



June 22, 2021

TECUMSEH PRODUCTS COMPANY
ATTN: STAN GILHOOL, GENERAL COUNSEL
5683 HINES DRIVE
ANN ARBOR, MI 48108
[Via Electronic Mail Only to stan.gilhool@tecumseh.com]

Subject: Review of Site Investigation Work Plan and Quality Assurance Project Plan dated December 22, 2021
HARP Downstream of Hayton Millpond Dam, BRRTS # 02-08-587108

Dear Mr. Gilhool:

On December 26, 2021, the Wisconsin Department of Natural Resources (DNR) received the Site Investigation Work Plan (SIWP) and Quality Assurance Project Plan (QAPP) for the HARP Downstream of Hayton Millpond Dam, dated December 22, 2021, prepared for Tecumseh Products Company by TRC Environmental. The Report was submitted with a fee for DNR review and response. The submittal of a Site Investigation Work Plan (SIWP) is required per Wis. Admin. Code § NR 716.09, as this site is subject to regulation under Wis. Stat. ch. 292.

The DNR reviewed the SIWP and QAPP for consistency with Wis. Admin. Code §§ NR 716.07 and NR 716.09 and has determined that the general code requirements have not been met. The SIWP and QAPP are not approved. Some general comments on the SIWP and QAPP are presented below and more specific comments attached.

The purpose of a site investigation is to "... define the nature, degree and extent of contamination" per Wis. Admin. Code § NR 716.01. Additional site investigation action is necessary due to the complexity of this site.

The site investigation process includes evaluation of all potential media, pathways, and receptors present at a remedial action site to conduct a complete site investigation. While updates have been made to the prior version of the SIWP, plants and animals still have not been included as potential receptors.

The definition of the degree and extent of contamination in all media must be based on established standards (e.g., Wis. Admin. Code ch. NR 720 and chs. NR 102-105) and/or guidelines (e.g., Consensus Based Sediment Quality Guidelines and fish advisory levels). While the Consensus Based Sediment Quality Guidelines may be more restrictive, the Wis. Adm. Code ch. NR 720 soil residual contaminant levels are still applicable and should be used in evaluating sediment, particularly for wadeable stream reaches.

In the attached comments, as well as in past letters, DNR specifies the necessity of a comprehensive field-verified geomorphic survey to adequately characterize the soft sediment deposits prior to identifying in-channel sample locations. The proposed, at most, 640-feet of poling up and downstream of the current sample locations does not represent a comprehensive geomorphic survey of the two mile investigation area. The SIWP proposes only a single surface water and in-channel sediment sample within the first 3,500 feet leaving a large portion of the upstream channel, banks, and floodplain uncharacterized. Additional sampling is necessary in the first two-thirds of a mile downstream of the dam. DNR has authority to require specific, additional site investigation activities under Wis. Admin. Code § NR 716.17(1).

The SIWP and QAPP must comply with Wis. Stat. ch. 292 and the Wis. Admin. Code ch. NR 700 rule series. As stated in Section XIV of the Negotiated Agreement, “[n]othing herein shall preclude the State from requiring Tecumseh to undertake other or additional environmental response actions at the Site that may otherwise be required of Tecumseh as a responsible party pursuant to Wis. Stats. ch. 292 and the Wis. Admin. Code ch. NR 700 administrative rule series.”

The comments provided in this letter and the attached documents are intended to refine the SIWP to improve the work product and assist with compliance with the regulations. The comments should not be interpreted as all of the changes to the SIWP that will be necessary to successfully meet the regulatory requirements of Wis. Admin. Code ch. NR 716 regarding remedial action site investigations and the statutory obligation of the Spills Law to restore the environment to the extent practicable and minimize harmful effects.

Therefore, DNR requires you, within 60 days of the date of this letter, by August 21, 2022, revise and re-submit the monitoring plan with the requisite Wis. Admin. Code ch. NR 749 site investigation work plan review fee.

Please contact me at (920) 510-8277 or at sarah.krueger@Wisconsin.gov if you wish to discuss any aspect of this letter further.

