



National Pollutant Discharge Elimination System (NPDES)/

State Disposal System (SDS) Permit Program Fact Sheet

Permit Issuance

MN0071366

Permittee:

Enbridge Energy Limited Partnership
11 E Superior Street, Suite 125
Duluth, Minnesota 55802-2268

Facility name:

Enbridge Energy Line 3 Replacement Project
Minnesota

Public comment period begins:

March 2, 2020

Public comment period ends:

April 3, 2020 at 4:30 p.m.

Receiving water:

Multiple – See facility description

Table of Contents

	Page
Purpose and participation	3
<i>Applicable statutes</i>	3
<i>Purpose</i>	3
<i>Public participation</i>	3
Facility description	4
<i>Facility location – Surface water Discharges</i>	6
Surface Water Discharges	6
<i>Background information</i>	9
Extent of NPDES/SDS Regulation/coverage	9
Industrial Activity and Process Wastewaters	9
Potential pollutants of concern (POCs)	12
Components and treatment technology	14
Incorporation by Reference	14
Treatment Systems and Best Management Practices	20
Groundwater	23
Surface Water – Receiving Waters	23
Endangered Species:	24
Impairments	24
Invasive Species	24
Outstanding Resource Value Water (ORVW)	25
Wild Rice Stands	25
Proposed permit effluent limits	25
State Discharge Restrictions	25
Technology based effluent limits	26
Water quality based limits	27
Final Permit Limits	28
Additional requirements	29
Variances	29
Total facility requirements (TFR)	29
Antidegradation	30
Anti-Backsliding	30
Attachment 1: Preliminary Antidegradation Determination	32

Purpose and participation

Applicable statutes

This fact sheet has been prepared according to the 40 CFR § 124.8 and 124.56 and Minn. R. 7001.0100, subp. 3 in regards to a draft National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota.

Purpose

This fact sheet outlines the principal issues related to the preparation of this draft permit and documents the decisions that were made in the determination of the effluent limitations and conditions of this permit.

Public participation

You may submit written comments on the terms of the draft permit or on the Commissioner's preliminary determination. Your written comments must include the following:

1. A statement of your interest in the permit application or the draft permit.
2. A statement of the action you wish the Minnesota Pollution Control Agency (MPCA) to take, including specific references to sections of the draft permit that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the Commissioner to investigate the merits of your position.

The MPCA will hold three public information meetings to provide information and answer questions about the draft NPDES/SDS permit proposed for Enbridge Line 3. The first meeting will be held from 1:00 p.m. to 9:00 p.m. on Tuesday, March 17, 2020 at the Sanford Center in Bemidji, Minnesota, located at 1111 Event Center Drive NE. The second meeting will be held from 1:00 p.m. to 9:00 p.m. on Wednesday, March 18, 2020 at the Timberlake Lodge in Grand Rapids, Minnesota, located at 144 SE 17th Street. The third meeting will be held tentatively from 4:00 p.m. to 8 p.m. on Wednesday, April 1, 2020 at the Shooting Start Casino in Mahanomen, Minnesota, located at 777 SE Casino Road. The meetings will consist of an open house for informal discussion, an opportunity for written public comment submittal, and formal public comment open microphone opportunities.

In addition, you may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1 and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page one of this notice. All written comments, requests, and petitions received during the public comment period will be considered in the final decisions regarding the permit. If the MPCA does not receive any written comments, requests, or petitions during the public comment period, the Commissioner or other MPCA staff as authorized by the Commissioner will make the final decision concerning the draft permit.

Comments, petitions, and/or requests must be submitted by the last day of the public comment period to:

Enbridge Line 3 Public Comments – Water Quality
520 Lafayette Road N
St. Paul, MN 55155-4194
Or they can be electronically submitted to:
<http://NPDES-SDS.mPCA.commentinput.com>

The permit will be issued if the MPCA determines that the proposed Permittee or Permittees will, with respect to the facility or activity to be permitted, comply or undertake a schedule to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the MPCA and the conditions of the permit and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the facility may be found in the Permit document.

Facility description

The Enbridge Energy Line 3 Replacement (L3R) Project consists of approximately 355 miles of new 36-inch-diameter pipeline traversing the states of North Dakota, Minnesota, and Wisconsin, and terminating at the existing Enbridge Superior terminal facility near Superior, Wisconsin. This permit does not cover the segments of the line that cross into Fond Du Lac Band of Lake Superior Chippewa Reservation. Enbridge's Designated Route generally follows the existing Line 3 pipeline along the Enbridge Mainline System right-of-way (ROW) from the North Dakota/Minnesota border in Kittson County to the Clearbrook Terminal in Clearwater County. Next, L3R begins a new route and turns south from Clearbrook to generally follow an existing third-party crude oil pipeline ROW to Hubbard County. The route then turns east to generally follow other existing electric transmission lines until it rejoins with the Enbridge Mainline System right-of-way in St. Louis County through the Fond Du Lac Band of Lake Superior Chippewa Reservation to the Minnesota/Wisconsin border in Carlton County. This NPDES/SDS permit is primarily to authorize the discharge of waters associated buoyancy control and hydrostatic testing of new pipeline. Enbridge will seek a separate permit for authorization to discharge waters associated with construction stormwater. Four activities will generate process wastewater requiring discharge:

- Buoyancy water introduced during pipeline installation using the horizontal directional drill ("HDD") method;
- Buoyancy water introduced during pipeline installation using the push-pull method;
- Hydrostatic testing of HDD pipe segments (referred to as 'pre-tests'); and
- Hydrostatic testing of mainline spread segments.

Buoyancy control water may be introduced when using the HDD and push-pull construction methods to temporarily maintain the pipe in place during the installation process. This water will be removed from the pipe segment once it has been successfully installed. Hydrostatic testing is done to test the integrity of the pipeline. Hydrostatic testing of HDD pipe segments, referred to as hydrostatic "pre-test" will occur prior to installation. Hydrostatic testing of mainline pipe segments is done after large sections of pipe are installed and tied-in (i.e., welded) and prior to commissioning to verify that there are no flaws in the pipe or welds. Hydrostatic testing involves filling the new pipeline segments with water, raising the internal pressure level, and holding that pressure for a specific period of time per U.S. Department of Transportation specifications. The Fact Sheet contains more details regarding both discharges.

This permit authorizes 23 surface water discharge locations to the following waterbodies (may be more than one discharge at a given waterbody): Red River, Tamarac River, Middle River, Red Lake River, Clearwater River, Lost River, Island Lake, Shell River, Crow Wing River, Clear (Eagle) Lake, Pine River, Willow River, Mississippi River, East Savanna River, Chub Lake, Snake River, Daggett Brook, Lake George, and the St. Louis River. The number of SD stations in the permit goes up to 27, because some locations have been removed, and are no longer authorized for use. For tracking purposes, the numbering was not changed. Discharges associated with each individual activity (i.e., HDD buoyancy control, HDD pre-test, mainline hydrostatic test) will occur once; however, because these activities do not occur concurrently, additional separate discharges could occur at a surface water depending on the number of activities proposed at each discharge location. Additional discharges may also occur at a given surface water if a different discharge location is unavailable. The pipe is unused, and has had no contact with petroleum. The source water used for each surface water discharge will go back to the water from which it was appropriated, or the water may be

discharged to an upland location for infiltration as described below. Water sourced from groundwater will not be discharged to surface waters. Each discharge will be treated such that it will meet the limits and monitoring section of this permit.

This permit authorizes 26 upland discharge locations used for infiltration. The number of stations goes to 27, because some locations have been removed, and are no longer authorized for use. For tracking purposes, the numbering was not changed. Discharges associated with each individual activity (i.e., push-pull buoyancy control, HDD buoyancy control, HDD pre-test, mainline hydrostatic test) will occur once; however, because these activities do not occur concurrently, additional separate discharges could occur at an infiltration site depending on the number of activities proposed at each discharge location. Additional discharges may also occur at an infiltration site if other sites are not available. The facility has submitted an Infiltration Plan (Plan) for discharges to upland areas that describes the operation and maintenance requirements for the upland discharge areas. This Plan has been incorporated into the permit by reference and shall direct the actions to be taken so as to maintain and prevent unauthorized discharges from the application areas. Any changes to the Plan, to accommodate unexpected conditions, shall be submitted to the MPCA for review and approval. Plan changes must provide equivalent or greater environmental protections.

No chemical additives will be added to wastewater discharged back to surface waters. Chemical additives approved by MPCA staff may be used in discharges to upland areas when tertiary treatment is necessary to prevent nuisance conditions at the point of discharge. All pipe to be hydrostatically tested will be cleaned prior to testing, and that water will be hauled off site and treated. If the pipe is not been cleaned prior to the introduction of buoyancy water, that water will be treated prior to discharge.

An anti-degradation assessment was completed as part of the proposed facility application. As part of the anti-degradation review, the Facility is accepting limits for all the pollutants of concern: total suspended solids (TSS) and color. The anti-degradation assessment and subsequent review demonstrate that water quality degradation for TSS and color can be avoided through the use of infiltration, end-of-pipe treatment and BMP's prior to discharge and therefore existing beneficial uses will be protected. Therefore, the project satisfies anti-degradation standards in Minn. R. 7050.0265.

Changes to the facility may result in an increase in pollutant loading to surface waters or other causes of degradation to surface waters. If a change to the facility will result in a net increase in pollutant loading or other causes of degradation that exceed the maximum loading authorized through conditions specified in the existing permit, the changes to the facility are subject to antidegradation requirements found in Minn. R. 7050.0250 to 7050.0335.

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding which states, any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the MPCA that contains effluent limits more stringent than those that would be established by Minn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.

This permit has been developed based on the November 25, 2019 application and amendments made February 7, 2020.

*Facility location – Surface water Discharges***Surface Water Discharges**

Station	Local name	PLS location
SD001	Red River	T160N, R50W, S04
SD002	Tamarac River	T157N, R47W, S16
SD003	Middle River	T156N, R46W, S07
SD004	Red Lake River	T153N, R43W, S32
SD005	Clearwater River	T151N, R42W, S09
SD006	Lost River	T149N, R38W, S15
SD007	Clearwater River	T147N, R37W, S21
SD009	Island Lake	T141N, R35W, S05
SD010	Shell River	T139N, R34W, S31
SD011	Crow Wing River	T138N, R33W, S05
SD012	Clear (Eagle) Lake	T138N, R30W, S10

SD013	Pine River	T138N, R29W, S08
SD015	Willow River	T51N, R24W, S31
SD017	Mississippi River	T51N, R24W, S27
SD018	East Savanna River	T51N, R21W, S20
SD020	Chub Lake	T48N, R17W, S23
SD021	Snake River	T155N, R46W, S12
SD022	Lost River	T150N, R41W, S1
SD023	Shell River	T139N, R35W, S36
SD024	Shell River	T138N, R34W, S01
SD025	Daggett Brook	T139N, R34W, S01
SD026	Lake George	T139, R26W, S7
SD027	St. Louis River	T51N, R20W, S27

Table 1: Surface Water Discharges: This table provides the general information on the Surface Water (SD) discharge sites where hydrostatic process wastewaters will be discharged. Names assigned to the locations are related to where the hydrostatic waters originate and to which they will be discharged following hydrostatic testing and treatment.

