STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

March 15, 2022

VIA E-MAIL and U.S. MAIL

Mr. Jim Saric
Remedial Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3511

Dear Mr. Jim Saric:

SUBJECT: Michigan Department of Environment, Great Lakes, and Energy (EGLE) Comments on the Remedial Design Work Plan (RDWP) and Appendices submitted June 4, 2021, and the Pre-Design Investigation Work Plan: Phase 1 (PDIWP) dated January 27, 2022, Area 2 of Operable Unit 5 (OU5), Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site (Site).

Enclosed are EGLE's detailed comments on the draft subject Area 2 RDWP and Appendices, and the Area 2 PDIWP. EGLE's comments were developed after reviewing the subject documents, the Area 2 Supplemental Remedial Investigation (SRI) and Feasibility Study (FS) Reports, the Area 2 Record of Decision (ROD), and previously submitted Remedial Design (RD) work plans. A summary of the Area 2 remedy and RD is provided below, and some over-arching comments on the subject documents and RD are provided thereafter.

Area 2 of OU5 includes 1.9 miles of the Kalamazoo River extending from the Otsego City dam to the former Plainwell dam, a stretch of the Gun River beginning at 106th Avenue and extending to the confluence of the Kalamazoo River, and approximately 76 acres of formerly impounded sediments that became exposed floodplain soils when the Otsego City dam was lowered to the sill. The lower 1.2 miles is characterized by a single, main channel, however; the upper 0.7 miles is unique, relative to other Areas of OU5 in that it contains multiple anabranches which increases the total shoreline in Area 2 to over 13.5 miles. 11 sediment subareas were developed based on the geomorphology in Area 2 and surface area weighted average concentrations for total polychlorinated biphenyls (Total PCBs) were calculated for each subarea.

The components of the Selected Remedy, Alternative A-5 with Channel Realignment Option #3, for Area 2 are detailed in the 2017 Area 2 ROD authored by the United States Environmental Protection Agency (U.S. EPA).

National Cash Register Corporation (NCR) is the sole Settling Defendant (SD) to a Consent Decree (CD) (Civil Action No. 1:19-cv-1041) between the United States and

the State of Michigan, entered in the United States District Court Western District for the Western District of Michigan on December 2, 2020. The CD requires initiation and completion of the RD, implementation of the remedial action (RA), and any necessary operations, maintenance, and monitoring requirements for Area 2 of OU5, and other work in downstream Areas of OU5. The CD requires implementation of the Area 2 ROD, which is included as Appendix C, and the procedures and requirements for implementing the work are outlined in the Statement of Work (SOW) (Appendix B). The subject documents were submitted by the SD per the requirements detailed in Section 5 RD and Section 11.2 Area 2 RD Schedule of the SOW.

The U.S. EPA issued a Notice To Proceed to the Supervising Contractor, GEI Consultants Incorporated (GEI), and letter approving NCR's Implementation Schedule on March 31, 2021. After signing the CD and following receipt of the Notice To Proceed, NCR formed the Kalamazoo River Study Group Areas 2,3 and 4 TCRA, LLC. (LLC), to complete certain requirements that are part of the CD. GEI is performing work required under the CD on behalf of the LLC.

The submission of Area 2 RD deliverables has generally followed the Implementation Schedule, and a chronological summary of the Area 2 RD deliverables provided to date is included below.

- On April 7, 2021, GEI submitted the Focused Field Investigation (FFI) Work Plan. The FFI included the installation of staff gauges and survey benchmarks, completion of bathymetric and topographic surveys, and proposed the collection of poling (depth of refusal) measurements throughout Area 2. The additional information necessary to support the collection of poling data would be provided as an Addendum to the FFI.

- On June 4, 2021, GEI submitted the subject RDWP and Appendices, which included the Health and Safety Plan, Revision 3 (Appendix A) dated May 2021, the Emergency Response Plan (Appendix B) dated March 2020, a Field Sampling Plan (Appendix C) dated June 1, 2021, and the Multi-Area Quality Assurance Project Plan, Revision 1 (Appendix D) dated March 2021.

- On June 24, 2021, GEI submitted an addendum to the FFI, the Area 2 Sediment Poling Addendum (Addendum). The Addendum outlined survey transects where poling measurements would be collected, and included text and Standard Operating Procedures that outlined means and methods used by field staff.

- On January 27, 2022, GEI submitted the subject PDIWP, which proposes collecting samples in select locations in Area 2, including Knife Blade Island, locations identified during the SRI/FS that exceed 20 and 50 parts-per-million (ppm) of total PCBs, and in the Gun River where SRI data is generally sparse. The PDIWP indicates that future work plans will be needed to fill data and design gaps, but no timeframe for those submittals is proposed.