Sincerely,



Sarah Kruger, P.G.
HARP Project Manager

Attachments: DNR Comments on the Site Investigation Work Plan
DNR Comments on the Quality Assurance Project Plan

cc: Jason Smith, Tecumseh Products Co. – jason.smith@tecumseh.com
Chris Harvey, TRC - CHarvey@trccompanies.com
Phillip Bower, DNR – Phillip.Bower@wisconsin.gov

Number	Section	Original WDNR Comment	Initial TRC Response	WDNR Response	Second TRC Response	WDNR Response
1	Section 3.8	<p>General Comment 2: Be aware that the site investigation process can be iterative, may change in scope for the media or geographical area requiring investigation, and additional sampling and an associated site investigation work plan (SIWP) may be required to complete the site investigation for OU5.</p> <p>Specific Comment 8: Section 3.7 Potential or Known Impacts to Receptors –this section does not call out all potential receptors as required by NR 716.07 (7). Receptor is defined in NR 700.03 (47) as “... environmental resources, including but not limited to, plant and animal species and humans, sensitive environments and habitats, water supply wells, and buildings or locations that have the potential to be, or have actually been, exposed to contamination.”</p>	<p>General Comment 2: Agreed.</p> <p>Specific Comment 8: Response: Section 3.7 has been updated.</p>	<p>The evaluation of all potential media should be included as part of the initial Site Investigation Work Plan (SIWP). The iterative process mentioned means that as new data is received previously unknown impacted media may need to be investigated, the area being investigated may need to be expanded, or new contaminants of concern may need to be analyzed. This process is not meant to exclude investigation that will be required by DNR as part of a complete Site Investigation.</p> <p>The work plan should consider plant and animal species and humans as potential receptors.</p> <p>Additionally, past site investigations upstream demonstrate the complexity of the site, and past remedial actions only limit transport of new impacted material downstream and do not address impacts from past deposition prior to upstream remedial actions.</p>	Noted	<p>Section 3.8 still does not include plants and animals as receptors. The change requested in section 3.8 is that they be identified as potentially impacted receptors. This change does not currently necessitate additional investigation, only that they are included in the evaluation.</p> <p>For example the text could be updated similar to the Human Health Direct Contact Risks section, where the potential impact to plants and animals will be evaluated through use of the Consensus Based Sediment Quality Guidelines and risk to benthic invertebrates which may be an indicator of impacts to plants and animals.</p>

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2		<p>Specific Comment 5: Degree and Extent – the SIWP has not defined the extent of the contamination below the Hayton Dam. The WP Scoping is to be used to present evidence as to the extent of contamination, based on existing data, or evidence of unimpacted media below the Dam. If the degree of contamination is unknown the WP must provide the steps that will be taken during the investigation to determine the extent. For example, PCBs were measured above background in sediment and fish at Clarks Mill, 26 miles below the dam.</p> <p>a. The SIWP has proposed a study area extending 2 miles below the Dam. Please provide a rational for why this is the appropriate study area.</p> <p>b. If the proposed study area is something less than the area impacted by contamination provide a rational as to why it is appropriate to focus an investigation in this area.</p> <p>Specific Comment 7d: Sample results shall be compared to environmental standards as discrete results, not averaged, composited, or normalized to other parameters.</p>	<p>Specific Comment 5: The SIWP is intended to provide data necessary to evaluate the degree and extent of PCB impacts downstream from the Hayton Dam whose source was the Tecumseh facility in New Holstein. The source of PCBs and contaminant flow and transport is further discussed in Section 3.2. Given General Comment #2, above, the scope of the investigation contained in the SIWP is appropriate under the circumstances.</p> <p>The previous sediment studies in an area approximately 1.5 miles downstream of the dam showed low level PCB concentrations. Only 5 of 20 samples had total PCB concentrations above 1 mg/kg, and only 2 samples had PCB concentrations above 2 mg/kg. A surface-area weighted average concentration (SWAC) of 0.53 mg/kg was calculated for the Study Area. Furthermore, as discussed in Section 3.2 of the SIWP, potential PCBs in fine particles flowing over the dam is expected to represent a comparatively minor source concentration as compared to the source to Jordan Creek, approximately 8.5 miles upstream from the dam. Based on the results from past sediment sampling and this conceptual model of PCB fate and transport in the watershed, the 2-mile downstream Study Area represents a reasonable reach of river for sediment and overbank soil investigation. If the data from this site investigation warrants, additional sampling would be proposed further downstream for subsequent investigation (See General Comment #2, above).</p> <p>The proposed study area is approximately ½ mile further downstream than the area of known PCB-impacts. See the response to 5(a) and General Comment #2, above.</p> <p>Specific Comment 7d: Tables 1 through 4 summarize the sediment, surface water, and fish tissue data, and include comparison of discrete results to the relevant environmental standards.</p>	<p>The intent of a SIWP is not to “evaluate” the degree and extent, but rather define it. The initial investigation area extending 2 miles downstream of the Hayton Dam on the South Branch Manitowoc River is acceptable at this time; however, a site investigation may be an iterative process where information collected may inform the need for further investigation to meet the overall objective of the site investigation. The site investigation process is not meant to exclude potential media, pathways, and receptors required by DNR as part of a complete Site Investigation.</p> <p>Definition of the degree and extent of contamination should be based on established standards (e.g. Wis. Adm. Code ch. NR 720) and/or guidelines (e.g. Consensus Based Sediment Quality Guidelines), not site-specific remedial action goals. Discussion related to a surface weighted average concentration (SWAC) downstream of the dam and sample results relative to the site-specific remedial action goal is not relevant to this SIWP. A SWAC and site-specific remedial action goal should not be used to characterize the material, define the remedial footprint, assess risk, or evaluate the need for additional sampling requirements and should be removed from the SIWP. Additionally, Tables 1 through 4 should be updated to include relevant environmental standards and guidelines, Wis. Adm. Code NR 720 soil standards and the Consensus Based Sediment Quality Guidelines. Remove the site-specific remedial action goal from the tables.</p>	<p>As we discussed with you on October 27, 2021, the scope of this site investigation does not exclude potential pathways. Once implemented, the investigation will address sediment, surface water, soil above the Ordinary High Water Mark (OHWM), and fish tissue (the fish tissue sampling plan is included in a separate Long-Term Natural Recovery Plan). We understand that the site investigation may be an iterative process where information collected may inform the need for further investigation to meet the overall objectives of the site investigation.</p> <p>Discussion of the SWAC has been removed and the tables have been updated to reflect this comment. Wis. Adm. Code NR720 soil standards were not referenced in Tables 1-4 as soil standards were not applicable to these tables. However, Consensus Based Sediment Quality Guidelines and Wis. Adm. Code NR105 surface water quality guidelines were included.</p>	<p>While the Consensus Based Sediment Quality Guidelines may be more restrictive, the NR 720 Soil Standards are still applicable and should be used in evaluating sediment, particularly for wadeable reaches. Future documentation should include the soil standards for reference. Additionally, all of the Consensus Based Quality Guidelines should be used to evaluate the sediment not just the Probable Effects Concentration.</p>

