BASIS FOR DECISION MEMO

Permit Processor: Jessica Stiles
Date: July 31, 2020
Permit No. MI0060278
Designated Site Name: Enbridge Energy-Line 5-Straits of Mackinac

Monitoring Point 001A (During Construction): Authorization to discharge 5 MGD of treated noncontact cooling water, tunnel/portal construction water, tunnel boring machine air intervention water, slurry treatment facility wastewater, tunnel drainage, groundwater seepage, and an unspecified amount of storm water from Monitoring Point 001A through Outfall 001. Outfall 001 discharges to Lake Michigan.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Flow	(report)	(report)	MGD	---	---	---	Daily	Report Total Daily Flow	PWJ
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual	PWJ
Equipment Inspection	(report)	---	---	---	---	---	Daily	Visual	PWJ
Acute Toxicity	---	---	---	---	1.0	TU_A	See Permit Requirements	3-Portion Composite	WQBEL
Oil and Grease	---	---	---	---	15	mg/l	Weekly	Grab	BPJ
Temperature									
Intake	---	---	---	---	(report)	°F	Daily	Reading	WQC
Effluent	---	---	---	---	85	°F	Daily	Reading	WQBEL
Total Suspended Solids	---	---	---	40	70	mg/l	3X Weekly	3-Portion Composite	BPJ
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Weekly	3-Portion Composite	WQC
Chlorides	---	---	---	(report)	(report)	mg/l	Weekly	3-Portion Composite	WQC
Thermal Discharge									
November-May	57	---	mBTU/hr	---	---	---	Daily	Calculation	WQBEL
				Minimum Daily					
pH	---	---	---	6.5	9.0	S.U.	3X Weekly	Grab	WQS

Monitoring Point 001A (Postconstruction): Authorization to discharge 0.075 MGD of treated groundwater seepage and an unspecified amount of storm water from Monitoring Point 001A through Outfall 001. Outfall 001 discharges to Lake Michigan.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Flow	(report)	(report)	MGD	---	---	---	Daily	Report Total Daily Flow	PWJ
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual	PWJ
Equipment Inspection	(report)	---	---	---	---	---	Daily	Visual	PWJ
Oil and Grease	---	---	---	---	15	mg/l	Weekly	Grab	BPJ
Total Suspended Solids	---	---	---	(report)	(report)	mg/l	Weekly	Grab	PWJ
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Monthly	Grab	WQC
Chlorides	---	---	---	(report)	(report)	mg/l	Monthly	Grab	WQC
				Minimum Daily					
pH	---	---	---	6.5	9.0	S.U.	Monthly	Grab	WQS

Monitoring Point 001B: Authorization to discharge 0.944 MGD of hydrostatic pressure test water from Monitoring Point 001B through Outfall 001. Outfall 001 discharges to Lake Michigan.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Discharge Flow Rate	(report)	(report)	gallons per minute	---	---	---	Daily	Report Total Daily Flow	PWJ
Total Discharge Volume	---	(report)	gallons	---	---	---	Per Event	Calculation	PWJ
Total Suspended Solids									
Intake	---	---	---	---	(report)	mg/l	Daily	3-Portion Composite	PWJ
Discharge	---	---	---	---	(report)	mg/l	Daily	3-Portion Composite	PWJ
Net	---	---	---	---	30	mg/l	Daily	Calculation	BPJ
Oil and Grease	---	---	---	---	15	mg/l	3X Daily	Grab	BPJ
Outfall Observation	(report)	---	---	---	---	---	3X Daily	Visual	PWJ

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Equipment Inspection	(report)	---	---	---	---	---	3X Daily	Visual	PWJ
				Minimum Daily					
pH	---	---	---	6.5	9.0	S.U.	3X Daily	Grab	WQS
Dissolved Oxygen	---	---	---	4.0	---	mg/l	3X Daily	Grab	WQS

Monitoring Point 003A (During Construction): Authorization to discharge 1 MGD of treated slurry treatment facility wastewater, tunnel drainage, groundwater seepage, and tunnel/portal construction water, and an unspecified amount of storm water from Monitoring Point 003A through Outfall 003. Outfall 003 discharges to Lake Michigan.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Flow	(report)	(report)	MGD	---	---	---	Daily	Flow	PWJ
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual	PWJ
Equipment Inspection	(report)	---	---	---	---	---	Daily	Visual	PWJ
Acute Toxicity	---	---	---	---	1.0	TU_A	See Permit Requirements	3-Portion Composite	WQBEL
Oil and Grease	---	---	---	---	15	mg/l	Weekly	Grab	BPJ
Total Suspended Solids	---	---	---	40	70	mg/l	3X Weekly	3-Portion Composite	BPJ
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Weekly	3-Portion Composite	WQC
Chlorides	---	---	---	(report)	(report)	mg/l	Weekly	3-Portion Composite	WQC
				Minimum Daily					
pH	---	---	---	6.5	9.0	S.U.	3X Weekly	Grab	WQS