EGLE's detailed comments on the subject documents are included as an enclosure, and a few over-arching comments are provided below.

1. The PDIWP appears to focus primarily on verifying the presence and extent of hotpots exceeding the 20 ppm Total PCB remedial action level and locations with total PCB concentrations greater than 50 ppm. In addition to sampling in hotspot areas, the Area 2 ROD also indicates that RD sampling will include identification of remedial footprint areas. The Phase 1 pre-design investigation (PDI) should include sampling to delineate remedial footprints needed to meet all final remediation goals and remedial action objectives, instead of focusing only on hotspots. Characterization of all contaminated sediment and soil is required to ensure that PCB contaminated material is not transported downstream when the Otsego City Dam is removed and there is no reason to delay this sampling to future phases. As was learned during the Area 4 Time-Critical Removal Action (TCRA) design sampling, SRI/FS sample data may not be comprehensive enough to fully delineate contaminant extent. Sampling during the Area 4 TCRA PDI identified significantly more and higher levels of PCB contamination than what was understood from the SRI/FS data. This was especially evident near the dam where PCB contamination was more widespread and extended deeper than previously known, and a large, contiguous clay deposit with high concentrations of Total PCBs was discovered. A more comprehensive and robust sampling approach is required to fully delineate contamination for RD and should consider lessons learned from other Areas of OU5.

2. The overreliance on indirect measurement techniques (e.g., poling) to define critical design and construction parameters (i.e., depth to pre-dam surface) instead of using direct observations (i.e., coring) should be reconsidered. As seen during the pre-design sampling that was completed in 2020 and 2021 to support the Area 4 TCRA, poling by itself is insufficient to define the depth to the contact between sediments that settled prior to and after construction of the dam, nor is it sufficient to describe the nature of materials that exist. At a minimum, and to provide assurance that poling data is accurate, precise, and usable, a significant number of co-located poling and coring locations will need to be completed. Corresponding measurements will need to be compared similar to the evaluation EGLE completed using co-located poling and coring measurements collected during the Area 4 TCRA PDI (attached). This should be a goal that is identified and addressed as part of the Phase 1 PDI.

Following completion of PDI activities and concurrent with development of the design, the technical work group participating in the Area 2 RD will need to consider how to properly handle poling and coring datasets, since it appears that there will be significantly more poling locations than coring locations.

3. As shown in the chronological summary, several work plans and deliverables have been submitted, and the subject PDIWP suggests that additional work plans to support to the RD will be submitted in the future. Segmenting work into manageable chunks covered under separate work plans facilitates development of streamlined documents; however, without a clear

summary of how information from each Work Plan and phase of the PDI is being used to support the design and without detailing how results from previous investigations are being used to inform proposed work, it is difficult for the reader to identify key data gaps and understand how each work plan will be used to inform the design. For example, text in the FFI and Addendum states that data collected will be used for the development and design of the PDIWP, as well as provide data for the hydrologic and hydraulic modeling. However, the subject PDIWP does not summarize results from the FFI and Addendum, or describe how that information was used to develop the PDIWP.

The approach to segment and conduct work in several phases and not report results in subsequent work plans or interim deliverables forces the Regulatory Agencies to have to review multiple documents to evaluate the cohesiveness and progression of the design, and identify key data gaps that remain. For this reason, it may not be appropriate to withhold reporting and sharing information collected under various work plans until the PDI Report.

4. The terrestrial and aquatic risk posed by select dioxin, furan and PCB congeners that are used to calculate a total toxic equivalency quotient (Total TEQ) should not be minimized and need to be considered as part of the RD and future RA. The subject documents rarely mention these contaminants, despite them being identified as a Site constituent of concern (COC), attributable to paper marking operations. Recent data suggesting the co-location between Total PCBs and Total TEQ may not be a reasonable assumption at all locations and across all concentration ranges. Total TEQ data from Area 2 and throughout OU5 are sparse, but the limited number of data points from Area 2 suggests total TEQ will need to be considered during the RD and RA. Based on EGLE's review of the limited data that is available for Area 2 it is clear that these compounds are present at concentrations well above regional background levels and criteria levels required for unrestricted use. The calculated Total TEQ concentrations are dominated by the dioxin-like PCB component, and Total TEQ is a risk driver in multiple Site media (i.e., sediment, soil, and fish tissue). Over-arching assumptions about management of Total TEQ risks based on remedial decisions made based on Total PCBs will need to be confirmed by collecting and evaluating data for all COCs during the RD and RA.

EGLE appreciates the opportunity to review and comment on the subject draft documents for the Area 2.