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4	Section 5.1 Scope of Work	Specific Comment 11b: Water column samples should be obtained for PCB analysis. Samples should be obtained in a variety of flow regimes and conditions to represent the expected variance of PCBs over time. Detection levels should be appropriate for the anticipated range of PCB concentrations.	Surface water samples will be collected and analyzed for PCBs. The samples proposed in the SIWP are proposed to be collected during typical flow conditions, i.e. neither flood nor drought conditions. Additional samples may be collected based on the results of this site investigation.	PCBs in water are strongly correlated to temperature, suspended organic matter, and total suspended solids (TSS). Past United States Geological Survey (USGS) monitoring had shown orders of magnitude variation between sampling dates. The monitoring plan should develop a baseline of PCBs in surface water for HARP. The SIWP should include monthly monitoring of PCBs in water during the expected peak water PCB concentration during the summer months of May through August. Additionally, water samples must be analyzed for PCB congeners, total organic carbon (TOC), dissolved organic carbon (DOC), and TSS. Water temperature at the sample collection point must be obtained, recorded, and reported with the sample results.	To evaluate the potential increase of PCBs mobilized by higher temperatures, we will collect surface water samples in August when water temperature would be expected to be highest. Based on the USGS study, the August water sample should represent the highest PCB concentration in surface water. Based on the results of August sampling, we will consider need for surface water sampling at other times in the year, as part of the iterative investigation process. The water samples will be analyzed for PCB congeners, total organic carbon (TOC), dissolved organic carbon (DOC), and TSS. Water temperature at each sample collection point at the time of collection will be measured, recorded, and reported with the sample results. Section 5.4.2 of the SIWP has been updated to reflect this comment.	DNR experience is that any changes in concentration are expected to be masked by environmental variance, and the USGS study does not support the conclusion that any single month provides a "worst case" concentration. The study did however discuss that multiple variables affect PCB concentration in surface water, including, temperature, suspended organic matter, and TSS. DNR recommends monthly surface water monitoring as part of this SIWP during the summer months.
6a	Section 5.2	Specific Comment 11d: Sediment PCBs in the bed of the river are primarily associated with soft organic sediment as opposed to gravels, sands, or hardpan clays. The occurrence and distribution of soft anthropogenic sediment in the study area should be mapped (location, boundaries, thickness) ahead of sediment sampling to inform the study as to the appropriate sampling location to find sediment PCBs. Specific Comment 12: Sampling locations must be selected to identify the degree and extent of contaminants and should be based on a conceptual site model of locations where PCBs are likely to accumulate. Setting up transect locations based on a 500-foot interval with a core collected 10-feet from each bank and the center of the channel, may make sense if the sediment is assumed to be universally impacted. However, it is more appropriate to locate the sampling transects and core locations based on geomorphology evaluated in the field. DNR recommends a geomorphic evaluation be completed prior to determining transects and core locations.	Specific Comment 11d: Agreed. The sampling locations presented represent the general areas where sediment likely deposited based on the river morphology. At the time of sampling a determination will be made regarding the location of the thickest deposit of soft, finegrained, organic-rich sediment based on observation and poling of the sediment. Specific Comment 12: Sampling locations have been moved to target point bars and other areas of potential deposition. Furthermore, the actual sampling location will be moved in the field to target fine-grained sediment, as described in response to comment # 11.d.	Section 5.3.2 still references collecting 3-cores 10 feet of the left and right banks and from the center of the channel rather than basing the core collection location on the sediment probing that is now included in the SIWP. The comment response has not been adequately incorporated into the text of the SIWP and discussion of sampling based on proximity to the banks or center of the channel should be removed. If 3 cores are necessary, provide additional reasoning since only one of the 3 cores, the one with the thickest soft sediment will be sampled.	At each sediment sampling location rod probing will be performed to determine the location of thickest sediment. One core will be collected from the location of thickest sediment for processing and analysis. Section 5.1 of the SIWP has been updated to reflect this comment	Ensure that changes made in the work plan are reflected throughout the document. Section 5.3.3 states "After the cores for a given transect have been logged, one core from the transect will be selected for the collection of analytical samples." Provide clarification as to how many cores will be advanced, and that if multiple cores are collected they will be co-located, to ensure sufficient recovery. Additionally, while transect is used throughout the document revisions to the document have changed the sampling strategy such that there is no sediment transect, and surface water samples will not be collected at or as part of a transect. Please remove transect from the report, and update the QAPP as appropriate.