Outfall location – Land Application

Land Application Station	Local name	PLS location
LA301	Upland discharge - Red River	T160N, R50W, S09
LA302	Upland Discharge - Tamarac River	T157N, R47W, S16
LA303	Upland Discharge - Middle River	T156N, R46W, S18
LA304	Upland Discharge - Snake River	T155N, R46W, S12
LA305	Upland Discharge - Red Lake River	T153N, R43W, S32
LA306	Upland Discharge - Clearwater River	T151N, R42W, S09
LA307	Upland Discharge - Clearwater River	T147N, R37W, S21
LA308	Upland Discharge - Mississippi River	T145N, R36W, S35
LA309	Upland Discharge - Well 232423	T139N, R35W, S6
LA310	Upland Discharge - Well 763975	T141N, R35W, S20
LA311	Upland Discharge - Well 763975	T140N, R35W, S32
LA313	Upland Discharge - Shell River	T139N, R35W, S35
LA314	Upland Discharge - Shell River	T139N, R34W, S32
LA315	Upland Discharge – Well 46511	T138N, R34W, S01
LA316	Upland Discharge – Well 797182	T138N, R33W, S05
LA317	Upland Discharge - Mississippi River	T51N, R24W, S27
LA318	Upland discharge - Willow River	T51N, R24W, S31
LA319	Upland discharge - East Savanna River	T51N, R21W, S20
LA320	Upland Discharge - Pine River	T138N, R29W, S08
LA321	Upland Discharge - Daggett Brook	T139N, R26W, S19
LA322	Upland Discharge - Daggett Brook	T139N, R26W, S15
LA323	Upland Discharge - Trench water	T51N, R20W, S27
LA324	Upland Discharge - Tamarac River/Red Lake River	T155N, R45W, S33
LA325	Upland Discharge - Pine River	T138N, R29W, S08
LA326	Upland Discharge - Red Lake River/Clearwater River	T151N, R42W, S4
LA327	Upland Discharge - Mississippi River	T51N, R24W, S27

Table 2: This table provides the general information on the land application sites where hydrostatic process wastewaters will be infiltrated. Names assigned to the locations are related to the water source used to obtain the hydrotest waters.

Map of permitted facility

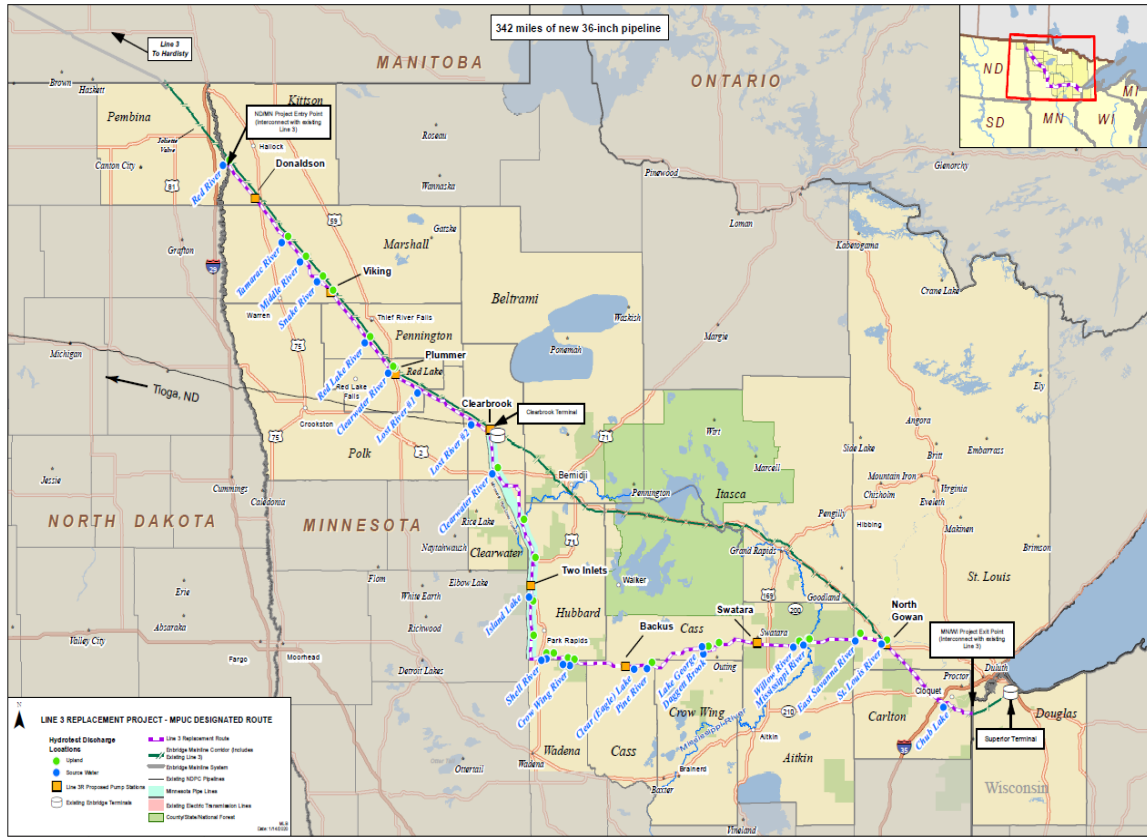


Figure 1. The map above shows the various locations of where upland discharges (●) and surface water discharges (●) will be utilized. Local names associated with these locations are generally assigned based upon the name of the source of water used for the construction activity. More detailed site diagrams are provided in the permit application supplemental submittal. (Note: --- = Replacement Line, ---/---/--- = Existing Line, ■ = Pump Stations)

*Background information***Extent of NPDES/SDS Regulation/coverage**

The installation process for petroleum pipelines requires extensive amount of complex construction work over many miles. Due to the large expanse of the project, many different regulatory agencies come into play for the oversight of the project. Therefore, this NPDES/SDS Permit will not address all environmental concerns related to the installation of the petroleum pipeline project. However, it is important to clearly delineate those areas of the construction activity that are directly addressed and regulated with this permit. In short, this permit regulates the discharge and disposal of process wastewaters generated during the installation and hydrostatic testing of the new construction pipelines to either surface waters or land application sites for infiltration within the state of Minnesota, and outside the external boundaries of the Fond du Lac Band of Lake Superior Chippewa Reservation. In the supplemental information portion of the application, submitted November 25, 2019, and updated with the February 7, 2020, revised submittals, the Permittee provides a list of permits required for this project, and where they are at in the permitting process. A copy of the application can be found on the MCPA webpage: <https://www.pca.state.mn.us/regulations/industrial-wastewater-permit-enbridge-line-3>

Surface water discharges will be regulated by the permit by establishing limits and monitoring for pollutants of concern (POCs) that may be present in the discharged process wastewaters, as well as assuring that the narrative standards are attained. Additionally, the discharge of these waters to surface waters, and at land application sites, shall be conducted in such a manner that they do not damage to the receiving environment. Best Management Practices (BMPs) and designed energy dissipation discharge structures will be required to conform to the design details provided in the supplemental application material that was reviewed as part of the application review process. The objective of the designs are such that the discharges are properly treated before being discharged to the outlets.

Below is a discussion of the installation processes, environmental concerns, and the extent of the activities directly covered and addressed by this permit, which is followed by an overview of the BMP's that are specific to the project.

Industrial Activity and Process WastewatersPipeline Installation, Testing, BMPs, and Process Wastewaters -- Potential POCs

The extent of the Project activities addressed in this permit include steps taken to facilitate the pipeline installation process and to conduct hydrostatic (water pressure) testing of the pipelines to verify the pipeline infrastructure meets applicable industry requirements for fluid tightness and strength. This testing can occur prior to, during, and always following final pipeline installation. There are several industrial process wastewater types that will be generated during construction as a result of these activities. These different types of wastewaters will therefore have the potential to contain different types and amounts of POCs.

Water Appropriations: Water used for testing will be appropriated from two sources to include surface waters (i.e., lakes, rivers, or streams) and groundwaters. The appropriation of these waters will be done in accordance with the Minnesota Department of Natural Resources (DNR) permitting process. These waters will be taken from numerous places along the construction route. Once used during the construction process, these waters become process wastewaters that will need to be disposed of in an environmentally protective manner. Consideration as to the source water background pollutants were considered during the determination of the treatment needs for the discharges.

Buoyancy Control: During the pipeline installation process, due to the various types of environments that the pipelines will be installed in, there will be different methods of installation required. To provide adequate background on the potential POCs that are addressed, it is instructive to provide an overview of the installation processes and the potential sources of pollution parameters and methods employable to minimize pollution potential. The two pipeline installation methods that may require the use of buoyancy control water, and thus generate a process waste stream, include the push pull and HDD methods.

Table 3. Push Pull Installation

Process Wastewater Sources	Water Source(s)	Disposal Method / Location	POCs: Source and Parameters	Treatment(s) & BMPs	NPDES Monitoring
Buoyancy Control for Pipes with water	Trench groundwater dewatering	Land Application	Trench Water with Suspended soils (TSS, color CBOD5); Uncleaned Pipeline - Pipeline Scale (TSS, Fe, Mn, - Color)	Frac Tank (settling), Sand Filter, 10-micron bag filter, 0.5 micron bag filter, optional carbon pods, and chemical additive, Straw bale structure with geotextile fabric lined and/or filter bag	Color, Turbidity, Erosion and sediment control BMPs, Monitor Flow

“Push-Pull” installation is utilized in areas with higher groundwater levels. During the installation process the placement of the pipeline becomes difficult as the empty pipeline may undergo displacement if saturated soils are able to slip beneath the pipe before burial is complete. In this case, the pipeline section is assembled on land, while the trench is prepared. Installation of the pipe in the trench at the desired depth is conducted by pushing and pulling the pipe into the prepared trench for placement. To keep the pipeline in the desired location the pipe segment needs to be weighted down. This is accomplished by allowing the water in the trench to passively fill the pipe through a filter bag placed over either end of the open pipe. This water type of water is referred to as “buoyancy water”. Once in proper placement, the trench may be backfilled.

Once the trench has been properly backfilled, and adjacent pipe sections are tied in up to the infiltration site the buoyancy water will be removed from the pipeline by using compressed air to push a poly pig (i.e., a dense foam smooth surface pig) through the pipeline. Although this is not a cleaning pig (i.e., one with brushes) this process may still dislodge some portion of the pipeline scale. Given the higher potential for contaminants in the process waters due to exposure to construction soils and waters, as well as pipe scale, these buoyancy waters will require additional monitoring and potential treatment steps prior to discharge to land. Buoyancy water will not be discharged to surface water. This higher treatment capacity has been included in the incorporated treatment plans. Treatment will include the use of the filtration system with turbidity monitoring and the option to activate or bypass a green sand media filter and/or carbon pod. An optional oxidation and/or dechlorination process, as needed to remove undissolved iron and manganese, will be made available.

Table 4. Horizontal Directional Drilling

Horizontal Directional Drilling (HDD)					
Process Wastewater Sources	Water Source(s)	Disposal Method / Location	POCs: Source and Parameters	Treatment(s) & BMPs	NPDES Monitoring
Pipe Cleaning Run	Surface water OR Groundwater	Off-Site Disposal	Per established by WWTP Requirements	Disposal Offsite at facility permitted to accept/treat the wastes.	Chain of Custody
Pre-test (before Installation) and HDD Buoyancy Control	Surface water OR Groundwater	Land Application	Source Water (TSS, color, CBOD5)	Straw bale structure with geotextile fabric lined and/or filter bag	BMP Monitor, Flow
		Surface Water	Source Water (TSS, color, CBOD5) Note: Water sourced from groundwater will not be discharged to surface waters.	Filtration System with carbon Pod Optional	POCs, Flow

Horizontal Directional Drilling (HDD), is an installation process utilized in areas where the pipeline must be installed so as to not alter or interfere with a surface feature. These features can include streams, rivers, lakes, roads, wetlands, and other sensitive areas. This type of installation includes several steps to prepare and test the HDD segment of the pipeline. The section of pipe installed by means of HDD must be pre-assembled prior to installation. This is conducted above ground near the location of installation. Once pre-assembled the pipe is cleaned and then hydrostatically tested above ground producing the “HDD pre-test water”. During the HDD installation process, additional water may be introduced to the pipe to reduce friction as the pipe is being pulled through the drilled hole, producing a “HDD buoyancy control water”.

