



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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March 21, 2022

REPLY TO THE ATTENTION OF:
Mail Code RM-19J

Adam C. Mednick, AICP, PhD
Wisconsin Environmental Policy Act (WEPA) Coordinator
Wisconsin Department of Natural Resources
101 S Webster Street
Madison, Wisconsin 53707

Re: Comments on the State Draft Environmental Impact Statement for the Proposed Enbridge Line 5 Relocation Project in Ashland, Bayfield, Douglas, and Iron Counties, Wisconsin

Dear Mr. Mednick:

The U.S. Environmental Protection Agency has reviewed the Wisconsin Department of Natural Resources (DNR) Draft Environmental Impact Statement (DEIS) prepared under the Wisconsin Environmental Policy Act (WEPA) for the project referenced above. DNR invited EPA's National Environmental Policy Act (NEPA) Program to review and comment on the DEIS via a December 16, 2021, email. We appreciate the opportunity to comment due to potential impacts to environmental and tribal resources. The DNR is the lead agency under WEPA, and Enbridge, Inc. (Enbridge) is the project proponent. On February 11, 2020, Enbridge submitted a Water Resources Application for Project Permits to the DNR and the U.S. Army Corps of Engineers (USACE). This DEIS will inform the DNR's permitting decisions. USACE will undergo a separate environmental review process to meet their NEPA requirements and inform their permit decisions.

Enbridge owns and operates the 645-mile-long Line 5 pipeline, which transports up to 540,000 barrels of crude oil and/or natural gas liquid a day from Superior, Wisconsin, through northern Wisconsin and the Upper and Lower Peninsulas of Michigan, to its terminus in Sarnia, Ontario, Canada. Line 5 crosses through approximately 12 miles of the Bad River Reservation. Following a lawsuit filed by the Bad River Band of Lake Superior Chippewa, Enbridge is proposing to reroute Line 5 around the Bad River Reservation. The DEIS considers a No Action Alternative and four Action Alternatives. Enbridge's Preferred Alternative includes (1) construction of approximately 41 miles of a new 30-inch diameter pipeline, (2) installation of cathodic protection, alternating current (AC) mitigation facilities, and seven new mainline block valves, (3) making a minor modification to the Ino Pumping Station, and (4) abandoning in place approximately 20 miles of existing 30-inch-diameter Line 5 Pipeline. The proposed reroute would begin near the intersection of State Highway 137 and State Highway 112 in Ashland

County, Wisconsin and extend to approximately the intersection of U.S. Highway 2 and State Highway 169 in Iron County, Wisconsin.

EPA is concerned about likely significant impacts from the proposed project as well as the adequacy of the DEIS. Our concerns relate to potential impacts (1) on waters that are essential to the exercise of tribal treaty rights and continuation of tribal traditional lifeways, (2) on rare and high-quality surface waters and wetlands with valuable ecological and habitat functions, (3) on climate change, and (4) if a spill should occur, on a wide range of natural resources. The DEIS does not fully analyze and disclose spill risks or impacts, nor does it demonstrate that the project proponent is prepared to adequately prevent and address spills. EPA is also concerned with impacts related to the following: environmental justice, air quality, noise and vibration, transportation, and threatened and endangered species and habitat. Our enclosed detailed comments recommend that DNR strengthen the analysis of potential direct, indirect, and cumulative impacts and work with Enbridge to consider additional opportunities to avoid, minimize, and mitigate impacts.

Thank you for the opportunity to review this project. We appreciate the DNR's communication with EPA, as well as public hearings and outreach conducted by DNR to gather public input. EPA encourages DNR to meet with EPA to jointly review our comments on the DEIS and collaborate on opportunities to address EPA concerns. EPA's lead for concerns related to tribal resources is Paul Winters, available at winters.paul@epa.gov and 312-353-4543. EPA's lead for concerns related to wetlands and streams is Melissa Blankenship, available at Blankenship.melissa@epa.gov and 312-886-9641. Jen Tyler of EPA's NEPA Program is the primary contact for coordination and review of the DEIS. When the subsequent WEPA document becomes available, please send an electronic copy to Jen Tyler at tyler.jennifer@epa.gov. Ms. Tyler is also available at 312-886-6394.

Sincerely,

Kenneth A. Westlake
Deputy Director
Office of Tribal and Multi-media Programs

Enclosures: (1) Detailed Comments, (2) Construction Emission Control Checklist

CC Via Email:

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Rebecca Richards, Chairwoman-Pokagon Band of Potawatomi
Theresa Jackson, Chief-Saginaw Chippewa Indian Tribe
Aaron A. Payment, Chairman-Sault Ste. Marie Tribe of Chippewa Indians

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ENCLOSURE 1: DETAILED COMMENTS ON THE STATE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED ENBRIDGE LINE 5 RELOCATION PROJECT IN ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES, WISCONSIN

1. General Comments

Wisconsin Department of Natural Resources (DNR) Conclusions on Environmental Impacts
Throughout the Draft Environmental Impact Statement (DEIS), it is unclear which assessments and findings represent the views of the project proponent and which represent the views of DNR. The DEIS shares assessments completed by Enbridge’s consultant and, at times, attributes findings to Enbridge. The DEIS would better inform decision-making if it augments each impact assessment with a statement on DNR’s conclusions regarding potential project impacts.

Recommendations for the Subsequent WEPA Document

- Clarify DNR’s findings on the type and magnitude of impacts that could result from construction and operation of the proposed project. Ensure that the document differentiates between Enbridge’s findings and DNR’s findings.

Project Description and Alternatives Analysis

DNR’s procedures for complying with the Wisconsin Environmental Policy Act (WEPA) state that the DEIS shall include, “An evaluation of the probable positive and negative direct, secondary and cumulative effects of the proposed project, and alternatives to the proposed project, on the human environment...” (Ch. NR 150.30(2)(g), Wis. Adm. Code). As highlighted below in this comment letter, several instances in the DEIS focus on Enbridge’s Preferred Alternative and give little or no attention to the project alternatives. The DEIS would be strengthened by ensuring impacts are disclosed for all alternatives for all impact categories.

Recommendations for the Subsequent WEPA Document

- Describe and analyze project impacts from all components of project alternatives, including installation of cathodic protection, AC mitigation facilities, new mainline block valves, modifications to pumping stations, and any other project components.
- Ensure that all reasonable project alternatives, including the No Action Alternative, receive full assessment of impacts and consideration within the DEIS. In addition to construction impacts, ensure that the document fully analyzes and discloses impacts from operations and maintenance.

Pipeline Removal

The *Bad River Band v. Enbridge* lawsuit requests legal relief in the form of a requirement that Line 5 be “removed in a manner that is prompt and protective of the land and waters of the Reservation and of the ownership, possessory, and use rights of the Tribe” (page 5). The scope of the Action Alternatives assessed in the DEIS includes rerouting Line 5 around the Bad River Reservation. The No Action Alternative includes two scenarios because the lawsuit has not yet been decided; one scenario includes continued operation of Line 5 through the Reservation, and the other scenario includes decommissioning Line 5 (page 67 of the DEIS). The DEIS provides (1) a general discussion of impacts from leaving a decommissioned pipeline in place and of removing a pipeline (Section 2.6.16), and (2) a desktop analysis of environmental features crossed by the current pipeline within the Reservation (page 61). Abandonment in place,

removal, or a combination of those options, however, were not considered as a component of the No Action Alternative or the Action Alternatives.

Recommendations for the Subsequent WEPA Document

- Discuss the environmental review under WEPA and/or permitting requirements for removal, abandonment, or a hybrid option for the portion of Line 5 that would no longer be used if Enbridge reroutes the pipeline. Consider fully assessing these options in the subsequent WEPA document as components of each alternative. EPA is particularly concerned with future impacts to wetlands from abandonment in place.

Project Scope and Timing

When considering the proposed environmental impacts, it would be helpful to better understand how the proposal fits into the context of the overall Line 5 pipeline, originally constructed in 1953 (page 5). The DEIS could be strengthened with information on (1) how long a pipeline built in 1953 is expected to safely function, (2) which portions of Line 5 have already been replaced, (3) which portions are planned to be replaced and when, (4) whether future Line 5 projects would only occur if this project is approved, and (5) what those projects are. Future projects that would only occur if the proposed project advances should be included in the cumulative analyses for relevant topic areas.

Recommendations for the Subsequent WEPA Document

- Disclose the expected life of other portions of Line 5 constructed in 1953 and discuss expected changes in structural integrity over time.
- Describe other portions of Line 5 that Enbridge has already replaced or anticipates replacing.
- Discuss future projects along other portions of the Line 5 pipeline that would only be undertaken if this proposed project is permitted. Consider the cumulative impacts of such projects, including greenhouse gas releases and impacts to tribal resource.
- Update the proposed construction schedule with current projected dates (page 8).

Financial Assurance

While EPA recommends preventative measures below, the project's proximity to the Great Lakes and waters of tremendous tribal importance also warrants financial assurance obligations. Page 270 indicates that specific terms of liability insurance are not available; information on Enbridge's capability to fund a major cleanup is critical to understanding the potential scope and intensity of environmental impacts.

Recommendations for the Subsequent WEPA Document

- We recommend that DNR work with the U.S. Army Corps of Engineers (USACE) to identify the most appropriate mechanism to require financial assurance to address the immediate containment, remediation, and mitigation activities required in the event of an oil spill, the breach of an aquifer, or other accidents.

