas management system is a component of the design. Please correct the text.

**Appendix D** On page 2 of Section 1.1 the text states that the interface shear strength at three interfaces will need to be measured; however, only the interface between the geomembrane and the geocomposite was evaluated in the infinite slope stability calculations. Please supplement the slope stability section to discuss the appropriateness of applying the results of the stability analysis completed to the other interfaces.

**Appendix D, Table 1** Please correct the formula presented for the Drainage Layer Transmissivity Calculation. Rather than multiplying by “i” the formula should have division by “i”.

**Appendix D, Table 2 a)** The calculations in this table assume a worst case in which the geocomposite is flowing full, which presumably could occur near the downgradient portions of the landfill cap. However, no calculations have been made to evaluate a real worst case in which the overlying soil is saturated from ground surface to the geocomposite. While this may be an unlikely event, it seems feasible that a 100-year 24-hour event or a longer term less severe event could create this condition. The design should evaluate how likely this scenario is or alternatively design for the interface friction angle required for a stable slope under a fully saturated soil condition.

b) Please correct the Factor of Safety in the last line, it should be  $FS = RF/DF$ .

**Appendix D** Regarding the manufacturer’s data sheets provided in this appendix, as a point of reference, it is noted that the test conditions for transmissivity listed for the four geocomposites are not the same.

**Appendix E a)** Please review and correct the specification numbers used; there are inconsistencies between the Table of Contents, citations, and the actual Specification Identification numbers.

b) Some of the specifications cited in the various specification sections have not been included in this submittal. Please include them in the next revision of the design submittal or delete the references if they will not be used.

c) In Section 01410, 02235 Topsoil should be 02235 Vegetative Support Layer per the TOC.

d) In Section 02597, please correct all the page numbering.

**Appendix F** a) Although probably only of interest for before and after comparison purposes, it is noted that the existing condition calculations do not account for the runoff to the wetlands contributed from the area outside the landfill to the northwest although the proposed drainage plan does include the runoff from this area.

b) Some of the areas presented on the Proposed Drainage design figure are not apparently correct. It appears that the Northern Perimeter Swale and the Western Slopes areas have been incorrectly calculated. The total of the two areas appears to be approximately correct but as divided in this figure the individual areas are not apparently correct. The Western Slopes drainage area should be approximately 1.24 acres and the Northern Perimeter Swale drainage area should be approximately 1.94 acres. Please review and correct as necessary.

c) The calculations have limited the sheet flow distance to 100 feet and claim in the last page of Appendix F that this is consistent with TR-55. Actually, TR-55 assumes that sheet flow can be maintained for up to 300 feet. This difference will impact the time to concentration. Though unlikely, please review the calculations to determine if this difference has any significant impact on the design.

d) On the last page of Appendix F the second paragraph text states that the highest peak discharge per acre for a 100-year storm is 4.3 cfs/acre; however, the table following the text presents a flow of 5.3 cfs/acre for the 100-year storm. Please review and correct as appropriate.

e) It is noted that for the Proposed Drainage plan, the boundary of the Western Slopes area includes the southern area that will be created wetlands; therefore, please clarify why runoff from this area was included in the landfill runoff calculations.

f) Please provide additional details regarding the calculations completed for the Swale Hydraulics Sheet – EPA was unable to duplicate the calculation results.

g) Please provide additional details regarding the calculations completed for the last page in this Appendix (Overland Flow on the Western Landfill Slopes). It is not clear where this condition applies and EPA was unable to duplicate the calculation results. Also, please check the selection of Manning's coefficient.

