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LETTER AND COMMENTS FROM MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL
QUALITY REGARDING REVIEW OF REMEDIAL INVESTIGATION REPORT SITE 4 NCBC
GULFPORT MS
3/2/2007
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY



STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

2 March 2007

Art Conrad
Naval Facilities Engineering Command
Southern Division
2155 Eagle Drive
P. O. Box 190010
North Charleston, South Carolina 29419-9010

Re: Remedial Investigation Report for Site 4 (Golf Course Landfill), Naval Construction Battalion Center Gulfport, Mississippi, Draft, October 2006.

The Mississippi office of pollution control (OPC) has reviewed the above referenced document and offers the following comments. The report includes a Remedial Investigation (RI), Baseline Human Health Risk Assessment (BRA) and a Screening Level Ecological Risk Assessment (SLERA). Please insure that future documents are edited for scientific correctness, graphic detail (maps, illustrations, photographs, etc.) and grammatical correctness. These documents are placed in files that serve as permanent records for the public as well the scientific community and regulatory agencies.

1. The section describing previous investigations (pages 1-2 through 1-5 and the executive summary, pages ES 1 and ES 2) should provide more detail concerning findings and data collected from those investigations. Sufficient detail should be provided to give a conceptual analysis of the type, degree and extent of contamination. Readers may not have access to all previous investigations and the Remedial Investigation should be a stand alone document that reports contamination found in the various media comprising Site 4.

The executive summary should contain a more summarized site data set (concentration ranges and trends, etc.) about the findings of both the current Remedial Investigation and pertinent previous investigations. An evaluation of the nature and extent of contamination should be abstracted from the main body of the report.

2. The report fails to identify either the geologic unit(s) upon which the site is situated or hydrogeologic units underlying the site. Formation and aquifer names should be provided for possible future correlation with screened intervals of local water wells and municipal well systems as well as other local geologic investigations that may be affected or influenced by the site. The regional hydrogeological setting is generally described on page 3-8 and 3-9, but the discussion concerning site specific geologic/hydrogeologic units should provide more detail.
3. The report (page ES 3 paragraph 3 and 3-3, paragraph 1) describes a single “thick plastic gray clay layer” that occurs at a depth of about 45 feet. The text (page 3-3, paragraph 1) further states that this “clay layer is several hundred feet thick” and represents an aquaclude separating the surficial aquifer from deeper water bearing units. Such a single, pure, homogeneous and isotropic clay bed with a thickness of several hundred feet is not known from Coastal Plain strata of Mississippi. This “clay bed” is not described in the Regional Geology section (3-3, paragraph 2). Depositional (as opposed to *in situ*) clays known from the Mississippi Coastal Plain typically contain varying amounts of silt and sand and are usually interbedded with coarser sediments (silty sands, sands, etc.). Text descriptions describing the site hydrogeology should be accurate and consistent.
4. Text discussions addressing soils (ex. pages ES 3, paragraph 5; page ES 7, paragraph 1; page 2-2, paragraph 2; page 4-1, paragraph 3 and page 6-37, paragraph 3) do not distinguish between surface or subsurface soils. Apparently only subsurface soils were sampled and addressed in the report. Surface soils should also be addressed for risk evaluation purposes. It is noted that varying amounts of cover material were placed above disposal cells, but this material should be sampled and described in the report in order to evaluate human health and ecological risk (these Risk Assessments are provided as sections 6 and 7 of the document).
5. A Human Health Risk Assessment and Screening Level Ecological Risk Assessment are provided as integral parts of the document. Text discussions (in the RI portion of the document) describing surface water/sediment sampling and screening only address human health and not ecological screening. Examples of this can be found in text discussions (given on page ES 5, paragraph 3 and page 4-14, paragraph 1) stating that surface water sample results were screened against Tier 1 TRGs for drinking water. Surface water sample results should be screened against EPA Region IV initial screening values and water quality standards for Ecological Risk evaluation. Ecological screening parameters should be integrated into text discussions along with human health parameters (ex. sections 2 and 4) concerning sediment/surface water sampling and screening.
6. The first sentence of paragraph 4 of page 1-3 is incomplete. This section should contain more detailed information about the investigation, including constituents sampled for, concentration ranges (including summary tables) and extent of contamination.

