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DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

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December 1, 2009

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US EPA RECORDS CENTER REGION 5
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Dear Mr. Ribordy and Mr. Saric:

SUBJECT: Draft Construction Completion Report for the Former Plainwell Impoundment Time-Critical Removal Action (TCRA), dated August 2009.

The following comments identify the Michigan Department of Environmental Quality's (MDEQ) concerns with the Construction Completion Report (CCR) for Federal and State Review prepared by Arcadis-BBL, dated August 2009. The CCR was prepared for the Kalamazoo River Study Group (KRSG) in accordance with the Administrative Order by Consent (AOC), for Removal Action.

The MDEQ has identified a potential conflict that is created in the Design Report between the 1) stable channel design and 2) river bank stabilization objectives. The CCR must document the work that was conducted to achieve the stable river channel objective as set forth in the AOC or, alternatively, identify how the objective has not been met. The MDEQ views the removal action as an open-ended process that will require an evaluation of the effectiveness of the action as work progresses, particularly given the proposal by KRSG to use the removal action as a blueprint or benchmark for future work on the river. To that end the CCR should reflect the uncertainties associated with some of the field techniques utilized and identify the unresolved nature of certain objectives. In this context, the MDEQ offers the following comments based on a review of the document.

1. Section 1.3, Page 1-3: The CCR identifies that an objective of the TCRA was "Removal of PCB-contaminated [polychlorinated biphenyl] soil in excess of 4 mg/kg [milligrams per kilogram] PCBs from the river's northern floodplain on or near residential properties upstream of US 131, to the extent that the floodplain can be reasonably accessed." It should be noted that the area of excavation identified in the TCRA was based on existing field data for that area and the extent of excavation was

Section 2.1 of work plan delineates areas

not field verified prior to finalization. Due to this fact, the confirmation standard (i.e., 4 mg/kg) was used to verify the vertical extent of removal (how deep to dig) but not the lateral extent. During removal activities in June 2007, residual material existed outside of the extent of excavation following completion of the work. As such, the TCRA did not result in total removal of these areas; therefore, it is not clear if Objective 4 has been met. Because this discrepancy cannot be fully resolved with the existing confirmation data set, the concentration of material remaining in these areas needs to be considered during the residual risk analysis.

2. Section 2.1, page 2-1: The CCR states that "ARCADIS documented that the TCRA was implemented in conformance with the approved work plan (the Design Report), [and] documented that the design objectives were met...." The CCR should clarify that Arcadis documented that the quantifiable aspects of the design were met; however, many of the design objectives (specifically Objectives 2, 4, and 11) will take additional time and monitoring in order to determine if they have been met. Additionally, it appears from information provided in the Design Report and observations during site reconnaissance, that Objective 11 may never be met. The CCR should more clearly indicate that some design objectives were met, but others are not met and may not be met as set forth in the AOC.

2.1 of work plan put in section 3.5

3. Section 3.5.1.1, Page 3-19: The CCR states that "Completion of soil excavation was confirmed through PCB soil confirmation sampling...." The report should clarify that sampling was used to control completion of soil excavation in the vertical direction only. Lateral extent of removal was determined beforehand using available data sets but was not affected by sampling results once in the field. Many places in the report repeat the concept that the completion of excavation was verified with confirmation sampling. These sections of the report should be clarified to indicate that completion was confirmed vertically only.

4. Section 3.5.1.2, Page 3-19: The CCR states that "Excavation of sediment in the near-shore, mid-channel, and Islands 1 and 2 was confirmed by documenting the final surface elevation and comparing it to the neat line...." Again, this confirmation was only vertical and not lateral. Additionally, given the fact that the work was conducted below water surface, professional judgment was required in many cases in determining if the goal had been met. Some discussion of the limitations and uncertainties associated with this confirmation process must be included.

5. Section 3.5.1.2.1, Page 3-19: The CCR states that "The position of the excavator bucket as it removed sediments was recorded using a RTK [Real Time Kinematic] GPS [Global Positioning System]...." To our knowledge, the position of the excavator bucket was only displayed to the operator at the time of excavation by the RTK GPS. If bucket positions were recorded, such records should be included in the report.

6. Section 3.5.2.1, Pages 3-21 and 22: The first three paragraphs of this section leave the impression that the near-shore work was a flexible process driven by conditions identified in the field. This section should clarify that the lateral extent of excavation

need clarification from Paul 2.1 addressed?

was determined prior to mobilization based on existing site information as documented in the approved Design Report. Excavation was limited to those areas that indicated greater than 6 inches of sediment above the neat line existed, were deemed accessible, and were within 40 feet of the pre-removal edge of water. If significant deviations were identified in the field, changes were discussed and documented. Areas where this type of deviation occurred should be documented in Section 2.3 of the CCR. Did we have any deviations if so include which areas.