2. Tribal Resources

EPA is committed to enhancing interagency coordination and collaboration to protect tribal treaty and reserved rights.¹ The proposed project and all Action Alternatives are located within the 1842 Treaty Ceded Territory. Ojibwe (or Chippewa) tribes in Michigan, Minnesota, and Wisconsin hold judicially affirmed reserved rights to hunt, fish, and gather in this area. These reserved rights can be exercised on public lands and those private lands upon which public hunting, fishing, and gathering is permitted. The proposed Line 5 reroute would cross Iron County Forest lands located close to the Bad River Reservation. Tribes exercise their reserved rights within these forested public lands. Due to potential project impacts, EPA recommends that the DNR more thoroughly analyze and disclose potential direct, indirect, and cumulative impacts, as described below. Such information could assist Enbridge in avoiding, minimizing, and mitigating adverse impacts.

Included Tribes and Scope of Impacts Considered

The “Indigenous Communities” section (6.17) does not include a complete list of the federally recognized tribes that may be impacted by the project because it does not list all tribes who are signatories of the 1842 Treaty. While this section of the DEIS generally references “Indigenous Communities,” the discussion in this section does not adequately describe (1) the reserved rights of signatories of the 1842 Treaty, which have been judicially affirmed and are implemented through ongoing State-Tribal resource use agreements, and (2) how tribal resource use may be impacted within the project area. We offer recommendations below concerning the analysis of the project’s impact on tribal treaty resources, which EPA views as a specific impact category, distinct from effects on wildlife, fish, plants, and natural communities considered in Section 6.14. EPA is also interested in DNR’s response to comments to the docket for the DEIS encouraging consideration of effects within the 1837 Treaty Ceded Territories.

Recommendations for the Subsequent WEPA Document

- Explain DNR’s process for identifying federally recognized tribes that may have historic cultural resources present in the project area, as tribes with ancestral ties to the project area may reside elsewhere. Consult with USACE on tribes included in the National Historic Preservation Act (NHPA) Section 106 process for wetlands permits associated with this project; include results in the subsequent WEPA document. To identify additional tribal groups that may have ties to the project area, consider using U.S. Housing and Urban Development’s Tribal Assessment Directory Tool² for screening, while also using other sources of information.³
- Expand Section 6.17.3 to include all federally recognized tribes with treaty reserved rights in the project area. This discussion should additionally include any indigenous communities. Further, DNR should ensure the accuracy of the information presented in this section by offering outreach to both federally recognized tribes and those indigenous communities with interests in the project area.
- Discuss potential indirect and cumulative impacts to wild rice from each alternative. The discussion on page 240 indicates there would be no direct impacts from the Proposed

¹ EPA is a signatory to the December 2021 *Memorandum of Understanding Regarding Interagency Coordination and Collaboration for the Protection of Tribal Treaty Rights and Reserved Rights*.

² The Tribal Assessment Directory Tool is available at: <https://egis.hud.gov/TDAT/>

³ The Tribal Assessment Directory Tool information, including limitations, are available at: https://www.achp.gov/sites/default/files/2018-09/TDATinformationpaperApril2018_0.pdf

Alternative; however, direct impacts from project alternatives and indirect and cumulative impacts from all alternatives do not appear to be evaluated.

- Evaluate likely impacts to inland and Lake Superior fisheries for all alternatives and consider protective measures. Page 242 states that there could be impacts but does not evaluate the context or intensity of impacts, differences between alternatives, or protective measures.
- Address requests from tribal representatives to expand the effects analysis to include both the 1842 and the 1837 treaty ceded territories.
- More clearly explain potential impacts to the customs and practices of members of the Bad River Band within the Bad River Reservation.
- Expand upon the DEIS's discussions of coordination meetings between DNR and tribes (page 18) and written comments to DNR from tribes (page 239) to indicate: (1) the results of coordination, (2) how verbal and written tribal input has informed project design, protective measures, or other project decisions, and (3) plans for future engagement.
- In the cumulative impacts analysis of treaty reserved rights, assess project impacts in the context of historic losses to public lands in the project area where tribes may exercise treaty reserved rights.

Alternatives Analysis for Tribal Resources and Reserved Rights

The Indigenous Communities (6.17), Cultural Resources (6.18) and Tribal Treaty Resources (6.19) sections could better inform project decision-making by fully evaluating impacts from alternatives to the proposed project. Page 133 indicates that no cultural field surveys were conducted along alternatives to the preferred route; information on desktop surveys are not provided. Information on direct, indirect, and cumulative impacts from project alternatives is critical to understanding tradeoffs between alternatives and allowing for informed permitting decisions.

Recommendations for the Subsequent WEPA Document

- For all impacts related to tribal resources, fully analyze all Action and No Action Alternatives to inform decision-making.

Tribal Cultural Resources (TCR) Survey and Analysis

At the time of publication of the DNR's DEIS, the TCR Survey was in draft form, and the summary indicated that major additions were still needed. DEIS sections 6.18 and 6.19 highlight missing information on TCR. For example, further work documenting cultural resources from the Tribal Historic Preservation Officer (THPO) is being considered through the separate Corps' NHPA Section 106 consultation process and was not available for inclusion in the DEIS (pages 106 and 233). The TCR Survey methodology consisted of interviews with tribal members selected by the consultant without providing criteria for selecting interviewees. The draft TCR states:

Subsurface testing was conducted only where the tribal cultural survey team requested. The qualifications and constitution of the tribal cultural survey team were not defined. Justification for why certain areas were selected or for the areal coverage for selected testing [locations] was not provided (DEIS page 233).

The TCR study and recommendations are "acknowledged to be based on limited response and interaction with local tribal communities...[and]...no input from Tribal Historic Preservation Officers" (DEIS page 235). Evaluation of the effects of the proposed project requires a robust and complete TCR survey, with well-documented findings.

Recommendations for the Subsequent WEPA Document

- Ensure that the survey areas used are sufficient to capture direct, indirect, and cumulative impacts to tribal cultural resources. Provide a rationale to support selected survey boundaries.
- Evaluate direct, indirect, and cumulative impacts on TCR from the Proposed Action and all alternatives. Ensure that subsequent WEPA documents rely on a complete and well-documented TCR survey, with input from THPOs, Tribes with historic presence in the affected areas, indigenous communities, and the State Historic Preservation Officer. Include portions of the TCR Survey Report that are appropriate for public viewing, such as methodology and summary of findings, as an appendix to the EIS.
- Confirm that the TCR and other relevant supporting surveys follow the updated Wisconsin Archaeologic Survey Guidelines, as the draft TCR cited 1997 guidance rather than the 2013 guidance (page 233).

Access to Treaty Resources

Wisconsin's Criminal Trespass Law makes it a felony for a person to intentionally enter energy provider property without lawful authority and consent from the energy provider (page 242). EPA is concerned with the proposed project's impacts on tribal access to lands to exercise reserved rights. The DEIS summarizes findings from a Great Lakes Indian Fish & Wildlife (GLIFWC) analysis of potential losses to such access. GLIFWC estimates that the proposed project, with enforcement of the trespass statute, would eliminate tribal access to approximately 43 acres of Iron County Forest lands. This includes 12 acres of wetlands where medicinal and other plants are harvested and would impede access to a much larger area due to the limited number of road crossings (page 242). Enbridge's *Draft Environmental Justice Commitment Plan states*, "Enbridge will not impede the lawful exercising of the right to hunt, fish, or gather on property open to the public" (DEIS Appendix O, page 4). The DEIS does not make clear what parts of the right-of-way would be considered "open to the public," and whether Enbridge could make changes to access along the Line 5 right-of-way in the future. Without this information it is impossible to effectively evaluate the direct, indirect, and cumulative impacts of the project on access to treaty resources.

Recommendations for the Subsequent WEPA Document

- Clarify the potential for loss of access to land to exercise treaty reserved rights for each project alternative. The DEIS should clarify those portions of the right-of-way to which Enbridge would expect to limit access during construction and operations. The DEIS should also clarify whether, if Enbridge includes a mitigation measure stating that it will allow access, the company could change this decision later. The DEIS should also explain whether there are any legally enforceable mechanisms to ensure perpetual access to treaty reserved rights in or around the right-of-way.
- Consider the ways in which individuals access public lands to exercise treaty reserved rights, including walking and use of all-terrain vehicles. Assess impacts to non-vehicle access from the Bad River Reservation to public lands; consider designing appropriate accessways.
- Describe disruptions to the exercise of treaty rights that could come from pipeline maintenance activities. If the project advances, then request that Enbridge consider

commitments to coordinate maintenance activities with tribes to minimize disruption to cultural events and gatherings.

Avoidance and Minimization of Impacts to Tribal Resources

With additional identification, analysis, and disclosure of project impacts, as recommended above, there will likely be further opportunities for DNR and Enbridge to avoid and minimize impacts to tribal resources.

Recommendations for the Subsequent WEPA Document

- Explain how the project would avoid or minimize impacts to tribal hunting, fishing, and gathering, consistent with the treaty reserved rights. Explore whether tribal representatives have ideas for avoidance, minimization, or mitigation of temporary and permanent impacts to treaty reserved resources. Include DNR's findings and Enbridge's protective commitments in the subsequent WEPA document.
- Request that Enbridge invite ongoing tribal participation to inform development and delivery of the *Human Traffic Awareness and Prevention Program*, which Enbridge plans to create in response to the Missing and Murdered Indigenous Women crisis associated with an influx of temporary workers (as discussed in Section 8.4).
- Invite impacted tribes and GLIFWC to advise the DNR and Enbridge on natural and cultural resource management and monitoring considerations during and after the WEPA process. Encourage Enbridge to invite these representatives to have a continued advisory role during project construction and operation if the project is approved.

3. Environmental Justice and Children's Health

Based on available project information, EPA is concerned that environmental effects would likely be significant, and impacts experienced by minority populations, low-income populations, or Indian tribes may appreciably exceed those on the general population or other appropriate comparison groups.⁴ While the DEIS discloses demographic information and summarizes input from tribes, it does not contain DNR's analysis or DNR's conclusion on whether the Proposed Action or alternatives may have disproportionately high and adverse impacts on low income or minority communities, as specified in CEQ's Environmental Justice Guidance. EPA remains concerned that the project and all alternatives, as presented in the DEIS, could likely have significant environmental justice impacts and the DEIS does not adequately evaluate those impacts. Our recommendations below suggest opportunities to further analyze, disclose, and reduce such impacts.