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6b and 6c	Section 5.2	<p>Specific Comment 11d: Sediment PCBs in the bed of the river are primarily associated with soft organic sediment as opposed to gravels, sands, or hardpan clays. The occurrence and distribution of soft anthropogenic sediment in the study area should be mapped (location, boundaries, thickness) ahead of sediment sampling to inform the study as to the appropriate sampling location to find sediment PCBs.</p> <p>Specific Comment 12: Sampling locations must be selected to identify the degree and extent of contaminates and should be based on a conceptual site model of locations where PCBs are likely to accumulate. Setting up transect locations based on a 500-foot interval with a core collected 10-feet from each bank and the center of the channel, may make sense if the sediment is assumed to be universally impacted. However, it is more appropriate to locate the sampling transects and core locations based on geomorphology evaluated in the field. DNR recommends a geomorphic evaluation be completed prior to determining transects and core locations.</p>	<p>Specific Comment 11d: Agreed. The sampling locations presented represent the general areas where sediment likely deposited based on the river morphology. At the time of sampling a determination will be made regarding the location of the thickest deposit of soft, finegrained, organic-rich sediment based on observation and poling of the sediment.</p> <p>Specific Comment 12: Sampling locations have been moved to target point bars and other areas of potential deposition. Furthermore, the actual sampling location will be moved in the field to target fine-grained sediment, as described in response to comment # 11.d.</p>	<p>Half of the sample transect locations presented on Figure 2 appear to be in narrow, straight sections of the river, and insufficient information has been provided to evaluate the preliminary sample placement. The sample transects should be located in areas with greater sediment deposition based on geomorphology. Please include a field geomorphic evaluation of the distribution of soft anthropogenic sediment to ensure sampling locations correspond to field verified areas of deposition and thickest soft sediment deposits, prior to finalizing transects and core locations as part of the SIWP. General transect locations can be developed based on the aerial photo review but these should be updated to focus on depositional areas, not narrow, straight sections of the river. Using a standard interval between transects is not recommended as it is unlikely the sediment is universally impacted, which past sampling results support.</p> <p>Additionally, the purpose of the SIWP is to define the degree and extent of contamination and not necessarily to confirm past results. Sampling should not only be biased to areas of deposition, but also serve to further delineate the extent of contamination. 6 of the 16 currently proposed sediment transects are located within 50 feet of past sampling locations, greatly reducing the area being investigated along the 2 mile stretch of the South Branch of the Manitowoc River.</p>	<p>Sediment sample locations were selected in an attempt to define the extent of PCB impacts; therefore, sampling locations have been primarily chosen where soft sediment could be deposited (e.g., point bars, wider sections of the river). However, some sampling locations have been proposed in straighter areas of the river to assist in defining conditions under different river flow regimes. The proposed sediment transect locations are generally located based on previous sediment monitoring data and our geomorphic evaluation. The actual sediment transect locations will be based on the field geomorphic evaluation and field verified areas (via probing) of deposition and thickest soft sediment deposits. At each sediment sampling location, the thickness of sediment will be field verified by rod probing 20 feet upstream and 20 feet downstream to locate areas of deposition and/or eddies that could trap sediment. The thickest sediment deposit will be targeted for sampling.</p> <p>Past sampling locations were chosen because they represented areas of deposition based on geomorphology and sediment probing. Where proposed sampling locations are near previous sediment samples, the sampler will use a rod probe to evaluate sediment thickness 20 feet upstream and downstream of the location and choose the location with the greatest sediment thickness with a goal of finding the thickest sediment deposit and not duplicating past and current sampling locations. Sections 5.1 and 5.2 of the SIWP have been updated to reflect this comment.</p>	<p>The original comment has yet to be addressed. As previously stated, insufficient information has been provided to evaluate the preliminary sample placement which should be based on a comprehensive field geomorphic evaluation, not a limited poling survey and desk top study. There has been no change to the proposed sampling locations between Revision 2 and Revision 3 of the SIWP. Additionally, the referenced past sampling was conducted as a reconnaissance effort and was not intended to define the degree and extent of contamination. Additionally, while biased to depositional areas, the past sampling locations were not based on a comprehensive geomorphic evaluation.</p> <p>Poling data from approximately 640 feet of a 2 mile reach represents approximately 6% of the investigation area, as presented in Section 5.1 and 5.2, and is insufficient to characterize the sediment deposits throughout the OU. Based on the sediment sampling results from 2005 to 2016 in the Hayton Millpond, it appears that deeper intervals have increasing trends which indicates there is still likely transport of sediment throughout the system. In the 2006 OU2 Lower and OU3 Sampling Results Tech Memo one conclusion was "that the system is too dynamic for older data to be used reliably". This provides further justification for the request of a comprehensive poling survey.</p> <p>The comprehensive poling survey requested as part of the Sediment and Surface Water Natural Recovery Monitoring Plan (NRMP) can be used to verify the sampling locations are representative of the deposits in the 2 mile area downstream of the dam that is currently being investigated as part of this plan. The NRMP and the appropriate sections discussing the poling survey would need to be referenced in this SIWP, and the survey completed prior to implementing the SIWP.</p> <p>It is acceptable to leave the sampling locations draft until a comprehensive poling survey is completed, ensuring that sample locations are representative of the deposits identified.</p>