If you have any questions, please contact Mr. Daniel Peabody, Environmental Quality Analyst, Remediation and Redevelopment Division at 517-285-3924; PeabodyD@Michigan.gov; or EGLE, P.O, Box 30426, Lansing, Michigan 48909-7926

Sincerely,

Daniel Peabody
Environmental Quality Analyst
Superfund Section
Remediation and Redevelopment Division

cc: Ms. Megen Miller, Michigan Department of Attorney General
Mr. Matt Diana, Michigan Department of Natural Resources (MDNR)
Mr. Jay Wesley, MDNR
Mr. Mark Mills, MDNR
Mr. Kyle Alexander, EGLE
Mr. Luke Trumble, EGLE
Dr. Keegan Roberts, CDM Smith
Mr. David Kline, EGLE
Mr. Joe Walczak, EGLE
Dr. Lisa Williams, US Fish and Wildlife Service

Kalamazoo River Superfund Site
Remedial Design Work Plan (RDWP)
Operable Unit 5 Area 2
June 1, 2021

GENERAL COMMENTS

Commenting Organization: EGLE
General Comment #1: The Area 2 RDWP only proposes remedial design (RD) sampling around select areas where remedial action (RA) is expected based on the SRI data. RD sampling should not be confined to select locations.

Commenting Organization: EGLE
General Comment #2: The terrestrial and aquatic risk posed by select dioxin, furan and PCB congeners that are used to calculate a total toxic equivalency quotient (Total TEQ) should not be minimized and need to be considered as part of the RD and future RA. The subject documents rarely mention these contaminants, despite them being identified as a Site constituent of concern (COC) and recent data suggesting the co-location between Total PCBs and Total TEQ may not be a reasonable assumption at all locations and across all concentration ranges. Total TEQ data from Area 2 and throughout OU5 are sparse, but the limited number of data points from Area 2 suggests Total TEQ will need to be considered during the RD and RA. Based on EGLE's review of the limited data that is available for Area 2 these compounds are present at concentrations well above regional background levels and criteria levels required for unrestricted use. The calculated Total TEQ concentrations are dominated by the dioxin-like PCB component, and Total TEQ is a risk driver in multiple Site media (i.e., sediment, soil, and fish tissue). Over-arching assumptions about management of Total TEQ risks based on remedial decisions made based on Total PCBs will need to be confirmed by collecting and evaluating data for all COCs during the RD and RA.

Commenting Organization: EGLE
General Comment #3: The RDWP does not adequately discuss the dataset that is available for Area 2. Revise the RDWP to include discussions on the totality of data that exists and not simply the SRI data.

Commenting Organization: EGLE
General Comment #4: Given the age of the sediment data, resampling and recalculation of sediment SWACs from each of the subareas is warranted and a rigorous RD sample program should be implemented. See EGLE's comments on the PDIWP.

Kalamazoo River Superfund Site
Remedial Design Work Plan (RDWP)
Operable Unit 5 Area 2
June 1, 2021

SPECIFIC COMMENTS

Commenting Organization: EGLE
Section: 2.1 Site Summary and Physical Characteristics, pg. 13
Specific Comment #1: Text states, "Floodplain soils that accumulated PCBs may potentially contribute PCBs to the river during high-flood events, such as a 100-year flood. The river tends to remain in its channel and anabranches during typical or low-flood events (less frequent than 2-year return period). When water levels exceed the banks, the wide floodplain areas and buffered vegetation likely minimize floodplain losses of PCBs. Without other evidence of erosive conditions, high PCB concentrations in well-vegetated floodplain soils likely exhibit limited runoff to the river."

The text suggests that vegetation is sufficient to prevent contaminated floodplain materials from eroding under flood conditions and up to a 100-year flood event which is speculative and inappropriate. Locations with Total PCBs greater than aquatic risk thresholds that are subject to erosive forces and/or experience sustained inundation pose a risk to aquatic receptors which must be mitigated. Remove the last two sentences from the paragraph.

Commenting Organization: EGLE
Section: 3.2.2 River Channel Realignment, pg. 23
Specific Comment #2: The text states, "The primary goal of the river channel realignment design is to create a cost-effective channel that has a cross-sectional capacity to convey a bankfull flow event, maintains adequate shear stress to convey the bedload of the river in a state of dynamic equilibrium, and remains in a generally fixed location over time."

Suggesting that a cost-effective project is the "primary goal" of channel realignment is inappropriate and inconsistent with how Alternatives for Area 2 were evaluated, and text in key decision documents. Revise the text so that it is consistent with language in the Area 2 ROD that describes the purpose, objective, and benefits of channel realignment.