**Appendix G** a) In Table 1 of Worksheet #10, many of the action levels presented exceed the MassDEP freshwater screening values. Please clarify how the specific action levels were selected because the sources listed do not apparently represent the lowest

values for the sources considered. Further discussion of appropriate action levels appears warranted.

b) The discussion in Worksheet #10, p 21, states that GW-1/S-1 standards must be achieved to satisfy the remedial goals but if they cannot be achieved GW-1/S-2 standards will be sufficient in conjunction with three feet of cover soil. Because this is a CERCLA site, CERCLA risk should be driving the cleanup. How does Navy intend to demonstrate that no CERCLA risk remains in impacted areas outside the landfill cap?

c) In Worksheet #10, p. 21 of 182, the text states groundwater is not anticipated to be encountered. Based on the RI, the groundwater elevation in some parts of the WGL is at ground surface therefore there should be some expectation that groundwater will be encountered. Please review the RI and edit the text accordingly.

d) Worksheet #10, p. 22, presents confirmation sampling frequencies, including bottom composites every 2,000 square feet and sidewall composites every 200 linear feet. Consistent with the sampling frequencies agreed to for AOC-55C, please revise the frequencies to every 1,000 square feet for bottom samples and every 100 linear feet for sidewall samples. Make this same change throughout the design document.

e) Worksheet #10, p. 22, the first two paragraphs under Delineated Wetlands or Restoration Wetlands Areas should be moved up and placed under the prior heading because these two paragraphs do not specifically refer to only wetlands sampling. Make the same correction in Worksheet #17, p. 68.

f) Worksheets #15.1 through 15.5 present project action limits for confirmation samples in non-wetland areas. The values presented are not consistent with the soil cleanup values required by the Record of Decision (ROD). The worksheet states that the cleanup goals are the MassDEP GW-1/S-1 standards, but that is not correct and does not satisfy the ROD requirements for soil cleanup. Please edit the plan to satisfy the ROD requirements.

g) For Worksheet #12.1 please delete the reference throughout Appendix G to homogenation, compositing, and decontamination of trowels and spoons for collection of volatile samples.

h) For Worksheet #14.1. p. 49, the last sentence in the first task is an incomplete sentence. Please edit the text to clarify the intent.

i) There are formatting errors in Worksheet #18 – duplication of items in columns 4 and 5. Also VOC and Decon SOPs are missing or misplaced.

j) In Worksheet #19, correct the footnote numbering to match the use in the table. Also, for VPH, correct 15 grams to 10 grams for 2 Encore samplers. Also, footnote 8 has not been consistently applied to VOC sample information.

k) In Worksheet #36, p. 143, for soil confirmation and fill materials correct EPH to VPH.

**Appendix H** a) On page 2-2, please note also that the WGL Landfill is within the 200-foot riverfront buffer area.

b) Please edit the first paragraph on page 4-1 to clarify the intent regarding the acreages. As written it is not apparent that the numbers presented result in a 0.45 acre net restoration if that is the intent.

c) Regarding Figure 2, the Restoration Plan needs to include the establishment of a permanent grass cover or other suitable vegetative cover between the eastern toe of the landfill cap and the top of bank for French Stream. Please edit the plan accordingly.

d) In Figure 3 it appears that the acreages associated with the restored and created wetlands have been transposed. More wetlands have been restored than have been created. Please review and correct as appropriate.

**Appendix J** Paragraph 2.7 on page 7 does not identify vehicle wash water but paragraph 2.10.4 refers to potential truck washing wastewater. Please reconcile.

**Drawing T-1** Please revise the title to “60% Remedial Action ....”

Correct the second “C-11” to “C-12”.

**Drawing T-2** a) In Note #4, the November 2009 Pre-Design Investigation Report is referenced. Please note that was a Draft Final Report. Please reference the Final Report instead. Also it is not clear what “... within the top of bank ...” means – please clarify the intent.

b) For clarity, please note the acronym for Massachusetts DEP is MassDEP.

**Drawing C-1** a) Please correct the limit of waste red line along French Stream – the former limit of waste line close to the stream has not been deleted.

b) For completeness, please add the 100-foot wetland buffer boundary to this drawing.

**Drawing C-2** Top of Bank is not depicted on this drawing – please add it.

**Drawing C-3** a) Notes 11 and 12 refer to removal of sediment prior to discharge of water removed from excavations or otherwise managed. Please note this is a contaminated site; therefore, the substantive requirements of a Remediation General Permit would be required for non-stormwater discharges. This would include sampling prior to discharge.

b) Regarding Item #6 in the Sequence of Construction, please include grubbing of vegetation to ensure nothing grows beneath the FML.

c) Regarding the Sequence of Construction, please implement Item #8 well abandonment, prior to implementing Item #7, consolidation of waste. Also, identify establishment of subgrades as a separate line item.