The issues discussed above, under the *Tribal Resources* section of this letter, would uniquely impact Native Americans with treaty rights or cultural resources in the project area. In addition, DEIS Section 8 reports that the Bad River Reservation is comprised of 84.2% minority residents, with 76.1% being Native American, compared to 18.7% of residents state-wide being minority. In addition, the Bad River Reservation has a low-income population of 28.4%, compared to 11.3% statewide (2019 data, page 309). The impacts of construction, operation, and maintenance of the proposed project that are discussed throughout this letter would impact residents of the Bad River Reservation, while it appears that the project benefits would accrue elsewhere.

⁴ To strengthen the DEIS and better inform decision-making, use CEQ's Environmental Justice Guidance Under the National Environmental Policy Act. See Section III, Part C-4. https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf?VersionId=78iNGtdwSTz5E2x.H0aHq.E96_Tphbgd

Through a series of six technical meetings to inform the DEIS, DNR engaged staff from the Bad River Band, the Red Cliff Band, the Lac du Flambeau Band, the Forest County Potawatomi Community, and GLIFWC, followed by two additional meetings focused on environmental justice and murdered and missing indigenous women (page 313). The DEIS then summarizes information and project concerns DNR learned from tribal representatives (Section 8.5.1).

Recommendations for the Subsequent WEPA Document

- Disclose DNR’s analysis and findings as to whether the Proposed Project and alternatives, including the No Action Alternative, would likely have disproportionate adverse impacts on low income or minority communities. Identify what those impacts may be and include measures in the DEIS that Enbridge would take to avoid, minimize, or mitigate impacts. See specific recommendations above under EPA’s recommendations on Tribal Resources. Ensure DNR’s conclusions are distinct from statements regarding Enbridge’s findings.
- Consider cumulative environmental impacts to low income and minority communities in the project area within the environmental justice analysis and disclose the DNR’s conclusions.
- Continue to engage low income and minority residents during the WEPA environmental review and planning phase, and if the project is permitted, during construction and operations. See specific recommendations above under EPA’s recommendations on Tribal Resources.
- Establish material hauling routes away from places where children live, learn, and play, to the extent feasible. Consider homes, schools, daycares, and playgrounds. In addition to air quality benefits, careful routing may protect children from vehicle-pedestrian accidents. Identify potential material hauling routes in the WEPA document.

4. Aquatic Resources

The proposed project location warrants heightened attention due to (1) the proximity to Lake Superior, (2) impacts to waters that are essential to the exercise of tribal treaty rights and continuation of tribal traditional lifeways, and (3) impacts to rare and high-quality surface waters and wetlands with valuable ecological and habitat functions. Consistent with the provisions of the 1992 CWA Section 404(q) Memorandum of Agreement between the EPA and Department of the Army, Part IV paragraph 3(a), EPA issued a March 16, 2022 letter to USACE commenting on Enbridge’s Clean Water Act Section 404 Application; EPA’s letter stated that the proposed project “may result in substantial and unacceptable adverse impacts” to the Bad River and the Bad River Slough and Kakagon Slough complex, which are aquatic resources of national importance (ARNIs), with the sloughs also being a Ramsar site of international importance, and a National Natural Landmark.⁵

Enbridge proposes the (1) permanent discharge of fill material into 0.02 acres of waters of the United States (WOTUS), (2) temporary discharges of dredged or fill material into 101.08 acres of 534 wetlands, and (3) temporary discharges into 0.20 acres of non-wetland WOTUS, including 72 pipeline crossings through federally jurisdictional waterbodies (rivers, streams, ditches, etc.). The proposed route would cross Beartrap Creek, the White River, Billy Creek, and the Bad River, which enter Lake Superior through the Kakagon Slough and Bad River Slough (page 180). Sediment laden runoff and any materials that accidentally spill from the proposed

⁵ <https://rsis Ramsar.org/ris/2001> and <https://www.nps.gov/subjects/nnlandmarks/site.htm?Site=KASL-WI>

project could enter the sloughs through the connected tributary streams and may negatively impact water quality, aquatic life, and native habitat (page 199). In addition, Copper Falls State Park (Copper Falls) was designated a State Natural Area in 2003.⁶ The Bad River enters the park approximately one river mile downstream of the closest proposed pipeline crossing of the Bad River.

Water Quality Standards

EPA appreciates that construction would be inspected by a third-party independent environmental monitor, selected by DNR, who would work collaboratively with DNR to observe construction activities until complete (page 53). As stated in EPA's March 16, 2022, letter to USACE, however, there is insufficient information to conclude that the project would not result in a violation of water quality standards or the significant degradation of aquatic resources. The CWA 404(b)(1) Guidelines state that a discharge of dredged or fill material may not be permitted by USACE if it causes or contributes to violations of applicable water quality standards and no discharge should be allowed if it will cause or contribute to significant degradation of WOTUS. As presented in the DEIS, EPA is concerned with the potential for the proposed project to violate state and tribal water quality standards.

Recommendations for the Subsequent WEPA Document

- Provide analysis to demonstrate that the proposed project would not violate Wisconsin's Water Quality Standards. Discuss "Outstanding Resource Waters" and "Exceptional Resources Waters" that the project would cross, the method of crossing that Enbridge would use, and whether project impacts could violate Water Quality Standards.
- Provide analysis to demonstrate that the proposed project would not violate the Bad River Band of the Lake Superior Tribe of Chippewa Indians' Water Quality Standards, which have been approved by EPA.
 - Discuss "Outstanding Tribal Resource Waters" and "Outstanding Resource Waters" that the project would cross, the method of crossing that Enbridge would use, and whether project impacts could violate Water Quality Standards.
 - Standards dictate that there shall be no measurable increase in temperature other than from natural causes in *Cold Water Fishery* (CWF) streams, as designated by the Bad River Band.⁷ Discuss how the conversion of 27.6 acres of forested wetlands to emergent wetlands may increase water temperatures. Removal of riparian vegetation could lead to increased light penetration into waterbodies, causing increased water temperature which could potentially impact fisheries.⁸

Water Quality Impacts

Without appropriate construction crossing methodologies and control measures, EPA is concerned that (1) impacting 110.10 acres of 534 wetlands and constructing 72 pipeline crossings through federally jurisdictional waterbodies may have substantial and unacceptable adverse effects through the permanent and temporary diminishment of wetland and stream functions, and (2) project impacts including sedimentation and siltation may cause significant

⁶ <https://dnr.wi.gov/topic/Lands/naturalareas/index.asp?SNA=399>

⁷ https://www.epa.gov/sites/default/files/2014-12/documents/bad_river_band_wqs.pdf

⁸ https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Enbridge/EnbridgeLine5/WI%20Permit%20App_02062020_Final_Redacted.pdf?ver=EW9ONJxUT69quLJzPx2Saw%3d%3d

degradation by disrupting aquatic life and wildlife dependent on these water systems. An EPA report explains, “Scientific literature unequivocally demonstrates that streams, individually or cumulatively, exert a strong influence on the integrity of downstream waters. All tributary streams, including perennial, intermittent, and ephemeral streams, are physically, chemically, and biologically connected to downstream rivers via channels and associated alluvial deposits where water and other materials are concentrated, mixed, transformed, and transported.”⁹ In addition, “Streambank erosion during construction has the potential to be a large contributor to downstream sedimentation and siltation.”¹⁰ Wetlands also provide numerous functions that benefit downstream water quality; functions include storage of floodwater, recharge of ground water that sustains baseflow, and retention and transformation of nutrients, metals, and pesticides.

Recommendations for the Subsequent WEPA Document

- Augment Section 2.6.11 to indicate whether any external coatings could be applied to pipes in the field. Detail what, if any, portions of pipes could be coated in the field, what the coating consists of, and how it may impact water quality.
- Discuss specific measures that Enbridge would be required to implement to ensure that project impacts on sedimentation and siltation would not cause significant degradation. Include site-specific erosion and sedimentation control plans, with best management practices for preserving aquatic resource integrity, for all stream and wetland crossings.
- Disclose baseline water quality data to the extent possible. Identify waters for which data is not yet available and state how and when it will be collected to enable water quality comparisons before and after the proposed project.
- Require installation of a network of real-time water quality monitoring stations upstream and downstream of river, stream, and wetland crossings that are designated trout streams, tributaries to designated trout streams, and/or designated Areas of Special Natural Resources. Ensure installation occurs prior to beginning construction to capture baseline data. At minimum, monitoring should continue until reestablishment of vegetation, or the wetlands have reverted to the original cover type. Use monitoring stations to measure temperature, turbidity, specific conductance, pH, and dissolved oxygen.
- Require a monitoring and response plan that dictates steps Enbridge would immediately take if monitoring data indicated a decline in water quality or a violation of water quality standards. EPA recommends that the DNR review the plan and provides oversight.
- Clarify which areas of the proposed pipeline are subject to the text on page 179 that states, “during construction and until the site is stabilized, as required by DNR Wisconsin Pollutant Discharge Elimination System (WPDES) permitting, the site-specific erosion and sediment control plan would require the permittee to perform weekly inspections for erosion control and additional inspections after rainfall of 0.5 inches or greater.”
- Require a biological (fish and macroinvertebrate) sampling before, during and after pipeline installation activities at important stream crossings to monitor potential impacts to stream communities.
- Provide analysis to demonstrate that the proposed project would not worsen or delay timely remediation of existing water quality challenges in the project area. The Marengo

⁹ U.S. Environmental Protection Agency. 2015. “Connectivity of Streams and Wetlands to Downstream Waters: A Review & Synthesis of the Scientific Evidence.” EPA/600/R-14/475F. <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=296414>

¹⁰ Id. p. 197

River (a tributary to the Bad River) and the Trout Brook Creek are listed on the Clean Water Act (CWA) 303(d) impaired waters list in Wisconsin as impaired for fecal coliform.¹¹ Bay City Creek (which flows directly to Lake Superior) is listed on the CWA 303(d) list in Wisconsin as impaired for Phosphorus.¹² Lake Superior is listed on the CWA 303(d) list in Wisconsin as impaired for mercury and PCBs.¹³

- Augment Section 2.6.11 to indicate whether any external coatings could be applied to pipes in the field. Detail what, if any, portions of pipes could be coated in the field, what the coating consists of, and how it may impact water quality.