Table 5: Mainline Hydrostatic Testing Process Wastewaters

Process Wastewater Sources	Water Source(s)	Disposal Method / Location	POCs: Source and Parameters	Treatment(s) & BMPs	NPDES Monitoring
Pipe Cleaning Run	Groundwater OR Surface water	Off-Site Disposal	Per established by WWTP Requirements	Cleaning water and debris hauled off-site and properly disposed of at an approved waste facility.	Chain of Custody
Hydrostatic Test	Groundwater OR Surface water	Land Application	Source Water (TSS, color, CBOD5)	Frac Tanks (flow control), Sand Filter, 10 micron bag filter, 0.5-micron bag filter, optional carbon pods, Straw-bale structure (geotextile fabric lined and/or filter bag)	Site Monitoring
		Surface Water	Source Water (TSS, color, CBOD5) Note: Water sourced from groundwater will not be discharged to surface waters.	Frac Tanks (flow control), Sand Filter, 10 micron bag filter, 0.5-micron bag filter, optional carbon pods, Energy Dissipation Device	Color, Turbidity, CBOD5, Monitor Flow

“Mainline Hydrostatic Testing” After large sections of the mainline pipeline have been installed and tied-in (i.e., welded), the pipe segments will be hydrostatically tested to verify that there are no flaws in the pipe or welds. Mainline pipeline segments will first be cleaned to remove construction debris, pipe scale, and cleaning water. The cleaning water and debris will be hauled off-site and properly disposed of at an approved waste facility. Then, water will be introduced to the cleaned pipe to conduct the hydrostatic test. In general, these types of process waters will have the lowest of concentration POCs, and will represent the majority of the process wastewaters generated during the pipeline installation project.

Potential pollutants of concern (POCs)

As part of the permitting process it is necessary to identify the potential pollutants of concern (POCs) and environmental risks associated with the proposed industrial activity. The primary industrial activity POCs to be evaluated include those that may be associated with source waters, pipe materials, and the means of controlling effects of the discharges on surface water physical environments. These concerns are addressed separately below and include necessary considerations for surface water discharges and land application sites.

Source Waters POCs

Sources of waters, used to perform the hydrostatic testing, will come from rivers, lakes or wells. At this time all proposed well waters will be sourced from wells that do not include disinfectant treatment, such as chlorination. If it becomes necessary for to utilize well water is sourced from a municipality that conducts disinfection using chlorination, then the water would have to be treated to remove the residual chlorine. Treatment could be conducted either prior to use or following its use as hydrostatic water. River and lake sourced waters will have natural background levels of POCs. This would include total suspended solids (TSS)/turbidity, five-day carbonaceous biochemical oxygen demand (CBOD5), color, iron, and manganese. The natural conditions of the source waters are considered background levels and in some

cases, the background can be used in the determination of establishing a discharge standard. Color was the only parameter that has surface discharge standards established using source water background levels. The determination and application of discharge limits is discussed in more detail in the “Proposed permit effluent limits” section of the factsheet.

Pipe Materials

Hydrostatic waters are exposed to the pipe materials during the testing process. The exposure of the waters to the pipe material is minimized to only the interior of the pipeline segments. Welds are comprised of the same materials as the pipe. As such, welding of the pipeline segments together does not present exposure to different POCs. The primary exposure risk with the pipe material is limited to the mill scale that is present in the pipe segments. This pipe mill scale is a thin surface layer of iron oxides formed on the rolled pipe material when produced at the production plant.

In order to provide the MPCA with some information concerning the composition of metals that might be present in the process wastewaters, due to exposure to the pipe scale, the Permittee conducted a desktop evaluation. For this evaluation a portion of an uncleaned pipe was obtained from the field where it had been exposed to weather conditions. Water used to soak the uncleaned pipe was obtained from one of the proposed surface discharge rivers (Red Lake River). Analysis for metals were made on the river water, and the soak waters after 24 and 48 hours. The only metals with a level of potential concern were iron (Fe) and manganese (Mn). The concern with the levels that were released from the pipe to the water was the potential for exposed water to have levels of metals near or above the drinking water standards. The iron levels in the soak water was above the EPA secondary drinking water quality standards, which means they impart a metallic taste to water above the standard. For manganese, the concentration was above MDH Health Risk Limit for drinking waters. In both cases there would be a concern for the discharge of hydrostatic waters from uncleaned pipe to surface waters that are used as drinking water sources. This risk is minimized by the proposal to clean all pipes prior to hydrostatic testing if the waters will be discharged to surface waters. This practice, along with the use of the filtration systems for all surface water discharges to treat for solids, will eliminate the need to assign Fe and Mn limits. More particular concerns with the potential metals in the discharges are discussed below.

- **Iron:** Iron concentration is a pollutant of concern for three discharges, SD001 (Red River), SD002 (Tamarac River) and SD004 (Red Lake River), because the receiving waters at these locations are Class 1C, protected as drinking water sources. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be treated prior to discharge by: frac tanks, sand filters, bag filters, and potentially carbon filters, if needed. In addition, drinking water intakes are located over 25 miles downstream of the discharge locations. Due to the long distance to the closest drinking water intake, the amount of dilution provided by the receiving water, and the treatment provided, no negative impacts are expected.

Iron discoloration: Water discoloration due to iron is a pollutant of concern. Iron in the water can react with oxygen to produce a red particulate in the water. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be treated prior to discharge by: frac tanks, sand filters, bag filters, and potentially carbon filters, if needed. Since oxidized iron is a particulate, it will be removed by the same type of treatment used for removal of TSS. Due to the treatment provided, no negative impacts are expected.

- **Manganese:** Manganese concentration is a pollutant of concern for three discharges, SD001 (Red River), SD002 (Tamarac River) and SD004 (Red Lake River), because the receiving waters at these locations are Class 1C, protected as drinking water sources. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be treated prior to discharge by: frac tanks, sand filters, bag filters, and potentially carbon filters, if needed. In addition, drinking water intakes are located over 25 miles downstream of the discharge locations. Due to the long distance to the

closest drinking water intake, the amount of dilution provided by the receiving water, and the treatment provided, no negative impacts are expected.

Protection of groundwaters at land application sites from Fe (iron) and Mn (manganese) discharges

Land application sites are chosen using desktop information and evaluation. Sites are chosen based upon the ability of the sites to have the capacity to infiltrate the process wastewaters. Both Fe and Mn are common elements present in the soil column and in groundwaters. Therefore, these elements already exist at all sites in background levels. Discharges of treated process wastewaters that contain residual levels of these metals does not present a risk to the underlying groundwaters. This finding is based upon a common understanding of the fate and transport of these metals in the soil and subsurface water environments. In general, both dissolved and solid forms of these metals will be exposed to aeration as they are applied and as they enter in the upper soil column. This aeration will cause significant oxidation of the dissolved materials and causing them to form solids. In a solid form, these metals will be retained within the soil column until reducing conditions cause them to be mobilized by dissolving in the subsurface water. Loading rates of these metals onto the land sites will be minimal due to the temporary discharge of treated process wastewaters. As for potential long term effects, the presence of these applied metals may be taken up by the vegetation as part of the plants essential mineral needs. Application of crop fertilizers do sometimes include these metals due to a low content present within the soil column. In summary, the proposed application of treated process wastewaters will not cause an environmental concern to either the vegetation or the underlying groundwater. The facility plans and the permit contain conditions that require the application of adequate treatment to avoid the nuisance condition of discoloring of the soil. By not discoloring the soils, it will be an indication that Fe, and most likely Mn, are being adequately treated to acceptable application rates.

Physical Alteration of Surface Waters (i.e. bottom and banks)

The scope of this review is limited to the NPDES-permitted discharges from the proposed project by Enbridge. The proposed activity addressed in this review will not result in a physical alteration to a surface water and thus, compensatory mitigation as a means to preserve an existing use is not necessary. Physical alteration to a surface water is being prevented through the use of energy dissipating BMPs at the point of discharge and limitations on the rate of water allowed to be discharged. Issues related to physical alterations of surface waters due to construction activities and compensatory mitigation are addressed in the Section 401 certification antidegradation review.

Components and treatment technology

In the prior sections the industrial activities and the potential sources for pollutants of concern (POCs) were discussed. The various treatment technologies and BMPs that are utilized in treating the process wastewaters will be discussed in more detail below.

Incorporation by Reference

The Permittee submitted an initial application for an Individual National Pollutant Discharge Elimination System/State Disposal System ("NPDES/SDS") Permit for industrial process wastewater discharged during construction of Line 3 Replacement Project on October 31, 2018. With this initial submittal the construction plans reflected construction practices and pollution prevention actions that have been used in the past on other petroleum pipeline installation projects across the country. However, based upon feedback from the MPCA and the Minnesota Department of Natural Resources (DNR), a revised application was submitted on November 25, 2019, and a final amendment was submitted February 7, 2020. This was to address requests for process on-going oversight as well as verification of operational and maintenance quality assurances. Continued review and clarifications eventually lead to construction documents that provide clarity to how construction will be handled in a manner that environmental safe guards will be directly incorporated. Therefore, these plans reflect what can be considered industry standard practices for petroleum pipeline installation. Due to the complexity of the permitted project, the permit incorporates the construction submittals by reference. Additionally, the permit also delineates specific minimum requirements for various activities that will require site specific environmental protection measures or actions that must be adjusted to meet site specific variables. The

information below discusses the various treatment technologies, various components, and BMP's that are in the construction plans and will be applied during activities to address the POCs in the various industrial process wastewaters.

Wastewater that is to be treated and controlled under this permit includes those wastewaters generated during the pipeline installation and hydrotesting activities described above. Other wastewaters generated during the pipeline installation process will be covered by either the 401 certification or the construction stormwater permit and are not addressed in this factsheet. There will be several types of wastewaters generated and controlled under this permit. The difference between the different types is a result of differences in exposure of the wastewaters during the construction activities. Additionally, below are flow schematics that illustrate the control and treatment processes, oversight of operation, and ultimate disposal of the waters to either surface water or land application.

Infiltration Plan

The Facility has submitted an Infiltration Plan that describes the operation and maintenance requirements for the upland discharge areas. This Plan has been incorporated into the permit by reference and shall direct the actions to be taken so as to maintain and prevent discharges from the application areas. Additionally, the plan shall provide sufficient BMPs to protect the vegetation and prevent rutting of the land surface so the site will not be an environmental issue following closure. Any changes to the plan, to accommodate unexpected conditions, shall be submitted to the MPCA for review and approval. Plan changes must provide equivalent or greater environmental protections.

Process wastewater flow diagram.

Figures 2, 3, 4 & 5. Figures below show the flow of hydrostatic waters from the source water intake to the ultimate discharge or alternate disposal option. The shaded boxes show locations where verification determinations or testing will take place so as to assure adequate design and proper operation of treatment system. Alternatively, discharges may be disposed of at municipal or industrial wastewater treatment plants or waste disposal facilities.

Figure 2. Treatment Process for Surface Discharges

The figure below is a generalized process flow diagram for surface water discharges. Included is an overview of the generation, treatment, and oversight conditions applied during the process.