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7	Section 5.3.2	Specific Comment 11.d.ii: while past sampling has been completed with a 2-inch core tube it may not be appropriate for all areas based on sediment grain size and sorting. Alternative methods of sampling that will have improved recovery of the fine-grained fraction such as a grab sampler (e.g., ponar) should be used.	Section 5.3.3 (formerly Section 5.3.2) has been modified to allow the use of an alternate sampling method (e.g., dredge) in the event that a coring tool will not work.	50% of sediment sample locations must be sampled by both a ponar grab sampler (or approved equivalent) and with a core sampler for comparison of the results to ensure that the core sampler is adequately recovering the fine-grained fraction, per Wis. Adm. Code § NR 716.17(1).	As discussed with you on October 27, 2021, shallow (i.e., 0-6 inches) sediment samples will be collected with a ponar or equivalent sampler. The deeper sample interval(s) (e.g., 6-18 inches) will be collected from the core. The 0-6 inch interval of the core will be discarded and properly disposed. Section 5.3.2 of the SIWP has been updated to reflect this comment.	Dependent on the type of sampler used the bite depth may not reflect the full 0-6 inch interval, e.g. a standard ponar has a bite depth of approximately 3.5 inches. Rather than discarding the top 6 inch interval, it should be processed and held for future analysis if needed, based on the sample results from the ponar and deeper intervals to provide additional clarification of the full 0-6 inch interval. It is understood that the core and the grab sample will not be at the exact same location within the stream transect but based on the close proximity the data would still be useful to define the full column.
8	Comment 11d. iii	Specific Comment 11.d.iii: Where a core sampler is specified, quality control criteria for acceptable core recovery must be established.	Section 5.3.3 (formerly 5.3.2) has been modified to specify core recovery criteria. Section 5.3.3 has also been modified to include additional sampling options regarding core tube size and other alternatives based on core recovery criteria and field conditions.	Please provide information as to timing allowed for settling of sediment in a core tube prior to verifying sample recovery. Please note that the soft sediment thickness is expected to vary across the site, and the 18 inches required for retrieval should be removed from section 5.3.2. The text should be updated to indicate that if 75% recovery is not achieved up to three attempts at that location will be made and if 75% recovery is still not achieved an alternative method of sample collection will be performed. Additionally, include the possibility for a thicker soft sediment deposit than 18 inches which could necessitate additional samples from the sediment core in 1-foot intervals, to characterize the full extent of contamination within the sediment. These changes in the SIWP must be reflected in updates to the Quality Assurance Project Plan (QAPP).	The time of settling is not relevant with the 0-6 inch sample collected with a ponar or equivalent. Section 5.3.2 of the SIWP has been updated to reflect the three attempts at 75% recovery and Section 5.3.3 of the SIWP has been updated to reflect the possibility of soft sediment deposits thicker than 18 inches.	Time of settling is relevant. The 0-6 inch interval from the core may be necessary to further define the interval depending on analytical results as discussed in comment 7, and settling time ensures good surfaces for deeper intervals. Update the text to provide time of settling or other means of determining top of core.