Methodology For Crossing Streams and Wetlands

The DEIS indicates that the Open-Cut/Wet Trench Method is used to cross streams or rivers that lack discernable flow at the time of construction (page 31), the Dry Trench Crossing Dam and Pump Method is suitable for low-flow streams, particularly meandering streams (page 32), and the Dry Trench Crossing Flume Method is suitable for crossing relatively narrow streams that have straight channels and are relatively free of large rocks (page 33). It is unclear how much discretion Enbridge would have in the field to change the crossing methodology from what is proposed in the DEIS.

There may be practicable options to avoid and minimize impacts through revisions to the installation plans that may not have been fully evaluated to date. These include the increased use of trenchless stream crossings, especially for trout and cold-water streams and wetlands. Using the Horizontal Directional Drilling (HDD) method for additional stream crossings may reduce sedimentation if executed properly, after thorough geotechnical investigations.

Recommendations for the Subsequent WEPA Document

- Further describe Enbridge’s commitments around what type of stream crossing methods would be permissible in different circumstances. To understand the range of potential impacts to waters, provide binding restrictions or parameters for Enbridge’s employment of each method, including HDD.
- Clarify whether the proposed pipeline crossing method for each waterway listed in Table 6.10.1-1 (page 182) could be changed after the WEPA process concludes. If so, what would the environmental review entail? In addition, explain why the crossing method is listed as “NA” for some waters listed in Table 6.10.1-1.
- Identify any locations where the method for crossing a river, stream or wetland would not be determined until field work begins. In these specific locations, present alternative methods that could be employed for each crossing or certain groups of crossings. Disclose the range of impacts that would occur at each crossing associated with each method Enbridge could employ. Include a summary of impacts.
- Consider whether there are additional opportunities for HDD, beyond the stream crossings proposed in Table 6.10.1-1, to avoid and minimize impacts to WOTUS, especially for trout streams, cold water streams, and high-quality wetlands.

¹¹ <https://mywaterway.epa.gov/waterbody-report/WIDNR/WI10008273/2020>,

<https://mywaterway.epa.gov/waterbody-report/WIDNR/WI10005887/2020>

¹² <https://mywaterway.epa.gov/waterbody-report/WIDNR/WI6936105/2020>

¹³ <https://mywaterway.epa.gov/waterbody-report/MNPCA/MN16-0001-00/2020>

- To help prevent frac-outs, when HDD is proposed for stream or wetland crossings, require thorough site analyses, including a geotechnical analysis (e.g., ground penetrating radar), boring tests, and fracture trace analyses.
- Assess the feasibility and value of DNR requiring third-party (DNR or another entity) approvals or oversight of the Contingency Plan that Enbridge would require HDD contractors to prepare and implement a plan for inadvertent returns (releases of drilling mud into the environment).

Inventory and Classification of Impacts

EPA is concerned with (1) the classification of select impacts as temporary, (2) the scope of what the DEIS considers indirect impacts, and (3) the assessment of cumulative impacts. Once activities resulting in temporary discharges are complete, the applicant proposes to allow 67.13 acres of wetlands (28.06 emergent, 32.76 forested, 6.30 scrub shrub) to revert to the original cover type. The remaining 33.95 acres of wetlands, originally forested (30.06) and scrub-shrub (3.89), are proposed to be maintained as emergent wetland within the permanently maintained right-of-way. EPA considers impacts to the 33.95 acres of wetlands resulting in permanent conversion of forested and scrub-shrub wetlands as permanent, not temporary, impacts, as the functions and values of these converted wetlands would be permanently altered. This is particularly important if the wetlands will be permanently maintained by Enbridge as emergent wetland within the right-of-way.

As proposed, the project would require filling or converting portions of wetlands that extend outside of the project footprint. In situations where a wetland would be partially filled or converted, EPA is concerned that the remaining wetland acreage may experience declines in functions, values, and habitat quality (e.g., changes in hydrology and natural flow within the wetlands and spread of invasive species). Wetlands that are to be restored to “pre-existing conditions” would also face the challenges of the introduction of invasive species in their disturbed area, potentially spreading past the work area into the whole wetland complex. During the restoration process, native seed mixes or planted vegetation may exhibit genetic differences from vegetation onsite that could jeopardize the natives that have evolved to this site’s specific microclimate, making the wetlands more vulnerable to degradation. Two plants that are the same technical species can originate thousands of miles apart and be adapted to exhibit different traits (e.g., key phenotypic and phenological differences). These impacts could be multiplied every time planned, preventative, and emergency maintenance occurs.

Recommendations for the Subsequent WEPA Document

- Consider impacts to 33.95 acres of wetlands resulting in the permanent conversion of forested and scrub-shrub wetlands as permanent, not temporary, impacts. This is particularly important if the wetlands will be permanently maintained by Enbridge as emergent wetland within the right-of-way.
- Augment the discussion and assessment of potential indirect wetland impacts from the proposed project to address the following:
 - Include indirect impacts from the permanent conversion wetlands, including the introduction of invasives to high-quality habitats and changes to the genetic diversity onsite.
 - Include indirect impacts on wetlands that would be partially filled, such as wetlands that extend outside of the project footprint. In situations where a wetland

would be partially filled or converted, account for declines in functions, values, and habitat quality of the remaining wetland acreage.

- Analyze the potential for effects to downstream resources, such as, but not limited to, changes to the hydrogeomorphology and impacts of sedimentation and compaction from construction activities to determine if indirect impacts would occur to the remaining stream resources.
- Thoroughly analyze indirect impacts from blasting, such as the potential to fracture bedrock, damage aquifers, damage to stream ecology, and create the downstream migration of contaminants.
- Require monitoring of adjacent, connected wetlands as a condition of the permit to determine the extent of indirect impacts. Require additional mitigation if the analysis reveals adverse impacts to adjacent resources by the proposed project.
- Analyze and disclose the cumulative impacts to water resources from the proposed project and other past, present, and reasonably foreseeable actions in the project area.

Aquatic Resource Impacts from Blasting

Enbridge's draft Blasting Plan (Blasting Plan) states, "preliminary desktop reviews have been completed to identify subsurface conditions along the proposed route including soil types, rock outcrops, and bedrock formations. Upon review of these subsurface conditions, there have been locations identified where conventional trenching techniques will likely be inadequate, and blasting would potentially be required to install the pipeline...approximately 10 miles of blasting is assumed to be required for the Project." The Blasting Plan goes on to state, "a more accurate prediction of potential blasting locations will be available closer to the time of construction and when on-site geotechnical data is gathered and analyzed." Approximately 139 potential blasting areas have been identified by Enbridge, some of which may be required in water. The Blasting Plan does not appear to address specific best management practices that would be employed at each blasting location to prevent irreversible damage to stream ecology and prevent the downstream migration of contaminants that may result from the blasting.

Recommendations for the Subsequent WEPA Document

- To help minimize indirect impacts from blasting, request the Enbridge augment the Blasting Plan to detail specific best management practices that would be employed at each blasting location to avoid damage to stream ecology and prevent the downstream migration of contaminants.
- The DEIS indicates that, in the long-term, blasted rock would be more susceptible to erosion (page 165). Explain how this is factored into selection of erosion control measures, monitoring, and plans for adaptive management.
- Provide an analysis of potential bedrock fractures from blasting and associated impacts to the migration of waters.
- DNR or another third party should provide an independent review of blasting plans, which the DEIS indicates Enbridge would review and approve (page 15).
- Page 175 discusses ANFO, which is a blasting agent and can lead to the release of nitrate, nitrite, and ammonia into soil and groundwater if incomplete detonation occurs (page 175). Identify wells nearby that could potentially be affected, require Enbridge to notify residents prior to blasting, provide testing of well water quality before and after, and if contaminated, provide alternative water source until remedied.

- Augment the discussion of blasting leading to French drain type conditions to indicate which local conditions would cause this effect (page 166).

Mitigation

Enbridge proposes mitigation ratios based on the Wisconsin Wetland Rapid Assessment Method (“WRAM”) value rating, while opting out of the Floristic Quality Inventory (FQI) component of WRAM for each wetland. Omission of the FQI in the WRAM impedes assessment of pre- and post- work conditions. Based on EPA’s review of project materials available to date, it appears that Enbridge proposes open trenches for some high-quality wetlands that appear to be in a nearly unaltered state, free from invasive species. It is unlikely that the work process will be able to return these high-quality wetlands to their former condition. An FQI is needed for each wetland so that the diversity, quality, and community can be recreated and appropriately mitigated if they cannot be restored to pre-impact conditions. As stated by the DEIS, “Detailed species composition on individual wetlands has not been reviewed for the proposed route or route alternatives. Therefore, a direct determination of high-quality based on species composition is not available” (page 204). Additionally, FQIs are important to anticipate potential secondary and cumulative impacts if these areas are expected to be disturbed during future maintenance and repair activities, posing a threat of continued wetland degradation.