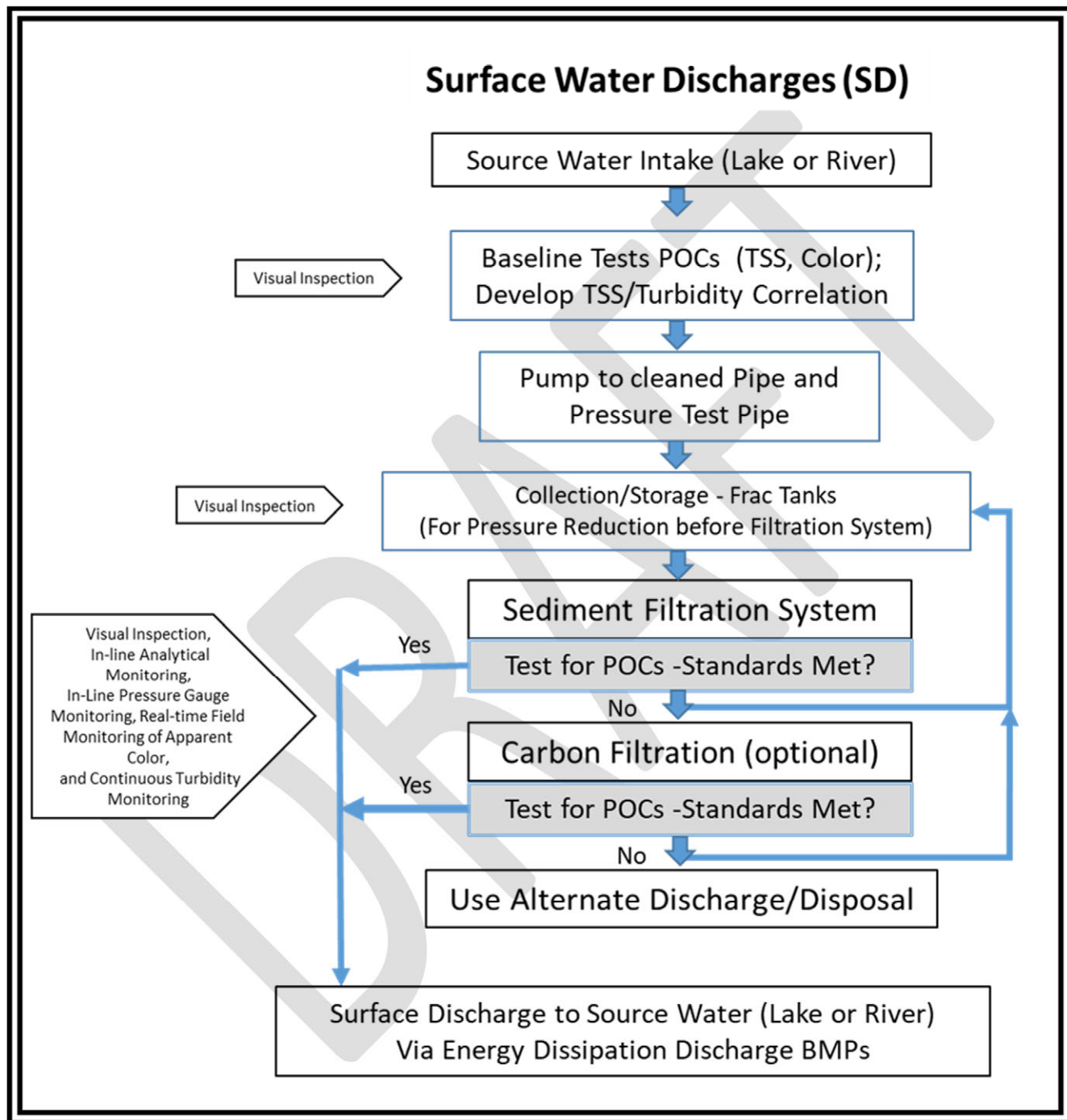


Figure 3. Treatment Process for Land Application Discharges – Mainline Hydrotest Waters

The figure below is a generalized process flow diagram for mainline hydrotest water discharges to land application sites. Included is an overview of the generation, treatment, and oversight conditions applied during the process.

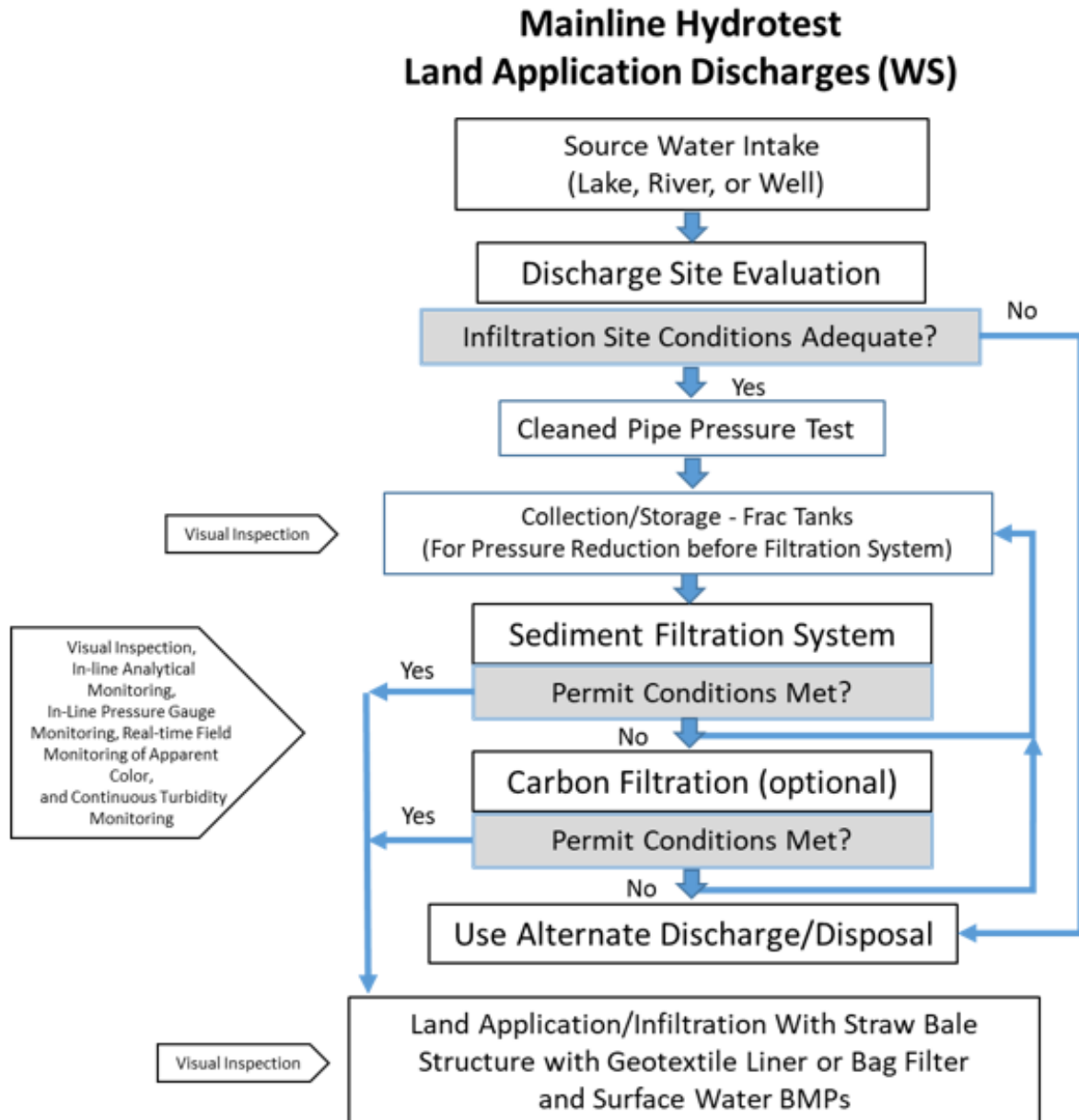


Figure 4. Treatment Process for Land Application HDD Hydrostatic test (hydrotest) and Buoyancy Discharges

The figure below is a generalized process flow diagram for HDD hydrotest and HDD buoyancy control discharges to land application sites. Included is an overview of the generation, treatment, and oversight conditions applied during the process.

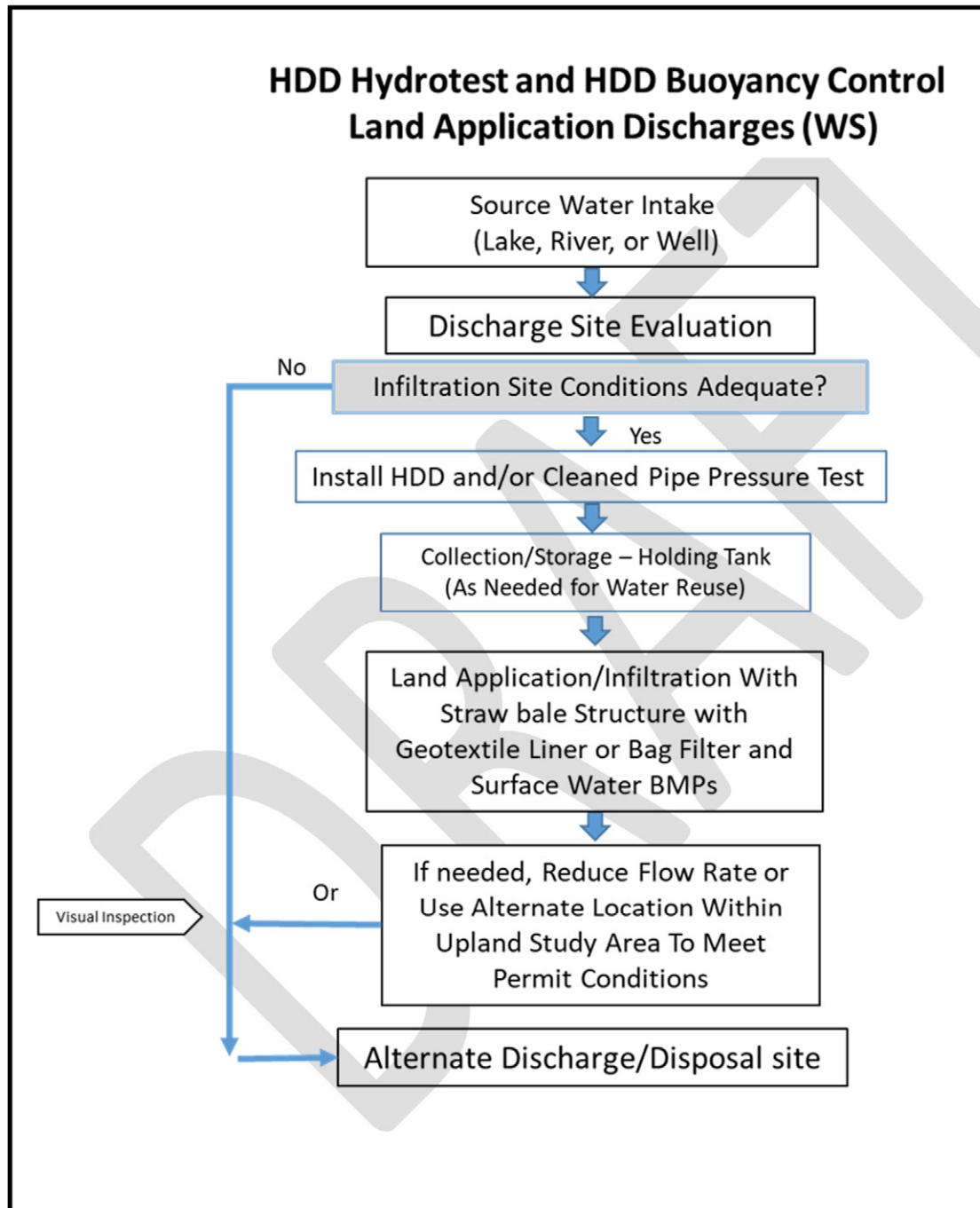
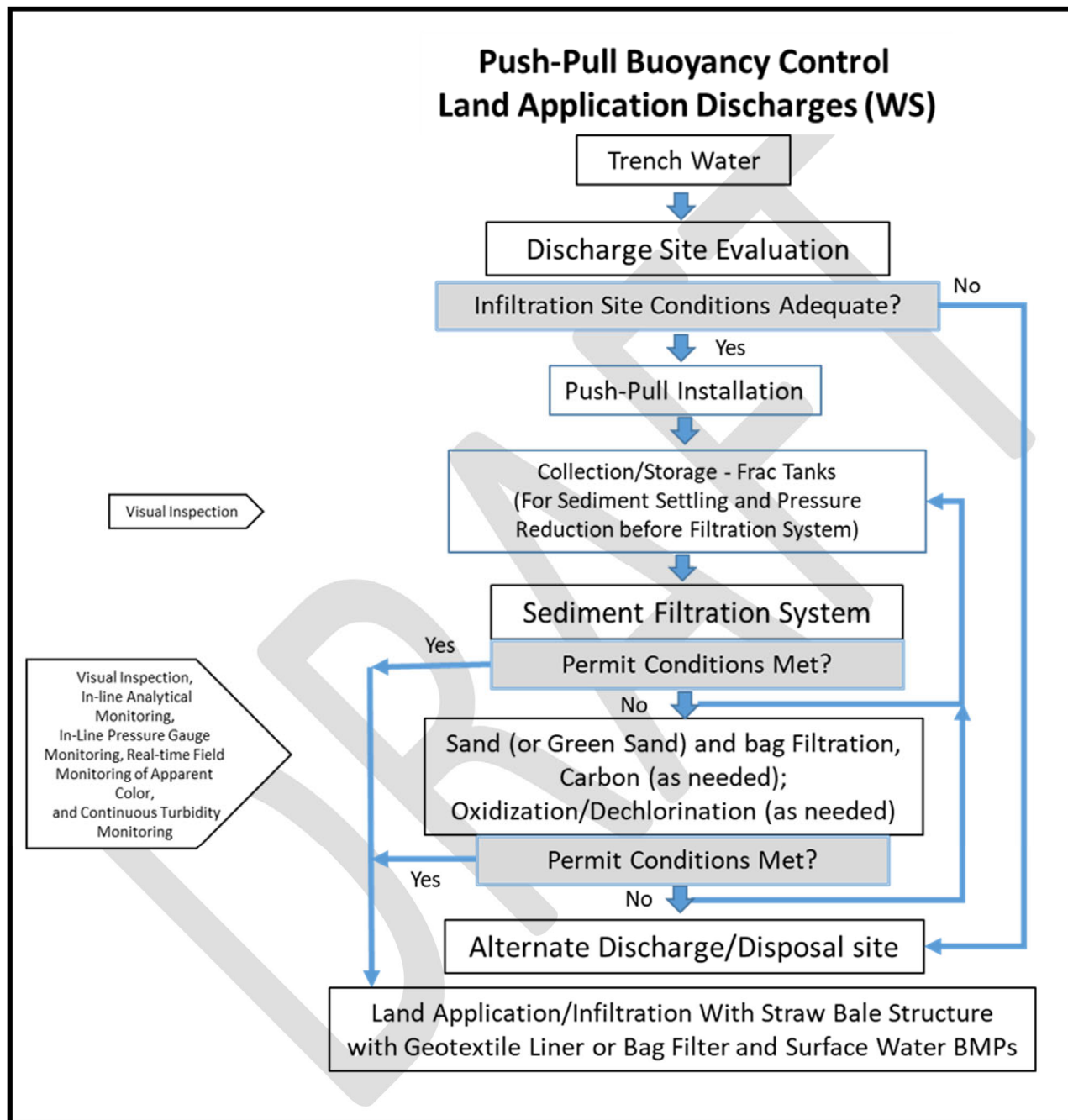


