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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING BASIS OF DESIGN FOR
WEST GATE LANDFILL CLOSURE NAS SOUTH WEYMOUTH MA
08/21/2009
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

August 21, 2009

Brian J. Helland, P.E.
BRAC Program Management Office NE
4911 South Broad Street
Philadelphia, PA 19112-1303

Re: Basis of Design for the West Gate Landfill Closure

Dear Mr. Helland:

EPA reviewed the *Basis of Design - West Gate Landfill Closure* dated July 2009 in light of its consistency, technical accuracy, and completeness. While some of EPA's comments may not be directly related to the Basis of Design, we included them to inform the Navy of our expectations for the 30% design. Detailed comments are provided in Attachment A.

One overriding concern is whether the cap configuration will minimize impacts on the hydrology of French Stream and the adjacent wetlands. Moving the apex of the cap farther east would apparently require top slopes steeper than 5% (5% is the minimum top slope by regulation and the ROD anticipated top slopes of approx. 5%). Steeper slopes will result in greater runoff velocity that should also be minimized.

The West Gate Landfill cap should be designed so that its final footprint does not extend into the 100-year floodplain. Please provide calculations to demonstrate compliance with this requirement.

The final grading plan (shown in Figure C-2) does not appear to satisfy the required design criteria (*i.e.*, 310 CMR 53(3)(p)2.a) that require minimization of hydrologic changes to resource areas. It appears that the grading plan will cause significantly more runoff to French Stream from both point and non-point sources under current conditions. Alternative cap configurations that minimize the hydrologic changes need to be developed, such as moving the apex of the landfill cap farther east to minimize the runoff volume to French Stream and reducing the length of the northern culvert that discharges to French Stream. Please clearly demonstrate with calculations that the impacts to the hydrology of French Stream will be minimal. The design of the landfill cap should not advance beyond the 30% stage until sufficient detail is presented to show that the design criteria can be met by the proposed design.

The statement that a drainage layer is not needed needs to be reconsidered in light of frost heave. A drainage layer of stone may minimize the impacts from frost heaving of the low permeability soil even if it is found to be unnecessary for drainage purposes. Please address this concern in the preliminary design.

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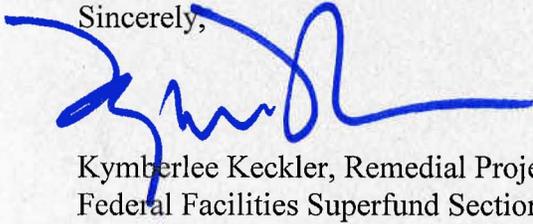
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When evaluating the need for a drainage layer to address infiltration, the design analysis should include a case using a fair rather than a good vegetative cover (*e.g.*, a default evapotranspiration of twenty inches and SCS curve number of 75) to provide a conservative assessment of the need for a drainage layer.

While landfill design requirements allow a maximum landfill side slope of 33%, which is recognized in the Record of Decision, the Record of Decision also specifies (page 35) that the landfill side slopes would be graded to create approximate 15% side slopes. The Basis of Design proposes side slopes up to 25%. Except where required to match the existing slope along French Stream, a design that incorporates side slopes of no more than 6H:1V to satisfy the ROD requirements must be evaluated.

I look forward working with you and the Massachusetts Department of Environmental Protection on the cap design in October 2009. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,



Kimberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Dave Barney, USN, South Weymouth, MA
Dave Chaffin, MADEP, Boston, MA
Kevin Donovan, SSTTDC, South Weymouth, MA
Phoebe Call, TTNUS, Wilmington, MA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 4-1, §4.0	Please clarify the text. While the CERCLA cleanup at the West Gate Landfill does not require permits, the remedial action must satisfy the substantive requirements of the appropriate permits. Permits are required for activities conducted off site or that impact off site areas. The site boundary is currently the areal limit of contamination.
p. 4-1, §4.1	a) The Basis of Design should note that the landfill is within the 200-foot riverfront area because French Stream is perennial (<i>see</i> 310 CMR 58.00). This resource area will impact a greater portion of the eastern side of the site than the wetland buffer. b) While 310 CMR 53(3)(p) allows the limited project for landfill closure, the interests associated with the resource areas in 310 CMR 53 through 58 must also be preserved. Please acknowledge this in the text. c) The bullets consistently refer to “wetland areas” when the regulations refer to “resource areas.” Please refer to resource areas, which have a broader definition than wetland areas.
p. 4-2, §4.2	a) Please change the title to “Construction Storm Water Discharges.” Although Massachusetts has proposed a stormwater permitting program in its draft 314 CMR 21.00 regulations, EPA is the current permit authority for Construction General Stormwater Permits. The proposed regulation defers to EPA [314 CMR 21.18(3)(c)] unless the discharge is not adequately regulated by EPA. Please edit the text accordingly. b) Please reference the Massachusetts Stormwater Handbook for best management practices.
p. 5-2, § 5.3	In the sixth bullet, please change “minimum” to “maximum.”
p. 6-1, § 6.2	The proposed final cap system described is not consistent with Detail #1 on Figure C-3. Please revise.
Figure C-1	a) The contour line that follows the southern extent of the landfill is labeled both 152 and 150. Please correct the elevation (Figure C-2 shows it as 150). b) Please ensure that the most appropriate coordinate systems are used for this project, considering coordinate systems previously used for investigations at this site. NAD 83 and NAVD 88 are proposed, but are these systems compatible with data from the site? If not, data conversions will be required for proper long-term monitoring activities.

Figure C-2

- a) Please edit this figure to clearly identify the limits of the proposed landfill cap.
- b) Please edit the figure to identify what the dashed red line around the perimeter of the landfill represents.
- c) Please edit the figure to identify what the black dotted line along the southern end of the landfill represents. It appears to represent the as-built limit of wetlands.
- d) The dashed blue line is identified as the post and rail fence and Note #2 states that the actual location will be identified during the PDI. Please note that the fence installed before construction is not expected to be the same type of fence required post construction. The fence installed pre-construction is intended to prevent unauthorized access to contaminated materials and debris and includes the wetland area where debris exists. The fence installed post-construction will not be designed to prevent access and is not expected to extend into the wetland. Please revise this figure accordingly.
- e) The flow allowed to discharge to French Stream should be limited to minimize the hydrologic impact. Also, the discharge velocities (point and non-point flows) must not exceed the ROD-established maximum of four feet per second. The hydrologic impact of the point and non-point discharges to French Stream should be evaluated in the design and their impact on the 100-year flood elevation assessed.
- f) An access road will be required, presumably at the northern corner. Contours and drainage may need to be adjusted to create the access road.

Figure C-3

- a) Please include a geotextile barrier between the top of the low permeability layer and the fill material to discourage animals from burrowing into the low permeability layer in Detail #1.
- b) Regarding Detail #2, EPA expects that the landfill cap will not extend below the 100-year flood elevation of French Stream. Please edit the Basis of Design to acknowledge this and provide documentation of the 100-year flood elevation during the preliminary design stage.
- c) Regarding Detail #2, the toe of the landfill cap needs to be protected from erosion owing to stream flows greater than design criteria. Plan to include appropriately-sized rip rap to protect the toe. EPA notes that an 8-foot long by 12-inch thick rip rap barrier was installed at the RDA.
- d) For all details, it is not appropriate to leave waste in place directly beneath the toe of the cap! All waste material, to depth, that is within five feet of the toe of the cap should be removed and consolidated on the landfill. Please revise the design accordingly.