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14	Section 5.1, pg. 17			The poling proposed is limited to the vicinity of the 16 selected transects. No information in Section 4 or the associated figures show the extent of soft sediments within the 2-mile reach (e.g. the 2015 reconnaissance study). It would be useful for Figure 2 to map soft sediment thickness from past investigations and/or provide a more comprehensive poling of the 2-mile stretch. In the six years since the initial reconnaissance study, it is expected that sediment thickness may have changed due to storm events and normal stream dynamics.	See response to Comment 6 above. Poling is proposed at each of and in the vicinity of the 16 sediment collection transects. The soft sediment thicknesses from 2015 are shown on Figure 2. The sediment transect locations are generally located in preferential deposition areas based on previous sediment monitoring data and our geomorphic evaluation. The actual sediment transect locations will be based on the field verified areas of deposition and thickest soft sediment deposits, as explained above. The thickest sediment deposit will be targeted for sampling.	See response to comment 6b. and 6c. above. The proposed poling of approximately 640 feet of a 2 mile reach represents approximately 6% of the investigation area, and is insufficient to characterize the sediment deposits throughout the OU. While figure 2 does provide the sample thickness for the TRC sampling locations, those thicknesses are insufficient to define the spatial extent of the sediment deposits downstream of the dam and do not represent comprehensive poling. The lateral and vertical extent of the deposits downstream of the dam should be identified, and the geomorphic evaluation should not be limited to depositional areas previously sampled. Understanding the full extent and number of soft sediment deposits provides a basis for selecting the thickest and most extensive deposits based on existing site conditions, and adding confidence to the interpretation of results.
15	Section 5.1, pg. 17 and 5.5.1, pg. 21			Targeting overbank soil samples to low locations that flood is reasonable; however, overbank locations do not appear to consider locations where oxbows existed historically which, depending on their age in relationship to the PCB release, may also show contamination. The limited number of locations in the overbank is insufficient to determine the extent to which the floodplain may be contaminated.	Overbank soil sample locations were repositioned to target low-lying areas and former oxbows based on the floodplain mapping and aerial photos. We understand that the site investigation may be an iterative process where information collected during this initial investigation may inform the need for additional overbank investigation.	The selection of sampling locations within floodplains, historic features and wetlands is greatly improved; however, floodplains to the north and south of the channel immediately downstream of the dam with the highest risk of contamination are not being assessed, and there is only one overbank sample in the first mile of the investigation area. Additional sampling to evaluate these areas in the first mile downstream of the dam is necessary.
18	Section 5.4.2, pg. 21			The text needs to be more explicit about the type of transfer container (e.g. Kremmerer bottle, Van Dorn or something else) being used and its logistics (e.g. how representative subsampling or container filling will be assured and appropriate incorporation of field blanks). See comments on the QAPP related to field blanks, quality assurance and quality control (QA/QC) sampling.	Section 5.4.2 of the SIWP has been revised to specify the type of transfer container and provide information regarding the method of filling sample containers. Section 5.9.3 of the SIWP has been revised to include more explicit information about equipment blanks.	Multiple methods are proposed for water sample collection. Add clarification that the surface water sample collection method used will be recorded in the field notes.

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24				<p>Explain the purpose for the reduction in the number of sediment sampling transects from 21 to 16. The 5 additional transects would help provide additional data to better define the degree and extent of contamination.</p>	<p>As noted above in response to Comment 6 and to address WDNR's concern to define the extent of contamination and not confirm previous results, the sediment transects were located to eliminate locations that had been previously sampled, to target areas of expected sediment deposition, and to avoid sampling too many straight narrow sections of the river at a uniform spacing. As noted, past sampling locations were chosen because they represented areas of deposition based on geomorphology and sediment probing.</p>	<p>As previously indicated, reducing the number of sampling transects does not serve to better define the degree and extent. An additional 5 sampling transects would help characterize areas of deposition and should be included in the work plan. The justification provided in the comment response for the reduction in sampling is insufficient.</p> <p>For example, the first half mile of the two mile investigation area has a single transect approximately 50 feet from a past sampling transect. At least 7 of the proposed transects are within 50 feet of past sampling locations. The location of these transects have not addressed "WDNR's concern to define the extent of contamination and not confirm previous results". Additionally, the desktop geomorphic study is insufficient as previously stated in multiple comments, including Comment 6b and 6c above, to characterize the depositional areas.</p>