- d) Implement Item #9, confirmation sampling of excavations prior to establishing subgrades in case additional excavation is required to meet the cleanup goals.
- e) Backfilling of excavation areas should occur before final grades are established to avoid loaded truck traffic over the finished cap.

**Drawing C-4** Regarding Detail 2, the profile view does not appear to be consistent with the section view. The heights of the dam are inconsistent. Please review and correct as appropriate to clarify the intent.

**Drawing C-5** a) Top of Bank is not depicted on this drawing – please add it.

b) This drawing has highlighted the existing grade lines between the waste consolidation limits and the existing waste limits presumably to show that at the interim stage these grades do not have to be altered. However, this is not practical and not correct for several reasons. For example, we cannot have abrupt 5 foot grade changes at the toe of the interim grades, this area will be excavated to remove debris and contaminated soil, and more importantly, in order to create the wetlands at the toe of the slope the elevated grades will have to be removed and presumably consolidated into the landfill footprint before the interim grades are established. Please review and correct the grades lines between the waste consolidation limits and the existing waste limits.

c) To comply with the requirements of Detail #1, Section B-B' on Drawing C-12, the subgrade elevation along each gas pipe route needs to be reduced by 6 inches. A drawing note to that effect and reference to Detail #1, Section B-B' on Drawing C-12 would be appropriate.

d) The interim grading along the west side of the landfill is not consistent with the existing grades and will create steeper slopes than existing without further grade modifications.

e) The only check dams shown on this drawing are located at the outlet of the two level spreaders. Additional check dams would be expected along the drainage channels during construction. Please clarify the intent. Also, it is not clear how Detail 2 on Drawing C-4 applies to the level spreaders. Please supplement the check dam details to clarify their applicability for the level spreaders.

**Drawing C-6** a) As in Drawing C-5 the final grading along the west side of the landfill is not consistent with the existing grades and will create steeper slopes than existing without further grade modifications.

**Drawing C-7** a) In the Legend, the areas for the restored and new wetlands have apparently been transposed because they do not match the colored areas depicted on the drawing: the restored wetland area is larger than the new wetland area. Please review and correct.

**Drawing C-9** a) In Detail 1, the 12" cap drain shown here is not shown on Drawing C-6. The detail note states that the cap drain extends to daylight. Where does this cap drain

extend to daylight?

b) In Detail 2, the depth of crushed stone is not called out.

c) In Detail 2, filling with bankrun sand to elevation 148 only applies to the excavation beneath the crushed stone (within the fence); areas excavated outside the fence will be restored to wetland with organic soil.

d) The slope of the toe drain in Detail 2 beyond the geomembrane is called out as 15% but this slope is drawn as the same slope as the upgradient 5% slope. Presumably the toe drain slope must vary locally. Please review and correct as appropriate.

**Drawing C-10** According to Drawing C-9 the geocomposite extends to the fence line; however, Drawing C-10 indicates that the geocomposite ends where the geomembrane ends. Please review and reconcile the discrepancy.

Please reconcile Details #1 and #2 on Drawing C-10 with Drawing C-6 and C-8 (limit of geomembrane), Drawing C-7 (showing grass cover inside the fence), and Details #1 and #2 on Drawing C-9.

**Drawing C-11 a)** This drawing contains a detail for a gas well but no gas well locations are included in the 60% design. Is Navy waiting for consensus from regulators as to the number a locations for the gas wells before proposing locations for this design?

b) Based on groundwater elevation data from the RI it is not apparent that the top of the gas well screen can be as much as 4.5 feet below ground surface without encountering groundwater. Further evaluation of this gas well design is warranted.

c) Please correct the discrepancy regarding the gas well borehole diameter, is it 7.5 inch diameter or 10 inch min. diameter?

**Drawing C-12** In Detail #1, Section B-B', the select fill depth is shown as 18 inches rather than 16 inches everywhere else. Please review and correct as appropriate.