Figure 5. Treatment Process for Push-Pull Buoyancy Control Waters

The figure below is a generalized process flow diagram for push-pull buoyancy control discharges to land application sites. Included is an overview of the generation, treatment, and oversight conditions applied during the process.



Treatment Systems and Best Management Practices

As shown in the Flow Schematics the process wastewaters can undergo different types of treatment and different BMPs can be applied to eliminate and control the pollution potential. Not all systems require the full suite of treatment or BMP options in order to attain compliance. The variability of the contamination levels is discussed along with the different types of process wastewaters in the prior "Industrial Activity and Process Wastewater" part of the "Background Information" section.

Preventative Measures

There are several preventative measures that can be undertaken prior to and during the discharge activity. This includes the following items related to the pipe cleaning as explained below.

Pipe Cleaning Wastewaters

These wastewaters will result from the industry practice of cleaning the pipelines prior to the hydraulic pressure testing of the pipeline segments, following construction and placement. Pipe cleaning includes the removal of construction debris and pipeline mill scale by using a brush system that is pushed through the pipe sections one or more times. The pipe mill scale is a thin surface layer of iron oxides formed on the rolled pipe material when produced. This thin coating layer can become cracked due to pipe handling and exposure to air and moisture. One of the common ways to remove the loose mill scale is by running the brushed cleaning pig through the pipe. All cleaning waters will be collected and hauled off site to be treated by a treatment plant that will accept this type of waste.

- **Cleaning Pig:** Pipe cleaning includes the removal of construction debris and pipeline mill scale by using a brush system that is pushed through the pipe sections one or more times. The pipe mill scale is a thin surface layer of iron oxides formed on the rolled pipe material when produced. This thin coating layer can become cracked due to pipe handling and exposure to air and moisture. One of the common ways to remove the loose mill scale is by running the brushed cleaning pig through the pipe. In this permit, those pipelines that are cleaned in this manner have less potential to produce color issues with hydrostatic or buoyancy water discharges. Therefore, hydrostatic waters from cleaned pipes will require less treatment.

Alternatively, those that are not cleaned will require either the wastewaters be treated with maximum treatment process, or be transported to and disposed of at a facility that is qualified to accept, treat, and dispose of the wastes.

- **Polypig (de-watering):** This is a dense foam, smooth pig moved by compressed air through the pipe to remove water, such as buoyancy water. Due to the polypig being smooth, it is reported to not be effective in removing the pipe mill scale. Thus, it is reported to have less of a potential for producing a process wastewater with high iron-color conditions. Despite this potential lower cleaning level, hydrostatic or buoyancy waters exposed to these polypig treated pipes will require a higher level of treatment as compared to the cleaned pipes. The additional treatment may be determined after removal from the pipe but before discharged to the environment. This will require site-by-site analysis by the permittee staff. Determinations shall be documented and be reported in the Final Discharge Report.

Direct Treatment

When direct wastewater treatment is necessary, prior to point of discharge, to properly treat the industrial process wastewater, several methods are proposed to be used or at least be available to utilize as necessary. Below are the various treatment options used and the accompanying definition of each of the treatment systems.

- **End of pipe treatment:** Enbridge demonstrates that this is a viable alternative. The water needed for large volume hydrotests will be pumped from nearby lakes and/or rivers. After the test, the water will be discharged back to the source. Prior to filling the pipe with water, the pipe will be cleaned. Cleaning should prevent contamination of the hydrotest water from any dirt, debris, or rust in the pipe. Following completion of the hydrotest, the water will be pumped into a frac tank to allow settling. After the frac tank, the water will be pumped through a sand filter, a 10-micron bag filter and a 0.5 micron bag filter. An optional carbon treatment unit will also be available if additional treatment is needed as determined by on-site observations. The frac tank, sand filter, bag filters, and optional carbon treatment combination to avoid an increase in loading to the receiving water occurs due to the discharge of pollutants of concern.
- **Frac Tanks:** These mobile tanks are large truck trailer containers constructed to hold large volumes of liquids. Often times these tanks provide options in which liquids may flow through the container and undergo various processes of pollutant treatment. At this Facility the Frac Tanks may allow extended retention of the stored water so as to allow for settling of solids. Additional tanks may be available on site to provide by-pass protection, flow equalization, filter backwash collection and treatment, or as part of a redirecting of flows back to the head of the treatment works for additional treatment.
- **“Filtration System”:** This is a term used within the construction plans and within this Factsheet to describe the combination of two filtration systems. It will consist of two types of filtration methods: a sand filter system and a bag filter system. These systems are transported to and stored at the site by being placed upon truck trailers. Specialized piping between the systems simplify the flow control and allowances for filter operation and maintenance.
 - **Sand Filter System:** These systems are contained in containers referred to as pods. Within the pods is granular materials that function to remove larger sediments from the water as it passes through the material. Periodic backwashing of the filter media is required to remove the collected solids in the media. Backwash waters will be treated by running the waters through frac tanks for settling and then re-routing the water back to the beginning of the treatment train. Solids will be hauled offsite for proper disposal in the same manner as the other solid wastes.
 - **Bag Filter System:** This filter system utilizes filter fabric to remove the suspended solids in a liquid as it is allowed to flow through the fabric. The filtration bags utilize a 10-micron bag filter followed by a 0.5-micron bag filter. Periodically the bags will need to be cleaned and/or replaced to maintain functionality.
- **Carbon Treatment:** The proposed carbon filter system proposed consist of a contained vessel (“Pod”) that is filled with granular activated carbon medium. This carbon medium has a primary function to provide a medium to which suspended and dissolved POCs can be attached and removed from the process wastewaters. The carbon medium has some capacity to assist with the removal of some of the metals of concern.
- **Green Sand Media and Chemical Additives:** When it is necessary to provide additional treatment to the process wastewaters so as to remove more of the iron and/or manganese the treatment system may include the use of a combination of green sand media and chemical additives. Green sand would be contained in a containment pod and used in place of the sand filter. The green sand is a coated sand material coated with manganese dioxide. This media catalyzes the oxidation of soluble iron and manganese allowing for their removal. To increase the removal of the manganese it is sometimes necessary to also add a chlorine compound. If needed, the Permittee has proposed the use of hypochlorite. So that chlorine is not discharged, due to the chemical

additive, dechlorination tablets would also be used to treat for residual chloride. Prior to discharge the treated process wastewaters will need to be run through the carbon filter and into an additional Frac Tank system for verification of the removal of any residual chlorine before discharge. It is unlikely that the facility will need to take these steps, but they are proposed for assurance of attaining compliance for all discharges.

Best Management Practices (BMPs)

Pipeline Buoyancy Wastewaters: Some portions of the pipeline will be installed in areas where the dewatering of the trenches may be difficult due to the groundwater table elevation. Therefore, to decrease the need to do large quantities of trench dewatering in these areas the pipe will be installed using the push-pull construction method, and some trench water will be used to facilitate the installation process. By filling the various sections with trench water, the pipeline will be held in place during construction. These buoyancy waters will come in contact with pipeline and may also contain some construction debris. These waters will be collected and go through, at a minimum, tertiary treatment to remove any debris or color that will cause nuisance conditions at the point of discharge.

Surface water discharges BMPs

Other causes of degradation: When water is discharged to a surface water, the application states that the energy of the discharging water will be controlled to avoid degradation from erosion and scour from the discharge. To minimize erosion and scouring at the point of discharge, the following actions will be required in the permit:

1. Discharge rates will be limited to 1,500 gallons per minute (gpm) instantaneous maximum and 1,200 gpm daily average.
2. In addition, the permit will require the discharge to slowly increase when first beginning.
3. For discharges to surface waters, the discharge point will be controlled by the use of a "splash pup." A splash pup is a device that is elevated off the bottom of a waterbody to dissipate energy to prevent scouring of the bottom or bank and to provide re-oxygenation of the water. Depending on field conditions, additional protection equipment may be placed underneath and around the splash pup to provide additional bed and bank protection.

Groundwater TBEL – Land Application Sites

Infiltration: Enbridge demonstrates that this is not a viable alternative for all of the large volume hydrostatic tests due to the lack of suitable conditions for infiltration in proximity to the Project. Like spray irrigation, infiltration is limited by soil conditions and weather. Infiltration cannot be done when the soil is saturated or frozen. Enbridge has identified infiltration sites that are near the construction areas that will be able to infiltrate the proposed volumes of wastewater from push-pull buoyancy control, horizontal directional drilling pre-tests and buoyancy control, and some of the mainline hydrostatic tests.

Each land application site is required to be inspected prior to the discharge event to verify that the individual site conditions meet the original designed infiltration plans. Pre-discharge investigations shall include the evaluation of a minimum of two soil borings to a depth of at least three feet. Additional soils samples shall be conducted as needed to verify site conditions. Site conditions to be determined include: depth to water table, soil type profile, slopes, restrictive soil layers, as well as anticipated weather conditions. Following this evaluation the final layout and execution of the discharge structures and BMPs shall be determined, documented, and installed.