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28				<p>Clarify the number of point bar sediment samples and overbank soil samples to be collected. The text indicates 8 point bar sediment samples will be collected opposite each bank scrape sample and 8 overbank samples targeting areas of potential overbank flow and deposition, e.g. flood plains; however, Figure 2 shows 6 of the 8 overbank soil sample locations across from bank scrape sample locations. Add the point bar sediment sample locations to the figure and re-locate the 6 overbank soil sample locations to locations not adjacent to point bar sediment samples.</p>	<p>Eight point bar sediment sample locations will be paired with the eight scrape sample locations. Eight overbank sample locations have been moved to target low-lying areas and areas of abandoned channel locations based on floodplain mapping and aerial photographs.</p>	<p>Refer to the response to comment 12. While the selection of sampling locations within floodplains, historic features and wetlands is greatly improved, there is only one overbank sample in the first mile of the investigation area, which is closer to the source and more vulnerable to contamination. Figure 2 needs to be updated to clearly identify point bar samples from overbank samples. The legend has a "overbank soil sample location" and a "proposed overbank soil sampling location" which is assumed to be the point bar sediment sample location.</p> <p>Additional clarification is necessary in Section 5.1, 5.2 and 5.6.1 to provide detail as to the number of overbank and bank scrape samples to be submitted for analysis.</p> <p>In Section 5.1 a total of 12 overbank soil samples are to be collected at 8 locations, and section 5.2 references a total of 8 overbank samples to be submitted for analysis.</p> <p>In Section 5.1 and 5.6.1 the bank scrape samples are to be collected from 8 locations with the process further described in 5.6.1 with samples collected in one-foot vertical intervals from the toe of the slope upward. Section 5.2 states that a total of 8 bank scrape samples are to be submitted for analysis.</p>

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29	1.0 Professional Certification					<p>The Wis. Adm. Code NR 712.09 language provided as part of the professional certification needs to be updated, the language is provided below.</p> <p>"I, _____, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."</p>
30	3.8					<p>The first bullet asserts that northern long-eared bats or whooping cranes are not likely directly impacted by PCB contamination; however, we disagree with the assessment for northern long eared bats. Northern long eared bats eat flying insects which may be affected by PCB contamination. These flying insects may originate as macroinvertebrates in the sediment impacted by PCB contamination.</p>
31	5.5.2					<p>Point bar sampling with a Ponar or equivalent will not sufficiently characterize any potential point bar deposit. Include a core sample at each point bar sample location. Similar to the in-channel sediment sampling, collect a second analytical sample from the 6-18 inch interval, and hold the 0-6 interval, pending the analytical results from the grab sample.</p>

Number	Section	WDNR Comment	TNC Response	WDNR evaluation
2		Elements of the DQO process, particularly step 7, relevant decision levels and decision rules are missing. Ensure they are added to the QAPP	Relevant decision levels and decision rules have been added to the DQO process. Table 1 of the QAPP details the elements of the DQO process	Fish Consumption Advisory information presented has converted the number of meals to a per year basis. This information should be adjusted to reflect how it is presented in the Fish Consumption Contaminant Monitoring and Advisory Program (i.e. meals per week and meals per month).
3		The QAPP and DQO do not mention the potential to use the data for BSAF modeling per the negotiated agreement, Exhibit G point 21. The comments provided on the QAPP do not consider whether the results generated will be appropriate and usable inputs into a BSAF model. If the data from this SIWP downstream of the Hayton Millpond Dam are to be used for that purpose, additional information is necessary in the QAPP	See response to Comment 27 above. At this time data generated from this SIWP are not intended for use in a BSAF model	Please include an explicit statement that the data are not intended for BASF modeling and an addendum will be necessary should BASF modeling be considered. It would be reasonable to include this information in section 1.4 in the paragraph related to the Negotiated Agreement.
4	Section 1.5.4, page 1-5	The DQO should identify the basis for the Boundary conditions and what makes that appropriate. Except for the references to Figures 1 and 2 and the extent to approximately 2 miles downstream in Section 1.4, there is little information to support the statement that the boundary is well-defined. The referenced figures do not include information about the extent of relevant floodplains or the basis for using the 5 – 50 feet from the top of the bank as the extent of soil sampling	The DQO process summarized in Table 1 has been revised to provide further information for the boundary conditions	The Fish Consumption Advisory table has been translated to Meals per year. This information in this table should reflect the advice as stated exactly in the source material.
12	Section 2.2.3, page 2-6	The text in this section should contain relevant information about how the sample will be processed. At a minimum, the text should reference relevant sections of the SIWP and SOPs. Explicitly state that photo documentation of the cores will be completed. Additional text may be warranted if project-specific modifications to the SOPs are necessary.	Additional information on processing sediment cores and fish tissue samples has been added to this section	Additional text in 2.2.3 does not appear to include explicit statements about using photographic documentation. See comments on the SWIP related to handing the 0-6 inch interval of the sediment cores. Consistent with the response to comment 31, Include a statement that core intervals will not be adjusted for core recovery as stated in the SOP.
15	Section 2.5.1, page 2-8	Please present the QA/QC information in a table that specifies the frequency of QA/QC samples, associated matrix and whether it's associated with a field or laboratory operation. Identifying the number of containers needed can be useful for ensuring that the laboratory receives the sufficient sample to perform its quality checks. (e.g. two 1-liter sample containers of water are insufficient to do the sample analysis as well as the matrix spike and matrix spike duplicate).	Table 2 has been added to the QAPP to provide more clarity on the frequency of field QC samples for each matrix and Table 5 has been added to the QAPP to provide the acceptance criteria that will be utilized for evaluation. Table 3 includes a note when additional volume is required for field QC samples. Tables 4A – 4E also summarize the laboratory QC and acceptance criteria associated with each method	For Table 3. Dissolved organic carbon needs to be filtered prior to preservation. Documentation in the QAPP should be clear about whether that filtration will occur in the field or the laboratory. For clarity, including the filtration in the preservation column is recommended. Advisory information presented below table 4B has converted the number of meals to a per year basis. Consistent with comment 4, this information should be adjusted to reflect how it is presented in the Fish Consumption Contaminant Monitoring and Advisory Program (i.e. meals per week and meals per month).