7. The text (page 2-2, paragraph 1) references Appendix A for geophysical data. Appendix A consists only of a list of unidentified numbers and an anomaly map with low resolution reproduced in black and white from color with no discernable legend. This information should be replaced with color anomaly maps of higher resolution and data presented in the report should be labeled according to purpose and units of measure.
8. The text (page 2-2, paragraph 4) references Table 2-1 for soil sample analysis. Table 2-1 shows well construction details. Similarly, Table 2-1 is referenced as a groundwater screening table on page 2-3, paragraph 2.
9. Page 2-3, paragraph 2; “from at” should read “from”. The phrase “from at” appears in several places throughout the document.
10. The text does not reference a map showing the 15 additional sampling locations described on page 2-3, paragraph 4.
11. Figure 2-1 is referenced (page 2-3, paragraph 5) for locations of 5 additional monitoring wells. Figure 2-1 shows numerous monitoring wells and does not single out the particular 5 wells in the related text discussion. Separate symbols or colors should be used to identify these particular wells.
12. The text (page 3-2, paragraph 4) discusses the relationship of Site 4 drainage with that of Canal 1 and references Figure 3-2 for surface water features. The discussion does not address the relationship of Site 4 drainage with areas beyond the base boundary including the base exit point(s) (ex. Outfall 1 of Canal 1) and the subsequent confluence with Turkey Creek. The text discussion should be expanded to address the relationship of Site 4 drainage with off base areas including the Turkey Creek drainage system.

Additionally, the areal coverage of referenced maps should be expanded to show (in detail) the relationship of site drainage with the Turkey Creek drainage system. The scale and resolution of Figure 3-2 should also be adjusted to accommodate greater areal coverage.

13. The text offers contradicting information concerning the disposition of Canal 1 as a gaining or losing stream. The text (page 3-2, paragraph 3) states that “groundwater can potentially discharge to Canal 1 during most of the year”, but the discussion given on page 1-4 (paragraph 3) contradicts this by stating that “groundwater is typically discharging the canal”. Canal 1 is a gaining stream that is recharged by groundwater from Site 4. The groundwater to surface water pathway is apparent (for human health and ecological risk evaluation purposes).
14. Figures 2-1, 3-1, 3-2, 3-3, 3-5 and 3-6 are black and white reduced reproductions (from color) that are very difficult to read due to poor resolution and small labels, features and items. These maps should be enlarged and reproduced in higher resolution (preferably in

color). Maps showing monitoring well locations should be enlarged with higher resolution. Color coding would greatly improve readability due to the various well types (permanent, temporary, DPT, etc.) and purposes of well installation as referenced in the report.

For example, open and shaded symbols in the map legend of Figure 2-1 show up on the white legend background, but the shaded symbols blend into the black and white background of the map. This map should be enlarged with color coding added to differentiate the various sampling media and sample locations.

Maps concerning drainage (ex. 1-2 and 3-2) should be enlarged to show detail and expanded in areal coverage to include off base drainage features associated with or influenced by Site 4.

Legends and symbols for some of the larger maps (Figure 4 series) are not designed to accommodate text discussions. For example, the text (page 4-1, paragraph 3) references Figure 4-1 for the 10 soil borings discussed, although there are 13 locations shown and the legend does not identify the additional 3 locations. Figure 4-3 contains monitoring well and monitoring point locations, although the legend and well symbols do not identify but one well type (monitoring wells).

The text (page 4-5, paragraph 1) references Figure 4-2 for the 25 DPT groundwater samples collected. Figure 4-2 shows many more than 25 groundwater DPT sample locations indicated by three different symbols. These three categories of DPT samples are defined in the legend by numbering sequences that are not in congruence with the text discussion.

Wells associated with particular time frames, sampling intervals, well types and locations specific to a particular topic of discussion should be identified (map, legend symbol and/or color) to relate the figure to referenced text discussions.

15. The text discussion comprising Section 4 (Nature and Extent of Contamination) does not consistently report concentrations or concentration trends (especially for constituents below screening levels). Detailed discussions concerning vertical and horizontal concentration gradients for groundwater and soil should be included.

The text (of Section 4) does not indicate depths at which soil samples were taken, or describe vertical soil concentration trends. Surface soils are apparently not addressed in the document.

The text discussion only addresses human health screening numbers for the various media. The report should also address ecological screening values for contaminants in the various media in Section 4.

The (Section 4) text should demonstrate full characterization of the type and extent (horizontal and vertical) of contamination. Groundwater plume concentration contour maps should be provided to illustrate concentration trends. The maps should show monitoring well locations and concentrations of the individual constituents as well as total CVOCs. Wells sampled at different times should have color coded concentrations for that sampling event identified in the legend and all data should be congruent with applicable text discussions. Groundwater plume characterization and containment (downgradient limits of the plume defined) by the groundwater monitoring system should be clearly demonstrated by these illustrations and text discussions.

16. The text (page 4-2, paragraph 6) states that dioxin was detected in both soil samples submitted for dioxin analysis, but concentrations are not given in the text and tables are not referenced for screening purposes. Since dioxin was detected in 100% of soil samples submitted for analysis (two samples), further dioxin sampling should be conducted. It is noted that dioxin was also detected in groundwater with reported concentrations (TEQ values) below the MCL. The Tier 1 TRG for groundwater is the MCL (30 ppq). These results demonstrate the occurrence of dioxin in soil and groundwater.
17. It is noted that dioxin was detected in all surface water (below screening levels) and all sediment (two of three samples were above screening levels) samples. The unrestricted (residential) TEQ for two of the three sediment samples was exceeded. The congener 2,3,7,8 TCDD was detected in all three sediment samples with one reported exceedance (8.0 ppt) of the 4.26 ppt screening level for TCDD. Respective TEQ values of these two samples also exceeded the screening level.