7. Section 3.5.2.1, Page 3-21: The CCR indicates that "Near-shore sediments were excavated to that neat line, which was set well below PCB-containing sediment." The CCR should explain that the neat line was intended as an estimate of the actual elevation of the pre-dam parent bed material, but cannot accurately be described as "well below" the contamination in all locations. On average, across the site, this neat line is located at a greater depth than the average depth to clean. The text as written is misleading because in some areas sediments were thin (predominantly in the upstream reaches of the impoundment), and so the distance to the contamination was less pronounced (i.e., the parent bed was not "well below" the extent of contamination). It is suggested that specific examples be used that help to bracket this qualitative condition. Design Report Section 2.1.1 2nd Paragraph example

remove use of efficiency

8. Section 3.5.2.1, Page 3-22: The CCR indicates that the "efficiency" of the near-shore work was "confirmed" as it was being conducted. It is not clear what metric would be used to evaluate efficiency. Also, given the nature of the work below water surface, various protocols were developed as an attempt to consider the completion of the work. The accuracy of these protocols (especially in the presence of soft sediment) was not verified. In upstream areas where shallow water depths allowed for direct evaluation, verification of the objective was more achievable. In areas of deeper water, it was difficult to determine if the objectives had been completely achieved. Additionally, an evaluation of "removal efficiency" was never formally conducted as implied. Evaluation of the conducted work was as much qualitative as quantitative. In the end, all parties agreed to the level of effort that was expended in the various areas, but the ambiguities in our ability to confirm what was achieved should be discussed.

9. Section 3.5.2.1, Page 3-22: The CCR states "At the discretion of ARCADIS, near-shore sediments were over-excavated to remove sediments located between the neat line and pre-impoundment river bottom." It would be better to simply state that "As agreed to by all parties, additional material was removed in some areas to more closely approximate the actual parent bed material."

10. Section 3.5.2.2, Page 3-23: The CCR states that "Similar to near-shore sediment removal areas, once the prescribed neat line or former river bottom had been achieved, the position of the excavator bucket was recorded at pre-determined locations using the RTK GPS on the excavator." This is a complex area of the project and it will be difficult to clearly communicate all of the issues, but the text should be clarified to more accurately identify how the work was conducted. It is acceptable to

the MDEQ to indicate that in the field, the operators excavated to the neat line using the highly accurate RTK GPS. Conversely, the amount of material that remained in the area after the initial pass (through calving and the creation of "windrows") was never quantified, and that fact needs to be included. It would also be appropriate to mention the methods that were employed to limit such recontamination of areas (e.g., multiple passes in an area to reduce the likelihood of calving, etc.). In the end, our ability to verify that the objective was "achieved" was hampered by field conditions. All parties agreed through a series of quantitative and qualitative evaluations that adequate work had been completed; however, the certainty of these judgments is overstated in the CCR and should be more accurately described.

add language that describes process i.e. 2 passes w/ cross hatch

11. Section 3.5.2.3, Page 3-24: This section appears to combine two distinct concepts from the Design Report: Objective 2 - Cut-back and stabilization of river banks, and Objective 11 - Establishment of a stable river channel. It is clear from the details of the Design Report and from field observations following completion of the TCRA, that Objective 11 has not been met immediately "post-removal." The CCR should state this fact. Furthermore, given recent work on bank stabilization activities and the description of bank stabilization work in the Design Report, it appears that the objective of a stable river channel will likely never be met. As such, the CCR should discuss what to expect regarding achieving Objective 11, given the Design Report's acknowledgment that sufficient materials would not be excavated to achieve a stable channel.

see section 2.1 comment

12. Section 3.5.2.3, Page 3-24: The same section of the CCR indicates "The depths of removal within clean buffer areas were established to remove soils containing observed PCB concentrations greater than 5 mg/kg." This language should be removed. It is acknowledged that this language was contained in the approved Design Report; however, the language caused confusion during the removal activities and should not be used going forward. The language is misleading in that it suggests that concentrations of PCBs (presumably at 4+ ppm [parts per million]) were intentionally left in the "clean buffer." The reality is that given the complex nature of contaminant distribution at the site, the ability to draw an accurate 5 ppm contour (especially vertically) was not possible given the data set available at the time. Further, the ability to surgically remove concentrations of contaminants above some precise threshold while leaving material below that threshold, with some predictably high level of accuracy, was simply not within our grasp. During discussions that preceded the Design Report, the goal discussed is more accurately described as the "excavation of the PCB-containing layer" and the MDEQ recommends substituting this description. That having been said, it is appropriate that the CCR document that the goal was tested with the mutually developed confirmation protocol described in the Design Report. Further, the CCR should also describe that engineers developed a protocol that was used to determine an initial excavation depth and how the protocol was implemented.