Monitoring Point 003A (Postconstruction): Authorization to discharge 0.0015 MGD of groundwater seepage and an unspecified amount of storm water from Monitoring Point 003A through Outfall 003. Outfall 003 discharges to Lake Michigan.

	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Monitoring	Sample	Basis for
Parameter	Monthly	Daily	Units	Monthly	Daily	Units	Frequency	Type	Limits
Flow	(report)	(report)	MGD	---	---	---	Daily	Flow	PWJ
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual	PWJ
Equipment Inspection	(report)	---	---	---	---	---	Daily	Visual	PWJ
Oil and Grease	---	---	---	---	15	mg/l	Weekly	Grab	BPJ
Total Suspended Solids	---	---	---	(report)	(report)	mg/l	Weekly	Grab	PWJ
Total Dissolved Solids	---	---	---	(report)	(report)	mg/l	Monthly	Grab	WQC
Chlorides	---	---	---	(report)	(report)	mg/l	Monthly	Grab	WQC
				Minimum Daily					
pH	---	---	---	6.5	9.0	S.U.	Monthly	Grab	WQS

PERMIT CONDITIONS:

Final Effluent Limitations for Monitoring Point 001A (During Construction), Final Effluent Limitations for Monitoring Point 001A (Post Construction), Final Effluent Limitations for Monitoring Point 001B, Final Effluent Limitations for Monitoring Point 003A (During Construction), Final Effluent Limitations for Monitoring Point 003A (Post Construction), Additional Monitoring Requirements, Request for Approval to Use Water Treatment Additives, Quantification Levels and Analytical Methods for Selected Parameters, Cold Shock Prevention, Intake Screen Backwash – Outfalls 001 and 003, Facility Contact, Continuous Monitoring, Engineering Review, Operation and Maintenance Manual, Storm Water Pollution Prevention (not required)

NOTES:
The application indicates there is an alternate outfall for outfall 001 which is only to be used if there are contingency actions preventing the use of the primary outfall 001. The monitoring requirements and effluent limits listed in monitoring points 001A (during and after construction) and/or 001B apply to the alternate outfall location.

Certain portions of the Plan for the Discharge of Hydrostatic Pressure Test Water requirements noted in MIG670000 are not included in this individual permit. An indication of whether Oil and Grease is being monitored has been left out because the individual permit requires sampling of Oil and Grease, whereas MIG670000 does not require sampling for Oil and Grease by every permittee. Oil and Grease monitoring is reviewed for applicability for each permittee. A description of the wastewater disposal is not required under this plan as the application indicates the type of treatment the hydrostatic pressure test water will receive prior to discharge.

Initially, the applicant included an estimated maximum temperature of 90°F. The Water Quality Based Effluent Limit (WQBEL)-Toxics memo recommends a daily maximum temperature limitation due to the reported observation of *Physella magnalacustris* noted in the Michigan Natural Features Inventory database. This species was last observed in 1988. Since Permits Section was not able to locate information regarding temperature threshold/effects on this specific species, the recommended limitation of 85 °F is based on a similar species. Permits Section requested more information as to how the applicant determined the estimated temperature of 90°F. The applicant provided the requested information and recalculated the temperature estimate to be a maximum daily of 80 °F in the application. Due to the estimated temperature being lower than the recommended limitation, the limitation is not included but monitoring is required. Note: additional information was provided by commenters and an additional review was performed and the update is discussed below under “Changes made to the permit after public notice.”

The WQBEL-Toxics memo recommends a monthly monitoring condition for mercury. This proposed discharge is not expected to contain mercury aside from mercury potentially present in the source water which is Lake Michigan. The Additional Monitoring Requirements condition requires sampling for many parameters including mercury. Data submitted to the Department in compliance with this condition will be reviewed to determine if a permit update is needed.