Physical, chemical, and biological stream functions will be lost during and post-construction. Examples include disrupted floodplain connectivity; disturbed groundwater and surface water interactions and instream flow dynamics; changes in water quality, temperature, and nutrients; and disturbance to fish and macroinvertebrate communities due to instream changes and elimination of riparian buffer. Compensatory mitigation for temporary impacts is necessary to offset any unavoidable adverse impacts to waterbodies and anticipated functional losses that may occur.

Recommendations for the Subsequent WEPA Document

- Include a scientifically based rationale to support proposed mitigation ratios. Describe why the proposed mitigation is considered a commensurate amount of compensation to offset the loss of function and quality of the impacted wetlands.
- Provide compensatory mitigation to offset unavoidable secondary impacts, whether temporary or permanent.
- Calculate an FQI for each impacted wetland so that the diversity, quality, and community can be recreated and appropriately mitigated if they cannot be restored to pre-impact conditions.
- Require a formal compensatory mitigation/stream restoration plan for impacts at all federally jurisdictional stream crossing.

Aquifers

EPA is concerned with the potential for construction to unintentionally breach aquifers, resulting in the unauthorized release of groundwater. DEIS Section 6.8.1.5 and the Minnesota DNR (MDNR) website explain that Enbridge breached aquifers during construction on Line 3. The Independent Environmental Monitors (IEMs), working on behalf of MDNR and Minnesota Pollution Control Agency (MPCA), first observed unusual amounts of water in the trench at the Clearbrook Terminal construction site in late January 2021. On June 15, 2021, during discussions with the IEMs, the DNR identified that there was a potential breach of the aquifer’s

confining layer. As of September 5, 2021, the breach resulted in an estimated release of approximately 24.2 million gallons of groundwater from the aquifer. The MDNR continues to assess current conditions, monitor the aquifer breach repair for long-term effectiveness, and work on a comprehensive enforcement resolution to address restoration, mitigation, and additional penalties associated with the Clearbrook breach as well as two other aquifer breaches. EPA is particularly concerned because this event resulted from Enbridge's "failure to follow environmental laws," required substantial time to stop the release of groundwater, and was recent, with stoppage of flow at the Clearbrook site occurring in January 2022.¹⁴ The DEIS for the proposed project would be strengthened by (1) disclosing the potential for Enbridge to breach aquifers at specific locations during construction of the Line 5 Reroute Project and (2) considering best practices to avoid, minimize, and mitigate such impacts.

Recommendations for the Subsequent WEPA Document

- Discuss the likelihood of breaching an aquifer during construction of Line 5. Include a site-specific analysis of vulnerabilities and a clear description of where excavation will occur and at what depths. In addition, provide details for depths of sheet piles necessary to stabilize trench workspace beyond excavation depths.
- To help ensure that such incidents do not happen again, discuss best practices Enbridge has adopted through their experience with Line 3 that would be applied to Line 5.
- Include a plan in the subsequent WEPA document that details how Enbridge would (1) identify locations that may be vulnerable to aquifer breaches, (2) commit to safeguard measures to avoid breaching aquifers, and (3) quickly and effectively respond to aquifer breaches.

5. Climate Change

As stated in Executive Order 14008: *Tackling the Climate Crisis at Home and Abroad*, "The United States and the world face a profound climate crisis. We have a narrow moment to pursue action...to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents." The DEIS uses findings from the Wisconsin Initiative on Climate Change Impacts (WICCI) to explain temperature, severe storms, and precipitation trends in the project area (pages 78-80). The WICCI finds that extreme precipitation events will increase in frequency and intensity across Wisconsin (WICCI, 2020, page 9). EPA has identified additional opportunities to promote resiliency and adaptation to changing climate conditions, as described below.

The Action Alternatives would directly release greenhouse gas (GHG) emissions during construction from trucks hauling materials, workers' vehicles, operation of construction equipment, and potentially burning of timber and brush, if needed. Sources of GHGs from Action Alternatives are briefly discussed on page 146, but no analysis or comparison among alternatives is provided. Sources of GHGs are less well-defined for the No Action Alternative and briefly discussed on page 319. If DNR permits are not granted for a reroute alternative, future Enbridge actions would be influenced by the outcome of the *Bad River Band v. Enbridge, Inc.* lawsuit and the petroleum product market; future scenarios could include (1) continued use of the existing pipeline, (2) decommissioning of the existing pipeline and transporting products through other pipelines or different transportation modes, (3) or stopping or reducing the

¹⁴ Information on Line 3 aquifer breaches and enforcement actions are on MN DNR's website: <https://www.dnr.state.mn.us/line3/index.html>

quantities delivered to markets. Quantification of anticipated GHG releases and a comparative analysis among all alternatives (including the No Action Alternative scenarios) within the EIS would inform project decision-making and promote opportunities to minimize GHG releases.

Upstream GHG emissions from production and downstream emissions from combustion are reasonably foreseeable and are causally linked to crude oil and natural gas liquids (NGL) transportation infrastructure. Estimating upstream emissions would provide useful information to the public and decisionmakers as to the scale of the project's indirect impacts and the long-term public interests at stake. DNR could use generic estimates for upstream GHG emissions from production developed by the Department of Energy's National Energy Technology Laboratory if estimates tied to the specific production basins and extraction technologies are unavailable. Omitting such emissions would result in an underestimation of the proposal's indirect impacts.

Recommendations for the Subsequent WEPA Document

Resilience and Adaptation

- Assess how changing climate conditions (i.e., temperatures and frequency and severity of storm events) could impact the proposed project and the environmental impacts of the proposed project. Include: (1) changes to erosion risks in areas where pipelines cross waterways, (2) risks of pipeline exposure and damage, potentially increasing spill risks, and (3) other project impacts that DNR determines would be affected by climate change.
- Request that Enbridge incorporate robust climate resilience and adaption considerations into (1) project design and engineering, (2) construction oversight, (3) emergency response planning, (4) commitments for protective measures related to stormwater and erosion, and (5) routine monitoring during operations. In the subsequent WEPA document, describe how Enbridge has addressed such considerations.

Emissions & Carbon Sink Disclosure and Analysis

- Include a detailed discussion of the project's GHG emissions in the context of Wisconsin and national GHG emission reduction goals over the anticipated project lifetime.
- Quantify estimates for direct and indirect emissions, broken out by GHG type, for all alternatives, including the No Action Alternative. Include and analyze potential upstream and downstream GHG emissions.
- Discuss the loss of carbon capture functions from the removal of trees and compare losses among all alternatives. EPA recommends that Enbridge offset the project's impact on carbon capture by planting trees at a minimum of a one-to-one ratio and working with the DNR to identify appropriate species and mitigation location(s).

Reduction and Mitigation

- Identify practices Enbridge could take to reduce and mitigate GHG emissions; and include commitments from Enbridge in the WEPA document and in permit conditions, if allowable per Wisconsin law and policy. Work with Enbridge to consider practices in the enclosed Construction Emission Control Checklist.

6. Air Quality

The air quality analysis section (page 146) of the DEIS considers temporary construction-related emissions and long-term operational emissions from valves, pumps, and storage tank. The discussion identifies general sources and does not quantify estimates of construction emissions,

indicate duration of anticipated releases, or indicate which emission control measures Enbridge would use. Information provided does not adequately disclose air quality impacts for any of the project alternatives, making it difficult for EPA and project stakeholders to understand likely impacts and recommend appropriate protective measures.

Recommendations for the Subsequent WEPA Document

- For all project alternatives analyzed in the DEIS, quantify annual anticipated (1) construction and (2) operational air emissions. Rely on general emission factors for construction equipment that Enbridge will use. Include emissions from burning of cleared materials. Such information is needed to understand the intensity of anticipated air pollution.
- Disclose the anticipated duration (in months, days, etc.) of air quality impacts.
- Assess alternatives to open air burning of cleared material, such as Air Curtain Destructors, for which studies are available on the U.S. Forest Service website. Consider mulching smaller trees, in addition to the mature trees the DEIS already states would not be burned. Include findings in the subsequent WEPA document.
- Include commitments from Enbridge to use specific practices to lower construction emissions, including those listed in the enclosed Construction Emissions Control Checklist.
- Identify specific locations where fugitive dust is likely to cause a concern, such as gravel roads near places where people congregate. Ask Enbridge to commit to location-specific practices to minimize emissions, such as low speed limits on gravel roads for construction vehicles.
- Provide a quantitative estimate of the amount of nitrogen that would be released during commissioning of the new pipeline and decommissioning of the old pipeline. Pages 147-148 indicate that nitrogen would be released but does not provide an estimate. Discuss opportunities to avoid or minimize releases.

7. Noise and Vibration

EPA's website discusses health effects associated with noise. "Problems related to noise include stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity...[R]esearch has shown that exposure to constant or high levels of noise can cause countless adverse health effects."¹⁵ Noise impacts from project construction and operation are included on page 145 of the DEIS.

The DEIS states that 129 residences are within 300 feet of the proposed route and 10 residences are within 10 feet of the proposed route. Expected noise levels at these residences are not disclosed. The proximity of residences is not provided for other project alternatives. In addition, the noise analysis does not discuss the proximity or expected impacts to non-residential noise-sensitive receptors, such as: areas where cultural events and tribal gatherings occur, schools, day care centers, senior centers, community centers, medical facilities, and areas where tribal treaty rights are exercised.

During construction, rock blasting would average 125db at the blast site. Enbridge would reduce noise using "noise barrier/sound curtains, where applicable." The DEIS does not provide criteria

¹⁵ <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution#:~:text=Health%20Effects,sleep%20disruption%2C%20and%20lost%20productivity.>

for when these noise mitigation measures would be used (page 145). Noise impacts during operation of the new pipeline would occur from maintenance, which the DEIS says would be, “temporary, localized, and intermittent.” It’s unclear how loud, how long, or where such activities may occur. The EIS would be strengthened with additional disclosure of noise impacts, comparisons among alternatives, and consideration of practices to avoid, minimize, and mitigate impacts.