When evaluating and selecting Superfund remedies cost is only one of nine criteria that is used. Threshold Criteria includes overall protection of human health and the environment and compliance with ARARs, and cost is one of five Balancing Criteria. Language in the NCP (inserted below) clearly defines how cost and cost-effectiveness are considered and defined when evaluating remedies:

> **40 CFR § 300.430** Each remedial action selected shall be cost-effective, provided that it first satisfies the threshold criteria set forth in

> §300.430(f)(1)(ii)(A) and (B). Cost-effectiveness is determined by evaluating the following three of the five balancing criteria noted in § 300.430(f)(1)(i)(B) to determine overall effectiveness: long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, and short-term effectiveness. Overall effectiveness is then compared to cost to ensure that the remedy is cost-effective. A remedy shall be cost-effective if its costs are proportional to its overall effectiveness.

The cost-effectiveness of the Selected Remedy was evaluated during the FS and the alternative was determined to be cost-effective. The remedy that is constructed will need to be protective and effective, however; at this time the remedy has not been constructed and outcomes are not predetermined. The overall effectiveness and protectiveness of the remedy will be assessed following construction through the performance of operations, maintenance and monitoring activities and the collection of Area-wide, multi-media samples.

As previously mentioned, the text in Section 3.2.2 is also inconsistent with text in the ROD that discusses the purpose, goals, and benefits of river channel realignment. Revise the text to be consistent with the Area 2 ROD (inserted below).

> *Channel realignment (Option 3): Realigning the river in Area 2 to create a stable single channel with dam removal will prevent the river from regularly forming unstable anabranches, and will protect the floodplain from future erosion due to channel migration. Removing the dam and constructing a single stable channel are believed to be necessary to meet the RAOs for Area 2. The goal is to create a channel that conveys the bankfull flow of a 1.2-year return period (approximately 2,500 to 2,700 cfs), maintains adequate shear stress to convey the bedload of the river, and remains in a fixed location over time. This stable channel would therefore maintain the applicability of the soil FRG in the dam-out floodplain across Area 2. Channel Option 3 balances the effort and cost to achieve a stable single channel for remedial alternative development by providing a larger buffer area for Knife Blade Island and by following the existing channel bed in the downstream reach. The design for channel realignment will likely be modified from that shown as Option 3 (in Figure 7) based on additional data collection and evaluation during the RD.*

Commenting Organization: EGLE
Section: 3.2.2 River Channel Realignment, pg. 23
Specific Comment #3: The text states, “The RD will consider the realignment alternatives created during the FS (Amec, 2017) and as part of the URS (2011) dam removal design. However, novel realignment options may also be developed. Options from the FS, the dam removal design, and novel approaches by GEI will be evaluated together with the PCB remedy and dam removal design to select the optimal channel configuration.”

Please clarify what is meant by “novel approaches” and how these approaches may differ from the approach in the selected remedy. EGLE agrees that the RD data will need to support channel realignment which is an element of the selected remedy.

However, the desire to develop “novel approaches” represents a significant risk for the SD and their design team. The Alternatives developed during the SRI and FS were developed over several years under a collaborative process between the EPA, Natural Resources Trustees, the Department of Natural Resources, EGLE Superfund and Water Resources Division, and the Respondent and their design team. If the “novel approaches” that are being proposed are significantly different than the selected remedy, GEI and NCR must begin engaging with the Area 2 RD technical work group immediately.

Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site
Pre-Design Investigation Work Plan: Phase 1
OU5 Area 2
Allied Paper/Portage Creek/Kalamazoo River Superfund Site
January 27, 2021

GENERAL COMMENTS

Commenting Organization: EGLE
General Comment #1: The Phase 1 PDI appears to focus primarily on confirming the presence and extent of hotpots exceeding the 20ppm remedial action level and locations greater than 50 ppm PCBs. In addition to sampling in hotspot areas, the Area 2 ROD also indicates that RD sampling will include identification of remedial footprint areas. The Phase 1 PDI should include sampling to delineate remedial footprints needed to meet all FRGs and RAOs instead of focusing only on hotspots. Characterization of all contaminated sediment and soil is required to ensure that PCB contaminated material is not transported downstream when the Otsego City Dam is removed and there is no reason to delay this sampling to future phases. As was learned during the Area 4 TCRA design sampling, SRI/FS sample data may not be comprehensive enough to fully delineate contaminant extant. At the Area 4 TCRA, much more contamination was found during PDI sampling than what was understood from the SRI/FS data. This was especially evident near the dam where PCB contamination was more widespread and extended deeper than previously known, and large, contiguous deposits with high levels of PCB contamination were discovered. A more comprehensive and robust sampling approach is required to fully delineate contamination for remedial design.

