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LETTER REGARDING REGULATORY REVIEW AND COMMENTS ON DRAFT REMEDIAL INVESTIGATION FOR SITE 3 NCBC GULFPORT MS
8/26/2010
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TRUDY D. FISHER, EXECUTIVE DIRECTOR

26 August 2010

Robert Fisher
NAVFAC SE (OPG6)
PO Box 30, Bldg 903
NAS Jacksonville, FL 32212-0030

Re: Remedial Investigation Report for Site 3 - Northwest Landfill, Naval Construction Battalion Center Gulfport, Mississippi, Draft, July 2008.

The Mississippi Office of Pollution Control (OPC) has reviewed the above referenced document. The following concerns were noted during document review.

1. The lettering on Figure 2-1 associated with both the magnetometer legend and the main map is blurred or otherwise not readable. A small area of Figure 2-2 is lacking color that represents the amplitude of the EM 61 signal return.

2. Wells GPT 03-18 through GPT 03-31 are missing from the Appendix B well installation logs. All monitor well installation logs should be included in the report. The text (page 2-4, paragraph 5) describes wells GPT 03-08 through GPT 03-15 as hollow stem auger (HSA) wells and wells GPT 03-16 through GPT 03-31 as direct push (DPT) while the well installation logs in Appendix B indicate that wells GPT 03-16 and GPT 03-17 are HSA type wells. The text does not consistently describe installation details for each grouping of wells. The text discussion does not address well details for GPT 03-21 through GPT 03-31.

3. The text (page 2-5, paragraph 3) references Figure 2-4 for surface water sample locations and Figure 2-7 for sediment sample locations. Both sediment and surface water sample locations are shown on Figure 2-7. Figure 2-4 addresses surface and subsurface soil locations.

4. Cross sections should utilize wells close to or on the line of section rather than transpose borings located further away. For example, the cross section shown on Figure 3-2 utilizes boring 03SB02 located well north of boring 03SB17, which is located adjacent to the line of section as shown on figure 3-1. Efforts to construct an alternate section failed because

boring logs are missing from Appendix B for borings 03SB09 through 03SB22. All boring logs should be included in the report.

5. The text (page 2-4, paragraph 3) discusses 24 permanent monitoring wells labeled as GPT 03-08 through GPT 03-32 but well GPT 03-32 does not appear on the list of wells in Table 2-2, the well location map Figure 2-6 or in the well completion logs in Appendix B.

6. The text (page 3-8, paragraphs 1 and 2) states that downward migration of contaminants is limited due to the upward hydraulic gradient created by higher potentiometric surfaces (observed water elevations) in deeper wells than in the shallower wells. It should be noted that although deeper wells screened in the lower semi-confined aquifer produced higher potentiometric surfaces than wells screened in shallower horizons in 5 of 6 cases, the head difference was consistently small considering a substantial vertical screen separation across the presumed confining aquitard thickness of 12.5 to 17 feet (Table 3-3).

   Due to the characteristic discontinuous, lenticular and interfingering stratigraphic relationships typical of terrace deposits comprising the Surficial Aquifer in the area in which the site is located, vertical hydraulic interaction among saturated zones should be assumed and sampling of shallow and deeper intervals within the aquifer should be conducted during future sampling conducted for the long term monitoring (LTM) program.

   It is noted that permanent monitor well pairs were installed in shallow and deeper intervals of the Surficial Aquifer at Site 3. These wells should remain intact for use in the LTM program.

7. A clearer understanding of the hydrogeological setting would be provided by an additional cross section that utilizes data from monitor well borings to identify lithologies occupied by screened intervals of the permanent monitor wells. Figure 3-2 provides a cross section illustrating lithologies encountered in the 23 DPT borings and provides a general stratigraphic profile however detailed stratigraphic relationships of screened intervals in the 24 permanent monitor wells to lithologies shown on figure 3-2 are not illustrated or described in the text. This would help understand where (within the generalized stratigraphic profile shown on Figure 3-2) the wells are screened, horizontal and vertical relationships of screened intervals of well pairs and the lateral connectivity of saturated zones being monitored.

8. The text (pages 4-14 through 4 -16) states that the horizontal extent of the CVOC plume was defined to the north and west by non detections in DPT samples (analyzed on site) and to the south by samples collected from the 24 permanent monitoring wells. The southeastern extent of the CVOC plume does not appear to be clearly defined due to elevated concentrations reported from both the DPT samples (03SB19 and 03SB21) and the permanent monitoring well samples (GPT 03-26, GPT 03-27 and GPT 03-16) as

compared to one CVOC non detect in well GPT 03-15 located slightly southeast of the other wells in the immediate vicinity. Uncertainty concerning the interval sampled is also indicated by "NA" (not available) in wells GPT 03-26 and GPT 03-27 compared with the the 10 - 20 (feet) depth interval in southeasternmost well GPT 03-15 shown on Figure 4-5. Monitor well GPT 03-27 is reportedly (Appendix B) screened at the 30 to 35 (feet) depth interval, indicating a deeper sampling interval (and possibly a different saturated zone) than the other wells.

