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LETTER AND COMMENTS FROM U S EPA REGION I ON RESPONSE TO COMMENTS REGARDING FEASIBILITY STUDY FOR BUILDING 82 NAS SOUTH WEYMOUTH MA
03/01/2010
U S EPA REGION I

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I
5 Post Office Square, Suite 100
Boston, MA 02109-3912

March 1, 2010

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

Re: Responses to EPA Comments on the Building 82 Feasibility Study

Dear Mr. Helland:

Thank you for the opportunity to review the February 9, 2010 responses to EPA's letter dated October 22, 2009 on the Building 82 Feasibility Study. Detailed comments are provided in Attachment A.

Letter Comment 1: Please explain that there are no unacceptable risks now, after significant soil/drain removal/remediation programs have been completed.

Letter Comment 2: EPA requested that the RAOs be modified to comply with 40 CFR §300.430(e)(i) that requires that RAOs specify the contaminants, media of concern, and remediation goals. Therefore, please either add a new RAO or incorporate Table 2-4 by reference into one of the existing RAOs.

Letter Comment 3: A PRG must be established for the daughter product vinyl chloride because its presence is from site contamination, and the MCL for vinyl chloride is an ARAR. Please confirm that 1, 1-dichloroethane will be retained as a COC or "compound of interest." The MCL for vinyl chloride is only 2 µg/L and based on the concentrations of TCE detected, the presence of vinyl chloride at greater than its MCL is likely. A PRG is warranted for vinyl chloride to ensure appropriate action is taken when this chemical is detected. Identifying it as a chemical of interest is not sufficient.

Letter Comment 4: Since the maximum concentration of 1,1,1-TCA was greater than its MCL and MCLs are ARARs, a PRG must be established for this chemical regardless of its risk. The NCP requires compliance with both ARARs and risk limits. Because the groundwater at this site is a potential drinking water source, the MCLs are ARARs and need to be complied with even if the MCL concentration does not create an excess risk. The FS needs to be changed to acknowledge this.

Letter Comment 7: Please clarify that the groundwater flow maps presented in the B82 RI/FS that include data points from areas peripheral to the Building 82 parcel, are self-consistent and all head postings are to a common datum.

Letter Comment 9: Please revisit the bulleted items, particularly those listed in the first three bullets (*e.g.,* source areas, groundwater flow directions, contaminant migration pathways, *etc.*) when new information becomes available. The ongoing direct-push groundwater profiling efforts in the south and east of Building 82 should inform the TCE sources and pathways. Additional data could clarify whether PCBs/Arochlors in groundwater need to be further considered.

Letter Comment 10: EPA disagrees with the assertion that "MCLs are considered to be protective of human health" without consideration of risk because there are situations where cumulative risk from multiple chemicals in groundwater can be greater than EPA risk criteria, even though MCLs are achieved for each individual chemical. There are also chemicals for which calculated drinking water ingestion risks are greater than acceptable levels at the MCL concentration. While EPA generally does not require cleanup below MCLs, the NCP requires demonstration that the cumulative risk is acceptable. Therefore, Navy must demonstrate that its PRGs will be protective of human health. This should be effectively demonstrated by a calculation of the total risk of all the chemicals at their PRG concentration. MCLs are protective of human health and are therefore acceptable cleanup goals is only correct if the cumulative risk for the subject chemicals is also protective of human risk [please refer to the NCP 300.430(e)(2)(i)(A(2)]. When multiple COCs are present risk calculations must be performed to confirm that the MCLs are protective. If they are not then PRGs lower than the MCLs must be used. When multiple COCs are present the point of departure is 1×10^{-6} although EPA understands that this may not necessarily be the most appropriate final risk target [please refer to the NCP 300.430(e)(2)(i)(A(2)].

Letter Comment 11: EPA disagrees with the 2.68 mg/l listed as the "background" for manganese. There are many locations in the base area where manganese concentrations are lower. Please examine available manganese data more closely at the Building 82 site to determine whether a more site-specific approach to manganese is necessary. A PRG for manganese would be required if the concentration of manganese is greater than background. Since there are two samples greater than background, the Navy must demonstrate that manganese is not greater than background at this site. This should be done by calculation of the 95 % UCL of the arithmetic mean manganese concentration in site groundwater samples and comparison with the Upper Prediction Limit for manganese in background.