Additionally, PDI sampling is focused on resampling historical PCB hotspots to determine the “usability of historical data” (i.e., data replacement). A more extensive sampling program would allow for evaluating the usability of historical data in all portions of Area 2 instead of a biased approach only aimed at hotspot areas. If there were changes in PCB concentrations over time such that historical data are not considered representative of current conditions in hotpots areas, presumably the historical data in other areas are also not representative of current conditions.

Commenting Organization: EGLE
General Comment #2: All sediment cores should be advanced through the entire sediment column and in to the native, pre-dam layer, instead of limiting cores to a pre-determined maximum depth. All sample depth intervals should subsequently be analyzed. This will allow the design to fully account for contaminants that would be subject to mobilization and ensure that initiation and completion of the Area 2 remedial action does not negatively impact downstream Areas of OU5.

Commenting Organization: EGLE
General Comment #3: Sediment sampling at Gun River is insufficient for design, as only one sample has been provided in the center of the channel. The planned remedy for the Gun River area is dredging and a comprehensive sampling approach that includes both banks and the center of the river should be provided to assess how PCBs are distributed at different elevations along the bank and to evaluate conflict areas that routinely occur along

the bank slopes.

Commenting Organization: EGLE
General Comment #4: The Phase 1 PDI should include additional sampling along the bank of the proposed channel realignment. Additional cores would be adjacent to many of the planned remedial areas and would be beneficial to the refinement of and evaluation of remedial boundaries by increasing sample density. EGLE strongly recommends that additional sampling along the new channel be conducted during Phase 1 rather than after preliminary refinement modeling is conducted.

Commenting Organization: EGLE
General Comment #5: The document should be provided in a format containing section and figure bookmarks and the final version must be formatted for compliance with EPA's Section 508 accessibility requirements.

Commenting Organization: EGLE
General Comment #6: The subject Work Plan is one of a few work plans that has been submitted to support the RD for Area 2. Previous submittals have included the Area 2 Focus Field Investigation (FFI) and Poling Addendum which were the first set of RD work plan that were developed for Area 2 and were submitted in June 2021. The planned work covered under the FFI and Poling Addendum included the installation of water level monitors, completion of bathymetric and topographic surveys, and the collection of poling data throughout Area 2. Text in the FFI and Poling Addendum indicated that results would be used to inform the remedial design, development, and design of Pre-Design Investigation (PDI) Work Plan, and completion of PDI activities, as necessary. However, results from the FFI and Poling Addendum are not discussed in the subject Work Plan, so it is unclear how information collected during implementation of the FFI and Poling Addendum is informing the subject Work Plan. Please revise the subject Work Plan to include details on how results from the FFI and Poling Addendum are being used to informed planned activities in the subject Work Plan.

Commenting Organization: EGLE
General Comment #7: The overreliance on indirect measurement techniques (e.g., poling) to define critical design and construction parameters (i.e., depth to pre-dam surface) instead of using direct observations (i.e., coring) should be reconsidered. As seen during the pre-design sampling that was completed in 2020 and 2021 to support the Area 4 TCRA, poling by itself is insufficient to define the depth to the contact between sediments that settled prior to and after construction of the dam, nor is it sufficient to describe the nature of materials that exist. At a minimum, and to provide assurance that poling data is accurate, precise, and usable, a significant number of co-located poling and coring locations will need to be completed. Corresponding measurements will need to be compared and consistent with the evaluation EGLE completed using co located poling and coring measurements collected during the PDI in the Area 4 TCRA (attached). This should be a goal that is identified and addressed as part of the Phase 1 PDI.

Following completion of PDI activities and concurrent with development of the design, the technical work group participating in the Area 2 RD will need to consider how to properly handle poling and coring datasets, since it appears that there will be significantly more poling locations than coring locations.

EGLE also requests that GEI SOP P-005, which was originally submitted during the Area 4 TCRA and was resubmitted as part of the Area 2 FFI and Poling Addendum, be revised. Specifically, text in Section 3.2 (inserted below) should be deleted.