The text (page 4-16, paragraph 3) describing dioxin occurrences in sediments states that 2,3,7,8 TCDD is not the major contributor of dioxin because 2,3,7,8 TCDD contributes less than 1 % of the total TCDD substituted congener concentration. For sediment sample O4SD0801 the reported TCDD concentration is 8.0 ppt, while the TEQ is 32.6 ppt; for sediment sample O4SD0101, the reported TCDD concentration is 1.3 ppt with a TEQ of 4.36 ppt. This would indicate that 2,3,7,8 TCDD contributes 25% to 30% of the total TEQ dioxin sediment concentration. This would indicate that TCDD is a major contributor to the total sediment concentration. Please re evaluate or clarify. The relevancy of whether TCDD (Herbicide Orange footprint) is or is not a major contributor to sediment contamination at this site is not clear, as 2,3,7,8 TCDD contamination has been demonstrated regardless of source.

Further surface water sediment sampling should be conducted at this site to characterize the extent of contamination. Dioxin was detected in the three surface water samples (below screening levels) and all three sediment samples (two above screening levels with appreciable TCDD concentrations).

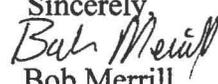
18. The text (page 4-16, paragraph 3) states that sediment sample O4DS0801 was the most upgradient and most downgradient sample.
19. The text (ex. page 6-38, paragraph 1) references the EPA total target cancer risk range of 1 E-6 to 1 E-4 and the MDEQ goal for cumulative site risk of 1 E-4. The wording of the report indicates that COPCs were screened against a total site risk value of 1 E-4. MDEQ references EPA guidance which allows for a 1 E-6 to 1 E-4 total site risk range. Mississippi utilizes the most protective of this allowable range and individual COCs are screened at concentrations reflecting a maximum risk of 1 E-6. The 1 E-4 cumulative site risk only applies to sites (such as brownfields sites with many COCs) with numbers of COCs approaching 100, thus requiring lower (less than 1 E-6) individual COC risk screening concentrations to achieve the total 1 E-4 site risk.

MDEQ has not adopted any particular risk assessment practices apart from EPA guidance for CERCLA sites. The only Human Health Risk Assessment Guidance publicized by MDEQ pertains to Brownfields sites (Site 4 is not a Brownfields site), however that guidance does not deviate from EPA guidance. CERCLA sites should utilize EPA guidance with the notation that Mississippi is a state that utilizes a 1 E-6 risk level while EPA guidance will allow higher concentrations reflected in the 1 E-4 to 1 E-6 site risk range. Please evaluate human health risk based screening levels accordingly.

20. The text describing the ecological environmental setting (page 7-2, paragraph 4) references Figure 3-3 for the discussion of on base and off base drainage, but the map coverage only extends to the northern base boundary. A map with expanded areal extent to address off base drainage associated with Site 4, with scale and resolution suitable for detailed ecological evaluation of the influence of Site 4 drainage to off base areas of the Turkey Creek drainage system should be provided.
21. Recent communications with the base have indicated that a Presumptive Remedy (sediment removal and a constructed barrier to isolate Canal 1 from Site 4) is planned. The Presumptive Remedy for Site 4 should be included in the SLERA and all COPCs should be retained if the intent is to avoid continuation of the ecological risk assessment process. Several COPCs were eliminated and the process of elimination should be evaluated in more detail. The Presumptive Remedy may preclude the necessity of continuing beyond the SLERA.
22. The proximity of Site 4 to Canal 1 and the ecological pathway evident in the size, extent and downstream confluence of this drainage with Turkey Creek indicates that certain natural resource custodians should be allowed the opportunity to be involved in the evaluation and remediation of this site. Both NOAA and U.S. Fish and Wildlife should be contacted and supplied with pertinent site documentation (Remedial Investigation, Human Health and Ecological Risk Assessments, etc.) and invited to participate in the Partnering effort for site evaluation and remediation (as agreed during the February 2007 Partnering Meeting). EPA has agreed to assist in the review of the next draft version of this report.

23. Due to the extent of corrections and necessary changes noted during the review of this document, another draft version of the document should be issued to all concerned parties and another review and comment period should be conducted. The final version should be issued only after all comments from reviewers (including EPA, NOAA, U.S. Fish and Wildlife and OPC) are adequately addressed.

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

Sincerely,

Bob Merrill

cc. Julie Corkran, USEPA