I look forward working with you and the Massachusetts Department of Environmental Protection to select a final remedy for the Building 82 site. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,

Kymberlee 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

ATTACHMENT A

Comment 2 (p. 1-6, §1.2.2): Please confirm whether this is the same oil water separator as the one shown near the southwest corner of Building 82 on Figure 1-3.

Comment 4 (p. 1-10, §1.2.6): EPA maintains that uncertainty with respect to groundwater flow patterns persists during low water conditions. It remains unclear what magnitude of a water level drop in the aquifer would cause the 42-inch sewers to become 'disconnected' from the groundwater system or how "unlikely" this may be. Considerable fluctuations exist in many wells in the NAS SOWEY database, some with variations of over 5-feet. Figure 3-6 suggests that the November 30, 2007 water levels are only a couple of feet above the base of the pipes. Additional data could resolve this issue. In conjunction with future LTM, several wells located near the drains should be instrumented with transducers for recording time-series water level data. Such information can inform future long-term monitoring events, ensuring that low-water events are captured regularly in the database. Evaluation of remedial alternatives needs to consider the current uncertainty surrounding the groundwater flow directions. Please confirm that October 2006 was a typical low water time and not an unusually wet time that would have resulted in greater than expected groundwater elevations.

Comment 5 (p.1-12, §1.3, ¶2): The presence of pesticides in on-site media is not a "background condition," but likely a consequence of widespread pesticide application.

Comment 6 (p. 1-13, §1.3.1) and Comment 8, (p. 1-14, section 1.3.1): EPA agrees that naphthalene detections could be related to residual fuel spills on the apron and the potential for secondary sources from such spills (*e.g.,* beneath drainage ditches) should not be disregarded.

Comment 7 (p. 13, §1.3.1): See EPA response to comment 4, above.

Comment 9 (p. 1-14, §1.3.1): EPA endorses to including additional PCB monitoring as a component of FS alternatives. If PCBs are detected, it may be necessary to investigate the role of engineered drainage in PCB transport as a precursor to groundwater treatment. Further investigation of the nature of PCBs in groundwater in the MW-11D and MW08-016D areas may be appropriate at that time.

Comment 10 (p. 1-15, §1.3.2): EPA recognizes that additional investigations of TCE contamination in groundwater at Building 82 are ongoing. The site team may need to revisit these comments after the new data are available. EPA appreciates the addition of the sewer path to the figures. a) The presence of DNAPL cannot be eliminated based on low concentrations of TCE. It can only be confirmed by elevated concentrations if the investigation is close enough to the DNAPL. EPA looks forward to working with the Navy to further investigate the source of TCE in the southeastern portion of the site. b) See comment on response to comment 10a. c) Please add the location of the former utility lines to the site figures.

Comment 11 (p. 1-16, §1.3.2): EPA is pleased that the ongoing investigation of the TCE in groundwater southeast of Building 82 is moving in the right direction. EPA agrees that the appropriate response can be determined following better delineation. EPA recommends revisiting these comments once the data from the ongoing TCE groundwater investigations are available.

Comment 12 (p. 1-17, §1.3.3): The response minimizes the documented association of redox-sensitive metals in groundwater with releases of organics (*i.e.,* fuels). While the presence of buried organic material, such as peat or buried wetlands, may produce elevated concentrations of redox-sensitive metals, the area discussed in the original comment is not associated with filled-in wetlands. As discussed in Letter Comment 11 and Comments 15 and 16, the CSM should reflect a more comprehensive understanding of the distribution and fate and transport of redox-sensitive metals on the site.

Comment 14 (Figure 1-7): A hydrogeologic cross section perpendicular to the interpreted groundwater flow direction at or near the downgradient edge is necessary to adequately assess the potential for offsite transport of contaminants. It is not clear that aquifer geometry, hydraulic gradients, and plume conditions, *etc.* 'are similar to the rest of the site' here. If a cross-section for C-C' will not be presented, then please delete it from Figure 1-4. EPA expects the Navy to confirm the geology in the southeastern portion of the site when this area is evaluated further.