Recommendations for the Subsequent WEPA Document

- Disclose the anticipated maximum noise level at the blast site. The DEIS provided an average of 125 dB without indicating a range.
- Analyze temporary and long-term (i.e., maintenance) noise impacts for all noise-sensitive receptors. Include residences, areas where cultural events or tribal gatherings occur, schools, day care centers, senior housing, community centers, and medical facilities, as well as noise disruptions to the exercise of tribal treaty rights. Disclose and compare noise and vibration impacts at specific noise sensitive locations for all project alternatives.
- Augment Table 6.1-1, *Potential Shallow Bedrock Area*, on page 145, to include units of measurement. Of the shallow bedrock that is present, how much may need to be blasted?
- Assess vibration impacts from blasting at residences and other sensitive receptors.
- Include maps with noise contours to clearly delineate the anticipated temporary and long-term noise impacts for all project alternatives. Indicate all sensitive receptors that may be impacted.
- Describe the types of sound walls and noise curtains that would be used. For example, what would they be made of, and how much noise reduction would they achieve?
- Identify locations where sound walls and/or noise curtains would be used. Specify the criteria (e.g., anticipated noise level) that would trigger installation.
- Describe they types of maintenance activities that would generate noise and well as the anticipated noise level and duration.
- Request that Enbridge work with tribes and other stakeholders to (1) time maintenance activities to minimize disruption to cultural events, and (2) provide people who would be impacted with appropriate advance notification.
- Specify how Enbridge would notify people of upcoming blasting. Include the method of communication and Enbridge’s plans to reach residents who do not have internet or do not speak English.
- Page 174 explains, “vibrations from blasting in proximity to a well could liberate corrosion or scale within wells resulting in temporary cloudy well water soon after blasting,” and in extreme cases blasting could damage the well pump. Enbridge commits to work with landowners to repair or replace damaged pumps. Identify wells close enough to blasting sites that this may be a concern. For wells that could be impacted, ask Enbridge to commit to (1) provide an alternative water supply prior to blasting and (2) test water quality before and after blasting. Explain the process well owner(s) would use to work with Enbridge for any needed repairs.

8. Transportation

Page 145 of the DEIS presents the analysis of transportation impacts. Information provided does not (1) disclose how the proposed action may impact road congestion, (2) offer any information

on project alternatives, (3) consider emergency vehicle access, or (4) provide measures to plan for, reduce, or mitigate for traffic impacts.

Recommendations for the Subsequent WEPA Document

- Analyze transportation impacts during project construction for each alternative. Assess and disclose changes to roadway Level of Service, implications for any bus services, and emergency vehicle access. Include maps to depict anticipated impacts.
- Discuss coordination between Enbridge and local municipalities to plan for, reduce, or mitigate traffic impacts, particularly for emergency vehicles. Include Enbridge's transportation management plans and/or mitigation commitments in the subsequent WEPA document to disclose of how this project would impact transportation.
- Assess access issues that could arise in the event of a spill. EPA is particularly interested in access to the Bad River Reservation along U.S. Highway 2, the principal east-west road in northwestern Wisconsin and within the Bad River Reservation.

9. Impacts to Plant and Animal Species and Habitat

Using the U.S. Fish and Wildlife Service's (USFWS's) Information for Planning and Consultation (IPaC) screening tool, Enbridge identified five federally listed and candidate species that have the potential to occur in or near the project corridor (page 105). Using the Wisconsin Natural Heritage Inventory (NHI), Enbridge identified 26 endangered species with the potential to occur in or near the project corridor (page 107). The DEIS goes on to state, "NHI occurrences of the alternative routes will not be discussed in detail" (page 109), without providing a rationale for why such impacts are excluded from the analysis.

Upfront decisions on which protective measures are required to protect species will substantially influence on-the-ground impacts on species. The DEIS lists several protective measures that *could* be implemented, without offering commitments. For example, the Northern Long-eared bat could be impacted by clearing of forest lands, and the DEIS states, "pending discussions with USFWS, Enbridge may avoid tree clearing June 1-July 31 to minimize potential take to species" (page 211). As another example, for the Yellow-banded bumble bee and the Confusing bumble bee, the DEIS states that DNR recommends that if bees are present on or near the site, Enbridge should restore the site with a native flowering seed mix; there's no indication of whether Enbridge will take this action. This approach of mentioning a best practice but not indicating whether Enbridge would implement it appears for state-threatened and endangered species throughout Section 6.14.2. EPA is also concerned that, while page 225 lists construction best management practices to limit the introduction and spread of invasive species, there's no indication as to whether Enbridge would adopt them.

Based on a 120-foot-wide corridor, the proposed project would impact 355 acres of forest land, Alternative RA-01 would impact 279 acres, Alternative RA-02 would impact 557 acres, and Alternative RA-03 would impact 1,043 acres (page 206). RA-03 includes potentially crossing 28 miles of greenfields in the Chequamegon-Nicolet National Forest (page 247). The discussion of impacts to forests explains that trees would not be allowed to reestablish in the permanent right-of-way, which would be approximately 50 feet wide. While Enbridge would allow trees to repopulate on temporary workspaces, it would take a long time for trees to mature to pre-construction conditions. The DEIS also explains that clearing trees for the right-of-way would impact vegetation growing alongside the right-of-way through increased sun and wind and the introduction of invasive species. EPA suggests that DNR work with Enbridge to consider options to mitigate for the loss of habitat, as recommended below.

Recommendations for the Subsequent WEPA Document

- Indicate whether Enbridge used IPaC to screen only the Proposed Action or all project alternatives. Ensure that project impacts on state and federally listed and candidate species are disclosed and assessed for all project alternatives in the subsequent WEPA document.
- Ensure that the DEIS contains DNR's assessment and conclusions regarding impacts on species that would result from each project alternative. While the DEIS presents Enbridge's findings, it is unclear whether DNR agrees with Enbridge's conclusions.
- Summarize Enbridge's coordination with USFWS and DNR related to listed species in the subsequent WEPA document and include any correspondence from USFWS and DNR related to threatened, endangered, and candidate species in an appendix. Disclosing USFWS and DNR's recommendations and findings would clarify the scope of impacts.
- Include firm commitments for Enbridge to adhere to all USFWS and DNR recommendations to protect species, including time-of-year restrictions on tree clearing and in-water work. The DEIS lists several protective measures recommended by USFWS and DNR, but it does not indicate whether Enbridge would implement such measures. Disclosing whether such measures must be followed is critical to understanding the magnitude of impacts.
- Include a commitment from Enbridge to require implementation of all measures to prevent the introduction and spread of invasive species listed on page 225.
- While there is no regulatory requirement to compensate for lost trees and other vegetation, we recommend that Enbridge (1) commit to voluntary compensation to benefit habitat, as well as climate mitigation as mentioned above and (2) establish preferences for planting native and climate-resilient plants and plants that support habitat needs.
- In the subsequent WEPA document, include a revegetation plan from Enbridge with commitments to specific best practices. Ask Enbridge to commit to use pollinator promoting plants and/or plant seed mixtures for reclamation of disturbed areas associated with project construction activities.

10. Spills: Assessment of Impacts, Prevention, Preparedness, and Response

EPA is concerned that information reviewed to date does not demonstrate or suggest that the project proponent is adequately prepared to prevent or address spills. The DEIS explains that, from the years 2001-2020, the Pipeline and Hazardous Materials Safety Administration (PHMSA) collected incident reports on 16 crude oil spills releasing 12,979 barrels of oil in Wisconsin, and "data suggests that spills associated with pipelines will continue to occur on an annual basis" (page 260). EPA is concerned with the significant impacts a spill could have on rare and high-quality surface waters, drinking water supplies, and habitat, among other resources, as well as the potential for spilled substances to reach Lake Superior. EPA is also deeply concerned that spills could irreparably damage waters and lands that are essential to the exercise of tribal treaty rights and continuation of tribal traditional lifeways (e.g., see permanent impacts to wild rice on page 274). Based on limited information provided, EPA is unable to draw conclusions on the adequacy of spill-related modeling and analysis. The DEIS is unclear on whether findings presented are Enbridge's or DNR's. In the subsequent WEPA document, EPA recommends that DNR (1) disclose spill modeling methodologies and assumptions (2) state

DNR's findings and conclusions, and (3) require additional protective measures, as detailed below.

EPA is also concerned that changing climate conditions will likely exacerbate spill risks and dispersion of spilled materials. The DEIS describes pipeline exposure as both common and dangerous. Pipelines may be exposed by “migrating stream channels, downcutting of streams, ravines, and various other naturally occurring events... [and] an exposed pipe is more likely to be impacted by natural events and human contact” (page 261). The increasing frequency and severity of extreme precipitation events could speed erosion, migration of streams, and the downcutting of waterways, thereby heightening risks of pipeline exposure. Further, “flashy streams, when combined with extreme rainfall events, quickly erode at the banks, which releases debris such as trees and boulders downstream. This debris is a hazard to exposed pipelines...[and] risk of damage due to impact and abrasion” (page 263). In addition, if a spill were to occur during an extreme weather event, it would likely alter the dispersion of hazardous materials. Opportunities are available to minimize risks of erosion and pipeline exposures through upfront assessment of changing climate conditions and incorporation of resiliency measures into project design.

Recommendations for the Subsequent WEPA Document

Alternatives Analysis

- The analysis of spills focuses on Enbridge's Proposed Action. Assess and compare impacts from all Action and No Action Alternatives, including, but not limited to, a comparison of potential impacts on “difficult-to-access areas,” “high consequence areas,” drinking water, the Kakagon and Bad River Sloughs, wild rice beds, and plant and animal species. Also compare the presence of geohazards and associated spill risks among alternatives.