13. Section 3.5.2.3, Page 3-24: The CCR states "After the proposed excavation depths had been achieved, PCB-containing exposed sediments were sampled to verify that

N/A no PCB concentrations that exceeded the performance standard (~~remained in the surface soil.~~ delete?) Because the surface section (0-3 inches) of each sample was discarded, the sampling did not evaluate the surface soil. The text should be modified appropriately. Section 5.4.3 indicates surface soil.

include 2nd yr language

14. Section 3.5.2.3, Page 3-24: The CCR discusses the confirmation sampling and states "The random pattern was modified in the field (with concurrence of regulatory agency oversight personnel) if excessive spatial bias existed within a grid." True modification of the sampling did not occur until the second year. As other sections of the CCR make a distinction about the temporal differences in certain protocols, this section should be similarly modified.

already addressed

15. Section 3.5.2.4, Page 3-26 [As identified in Item 3 above.]: The CCR should clarify in all areas where confirmation sampling is discussed, that confirmation samples were used only to control the vertical limits of excavation. Additionally, because the 0-3 inch interval of each sample was discarded, a true record of surface concentrations was not collected.

section 2.1 what residual?

16. Section 3.5.2.4, Page 3-27 [As identified in Item 1 above.]: The CCR discusses the area near the residential properties. Again, the area of excavation identified in the TCRA was based on existing field data for that area and was not modified based on actual field conditions. Additionally, the confirmation standard was used to evaluate the vertical extent of removal (how deep to dig) but not the lateral extent. During removal activities in the areas discussed, residual material existed outside of the extent of excavation following completion of the work. The TCRA did not result in total removal of these areas and the concentration of material remaining in these areas must be considered during the residual risk analysis. – Part of SRI

N/A section discusses bank not channel

17. Section 3.8, Page 3-64: TCRA Objective 11 on Page 1-4 of the Design Report indicates that the purpose of the removal was "Establishment of a stable river channel post-removal and re vegetation with native plant species." This report only describes bank stabilization activities (e.g., bank slope cuts, soft/hard materials, vegetation) but does not describe the work that went into the design of a stable river channel. The CCR should describe separately the design details that went into ensuring a stable river channel in the post-removal period as well as the work related to stabilization of the banks. As the CCR currently reads, the soft and hard engineering materials were placed into an unstable channel configuration in the hopes of stabilizing it. This would be at odds with Objective 11.

Section 3.5

18. Section 3.12, Page 3-79 [As identified in Item 3 above.]: The CCR should clarify in all areas where confirmation sampling is discussed, that confirmation samples were used only to control the vertical limits of excavation.

19. Section 3.12, Page 3-79: The CCR identifies a cost for the activity. Details regarding costs for the project have never been shared with the agencies; as such, we have no way to evaluate the validity of the information. References to cost should either not be

cited in technical reports such as this when no documentation to support the cost claim has been provided, or should be qualified to indicate that independent verification of the figure has not been conducted by the regulatory agencies.

20. Section 4.1, Page 4-1: The CCR states "If banks or habitats do not meet performance standards within the required monitoring period, adaptive management will be incorporated into maintenance activities to attain the performance standards so that the habitat or structure is accepted as a success." The sentence should be ended at "...adaptive management will be incorporated into maintenance activities." Concepts of success are subjective, given the original goal of developing a post-removal stable river channel that did not rely on extensive hard armoring. At this time, substantial additional hard armoring has already been put in place and is being contemplated for additional areas. It will be more appropriate to evaluate "success" following the completion of the monitoring period.

21. Section 4.5, Page 4-4: Remove reference to no additional sampling in the last sentence of the first paragraph. (include relating to TCRA

It is appropriate that the CCR document the work that was conducted in the field as part of the removal action. The work was conducted in the context of stated objectives for the removal, so it is also appropriate to identify the extent to which the objectives were definitively met or the extent to which they remain unmet or partially met. It is from the context of the open or unmet objectives that we can consider how the monitoring data collected at the site can help us understand the extent to which they are eventually achieved. For this reason, it is important to engage in "lessons-learned" exercises as new data become available. A representative from the United States Fish and Wildlife Service (USFWS) has proposed this necessary review be conducted in a formal way and the MDEQ fully supports the suggestion.

The MDEQ appreciates the opportunity to provide comment on the CCR. If you have any questions regarding these comments, please feel free to contact me at the number below.

Sincerely,

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