31 March, 2000

John Burleson
BRAC Environmental Coordinator
Stratford Army Engine Plant
550 S Main St.
Stratford, CT

RE: SAEP Draft EE/CA for Causeway and Dike

Dear Mr. Burleson:

DEP has reviewed the "Engineering Evaluation/Cost Analysis for the Causeway and Dike, Stratford Army Engine Plant, Stratford, Connecticut" dated February 23, 2000, prepared for the U.S. Army Corps of Engineers, New England District, Concord Massachusetts by Foster Wheeler Environmental Corporation and Harding Lawson Associates. The selection of remedy for the Non-time-Critical Removal Action is based on the understanding of pollutant distribution presented in the "Pre-design Investigation Report, Causeway and Dike NCRA, Stratford Army Engine Plant, Stratford, Connecticut" dated February 1, 2000, prepared for the U.S. Army Corps of Engineers, New England District, Concord Massachusetts by Foster Wheeler Environmental Corporation and Harding Lawson Associates; this document was also reviewed.

DEP Permitting, Enforcement and Remediation Division offers the following comments; please also find enclosed comments from the DEP Office of Long Island Sound Programs.

1. Evaluate in more detail compliance with pollutant mobility criteria (PMC) before any final decision to install an engineered control to limit infiltration through polluted soil. The following should be considered:

> Leachability of organic constituents in shallow soils should be evaluated in refinement of the mass-based criteria comparisons in the reviewed documents. (See Section 22a 133k-2(c)(2)(D) of the Remediation Standard Regulations (RSRs).) It is DEP's experience that the reported levels of organic constituents, particularly semivolatile constituents, rarely leach in excess of the applicable leach test comparison criteria of 10x the groundwater protection criteria. DEP recommends confirmatory SPLP testing of organic mobility for shallow soils which exceeded the GB Pollutant Mobility Criteria (PMC).
>
> The two shallow locations where vanadium exceeds PMC are where radioactive materials were removed. DEP recommends confirmatory testing to determine if the vanadium was also removed, through possible association with the removed material.
>
> Many of the PMC exceedances are in deeper soil and are located within the zone of tidally controlled groundwater fluctuation. The Remediation Standard Regulations (Section 22a-133k2(c)(1)(B)) do not require remediation of soils exceeding the pollutant mobility criteria in GB class areas if they are below the fluctuating high water table.
>
> With the above considerations a spot removal of shallow soil in the vicinity of CB-99-15, if PMC are exceeded, may suffice to address RSR PMC.

2. DEP requests that the EE/CA discretely address the two different objectives of the cap: first, prevent direct exposure to polluted accessible soils and second, prevent pollution of infiltrating precipitation. The regulatory requirements for approval differ substantially, as do the long-term monitoring and maintenance requirements. Consider the following:

An additional alternative focusing solely on rendering polluted soil inaccessible should be included.

If the cover may be designed solely with the objective of limitation of direct access, the proposed membrane may be replaced with a non-woven separating and warning geotextile or a warning grid, the gas venting system and geodrain layer are unnecessary, and the backfill materials need not meet the stringent specifications necessary for membrane protection.

For an engineered structure which solely limits direct access the RSR specified public notification and commissioner approval process is not mandated.

The Remediation Standard Regulations require a groundwater monitoring program to evaluate effectiveness of an engineered control, but no groundwater monitoring is specifically required for a fill placed to enhance inaccessibility.

DEP's Remediation Standard Regulations require at section 22a 133k2 (f)(2)(A)(iv) that any cost-based proposal justifying use of engineered control as a permanent remedy include the cost of groundwater monitoring, therefore the cost analysis between alternatives is not complete.

3. The following cover system design elements should be included in the evaluation:

A drainage layer is needed above the Flexible Membrane Liner in proposed Alternative 1 to route infiltrating precipitation away from the cap.

The alternative 2 use of a bentonite-containing geo-composite material may not be appropriate where tidally driven groundwater influx of salt water could occur during storm surges, causing saturation and flocculation.

The final elevation of the cap relative to the 100 year storm should be identified, as a factor affecting top cover erosion resistance design.

4. The appropriateness of the proposed activity as a final remedy should be further discussed, considering the following:

Construction of an engineered control infiltration-reducing cap within the flood zone must entail a design which functions with minimum maintenance; describe further how the cap, in the flood zone and subject to active wave energy, will meet this criterion and discuss the necessary O&M in greater detail.

The proposed rip-rap surface of the final engineered control may not fully be consistent with the proposed post-closure use as a park and water access location. Alternatives to the rip-rap surface at the flat top of the causeway landform should be considered, especially those more compatible with the proposed post-remedial use. If the final elevation is below the 100 year flood elevation, alternatives should be designed to resist deep erosion during storm surges, either by including a surface with erosion resistance or through inclusion of subsurface reinforcing layers.

The deeper identified semivolatile pollution, especially at the northern part of the causeway, should be evaluated to determined if a non-aqueous phase is present, as provided in the RSRs. If a non-aqueous phase is present Section 22a 133k-2(g) mandates removal to the maximum extent prudent. Any cap design should facilitate the future activity which might be necessary to meet this requirement in a final remedy.

Pollution is present within the zone of diurnal tidal fluctuation of groundwater, especially at the northern part of the causeway. Although alternative 2 does consider this factor, neither proposed engineering control completely isolates this pollution from the environment. If the pollution is unacceptably affecting the environment additional mitigation may be necessary in the final remedy.

5. The cited criterion for asbestos direct exposure risk is specific to the Raymark project, and has not been incorporated into the RSRs. For this evaluation criterion to be applicable to the SAEP site a request must be submitted as provided in section 22a 133k-2 (b)(4).

6. Clearly indicate that O&M is a long term responsibility, unless waste is removed. It is appropriate to use 30 years as a basis for cost comparisons however the long term responsible party and funding mechanism should be identified.

7. Please note that the identification of ARARs is not complete. Attached for your use is a current listing of ARARs developed by our superfund group. It updates the list originally sent to your office May 6, 1996. Consider especially the following in development of your final EE/CA:

Please clarify the characterization of the fill material on the north side of the causeway. Describe more fully the mix of clean fill (including brick, ceramic, asphalt, concrete, etc.) and other debris. Presence of significant quantities (over 10 cubic yards) of non-inert construction debris triggers regulation of the area as a solid waste disposal area, with need for addressing additional ARARs.

Note that if the gas venting system produces more than 5 Tons/year of regulated gasses additional ARARs apply, and a passive system may not be acceptable. Retrofitting of a passive system as an active system is difficult unless the system has been specifically designed for the retrofit.

This construction is modification of land features in a flood zone and subject to regulation accordingly.

Relocation of PCB contaminated soils as a result of construction could be interpreted as a re-use of contaminated soil subject to authorization by the regulating agencies under EPA regulations.

If you have any questions please contact me.

Sincerely,

/S/ KENNETH FEATHERS

Kenneth Feathers
Supervising Sanitary Engineer
860-424-3770

Enclosure
Attachment
CC: Meghan Cassidy, EPA
Nelson Walter, HLA