- ~~The probe will then be advanced into the riverbed or marsh, noting the depth of refusal and type of resistance met by the probe. Individuals with prior experience characterizing the type of resistance and depth to refusal should train individuals without prior experience. Poling on the Kalamazoo River has identified several types of poling resistance and depths to refusal.~~
    - ~~The first type of material/resistance is either silt or sand and is relatively easy to drive through.~~
    - ~~The second type is likely a gravelly substrate and is marked by a distinct change in the sound and feel of driving the probe. It tends to be harder to drive and has a "crunchy" sound and feel.~~
    - ~~The third type of material, we believe to be a clay, tends to be harder to drive; has no change in the sound and the more you try to drive it, the harder it is to pull the probe back up. In fact, there feels to be "back-suction" on the probe.~~
    - ~~The fourth type of material is what we believe to be a very coarse and hard alluvial layer. The material has a distinctive "clink" sound and is very hard and there is clearly no driving the probe beyond it.~~
- ~~Both the gravel and clay material types can be mistaken for the alluvial material. When field crew hit these materials, they should re-double their efforts to drive the rod. In gravel, it is sometimes possible to drive through this layer. In clays, the driver should carefully note the relative elevation on the rod and again re-double their efforts to drive through it. With clay the extra effort may yield small advances through the material, but also make it harder to drive. If further driving reveals this kind of pattern (small advance, back-pressure), then the driving should cease because the further the probe is driven into this kind of material, the harder it becomes to withdraw the probe. Note, the gravel and clay substrates should be preliminarily identified in the field and the depth to these layers captured in the data.~~

General Comment #8: As mentioned in General Comment #6, the subject Work Plan is the third Work Plan that has been submitted as part of the Area 2 RD and text indicates that future Work Plans will also be submitted. Segmenting work into manageable chunks covered under separate work plans facilitates development of streamlined documents;

however, without a clear summary of how information from each Work Plan and phase of the PDI is being used to support the design and without detailing how results from previous investigations are being used to inform proposed work, it is difficult for the reader to identify key data gaps and understand how each work plan will be used to inform the design. For example, text in the FFI and Addendum states that data collected will be used for the development and design of the PDIWP, as well as provide data for the hydrologic and hydraulic modeling. However, the subject PDIWP does not summarize results from the FFI and Addendum or describe how that information was used to develop the PDIWP.

The approach to segment and conduct work in several phases and not report results in subsequent work plans or interim deliverables forces the Regulatory Agencies to have to review multiple documents to evaluate the cohesiveness and progression of the design, and identify key data gaps that remain. For this reason, it may not be appropriate to withhold reporting and sharing information collected under various work plans until the PDI Report..

From EGLE's perspective, the work proposed for the Phase 1 PDI and text in the subject Work Plan describing objectives of future work plans is "light" on the collection of data that will be necessary to implement aspects of the Area 2 remedy. For example, EGLE expects that significant geotechnical data will need to be collected throughout Area 2 as well as the upper portion of Area 3 to support dam removal.

SPECIFIC COMMENTS

Commenting Organization: EGLE
Section: 1.0 **Pages #: 4 - 5** **Lines #: 15-16**
Specific Comment #1: Revise the bullets that indicate major components of the selected remedy to be direct quotes from the Record of Decision (ROD) Section 1.4. Include the full text from the bullets in the ROD (EPA 2017).

Commenting Organization: EGLE
Section: 1.0 **Page #: 5** **Lines #: 15-16**
Specific Comment #2: The list of final remediation goals (FRGs) for fish tissue is incomplete. Revise the text to include 0.072 milligrams per kilogram (mg/kg) (RAO 1, non-cancer hazard index of 1) per ROD Section 2.8 (EPA 2017). Revise accordingly.

Commenting Organization: EGLE
Section: 1.0 **Page #: 5** **Line #: 8**
Specific Comment #3: The concentration threshold for institutional controls should be added to this list consistent with other remedy requirements. Add text from the ROD "*(i.e., at concentrations greater than 2.5 mg/kg PCBs)*"

Commenting Organization: EGLE
Section: 2.1 **Page #: 8** **Lines #:**
Specific Comment #4: Revise the text to include a brief description of the physical characteristics and inundation history that define the subareas.

Commenting Organization: EGLE
Section: 2.1 and Figure 4 Page #: 8 **Lines #: 14-15**
Specific Comment #5: For consistency, revise Subareas D1 and D2 in the Figure 4 legend to match the text in Section 2.1. Specifically, the text refers to Northern/Plainwell anabranches and the legend refers to Northern/Plainwell braids.

Commenting Organization: EGLE
Section: 2.2.1 **Page #: 9** **Lines #:**
Specific Comment #6: Clarify what "further evaluation[s]" will determine the usability of historical data. Evaluations should consider the presence of outliers; heterogeneity of the substrate; natural recovery occurrence and rationale, if any; deposition, erosion/scour potential; sampling density/resolution; and specifics of the sample collection procedures that were employed. The evaluations should be presented to regulatory agencies for review and approval. This comment also applies to the mention of usability of historical data in Section 2.4 and elsewhere in the report, as appropriate.