During all discharge events the operator must be present to manage and observe the effectiveness of the treatment and discharge BMP's. Operations are required to be altered as necessary so that the discharges do not flow beyond the designed infiltration area. On-going and intermittent monitoring of the effectiveness of the BMPs and treatment operations will provide adequate protection of the groundwater and surface waters in the vicinity of the land application sites. Due to the discharges being temporary and of a short duration, the potential for a change in the groundwater quality is negated as the BMPs will assure compliance with the groundwater regulations (Minn. R. 7060). Recordings of the discharge and conditions are required to be conducted at a regular basis. Each land application event requires submittal of a final report on the discharge flows, dates and times, photographic documentation of conditions, and color to a level such that the assurance of compliance has been accomplished. Oversight of these operations will also be conducted by a third party inspector. The report must be submitted to the MPCA within 30 days of the completion of the discharge. A copy of the infiltration plan can be found at the end of the permit, and is incorporated into the factsheet by reference.

Receiving water(s)

In order to address all of the surface receiving waters and groundwater requirements, various aspect of the regulations and water use was undertaken with respect to the proposed industrial activities and their associated pollutants of concern risks as describe above. The initial discussion below will address the more direct regulatory aspects of the land application process and the groundwater below the surface as the potential receiving water. Discussions beyond that will be directed to the more highly descriptive protective requirements for surface water discharges.

Groundwater

Regulations related to the protection of the State of Minnesota's Groundwaters are defined and regulated in accordance with Minn. R. 7060. The level of protection to be applied and considered for discharges from this Permittee is expressed in a more narrative manner. Protection levels shall be applied to the discharges so as to protect the underground waters of the state by preventing any new pollution and abating existing pollution (7060.0100). Standards for control measures are to include treatment, safeguards, or other control measures to the extent necessary to ensure that the discharge will not constitute or continue to be a source of pollution of the underground waters or impair the natural quality thereof (7060.0600 Subp. 3). Given the general narrative of this standard it is important that all POCs be evaluated as to the risk they have to impairing the groundwater near those areas where land application and infiltration of process wastewaters will occur.

A discussion of the potential POCs and potential groundwater impact will be discussed in the "Proposed permit effluent limits" section of this fact sheet. Part of the consideration for protection of groundwater would include drinking supply wells near the upland infiltration areas. A search of the Minnesota Department of Health (MDH) Drinking Water shapefile indicated no nearby drinking water supply management areas. Also reviewed and identified were the location of nearby private wells. It was shown that the local private wells were not in a close proximity or down gradient of the land application sites. Thus, they would not be impacted from the temporary land application of treated hydrostatic wastewaters.

Surface Water – Receiving Waters

There are 23 surface water discharge locations that are proposed for the discharge of process wastewaters. Surface water discharge points will only receive treated process wastewaters from which they were appropriated. Table 1. In attachment 1, has a summary of all the discharge locations authorized by this permit along with the identified impairments and water classes.

Surface waters are assigned use classifications in accordance with the current or intended uses. These are assigned in accordance with the Clean Water Act and the State of Minnesota regulations. Details of the classification are found in the Minnesota Rules chapter 7050. Below is a general summary of the various use, qualities, and proprieties for the various classifications that are assigned to one or more outfalls in this permit. It is these assigned use classifications that were considered when determining necessary requirements needed as part of the permit conditions.

Class 1 waters (Minn. R. 7050.0221): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the domestic consumption designated public uses and benefits.

Class 2 waters. (Minn. R. 7050.0222): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the aquatic life and recreation designated public uses and benefits.

Class 3 Waters. (Minn. R. 7050.0223): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the industrial consumption designated public uses and benefits.

Class 4 waters (Minn. R. 7050.0224): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the agriculture and wildlife designated public uses and benefits. Wild rice is an aquatic plant resource found in certain waters within the state.

Class 5 waters (Minn. R. 7050.0225): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for the aesthetic enjoyment and navigation designated public uses and benefits.

Class 6 waters (Minn. R. 7050.0226): The numeric and narrative water quality standards in this part prescribe the qualities or properties of the waters of the state that are necessary for other designated public uses and benefits

Endangered Species:

A review of the MDNR endangered species map reviews indicates that none of the discharge locations are directly or immediately upstream of a water which supports a federally endangered or threatened aquatic species.

Impairments

Designations of impairments in surface waters are generated by the MPCA as it determines if surface waters are meeting the designated uses. The attached preliminary anti-degradation determination discusses these impairments further. The types of impairments that will be addressed in this permit are those that may be impacted by the discharge of process wastewater. This will include total suspended solids (TSS)/turbidity, and also indirectly dissolved oxygen (DO). The permit addresses these impairments by establishing as needed treatment for the potential sources of TSS/turbidity and oxygen demand potential due to the potential contribution of five-day carbonaceous biochemical oxygen demand (CBOD5) from organics that may be contained in construction soils.

Invasive Species:

Precautions shall be taken to prevent the spread of aquatic invasive species (AIS). The DNR is the regulating authority in regards to AIS. The Permittee will implement the BMPs described in the Invasive and Noxious Species Management Plan (INS) included with the permit application supplemental submittal to manage aquatic invasive species. A list of Minnesota's infested waters can be found here: <https://www.dnr.state.mn.us/invasives/ais/infested.html>.

Outstanding Resource Value Water (ORVW)

The Project work will be conducted at times in or near waters that are designated Outstanding Resource Value Waters (ORVW). As part of the Agency conducting an Antidegradation Determination the potential impact of the Project on the ORVWs was reviewed. Details of the review and the findings are located in Attachment 1 to this factsheet. The preliminary determination finds that the ORVW waters will be preserved.

Protection of prohibited outstanding resource value waters

Minn. R. 7050.0265, subp. 7. - Protecting prohibited outstanding resource value waters. The commissioner shall prohibit a proposed activity that results in a net increase in loading or other causes of degradation to prohibited outstanding resource value waters identified under part 7050.0335, subparts 3 and 4.

There will be no discharges to prohibited outstanding resource value waters.

Wild Rice Stands

To address a concern for the potential of the discharge of process wastewater to cause harm to natural wild rice stands, desktop and field surveys were conducted by the Permittee, MPCA, and MDNR. Desktop surveys included the review of MPCA, MDNR and other stakeholder's information on wild rice stands. Field surveys were conducted by the Permittee in 2018 and 2019 at project waterbody crossings and water appropriation sources. MPCA, working with MDNR staff, have determined that the major environmental concern with the process wastewater discharges would be to the potential for spring new growth to be harmed due to excessive water releases. Young wild rice plants are susceptible to damage if there is an excessive rise in the water elevation during the floating leaf stage. To address this concern the permit will include a discharge provision for the surface discharge areas that have been identified as potential areas with wild rice stands. To be protective of the stands, the discharges shall adhere to one of the following provisions:

1. No discharges from April 1 through July 15 of the year, or;
2. Discharges may occur during the above restricted time period if the discharge does not raise the receiving water level by more than 2 inches.

If the Permittee selects to discharge under the restricted time period, the Permittee will be required to conduct adequate hydrologic calculations to determine the maximum allowable discharge to adhere to the less than 2.0 inch elevation rise limit.

Proposed permit effluent limits

The MPCA may use standards based on Minnesota state water quality standards, federal categorical standards applicable to specific industrial categories, or a combination of these standards to derive NPDES/SDS discharge limitations. In addition, the MPCA may also derive standards which are site specific to a particular discharge. These standards may be based on toxicity studies, best professional judgment analysis, technology based standards, and in some instances standards developed by other U.S. states, or other governments, if appropriate. Below the applicability of the State Discharge Restrictions, Technology Based Effluent Limits and Water Quality Based Effluent Limits are reviewed and discussed as they apply to the proposed industrial activities. This is then followed with the final, most restrictive, limits applied in the permit.

State Discharge Restrictions

State Discharge Restrictions are not considered water-quality based effluent limits. These restrictions are designed to protect water quality and maintain in-stream water quality standards (WQS). Therefore, the restrictions are strict enough to protect WQS.

Surface Waters Discharges:

Surface water limits are applied pursuant to Minn. R. 7053.0225, subp. 1(B). State Water Discharge Restrictions requiring effluent quality based on secondary treatment are applied in this permit for five-day carbonaceous biochemical oxygen demand (CBOD₅), potential of hydrogen (pH), and total suspended solids (TSS) (Minn. R. 7053.0215, subp. 1 and 7053.0225, subp. 1.B).

The limits on discharges that may cause nuisance conditions such as floating solids, visible foam and oil are prohibited based on Minn. R. 7050.0205, Subp. 2. The pH limits and TSS monthly average limits are established based on Minn. R. 7053.0225 and 7053.0215.

CBOD₅: Five-day carbonaceous biochemical Oxygen Demand (CBOD₅) limits are assigned based upon the secondary standards. However, due to the nature of pipeline construction, the introduction of oxygen demand contaminants are limited to potential contamination of the process wastewaters by construction soils and the background CBOD₅ contaminants in the source water. Given that all discharged process wastewaters will undergo some level of filtration to address TSS, and this in turn will reduce some of the CBOD₅ contaminants, the need to monitor CBOD₅ is less significant. Therefore, the limit will be set to meet secondary standards and the monitoring frequency will be set to twice per week.

Nuisance Color: These iron oxides are a potential POC and were considered when developing the permit conditions. If released into water, the solid iron may be concentrated enough to impart a reddish color to the water. When dark enough to be visible, the reddish color imparted on the water could be considered a nuisance condition that would create a permit violation. The release of the pipe mill to the hydrostatic waters can be minimized or eliminated by cleaning the pipelines, by appropriately utilizing a cleaning pig, prior to conducting the hydrostatic test. To confirm that the filtration systems will effectively remove the remaining iron-color, the operators will be monitoring the discharges for color. To determine adequacy for the treatment and prevention of color nuisance conditions, the Permittee will compare the treated hydrotest waters to the source water to assure the color of the source water is not being impacted.

Land Application/Groundwater Discharges. (Minn. Stat. 115.01: Subd. 22 Waters of the state)

Process wastewater discharges to land surfaces are to be discharged in such a manner so as to not pollute underground waters (Minn. Stat. 115.01, Subd. 9, 13, and 22). Restrictions on the discharges of these process wastewaters are provided in the State Disposal System (SDS) portion of the NPDES/SDS permit. The groundwaters in the disposal areas are protected equally as the surface water discharges as applicable per State Regulations under Minn. R. 7053.

Federal requirements are not established for groundwaters; and therefore, the EPA does not directly establish or require the development of Technology Based Effluent limits. Despite this, the MPCA does evaluate, on a case-by-case basis, the groundwater pollution protection technologies and best management practices as part of the review and approval of technologies to be included as part of the discharge restrictions in the NPDES/SDS permit. (Minn. R. 7053)

Technology based effluent limits

Regulations promulgated at 40 CFR 122.44(a) require technology-based effluent limitations (TBELs) to be placed in NPDES permits based on effluent limit guidelines (ELGs) where applicable, on best professional judgement (BPJ) in the absence of guidelines, or on a combination of the two. The Enbridge Line 3 project is classified as an industrial activity with a Standard Industrial Classification (SIC) code 4612. This code is assigned to the industry activity Crude Petroleum Pipelines which is part of the Transportation and Public Utilities industry Sector. Hydrotesting of petroleum pipelines is not an industrial category for which the EPA has developed technology-based limitations (40 CFR pt. 401 through 471).

When an industrial activity does not have an applicable ELG, the permit writer must identify any needed TBELs on a case-by-case basis. The site-specific TBELs reflect the BPJ of the permit writer, taking into account the same factors considered in developing ELGs. Site-specific ELGs may also include best management practices (BMPs).

(40 CFR 122.44(k)(3)) BMPs include such things as good housekeeping measures, prevention of adverse flows, avoidance of adverse conditions, prevention of contact between water and pollutants, and control and management techniques to avoid improper discharges. Additionally, since the process wastewater discharges are batch discharges of short term duration, limits in this permit will be expressed in terms of concentrations rather than in terms of mass limitations, as allowed by 40 CFR 122.45(c)and (f).