Comment 15 (Figure 1-12): Evidence of a release of contaminants at the GTM-2 location is clear, and should not be dismissed. Please supply evidence for a cogent alternate explanation for the distribution and occurrence of elevated concentrations of redox-sensitive metals in this area. For example, what evidence of buried natural organic material (*e.g.,* peat) has been recorded in the GTM-2 area? What do nearby boring logs and test pit logs indicate? Organic contaminants are known to have been released in this area and would contribute to the migration of metals. If the Navy has evidence from the soil borings that natural organic material is present in this area, please discuss that in the FS as a possible reason for the presence of the metals.

Comment 16 (p.2-1, §2.2.1): The appropriateness of the Navy's response (*i.e.,* whether to consider a local removal action) should be reevaluated with an improved CSM for the fate and transport of redox-sensitive metals. See response to comment 12, above. EPA recommended that soil be removed in the vicinity of TP-101C because of elevated manganese and lead. The response states that no removal is planned because unacceptable risk was not identified. The original comment and the response acknowledge that a soil removal is not required. Nonetheless, any future developer of the site should be notified of the findings at this location, so that a removal can be considered.

Comment 17 (p. 2-2, §2.2.2): The response is not correct and this misperception pervades the FS and these responses. Please review the NCP at 300.430(e)(2)(i)(A(2). When multiple COCs are present risk calculations must be performed to confirm that the MCLs are protective. In that situation, the MCLs are not inherently protective. What is Navy postulating the off-site source of MTBE to be? It is inappropriate to screen out chemicals as COPCs based solely on MCLs. EPA requires that chemicals be screened using the December 2009 EPA Regional Screening Levels. In addition, the non-carcinogens should be screened at one tenth of the regional screening level to account for potential cumulative non-carcinogenic risk. EPA disagrees that MCLs are considered protective without regard to risk. The Navy must demonstrate that the cumulative risk of all COCs will be acceptable when the PRGs are achieved.

Comment 18 (p.2-3, ¶1): Manganese must be retained as a COC if it occurs at concentrations greater than background, and if the incremental risk above background is greater than EPA risk criteria, regardless of the fact that groundwater would be unusable without treatment or have unacceptable risk at background concentrations. Since there are two samples at this site greater than background, the Navy must demonstrate that manganese in groundwater is not greater than

background at this site. This should be done by calculation of the 95% UCL of the arithmetic mean manganese concentration in site groundwater samples and comparison with the Upper Prediction Limit for manganese in background groundwater samples. See comment 11, above. Evaluation of alternatives for remediating manganese in groundwater could be informed by a more robust CSM that more comprehensively considers the fate and transport of redox-sensitive metals at Building 82. A basewide background value for manganese may be inappropriate.

Comment 21 (p. 2-4, §2.3.1): Please refer to the comment on the response to Comment 17. It is inappropriate to screen out chemicals as COPCs based solely on MCLs. EPA requires that chemicals at this site be screened using the EPA Regional Screening Levels. In addition, the non-carcinogens should be screened at one tenth of the regional screening level to account for potential cumulative non-carcinogenic risk. EPA disagrees with the assertion that MCLs are considered protective without regard to risk. The Navy must demonstrate that the cumulative risk of all COCs will be acceptable when the PRGs are achieved.

Comment 22 (p. 2-10, ¶2): Vapor intrusion should be evaluated given the potential future use, shallow groundwater, and residual risk resulting from the somewhat limited hydrogeologic characterization. For example, bedrock has been essentially uncharacterized even though it is shallow (<30 feet bgs) under most areas of the site. EPA has not agreed that J&E modeling is sufficient because there is much uncertainty associated with the inputs to the model to be confident that vapor intrusion will not be a problem when buildings are constructed. Therefore, FS should include institutional controls that will prevent or mitigate vapor migration into buildings at levels greater than EPA risk criteria. The extent and magnitude of chlorinated hydrocarbon contamination of groundwater has not yet been fully investigated. At this time, the data may not indicate a vapor intrusion concern but it is too early to dismiss it.

Comment 23 (p. 2-11, §2.5.1): The response appears to overlook the many instances of pump and treat success. Pump and treat should be evaluated in the specific context of this site. The range of alternatives evaluated in detail is limited. Pump and treat has the added advantage of reducing the amount of contaminated groundwater that migrates off the site through the storm sewer system thus preventing the release of contaminants to off site locations and the associated impacts. None of the alternatives carried through the detailed analysis do that. If DNAPL is present at the site, EPA recognizes that pump and treat may not be a viable alternative.