Geohazards

- Provide DNR's assessment and findings regarding geohazards. The DEIS appears to present Enbridge's assessment and findings (Section 6.7), and it is unclear whether DNR has found geohazards to be appropriately identified and addressed.

Spill Modeling, Analysis, and Disclosure

- As appendices to the subsequent WEPA document, to the extent that DNR finds material to be publicly releasable, include the (1) liquid plume model and analysis, (2) model and analysis of proposed valve placements, and (3) model and analysis of spill risks to groundwater and drinking water. If DNR determines it is not appropriate to disclose this information, then include portions that are releasable, such as the methodology and assumptions. Clearly state whether DNR finds Enbridge's models and analysis to be acceptable. For the valve analysis, disclose the quantity of crude oil and NGLs that could spill within each segment per hour assuming the pipeline is operating at its capacity of 540,000 barrels per day.
- Explain how Enbridge defines “reasonably practicable” as Enbridge assesses valve placement, relying on a process that “examines the pipeline segment by segment on an iterative basis until the lowest reasonably practicable release volume between valves is achieved along the pipeline” (page 271). What criteria or thresholds does Enbridge use to define “reasonably practicable,” and does DNR agree with Enbridge's finding?

- Analyze and discuss adding valves to reduce the amount of crude oil or NGLs that would be released in the event of a pipeline break. The DEIS explains that “once the valve is fully closed, the fluid remaining on the upstream and downstream segments of the pipeline start to drain” (page 270). Clarify whether additional valves could reduce the potential size of a spill.
- Provide more information on the High Consequence Areas (HCAs) used in the liquid plume model. At a minimum, detail how many HCAs DNR finds to be present and what each HCA generally consists of. The DEIS states that, “due to the sensitive nature of HCA data, DNR is unable to display the HCA polygons” (page 285). More information on what the DNR is including could help the stakeholders identify any missing HCAs.
- Detail how Enbridge used input from tribes and other parties to inform their list of HCAs. Page 271 briefly states that Enbridge worked with tribes in determining HCAs. State how many HCAs were added based on tribal input, and whether any HCAs recommended by tribes were not included. State whether DNR agrees with the HCAs Enbridge included.
- Ask impacted tribes if they recommend inclusion of a sixth category of HCA to represent areas of important tribal interests. If Tribes are interested, then add the category and additional HCAs to the analysis.
- When using the Computational Pipeline Monitoring System (CPM), how large of a discrepancy in the balance calculation must be detected before Enbridge is required to inform DNR? Such information will provide a better understanding of how long small leaks might persist.
- Augment the discussion of historic spills in Section 7.3 to describe the resulting off-site impacts. Include resource damages and the amount of time it took to stop the leakage of oil. Such information would help clarify potential project impacts.
- Section 7.8.1 discusses impacts to surface waters and wetlands and states that, “the duration of impairment would vary depending on spill volume and could last from several weeks to months.” Update text to indicate that impairments could last for years.
- Revise Section 7.8.1 and its subsections to provide more details on potential environmental impacts of a spill; there is little detail or site-specific considerations of the on-the-ground environmental impacts that would result from a spill. With the limited information provided, it is difficult for EPA to assess impacts.
- Augment Section 7.7.1, *Spill and Impact Analysis*, to address the following:
 - Include the results of the NGL vapor cloud modeling.
 - The liquid spill plume model uses the mean annual flow of the waterway; discuss what a spill during flood stage would look like.
- Augment Section 7.8.2 to discuss the potential environmental impacts from a spill on groundwater.
- Augment Section 7.8.2.1 to discuss the potential environmental impacts from a spill on the Copper Falls Aquifer.
- Augment Section 7.8.3 to discuss the environmental impacts of a spill on drinking water wells.
- Augment the discussion of oil migration from leaking underground storage tanks on page 278 to include Wisconsin or nearby states. The assessment used the DEIS includes California, Texas, and Florida, which may not be an appropriate indicator of oil movement in the project area.
- Add the depth to the well screen to Table 7.8.3-1, *Wells within 1,200 feet of Existing Line 5 and Proposed Route* (page 279).

- Augment Section 7.8.4, Human Health, to discuss the chemicals that are in crude oil and the health effects related to exposure to those specific chemicals.
- Disclose the number of inadvertent returns that typically occur on a project of this length, as well as the quantity of liquid typically released.
- Discuss seasonal differences in impacts and cleanup of a potential spill. For example, disclose spill impacts during winter conditions when road travel may be difficult.

Protective Measures

- Provide detailed plans with binding commitments from Enbridge to prepare for and respond to accidental releases into waters of hazardous liquids (e.g., fuels, oils, lubricants, and hydraulic fluids used for construction equipment, as well as drilling fluids). The HDD drilling method includes the use of drilling fluid to lubricate the tunnel created under the waters. Normally, this drilling fluid remains in the tunnel after installation. There is a potential for unexpected release of drilling fluid (drilling mud) into the soil during construction, which may migrate to the stream bed.¹⁶ Following experiences with Enbridge’s release of drilling fluids on Line 3 in Minnesota, EPA recommends that a third-party review Enbridge’s HDD plans and DNR conduct oversight.
- State that, for the proposed project, Enbridge would implement all safety measures it adopted as part of the settlement agreement for the July 26, 2010, pipeline rupture in Marshall, Michigan. This includes implementation of (1) advanced leak detection and monitoring equipment, (2) an enhanced pipeline inspection and spill prevention program, (3) enhanced control room operations, and (4) enhanced emergency spill response and preparedness programs, among other requirements (page 258). Specify elements of the settlement agreement that Enbridge would apply to the proposed project and how they would affect environmental impacts.
- Require Enbridge to commit to a specific frequency of ground patrols, appropriate to the sensitivity and value of resources within the project area. EPA is concerned that “some leaks might not be detected by the system for an extended period of time...the total volume of a release from a pinhole leak could be relatively large...detection would likely only occur through visual or olfactory identification” (page 260).
- Explain why newer pipelines, installed in the 2010s, have the highest rates of failure per mile of pipeline compared to much older pipelines (page 261). Explain how the proposed project would avoid these failures observed with other newer pipelines.
- Identify additional spill prevention measures for areas that the DEIS identifies as “difficult to access,” such as the two 100’ gorges within Copper Falls State Park. The DEIS states that the gorges could be impacted by a pipeline failure and cleanup would be “nearly impossible” (page 268). Consider proactively building a preventative containment barrier.
- Consider whether use of a thicker pipeline in environmentally sensitive areas is appropriate. The DEIS discusses industry standards for use of thicker pipes for better protection when HDD is used or when rail crossings are present (see 2.4 and 7.5.2). Consider whether this might be appropriate for the area upstream of Copper Falls State Park, among other sensitive locations.

¹⁶https://www.researchgate.net/publication/30481881_Review_of_environmental_issues_associated_with_horizontal_directional_drilling_at_water_crossings

Clean-up Response

- Section 7.6.4 discusses in-situ burning of oil as a clean-up option. EPA has serious concerns with the environmental impacts of this practice. Augment text to indicate that in-situ burning is only allowed by convening the Region 5 Regional Response Team and requesting approval.
- Augment Section 7.6.5, *Remediation*, to address the following:
 - Any remediation techniques employed during spills must be done with concurrence from both DNR and U.S. EPA.
 - Any injection into groundwater requires a state permit.
 - The bullet point on bioremediation should discuss that often the breakdown of a chemical by biological agents yields other undesirable chemicals (i.e., chlorinated solvents break down to vinyl chloride).
- Section 7.8.1.3, *Wild Rice Beds*, states that if a spill occurred in the winter, wild rice seed banks could be covered under ice or snow, which could contain the oil above the beds...” (page 274). How much of the year does ice and snow cover these banks? If oil was on top of ice and snow covering these banks, would recovery of the oil still trample and destroy the banks? Could oil become trapped under the ice?
- In discussing the cleanup of oil from Lake Superior, page 274 states that, “for spills in water colder than the oil’s pour point, the oil quickly becomes viscous or tar-like. Assess how much of the year Lake Superior water is likely to be colder than the oil’s pour point, and how that would impact cleanup.
- Page 275 states that, during cleanup activities, “the use of dispersants (unlikely to be permitted) would transfer oil and its associated toxic hydrocarbons into the water column...” Add text to clarify that the Region 5 Regional Response Team does not allow for use of dispersants in the Great Lakes.

Enbridge Environmental Protection Plan (EPP) – Hazardous Materials and Spills

The following comments pertain to DEIS Appendix C, which contains Enbridge’s EPP. The environmental impacts of the proposed project would be largely determined by Enbridge’s implementation of protective measures. Therefore, DNR should work with Enbridge to address EPA’s recommended changes to the EPP, as listed below.

Recommendations for Appendix C, Enbridge’s EPP

General Comments

- Request that Enbridge add content to their EPP to clarify that Enbridge is the responsible party for ensuring all environmental laws are followed and agreed upon protective measures are carried out. Appendix C references “the Contractor” throughout as the entity to perform work and at times says the Contractor would be responsible for adhering to applicable regulations (e.g., see page 27). Whether Enbridge contracts the work out or not, commitments in the EPP should be Enbridge’s responsibility to meet.
- Throughout the EPP, any time “applicable state and federal regulations” are referenced, either list or cite which regulations apply.

Handling of Hazardous Materials Comments on the EPP

- Explain the process by which the “Contractor will determine if the materials and wastes associated with the Project classify as hazardous materials and/or wastes in accordance

with applicable federal and/or state criteria” (EPP page 27). Include a commitment from Enbridge to conduct sampling and use laboratory analytical data.