Commenting Organization: EGLE
Section: 2.2.2 **Page #: 1 0** **Lines #: 26-28**

Specific Comment #7: Add a bullet to state that any sediment or soil data gaps remaining after Phase 1 will be addressed in future design sampling phases. EGLE advises that the Phase 1 sampling be expanded such that additional sampling phases are either not needed or are less extensive.

Commenting Organization: EGLE
Section: 2.9 **Page #: 1 4** **Lines #:**
Specific Comment #8: As noted in EGLE General Comment 2, sediment samples should be advanced through the entire sediment column to the native soil layer, instead of limiting to a pre-determined maximum depth. Revise this section to remove the maximum sample depths specified for each location.

Commenting Organization: EGLE
Section: 4.2 **Page #: 2 1** **Lines #: 26-28**
Specific Comment #9: The text in Section 4.2 references several types of vessels (a barge equipped with a drill rig; boat-mounted drilling system; or manual sampling via a pontoon boat, jet boat, or air boat) that may be used for sampling efforts and SOP P-004 provides operating and boat positioning procedures that would not apply to all vessels mentioned. Revise Section 4.2 and SOP P-004 to clearly indicate which vessels the operating and positioning procedures apply to and add additional procedural information, as needed, for other vessels.

Commenting Organization: EGLE
Section: 4.5 **Page #: 2 2** **Lines #: 14-16**
Specific Comment #10: Revise the text to clarify that alternative boring locations will be presented to EPA and EGLE for review and approval if abandonment of the target location is proposed.

Commenting Organization: EGLE
Section: 4.5.3 **Page #: 2 2** **Lines #: 13 -18**
Specific Comment #11:

a) This section states *"If after four total attempts the 80% recovery criterion is not met, the boring location will be abandoned without completing sampling. Alternative locations may be selected at the discretion of the field manager if needed to meet data requirements for achieving DQOs."* Revise this section is changed to state "If after four total attempts the 80% recovery criterion is not met, the core with the longest recoverable length and/or largest recovery percentage will be retained pending a discussion with EPA and EGLE, following this discussion with EPA and EGLE a decision will be made whether to abandon the location or sample the core with a recovery less than 80%."

b) Additionally, revise the text to clarify that alternative boring locations will be presented to EPA and EGLE for review and approval if abandonment of the target location is

proposed.

Commenting Organization: EGLE
Section: 4.5 Page #: 2 4 Lines #: All
Specific Comment #12: Manual core samplers should be equipped with core catchers and/or automatic valves for sealing. Field staff should expect to encounter a variety of substrates and be ready to adjust accordingly. Example sampling equipment could be a Wildco Hand Core Sediment Sampler or any other similar device that has the ability to retain sediment without uncontrolled bottom loss. The use of large diameter (3-inch) core tubes or multiple core tubes within the same borehole to reduce the overburden weight may be necessary to increase recovery. Revise the document accordingly.

Commenting Organization: EGLE
Section: 4.10 Page #: 2 8 Lines #: 17-13
Specific Comment #13: This section states *"Sediment or soil containing total PCBs ≥50 mg/kg will be containerized in Department of Transportation approved 55-gallon drums, labeled with TSCA waste*
and PCB-Containing labels." Clarify how this will be conducted. For example, will drums be re-labeled following receipt of validated laboratory data?

Commenting Organization: EGLE
Section: 7 Page #: 3 3 Lines #:
Specific Comment #14: In addition to photographs, the PDI data summary report should also include scanned copies of field forms and logbooks documenting the work conducted. And photographs should capture the entire core and not select intervals. Revise the document and associated documents accordingly.

Commenting Organization: EGLE
Section: SOP P-002, Section 4.1 Page #: 5 Lines #: 19 - 21 Specific Comment #15: Clarify how the mudline will be identified to measure recovery. The text indicates that aluminum or Lexan tubes will be used, and in the case of aluminum, visually identifying the mudline will not be possible without extruding the core, which could impact recovery measurements.

Provide similar clarification in Section 4.2, bullet 10 and elsewhere in the SOP, as needed.

Commenting Organization: EGLE
Section: Figures Page #: Figure 4 Lines #:
Specific Comment #16: The subarea hatches are difficult to decipher especially with the color underlay of the geomorphic bedforms. Label the subareas with callouts similar to how Gun River is displayed or with text (similar to how properties are displayed on figure 2).