Number	Section	WDNR Comment	TNC Response	WDNR evaluation
25	Table 1	The listing for PCBs for each matrix is misleading. Method 8082 is primarily a PCB Aroclor method. The associated method detection limits and reporting limits are appropriate for the Aroclors, (Congener information would need to include listing for each congener in the target analyte list.) Precision, accuracy and completeness goals may be the similar for congeners; however, this needs to be reviewed in context of the actual laboratory performance information	Tables 4A-4E have been created to clarify the MDLs, reporting limits, and accuracy/precision goals for each matrix and analyte	In Tables 4A and 4B, include the effective MDL for Total PCB based on the summing convention.
29	Appendix B, SOP ERC 003	Soil Sampling, Section 2.2.1: The text as written, indicates that for surface soil sampling methods, the sample will be taken from the bottom of the interval, e.g. 12- inches below ground surface. Update the SOP to either sample across the entire interval from 0 to 12- inches or identify the sample as a discrete sample at the depth of the hole dug. Depending on the change to the SOP, updates may be necessary to the SIWP so soil is adequately characterized as part of the OU5 site investigation	SOP ECR 003 is a standard that will not be updated just for this project. For the purposes of this project, where the SOP and SIWP differ, the procedures discussed in the SIWP will override the procedures in the SOP	In the relevant section of the SWIP, please explicitly state that when text differs from the SOP, the document will take precedent.
30	Appendix B, SOP ERC 003	Ensure similar to section 2.2.1 that only the "thick, matted root zone, leaf layer, gravel, surface debris, concrete, etc." is removed, the text as written currently allows for the removal of "the first several inches of surface soil". Additionally, during the special consideration for slough, please provide additional information as to how slough will be identified from in-situ soil to prevent a bias in the homogenization process. A similar consideration is presented for split spoon sampling in section 2.2.4 that should also be updated	We have removed leaf litter from the sampling description and will collect samples from 0 - 6". Regarding the specific section comments, those sections are not applicable to this project. For the purposes of this project, where the SOP and SIWP differ, the procedures discussed in the SIWP will override the procedures in the SOP	In the relevant section of the SWIP, please explicitly state that when text differs from the SOP, the document will take precedent.
31	Appendix B, SOP ERC 003	Soil Sampling, Section 2.2.3, Procedure 4: Update the procedure such that the location of the sample is not to be adjusted for core recovery as there are multiple factors influencing core recovery. This will also affect SOP ERC 008 –Sediment Sampling, Section 2.3	We will not be adjusting the sample interval for core recovery. For the purposes of this project, where the SOP and SIWP differ, the procedures discussed in the SIWP will override the procedures in the SOP	See response to comments above including comment 12.
33	1.1			While the QAPP is not specifically called out in the Negotiated Agreement, it does state in part III section K that a Wis. Admin. Code ch. NR 716 sampling plan is required downstream of the dam. The QAPP is required at this site through Wis. Adm. Code NR 716.17 (1) and should not be for informational purposes only. DNR expects that the QAPP will be followed when each of these plans, Fish Tissue Natural Recovery Monitoring, Sediment and Surface Water Natural Recovery Monitoring, and the Site Investigation Work Plan Downstream of the Dam, are implemented. Update section 1.1 of the QAPP.