The WQBEL-Conventional memo recommends limitations for Total Dissolved Solids (TDS) and chlorides. Limitations for TDS have not been included in the permit due to potential toxicity concerns associated with the calculated concentrations. An acute toxicity limitation has been added to address potential toxicity concerns associated with elevated TDS concentrations and Water Treatment Additive use. Monitoring requirements for TDS are included to provide additional data for future review. The limitation recommended for chlorides is 430 mg/l which was calculated based on R323.1051(2). This limitation is not included in the permit due to the following: The proposed wastewater discharged is not expected to contain high concentrations of chlorides given that the source water is primarily Lake Michigan and groundwater. A report from the United States Geological Survey in 1987 (“Michigan Ground-Water Quality”, USGS Open File Report 87-0732, accessed 6/10/2020) indicates that the median groundwater chloride concentration in the state is 2.2 mg/l. The 90th percentile concentration is 54 mg/l. Even on the higher end of the observed scale, chlorides are not expected to approach the calculated limits without significant additives containing chlorides. Likewise, the background concentration of chloride in Lake Michigan is low. The University of Illinois at Urbana-Champaign reported in 2012 using EPA data that average spring chloride concentration in Lake Michigan is below 12 mg/l (https://www.isws.illinois.edu/pubdoc/B/ISWSB-74.pdf. Accessed 6/10/2020). Monitoring requirements for chloride are included to provide additional for future review.

Changes made to permit after public notice:

The applicant noted that the flow rate for Outfall 003 (post construction) was incorrectly stated in the permit. Instead of 0.015 MGD the maximum flow expected from Outfall 003 after construction is 0.0015 MGD. This flow rate has been updated in the permit and other corresponding documents.

Limitations and monitoring requirements for Oil and Grease have been added to Outfalls 001 and 003 for the post-construction discharge.

Based on comments received during the public notice period concerning possible issues with over pressurization during the tunneling process and the Department's determination to ensure the maximum authorized flow during construction is not exceeded two conditions have been added to the permit: Engineering Review and Operation and Maintenance Manual. The Engineering Review condition requires that a professional engineer review and approve the wastewater treatment system(s). The Operation and Maintenance Manual condition requires the permittee to have plans and procedures in place to account for any upset or bypass scenarios. The condition requires a notification and report from the permittee if flow from Outfall 001 exceeds 3.3 MGD. This value is based on 75% of the maximum expected flow of 4.36 MGD from treated Tunnel Drainage and Groundwater Inflow indicated in the water flow diagram included with the application. The Operation and Maintenance Manual condition was added by the Department to assure the maximum authorized flow of 5 MGD will not be exceeded due to excessive inflows in the tunnel during construction. This condition was also reviewed by tunnel construction experts through Michigan Department of Transportation.

Comments were received during the public comment period concerning whether Rule 323.1070(1) and Rule 323.1070(2) were applied to this permit. Information provided in the comments indicated that the ambient water temperatures listed in Rule 323.1070(2) are not accurate and the current ambient temperature in the Straits of Mackinac are lower than listed in the Rule. Based on the additional information provided by commenters, Rule 323.1070(2) was reevaluated. Rule 323.1070(1) states the Great Lakes and connecting waters shall not receive a heat load which would warm the receiving water at the edge of the mixing zone more than 3 degrees Fahrenheit above the existing natural water temperature. During this reevaluation, it was determined that an error existed in the initial temperature review and was corrected. Estimated temperature values provided by the applicant were compared to the results of the revised calculations completed to determine if Rules 70 is met. Based on the results of this reevaluation, using ambient data and the corrected equation, EGLE had determined monthly average heat addition (Thermal Discharge) limits are needed to meet Rule 70. The recommended thermal discharge limits are now included in the permit from November through May. Daily Monitoring requirements for Intake Temperature are now included due to the addition of the Thermal Discharge limitation. In addition, a maximum daily limitation of 85 degrees Fahrenheit is also included in the permit with daily monitoring requirements.

Based on comments received from the public, clarification was requested from Enbridge on the transportation and storage of bentonite clay and the sizing of the storm water basins. The information provided by Enbridge after the public comment period did not require changes to the permit.

Limit Change Key
Normal Type = existing requirement - carried over from previous version of permit
Bold Type = new requirement - not in previous version of permit
Italic = deleted requirement - not carried over from previous version of permit

Basis for Limits Key
BPJ - Best Professional Judgment of appropriate treatment technology-based effluent limits in the absence of applicable federal guidelines
WQBEL - Water Quality-Based Effluent Limit
WQC - Water Quality Concern
WQS - Water Quality Standard
PWJ - Permit Writer's Judgment