Comment 26 (Table 2-4): Please refer to EPA's comment on the response to Letter Comment 3.

Comment 27 (p. 3-6, §3.2.2.3): a) EPA noted the difference between Monitored Natural Attenuation *sensu stricto*, as defined by EPA guidance, and a remedy that relies primarily on natural attenuation, and is accompanied by an appropriate level of monitoring in order to verify that it is protective. The response acknowledges this, and states correctly that an assessment of the geochemical parameters typically characterized in support of MNA would be useful, but it is not entirely clear. Please revise the next revision of the FS to clarify whether the scope of Monitored Natural Attenuation activities are intended to comply with the strict requirements of EPA directive 9200.4-17P or if these activities will actually be more simply natural attenuation with monitoring. If the later, please edit the name of this alternative accordingly. b) It may be advisable to augment the monitoring well network during long-term monitoring to ensure areas peripheral to the sporadic detections have not been affected.

Comment 30: See response to comment 23. Pump and treat should be evaluated in the FS. The primary limitation of pump and treat (*e.g.,* sorbed-phase contaminants) does not appear to be problematic at this site (see also comment 58 b). Please see also Comment 23.

Comment 31 (p. 4-6, §4.2): EPA agrees, but suggests revisiting these issues when the data from the TCE delineation program are available.

Comment 35 (p. 4-12, §4.2.3.1): There is abundant evidence that vinyl chloride reduction occurs significantly slower than reduction of PCE and TCE. Microbial populations specific to the reduction of vinyl chloride are required and are generally less abundant that other microbial populations and therefore may need to be enhanced. While the Navy has not yet investigated the natural microbial populations present at the site, the relatively low concentrations of TCE detected to date indicate that the required microbial populations are not likely abundant. The Navy should supplement or enhance the natural populations.

Presumably the "full degradation of TCE" refers to degradation of the daughter products as well because the remediation will not be complete until the MCLs or lower PRGs, if required, are attained.

The response overlooks the issue raised concerning the relatively slow degradation of cis-1, 2 DCE and VC under anaerobic conditions. How large of an area would LUCs be needed for? For how long?

Comment 39 (p. 4-18, §4.2.4.1): a) Please clarify in the next revision of the FS that, if correct, the intent is to conduct Monitored Natural Attenuation activities in compliance with the requirements of EPA Directive 9200.4-17P. The response does not make that expressly clear. If that is the case and this alternative is selected, the remedial action will be evaluated based on that.

Comment 40 (p. 4-20, §4.2.4.2): EPA originally discussed the possibility of offsite migration via the sewer *bedding* (and by inference to the adjacent groundwater). The response does not fully address this issue as it focuses on groundwater discharge to surface water. It is not clear that all groundwater, including that from the bedding *beneath* the pipes, discharges to surface water at the site boundary. Additional explanation is needed. Please discuss the appropriate monitoring and identify potential contingency actions.

Comment 41 (Table 4-1): The ARARs for the No Action Alternative must be included because this alternative will be documented in the decision document. Please add them.

Comment 45 (p. 5-1, §5.1.2): Please refer to EPA's comment on the response to Letter Comment 4.

Comment 52 (Appendix A, Table 4-8): In the FS, please replace the Region 9 PRGs with the 2009 RSLs.

Comment 53 (Appendix A, Table 4-9): EPA assumes that any errors will be corrected.

Comment 58 (Appendix C, G-4): b) Long-term monitoring will be useful to determine whether the TCE source is fully desorbed. c) EPA does not have sufficient confidence in the modeling performed to date because of the limited data available. EPA is willing to consider this alternative

if the database becomes robust enough to conclude that this alternative has a reasonable chance to be successful in a reasonable timeframe. f) The incorrect porosity is shown in the screen shots for the shallow subsurface.

Comment 59 (Appendix D, e): The Navy must be able to demonstrate with available data that Monitored Natural Attenuation has a reasonable chance to be successful. Any modeling used to support this alternative must be based on sufficient data to make the modeling credible.