Commenting Organization: EGLE

Section: Figures **Page #: Figures 6b-6i** **Lines #:**
Specific Comment #17:

a. All historical samples should be labeled so that referencing and discussions related to any data validation and or data gaps can be communicated clearly.
b. Provide a key map on each of the figures
c. Label important features on each figure to provide reference points for RALs such as:
    - Gun River
    - Knife Blade Island
    - Property owners
    - The extents of the Channel Realignment and the extents of the 10-foot swath along the bank.
    - Current preliminary ROD identified boundaries for excavation and capping areas to be compared to the proposed sample locations
d. In areas where refinement is planned the spacing of samples is approximately 100 feet. However, the planned data density along the channel and multiple other areas indicate that gaps are likely to remain after this PDI event. EGLE requests additional samples in the locations where distances exceed 150 feet between historical samples.

Commenting Organization: EGLE
Section: Figures **Page #: Figure 6c** **Lines #:**
Specific Comment #18: There are no sediment samples within 100 feet of 2S-A03 on the north side. Add a location to the north to bound this hotspot.

Commenting Organization: EGLE
Section: Figures **Page #: Figure 6d** **Lines #:**
Specific Comment #19: Although Sample 2U-FP98 is within the 100 feet identified in Section 6, the 3 other samples around the exceedance at 2S-G01 are spaced within 25 to 50 feet within the same subarea. Location 2U-FP98 should be moved 45 feet towards 2S-G01 to provide delineation of the hotspot within the ponded area rather than outside of the ponded area which may artificially shrink the hotspot if the sample has lower concentrations due to being in a different subarea. Revise accordingly.

Commenting Organization: EGLE
Section: Figures **Page #: Figure 6e** **Lines #:**
Specific Comment #20: A flood plain soil sample should be added in the grid cell north of 2UKBD04 and west of 2U-KBC05. The sample should be placed in the wedge of flood plain soil since it is directly adjacent to the greater than 50 ppm exceedance in the reoccupied grid cell containing 2U-KBD05 and is also adjacent to in water concentrations exceeding 20 ppm. Revise accordingly.

REFERENCES

EPA. 2017. Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site – Operable Unit 5, Area 2 Record of Decision. EPA Region 5. Chicago, Illinois.

Attachment 1
Area 4 TCRA Pre-Design Investigation
EGLE Evaluation of Co-located Poling and Coring Data

Comparison of Co-located Probing Refusal Depths Versus Coring Alluvial Depths

Location Name	State Plane X	State Plane Y	Poling refusal elevation (ft)	Alluvium elevation (ft) based on core comments and photos	Final alluvium elevation (FT) used in geostatistical surface	Difference between poling and coring (ft)
4T-15-S6	12739308.24	360848.086	642.34	648.34	642.34	6.0000
4T-15-S4	12739272.63	360855.02	**643.89**	649.06	643.89	5.1667
4S-EG30-3	12740661.03	361043.078	**643.46**	647.13	643.46	3.6667
4S-ED05-3	12738169.16	361370.728	**639.12**	640.70	639.12	1.5833
4S-EF16-2	12739251.11	361230.221	**642.47**	642.84	642.47	0.3667
4T-05-2	12737961.39	361325.873	**640.01**	640.08	640.01	0.0667
4S-EG17-2	12739352.78	361051.814	643.39	637.56	637.56	5.8333
4S-EH16-2	12739263.14	360972.788	649.27	645.49	645.49	3.7833
4S-EB11-3	12738777.54	361553.639	644.14	641.34	641.34	2.8000
4S-EC12-2	12738887.66	361520.605	645.39	643.29	643.29	2.1000
4S-EB09-3	12738545.07	361553.403	642.81	640.94	640.94	1.8667
4S-EB10-3	12738667.32	361574.056	644.98	643.68	643.68	1.3000
4S-EI18-2	12739415.27	360842.691	648.23	646.96	646.96	1.2667
4S-EC15-3	12739093.39	361479.72	638.21	637.14	637.14	1.0750
4S-EC13-2	12738969.05	361511.493	645.35	644.31	644.31	1.0417
4S-EH17-2	12739360.89	360933.802	642.92	642.19	642.19	0.7333
4S-EC16-2	12739225.99	361462.144	640.31	639.78	639.78	0.5333
4S-EH22-2	12739825.28	360972.119	640.31	639.79	639.79	0.5167
4S-EF17-2	12739313.01	361155.118	645.04	644.54	644.54	0.5000
4S-EH18-2	12739472.32	360946.469	638.74	638.37	638.37	0.3750

Notes:

The column headers with the dark blue fill are the columns EGLE added for comparison of polling observations to empirical (core) observations.

The cells with the light blue fill and bold red numbers are those cells where it appears GEI used poling data to set the alluvium elevation, rather than the core data.

The cells with the light red fill are locations where the poling refusal and core alluvium elevations differed by more than 1 ft.

The cell with the light yellow fill is where the poling and core elevations differed by more than 6 inches but less than 1 ft.