Hydrostratigraphic relationships could be clarified by addressing comment 6 (construction of a hydrogeologic cross section showing screened intervals and lithologies encountered during well installation). For example, the screened interval is not reported for GPT 03-26 (Table 4-4). Appendix B does not contain well construction diagrams for monitoring wells GPT 03-18 through GPT 03-31 so comparisons of screened intervals from original data could not be reproduced. Screened intervals given on Table 4-5 indicate that these wells were probably screened on opposite sides of the aquitard(s) implied by the discussion provided on page 3-8 through 3-9 and shown as "gray sandy clay" on Figure 3-2. This cannot be determined without a complete set of original data (well construction diagrams and boring logs) that contains a complete data set reporting well elevation, depth and screened intervals.

9. Clarification is needed concerning the consistency of dilution factors (DAFs) and screening values (SSLs) used to evaluate the soil to groundwater pathway for contaminants of potential concern (COPCs). The text (page 6-8, paragraph 3) discusses SSL values and compares the DAF = 1.0 (most conservative) to the higher DAF = 20.0 allowed by EPA guidance. Most contaminants retained as COPCs on Table 6-2 appear to be screened using the more conservative DAF = 1.0 with the exception of benzo(a)pyrene (BAP). The SSL value (using a DAF=1.0) for BAP is reported as 410MCL on Table 6-2, however with an MCL of 0.2 ppb the screening value would be 82.0 ppb. The maximum observed soil concentration is 210.0 ppb but the contaminant is not retained as a COPC for the soil to groundwater pathway, indicating that the higher DAF = 20 or 820MCL (1640.0 ppb) screening value was used for BAP. Conversely , an SSL value of 160MCL is shown (Table 6-2) for benz(a)anthracene which has no MCL so the applied dilution factor is unclear. SSL values utilizing DAF = 1 were consistently used to screen other COPCs for the subsurface soil to groundwater pathway (page 6-9 and 6-10, Table 6-4). It is noted that BAP is retained as a COPC for direct surface soil contact (Table 6-9).

10. The text (page 6-10, last paragraph) states that all COPCs except lead exceeded USEPA Region 9 PRGs then states (second sentence later) that lead exceeded screening criteria in one sample. The text discussion should simply state that lead exceeded the USEPA action level (15.0 ppb) in groundwater since action levels (Als) and MCLs are primary regulatory groundwater screening criteria.

11. Attempts at minimizing observed risks are noted. For example, the text (page 6-48, paragraph 2) states that cancer risks for the lifelong tress passer (child and adult) and the industrial worker exceed the MDEQ benchmark but not the EPA target risk range. This is

not an appropriate evaluation or comparison of risk screening values as EPA rarely utilizes the 1 E-4 cancer risk value to establish remedial goals. Although MDEQ recognizes and appreciates the 1 E-4 to 1 E -6 risk range and the 1 E -4 risk occasionally allowed by EPA in some (not all) risk evaluations, MDEQ utilizes a cancer risk benchmark of 1 E-6 exclusively for establishing remedial goals. The text (page 6-49, paragraph 3) further states that both MDEQ and EPA cancer and non cancer risk benchmarks were exceeded for future residents due primarily to concentrations of vinyl chloride, arsenic and iron in groundwater and arsenic and PAHs in surface soil. The text then discusses "uncertainties associated with risk estimates developed for COPCs in groundwater", citing unlikelihood of residential use as the uncertainty. This is inappropriate since it is the residential scenario that is being evaluated. The text discussion should also point out that both USEPA MCLs and MDEQ TRGs were exceeded in groundwater occurrences of cis-1,2 DCE, TCE, vinyl chloride, methylene chloride and arsenic. The text (page 6-69, paragraph 3, last sentence) also states the ICLR for sediments (2 E-6) "marginally exceeded" the MDEQ benchmark of 1 E-6. It should be pointed out that the observed value is twice the screening value, which is not "marginal". The text should report the findings and not attempt to minimize the impact of the results.

12. Land use control (LUC) measures should be established to restrict groundwater use in areas within and downgradient of the area of direct influence by contaminated groundwater from Site 3. LUC measures should also be established to restrict access to areas that pose a threat by direct contact with contaminated soils or sediments. A long term groundwater monitoring program should be developed to demonstrate effectiveness of the remedy and to monitor any changes in size or direction of movement of the contaminant plume.

13. It is noted that the typical stepped (step 1 - 3) Screening Level Ecological Risk Evaluation (SLERA), generally completed to provide a decision point concerning whether to conduct a full risk assessment, was not conducted. Only food chain modeling was conducted and the report does not recommend further risk evaluation. It would be wise to involve appropriate stakeholders in this evaluation as apparently ecological risk has been minimized by this abbreviated process. NOAA and US Fish and Wildlife are the resource trustees charged with ecological health in this region. Since several landfills (currently in remediation) are located adjacent to Canal 1 the input of stakeholders should be invited in case there is an interest that has been overlooked in the risk evaluation process concerning these landfills.

    Consideration should also be given to areas of Canal 1 located outside of landfill site boundaries and that have not been investigated in association with the remedial activities at the numerous landfills the canal flows adjacent to. Ecological habitats located downstream of the numerous landfills adjacent to Canal 1 may be suffer cumulative risks from contaminants introduced into the ecosystem.

Please feel free to contact me if I can be of further assistance.

Sincerely,

Bob Merrill