When considering the operations related to buoyancy control and the hydrotesting of the pipeline, duration of operations, and the potential pollution controls it was apparent that establishing a technology based numeric limit was infeasible. Instead, it would be more appropriate to control and abate the discharge of pollutants by the application of BMPs. The BMPs that would be required to be utilized, as needed, are to address the settling and filtering of solids, as well as controlling and dissipating the energy generated during water transfer prior to discharging to a surface water or land. This practice has been applied regularly with other industrial process wastewater permits issued by the MPCA. When reviewing other state and federal industrial process wastewater permits, it was confirmed that BMPs are a common pollution control requirement for the industrial practice. Given that the application of BMPs to the process wastewaters discussed in this permit for pollution control is a common and effective practice, it is BPJ that the assignment of minimum BMPs is the appropriate TBEL approach for this discharge. Treatment and BMP evaluated and approved for the meeting of site specific treatment standards are discussed in the "Component and Treatment Technology" section of the factsheet.

Water quality based limits

Minn. R. 7053.0205, subp. 8 requires the MPCA to develop WQBELs for point source discharges to waters of the state of Minnesota to protect receiving waters for the applicable use classifications.

All receiving surface waters were evaluated to determine the applicable TSS WQBELs based on the Region the discharge is located in.

Ten discharges are located in the North region where the TSS water quality standard is 15 mg/L from April through September. These receiving waters are Clearwater River (SD007), Eagle (Clear) Lake (SD012), Pine River (SD013), Willow River (SD015), Mississippi River (SD017), East Savanna River (SD018) Chub Lake (SD020), Daggett Brook (SD025), Lake George (SD026) and St. Louis River (SD027). The TSS effluent limits for these discharges will be set at the North region water quality standard of 15 mg/L from April through September and at the TSS SDR limit of 30 mg/L from October through March or at the TSS level of the receiving water, whichever is more restrictive.

Nine discharges are located in the Central region where the TSS water quality standard is 30 mg/L. These receiving waters are Red Lake River (SD004), Clearwater River (SD005), Lost River (SD006 and SD022), Island Lake (SD009), Shell River (SD010, SD023 and SD024) and Crow Wing River (SD011). The TSS effluent limits for these discharges will be set at the TSS SDR limit of 30 mg/L or at the TSS level of the receiving water, whichever is more restrictive.

Three discharges are located in the South region where the TSS water quality standard is 65 mg/L. These receiving waters are Tamarac River (SD002), Middle River (SD003) and Snake River (SD021). The TSS effluent limits for these discharges will be set at the TSS SDR limit of 30 mg/L or at the TSS level of the receiving water, whichever is more restrictive.

One discharge, Red River (SD001), is located in the Red River Mainstem region where the TSS water quality standard is 100 mg/L. The TSS effluent limits for this discharge will be set at the TSS SDR limit of 30 mg/L or at the TSS level of the receiving water, whichever is more restrictive.

Total suspended solids (TSS) is a pollutant of concern for all discharge locations. Enbridge examined all the discharge locations and the applicable regional TSS water quality standards (WQs) and estimated anticipated TSS levels in the hydrotest wastewater discharge based on the discharge locations, the regional TSS WQs, statewide discharge limitations, and TSS levels in the water prior to hydrostatic testing. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be treated prior to discharge by frac tanks, sand filters, bag filters, and potentially carbon filters, if needed, so that hydrotest wastewater discharge TSS levels meet the most restrictive water quality standard. Properly designed and operated filters are expected to remove nearly all of the TSS in the hydrotest water.

Final Permit Limits.

When determining the final limits for a facility a comparison is made between the various regulatory requirements that apply to the facility. The final limits will reflect the most restrictive of the applicable requirements. In the table below the applicable state discharge restrictions (SDR), technology based effluent limits (TBEL), and the water quality based effluent limits (WQBEL) are provided. The final column provides the final limits that represent the most restrictive of the applicable regulations.

<u>Pollutant</u>	<u>Calendar Month Avg.</u>	<u>Calendar Month Max.</u>	<u>Daily Min.</u>	<u>Daily Avg.</u>	<u>Daily Max.</u>	<u>Narrative Limit</u>	<u>Limit Type</u>	<u>Applied to station(s)</u>	<u>Notes</u>
BOD, Carbonaceous 05 Day (20 Deg C)	25 mg/L	40 mg/L					SDR	All SD Stations	
Color						No material discoloration of ambient conditions of the receiving water	WQBEL	All SD stations	Applied as narrative limit found in the Special Requirements chapter
Flow				1200 gpm	1500 gpm		WQBEL	All SD Stations	
Oil and Grease						No visible sheen	SDR	All SD stations	Applied as narrative limit found in the Special Requirements chapter
pH			6.0		9.0		SDR	All SD Stations	
Solids, Total Suspended (TSS)	30 mg/L	40 mg/L					SDR	All SD stations	Applied Oct- Mar for the following stations: SD007,SD012, SD013,SD015, SD017,SD018, SD020, SD025, SD026, SD027

Solids, Total Suspended (TSS)	15 mg/L						WQBEL	SD007, SD012, SD013, SD015, SD017, SD018, SD020, SD025, SD026, SD027	Applied April-September only for stations listed to the left.
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Total Suspended Solids (TSS): TSS will be measured using Turbidity via development of a site specific relationship between the TSS and Turbidity at each SD station.

Nuisance Conditions – Color: Background color of receiving stream will be used as basis for compliance.

Additional requirements

Within the NPDES/SDS permit, the requirements are divided into several chapters to allow easier reference to the various regulatory aspects of the permit. In general, the chapters address monitoring and reporting, pipelines, infiltration (land application), surface water discharges (industrial process wastewater), and the special requirements chapter to address items site specific to the Facility.

The Minnesota Public Utilities Commission (MPUC) is requiring Independent third party monitors. These third party monitors will be present throughout the construction of Line 3 to ensure compliance with all required permits for this project. The independent third party monitors report any findings or items of noncompliance directly to the MPCA and other applicable regulatory agencies.

Variances

No variances are proposed in this permit.

Total facility requirements (TFR)

The chapter of the permit titled “Total Facility Requirements” contains numerous and various requirements that pertain to this and other NPDES/SDS permitted facilities. All NPDES permits issued in the state of Minnesota contain certain conditions that remain the same regardless of the size, location, or type of discharge. These standard conditions satisfy the requirements outlined in 40 CFR § 122.41. These requirements cover a wide range of areas including recordkeeping, sampling, equipment calibration, equipment maintenance, reporting, facility upsets, bypass, solids handling, changes in operation, prohibitions on toxics and nuisance conditions, property rights, liability, MPCA’s obligations, future regulatory changes, facility inspection and entry by MPCA, and permit reissuance. Also included in this chapter is the “Incorporated by Reference” section which references both federal and state regulations that may apply to the Facility. Due to the significant general conditions required of all facilities it is most appropriate to reference specific sections, rather to try and itemize specific and applicable regulations.

Antidegradation

The purpose of an antidegradation review is to achieve and maintain the highest possible quality in surface water of the state (Minn. R. 7050.0250) and in waters of the Lake Superior basin (Minn. R. 7052.0300). Antidegradation standards and requirements that apply statewide are found in Minn. R. parts 7050.0250 to 7050.0335; and additional requirements for the Lake Superior Basin in Minn. R. parts 7052.0300 to 7052.0380. Minn. R. 7050.0265 requires an antidegradation review for any application for a new discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit, such as the Enbridge Energy Limited Partnership (Enbridge) Line 3 Replacement Project (L3) industrial wastewater permit application.

The Minnesota Pollution Control Agency (Agency) is required to provide a preliminary antidegradation determination as to whether the application satisfies antidegradation standards (Minn. R. 7050.0280). Below is a summary of that preliminary determination.

Agency review indicates the project will avoid or minimize net increases in loading for all pollutants of concern (total suspended solids (TSS), iron discoloration, iron, and manganese) or other causes of degradation (erosion and scour).

The Agency therefore concludes that the antidegradation assessment submitted by Enbridge satisfies applicable antidegradation requirements of Minn. R. 7050. Enbridge's antidegradation assessment provided the Agency with the necessary information to conduct an antidegradation review. The Agency's review demonstrates that: existing uses are protected; high quality waters are not being degraded; and outstanding resource value waters are maintained and protected. The industrial wastewater National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit will require that discharges meet discharge effluent limits, employ treatment as necessary, and use BMPs as described in the permit application. Therefore, the Agency has made a preliminary determination that the project satisfies antidegradation standards in Minn. R. 7050.

The preliminary antidegradation determination is included as Attachment 1 to this fact sheet and will be public noticed with the NPDES/SDS permit, which is distributed according to Minn. R. 7001.0100 and allows for public review and comment. (Minn. R. 7050.0280, Subp. 5)

Anti-Backsliding

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

Any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the agency that contains effluent limits more stringent than those that would be established by Minn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342. Given that this is a new proposed discharge of a short duration, the conditions of the anti-backsliding regulations do not apply.

Attachment 1.

Preliminary Antidegradation Determination

Enbridge Line 3 – MPCA Preliminary Antidegradation Determination

Antidegradation Procedures Overview

The purpose of an antidegradation review is to achieve and maintain the highest possible quality in surface water of the state (Minn. R. 7050.0250) and in waters of the Lake Superior basin (Minn. R. 7052.0300). Antidegradation standards and requirements that apply statewide are found in Minn. R. parts 7050.0250 to 7050.0335; and additional requirements for the Lake Superior Basin in Minn. R. parts 7052.0300 to 7052.0380. Minn. R. 7050.0265 requires an antidegradation review for any application for a new discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit, such as the Enbridge Energy Limited Partnership (Enbridge) Line 3 Replacement Project (L3) industrial wastewater permit application. The antidegradation standards for the Lake Superior Basin apply if the discharge contains a new or expanded discharge of bioaccumulative substances of immediate concern (BSIC) to an outstanding resource value water (ORVW) or an outstanding international resource value water (OIRW).¹ The Line 3 industrial wastewater permit application² identifies three surface discharge points within the Lake Superior Basin. However, the discharges will not contain BSICs and therefore Minn. R. 7052.0300 to 7052.0380 do not apply.

Antidegradation specifies three “tiers” of water quality protection:

- Tier 1 requires existing uses and the water quality necessary to support those uses to be maintained and protected – this protection is assured when all applicable water quality standards are met;
- Tier 2 protects existing high water quality, which is water quality that is better than that required by water quality standards to support propagation of fish, shellfish, and wildlife and recreation in and on the water; and
- Tier 3 requires the maintenance and protection of water quality necessary to preserve specific water resources of outstanding value.

The antidegradation procedures ensure that tier 1 protection applies to all waters; and that the tier 2 and tier 3 levels of protection are addressed where applicable.

The Minnesota Pollution Control Agency (Agency) is required to provide a preliminary antidegradation determination as to whether the application satisfies antidegradation standards (Minn. R. 7050.0280). This document is the Agency’s preliminary antidegradation determination.

Summary of Preliminary Antidegradation Determination

¹ ORVWs and OIRWs are identified in Minn. R. 7050.0335 and Minn. R. 7052.0300.

² Enbridge Energy, Limited Partnership, Line 3 Replacement Project, Individual NPDES/SDS Permit Supplement, submitted November 2019. Located at: <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-53e.pdf>.

The Agency reviewed the antidegradation assessment³ submitted by Enbridge and concludes that the assessment satisfies applicable antidegradation requirements of Minn. R. 7050. Enbridge's antidegradation assessment provided the Agency with the necessary information to conduct an antidegradation review. The Agency's review demonstrates that: existing uses are protected; high quality waters are not being degraded; and outstanding resource value waters are maintained and protected. The industrial wastewater National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit will require that discharges meet discharge effluent limits, employ treatment as necessary, and use Best Management Practices (BMPs) as described in the permit application. Therefore, the Agency has made a preliminary determination that the project satisfies antidegradation standards in Minn. R. 7050.