- Describe what the EPP means by “suitable or approved containers” when stating that the “Contractor will collect all waste materials...in suitable or approved containers (i.e., labeled and meeting any relevant regulatory requirements)” (EPP page 27). What entity would approve and what criteria would be used?
- Clarify how often containers of hazardous waste would be removed from the site, as keeping such wastes on site for longer periods of time provides more opportunities for spills. EPP page 27 says wastes would be removed on a “routine basis,” and more specificity would strengthen the protective measure.
- Augment EPP Section 28.1 (EPP page 27) to describe (1) handling of hazardous wastes, (2) sampling procedures, (3) transportation and disposal, and (4) what will be done with the waste while it is awaiting disposal approval.
- Augment Section 28.2 (page 27) to (1) define abrasive blast debris, (2) specify whether abrasive blast debris is typically hazardous or non-hazardous, (3) if it is hazardous, describe makes it so, (4) describe the process that Enbridge would use to contain abrasive blast debris, and (5) explain control practices Enbridge would use to protect materials from rain and storm water, including overnight monitoring during precipitation events.

Preparedness and Response Comments on the EPP

- Augment the contact list for reporting spills to include specific tribal contacts. Work with tribes to identify appropriate contacts and include information in an updated contact list in the subsequent WEPA document (EPP Appendix E).
- Add specificity to the role of the Spill Coordinator in Section 29.2.1 by identifying who the “appropriate agencies” are in bullets 5 and 6 and who receives the Spill Report from in bullet 7.
- Describe “spill prevention procedures,” which Section 29.3 states the Contractor will train all employees to follow (EPP page 28).
- Augment the equipment list in EPP Section 24.9 to clarify types and quantities of materials that would be on-site in the event of a spill (page 28-29).
 - For the first bullet, specify the quantity and types of absorbent materials Enbridge would require contactors to have on site. Text states “adequate” absorbent materials would be on hand without offering criteria for selecting a quantity.
 - For the second bullet, explain what constitutes a “sufficient quantity” of materials in spill kits, and replace “may” with “will” when listing contents that the spill kits “may include.” As written, there’s no assurance as to what the kits will include.
 - For the second and forth bullets, explain what constitutes a foreseeable spill, and if spills are foreseeable, then add measures to prevent them from occurring.
 - For the third bullet, define “suitable” when talking about plastic lining materials.
 - For the fourth bullet, replace “may” with “will” when listing contents service vehicles “may carry” to contain spills. As written, there’s no assurance as to what the service vehicles will include.
- Augment EPP Section 29.5 to indicate how often “regular” inspections will occur of hoses, pipes, valves, and tanks to ensure equipment is free of leaks (EPP page 29).
- Clarify EPP Section 29.6.1 to indicate whether all fuel storage would be at Contractor yards only, as indicted in the EPP, and whether that means there would be no trucks with mobile tanks for refueling (page 29). If so, would trucks and equipment be returned to the

yard each night for refueling? If refueling would be conducted outside of Contractor yards, then revise the EPP to accurately describe practices.

- For the third bullet listing fuel storage procedures (page 29), replace “may” with “will” when listing tools and materials that “may” be kept on site to stop the flow of leaks. As written, there’s no assurance as to what would be kept on site.
- Consistently state that Enbridge will require “petroleum products, refueling, maintenance, and lubricating operations take place in upland areas that are more than 100 feet from wetlands, streams, and waterbodies (including drainage ditches), and water supply wells,” as stated in the first paragraph of EPP Section 29.6.3. The third paragraph of the same section states that such operations would be allowed within 100 feet with site-specific precautions (page 30).
- In the first bullet under EPP Section 29.6.3, define what would constitute “adequate” amounts of amounts of absorbent materials and containment booms to be kept on site (page 30).
- Augment EPP Section 29.7.2 to (1) indicate that workers being mobilized to cleanup spills will be 40-Hour HAZWOPER trained, and (2) include National Response Center and Wisconsin spill hotline phone numbers (page 31).
- Augment 29.8.2 to state who would receive the Spill Report form.
- Section 29.9.1, bullet 3, states, “For large spills on land, contain and pump immediately into tank trucks.” Specify that pumps must be intrinsically safe (page 32).
- In the event of a spill, require air monitoring for the lower explosive limit (LEL), oxygen, and volatile organic compounds (VOCs) to protect the health and safety of workers.
- Under EPP Section 29.10, *Spill Control – Wetlands and Waterbodies*, revise bullet four to indicate that there will be no soil excavation in wetlands or shorelines until there is consultation with a State or Federal emergency response official.
- Augment EPP Section 29.11, *Storage and Disposal of Contaminated Materials*, to state that Enbridge and its contractor will only use disposal facilities that are licensed and in good standing with state and federal agencies.
- EPP Section 30 discusses drilling fluid and states, that, “an additive may need to be mixed with the drilling fluids/mud for viscosity or lubricating reasons.” Disclose what the additives consist of in order to clarify potential environmental impacts.
- Identify where the containment, response, and clean-up equipment listed in EPP Section 30.2 would be located in relation to where drilling would occur. Ensure that it would always be on-site prior to drilling.
- Include the contingency plan for inadvertent drilling fluid releases as an attachment to the EPP and make it available for public comment with the subsequent WEPA document. As part of the plan, include a commitment from Enbridge to report the release of drilling fluid to state and federal agencies and tribes.
- In the last bullet of Section 30.4, (1) replace “and/or” with “and” when listing participants that would be involved in consultation around clean-up of an advertent return and (2) list the agencies that Enbridge considers to be “applicable.”
- EPP Section 30.5 states, “Enbridge will monitor the release site as appropriate to assure adequate restoration.” Define monitoring plans, habitat indicators, and coordination with resource agencies Enbridge would utilize to determine whether restoration is adequate.

ENCLOSURE 2: CONSTRUCTION EMISSION CONTROL CHECKLIST

U.S. Environmental Protection Agency **Construction Emission Control Checklist**

Diesel emissions and fugitive dust from project construction may pose environmental and human health risks and should be minimized. In 2002, EPA classified diesel emissions as a likely human carcinogen, and in 2012 the International Agency for Research on Cancer concluded that diesel exhaust is carcinogenic to humans. Acute exposures can lead to other health problems, such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues. Longer term exposure may worsen heart and lung disease.¹⁷ In the subsequent WEPA document, we recommend that DNR discuss the following protective measures and Enbridge commit to applicable measures.

Mobile and Stationary Source Diesel Controls

Purchase or solicit bids that require the use of vehicles that are equipped with zero-emission technologies or the most advanced emission control systems available. Commit to the best available emissions control technologies for project equipment in order to meet the following standards.

- On-Highway Vehicles: On-highway vehicles should meet, or exceed, the EPA exhaust emissions standards for model year 2010 and newer heavy-duty, on-highway compression-ignition engines (e.g., long-haul trucks, refuse haulers, shuttle buses, etc.).¹⁸
- Non-road Vehicles and Equipment: Non-road vehicles and equipment should meet, or exceed, the EPA Tier 4 exhaust emissions standards for heavy-duty, non-road compression-ignition engines (e.g., construction equipment, non-road trucks, etc.).¹⁹
- Locomotives: Locomotives servicing infrastructure sites should meet, or exceed, the EPA Tier 4 exhaust emissions standards for line-haul and switch locomotive engines where possible.
- Marine Vessels: Marine vessels hauling materials for infrastructure projects should meet, or exceed, the latest EPA exhaust emissions standards for marine compression-ignition engines (e.g., Tier 4 for Category 1 & 2 vessels, and Tier 3 for Category 3 vessels).²⁰
- Low Emission Equipment Exemptions: The equipment specifications outlined above should be met unless: 1) a piece of specialized equipment is not available for purchase or lease within the United States; or 2) the relevant project contractor has been awarded funds to retrofit existing equipment, or purchase/lease new equipment, but the funds are not yet available.

Consider requiring the following best practices through the construction contracting or oversight process:

- Establish and enforce a clear anti-idling policy for the construction site.
- Use onsite renewable electricity generation and/or grid-based electricity rather than diesel-powered generators or other equipment.
- Use electric starting aids such as block heaters with older vehicles to warm the engine.

¹⁷ Carcinogenicity of diesel-engine and gasoline-engine exhausts and some nitroarenes. *The Lancet*. June 15, 2012

¹⁸ <http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm>

¹⁹ <https://www.epa.gov/emission-standards-reference-guide/epa-emission-standards-nonroad-engines-and-vehicles>

²⁰ <https://www.epa.gov/emission-standards-reference-guide/all-epa-emission-standards>

- Regularly maintain diesel engines to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance (e.g., blue/black smoke indicates that an engine requires servicing or tuning).
- Where possible, retrofit older-tier or Tier 0 nonroad engines with an exhaust filtration device before it enters the construction site to capture diesel particulate matter.
- Replace the engines of older vehicles and/or equipment with diesel- or alternatively fueled engines certified to meet newer, more stringent emissions standards (e.g., plug-in hybrid-electric vehicles, battery-electric vehicles, fuel cell electric vehicles, advanced technology locomotives, etc.), or with zero emissions electric systems. Retire older vehicles, given the significant contribution of vehicle emissions to the poor air quality conditions. Implement programs to encourage the voluntary removal from use and the marketplace of pre-2010 model year on-highway vehicles (e.g., scrappage rebates) and replace them with newer vehicles that meet or exceed the latest EPA exhaust emissions standards, or with zero emissions electric vehicles and/or equipment.

Fugitive Dust Source Controls

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative, where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Occupational Health

- Reduce exposure through work practices and training, such as maintaining filtration devices and training diesel-equipment operators to perform routine inspections.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing the fume concentration to which personnel are exposed.
- Use enclosed, climate-controlled cabs pressurized and equipped with high-efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Use respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on the type of work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number.