Background

Enbridge submitted an NPDES/SDS permit application for a series of new temporary discharges related to L3. L3 involves the installation of a new pipeline extending from approximately the northwest corner of Minnesota to an area south of Duluth, Minnesota. There will be 23 surface water discharge locations (see Table 1) located along or near the pipeline route. Once a pipe section has been installed, it will be cleaned. Wastewater from the cleaning process will not be discharged, but will be collected and trucked off-site for treatment at a local municipal wastewater treatment plant or other disposal site approved by the Agency. After cleaning and prior to putting the pipe into operation, the pipe will be hydrostatically tested. In areas where the pipe will be installed using the Horizontal Directional Drilling (HDD) method, the pipe will be cleaned and hydrostatically tested prior to installation (referred to as a "pre-test"). Buoyancy control water may be used to aid in the HDD installation of the pipe after the pre-test. After final installation, the pipe will be hydrostatically tested. HDD buoyancy control water and hydrostatic test (hydrotest) water will be obtained from surface water sources located along or near the pipeline route. HDD buoyancy control water and hydrotest water will be collected, treated, and discharged back to the source from which it was originally obtained.

As identified in Table 1, there is one discharge to a restricted Outstanding Resource Value Water (ORVW-R). This will be discussed in more detail in the Antidegradation Review Rationale section below.

Table 1 – L3 Surface Water Discharge Locations

Surface Discharge Number	Receiving Water Name	Receiving Water Use Classification	Receiving Water Special Designation	Discharge Location - Latitude, Longitude
SD001	Red River	1C, 2Bdg, 3C, 4A, 4B, 5, 6	None	48.70490, -97.11554
SD002	Tamarac River	1C, 2Bdg, 3C, 4A, 4B, 5, 6	None	48.414347, -96.736026
SD003	Middle River	2Bg, 3C, 4A, 4B, 5, 6	None	48.340956, -96.619498
SD004	Red Lake River	1C, 2Bdg, 3C, 4A, 4B, 5, 6	None	48.03468, -96.20115.
SD005	Clearwater River	2Bg, 3C, 4A, 4B, 5, 6	None	47.91956, -96.0483
SD006	Lost River	2Bg, 3C, 4A, 4B, 5, 6	None	47.721634, -95.513342
SD007	Clearwater River	2Bg, 3C, 4A, 4B, 5, 6	None	47.53358, -95.37488
SD009	Island Lake	2B, 3C, 4A, 4B, 5, 6	None	47.05905, -95.13720

³ Enbridge Energy, Limited Partnership, Line 3 Replacement Project, Individual NPDES/SDS Permit Supplement, Attachment A, Antidegradation Assessment Individual NPDES/SDS Permit Supplement, submitted November 2019. Located at: <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-53e.pdf>.

SD010	Shell River	2Bg, 3C, 4A, 4B, 5, 6	None	46.819807, -95.024903
SD011	Crow Wing River	2Bg, 3C, 4A, 4B, 5, 6	None	46.79476, -94.87569
SD012	Eagle (Clear) Lake	2B, 3C, 4A, 4B, 5, 6	None	46.77897, -94.46008
SD013	Pine River	2Bg, 3C, 4A, 4B, 5, 6	None	46.78145, -94.377503
SD015	Willow River	2Bg, 3C, 4A, 4B, 5, 6	None	46.864966, -93.430877
SD017	Mississippi River	2Bg, 3C, 4A, 4B, 5, 6	ORVW-R	46.873343, -93.36514
SD018	East Savanna River	2Bg, 3C, 4A, 4B, 5, 6	OIRW	46.888833, -93.030308
SD020	Chub Lake	2B, 3C, 4A, 4B, 5, 6	OIRW	46.631826, -92.458815
SD021	Snake River	2Bg, 3C, 4A, 4B, 5, 6	None	48.265401, -96.509434
SD022	Lost River	2Bg, 3C, 4A, 4B, 5, 6	None	47.843994, -95.858528
SD023	Shell River	2Bg, 3C, 4A, 4B, 5, 6	None	46.814945, -95.057274
SD024	Shell River	2Bg, 3C, 4A, 4B, 5, 6	None	46.79907, -94.918351
SD025	Daggett Brook	2Bg, 3C, 4A, 4B, 5, 6	None	46.83938, -94.011829
SD026	Lake George	2B, 3C, 4A, 4B, 5, 6	None	46.866723, -94.018972
SD027	St. Louis River	2Bg, 3C, 4A, 4B, 5, 6	OIRW	46.876278, -92.859044

ORVW-R - Outstanding Resource Value Water-Restricted

OIRW - Outstanding International Resource Water

The L3 NPDES/SDS draft permit identifies the location of all 23 discharge locations, discharge flow limitations, and effluent limits that must be met.

Minn. R. 7050.0275, subp. 2 describes exemptions from the antidegradation rules based on temporary and limited degradation. Enbridge did not specifically request this exemption but submitted the antidegradation assessment containing the full information required to satisfy the applicable antidegradation requirements of Minn. R. 7050. Agency review identifies the discharges as meeting the requirements for the temporary and limited degradation exemption.

Agency review indicates the project will avoid or minimize net increases in loading for all parameters of concern (total suspended solids (TSS), iron discoloration, iron, and manganese) or other causes of degradation (erosion and scour).

Antidegradation Review

The remainder of this document describes the Agency's review analysis and demonstrates compliance with each subpart of the applicable antidegradation regulations. The rule language of each subpart is followed by the Agency's analysis for each requirement.

Minn. R. 7050.0280

Antidegradation standards apply

Minn. R. 7050.0280, Subp. 1 - Antidegradation procedures required. Except as provided in part 7050.0275, the antidegradation procedures in this part apply to new, reissued, or modified individual NPDES wastewater, industrial storm water, and construction storm water permits that the commissioner anticipates will result in net increases in loading or other causes of degradation to surface waters.

Antidegradation procedures apply because Enbridge has applied for a new NPDES/SDS individual industrial wastewater permit for the discharge of HDD buoyancy control and hydrotest water. As part of its application, Enbridge submitted an antidegradation assessment which states that water used for HDD buoyancy control or the hydrotest will either be infiltrated or discharged back to the surface water from which it was taken. No additives will be used. HDD buoyancy control and hydrotest water will be treated prior to discharge by a frac tank, sand filter, and two sizes of bag filters to avoid net increases in loading of parameters of concern to surface waters. If necessary, a carbon filter will also be utilized for additional treatment prior to discharge. Flow volumes that could cause water quality degradation will be eliminated by controlling the volume of discharge and through the use of energy dissipating BMPs at the discharge locations.

Alternatives analysis avoids net increases in loading or other causes of degradation

Minn. R. 7050.0280, Subp. 2 - Applicant's antidegradation assessment. The applicant must include the following information with the written permit application specified in part 7001.0050:

A. an analysis of alternatives that avoid net increases in loading or other causes of degradation through prudent and feasible prevention, treatment, or loading offsets;

As required, Enbridge submitted an antidegradation assessment of alternatives that avoid increases in loading or other causes of degradation to surface waters through prudent and feasible prevention and treatment. The antidegradation assessment submitted by Enbridge examines a number of alternatives that avoid net increases in loading or other causes of degradation. Alternatives considered included using alternative testing fluids, trucking water off site, spray irrigation, infiltration, and end of pipe treatment.

Using alternative testing fluids: Enbridge demonstrates that this is not a viable alternative. For petroleum pipelines, Title 49 CFR pt. 195.306, requires that water be used to hydrotest the pipe. Therefore using alternative testing fluids is not considered a viable alternative.

Trucking water off site: Enbridge demonstrates that this is not a viable alternative for most of the wastewater generated. Enbridge assessed the potential for trucking wastewater to off-site disposal facilities. It was determined that wastewater collected as part of the pipe cleaning process, completed prior to the hydrotest, would be collected and hauled off site for disposal. It was determined that the hauling of HDD buoyancy control or hydrotest water to wastewater treatment facilities (WWTFs) would not be prudent for the following reasons: The volume of hydrotest water would require an excessive amounts of trucks to transport the wastewater to WWTFs for treatment. The large number of trucks would have negative impacts on air quality. The weight and number of trucks would have a negative impact on the roads, which could require road repair. While there are numerous WWTFs along the pipeline path, the majority of them are small in terms of the volume of water they can treat. The volume for each hydrotest would likely overwhelm the small facilities, causing them to violate their NPDES/SDS permit. There are large WWTFs along the pipeline path that potentially have the capacity to accept large volumes of water. However, some of them do not accept hauled in wastes or restrict the volume per day that can be hauled in, based on their design capacity, normal operating flow fluctuations, and precipitation. These restrictions could extend the hauling time over several months.

Spray irrigation: Spray irrigation is a method of applying water to the land in a controlled manner that is similar to rainfall. Water is distributed through a network of pumps and pipes and sprayed through numerous sprinklers. Enbridge demonstrates that this is not a viable alternative. The ability to use spray irrigation is limited by soil conditions, weather, and water distribution. Spray irrigation cannot be done when the soil is wet or frozen. Wet soils will not allow infiltration and would cause runoff. Frozen conditions will not allow infiltration and would also cause runoff. In addition, pipes and equipment can freeze and stop operating due to the cold weather. In order to utilize irrigation, temporary piping and irrigating equipment would need to be installed across the landscape. This would involve an excessive amount of piping to reach areas suitable for irrigation. Distribution piping would involve the cutting and clearing of vegetation to allow truck access to install the piping. The negative impacts from cutting vegetation, clearing truck paths, installing the piping and removing the piping after irrigation is completed are considered more detrimental on a whole in comparison to the chosen alternatives.

Infiltration: Infiltration is the process by which water is applied to the ground surface and soaks into the soil. Enbridge demonstrates that this is not a viable alternative for most of the large volume mainline hydrotests but is viable for all of the smaller volumes of wastewater generated during HDD pre-tests and buoyancy control. Like spray irrigation, infiltration is limited by soil conditions and weather. Infiltration cannot be done when the soil is saturated or frozen. Enbridge has identified infiltration sites that are near the construction areas that will be able to infiltrate wastewater from horizontal directional drilling pre-tests, buoyancy control and some mainline hydrotests.

End of pipe treatment: Enbridge demonstrates that this is a viable alternative. The water needed for HDD buoyancy control and hydrotests will be pumped from nearby lakes and/or rivers. After the activity, the water will be discharged back to the source. Prior to filling the pipe with water, the pipe will be cleaned. Cleaning should prevent contamination of the HDD buoyancy control water or hydrotest water from any dirt, debris, or rust in the pipe. Following completion of the hydrotest, the water will be pumped into a frac tank. After the frac tank, the water will be pumped through a sand filter, a 10-micron bag filter and a 0.5 micron bag filter. An optional carbon treatment unit will also be available if additional treatment is needed as determined by on-site observations. The frac tank, sand filter, bag filter, and optional carbon treatment combination to avoid an increase in loading to the receiving water due to the discharge of parameters of concern.

Other causes of degradation: Other causes of degradation include scouring of the receiving water bottom or bank erosion due to discharge from a pipe with no energy dissipation. The application states that the energy of the discharging water will be controlled to avoid degradation from erosion and scour from the discharge. To minimize erosion and scouring the following actions will be required in the permit. Discharge rates will be limited to 1,500 gallons per minute (gpm) instantaneous maximum and 1,200 gpm daily average. In addition, the permit will require the discharge to slowly increase when first beginning. Finally, the discharge point will be controlled by the use of a "splash pup." A splash pup is a device at the end of the discharge pipe that is elevated off the bottom of a waterbody to dissipate energy to prevent scouring of the bottom or bank and to provide re-oxygenation of the water. Depending on receiving water conditions, additional protection equipment may be placed underneath and around the splash pup to provide additional bed and bank protection.

Commissioner's antidegradation review

Minn. R. 7050.0280, Subp. 3 - Antidegradation review. The commissioner shall conduct an antidegradation review based on the information provided under subpart 2 and other reliable information available to the commissioner concerning the proposed activity and other activities that cause cumulative changes in existing water quality in the surface waters. The purpose of the antidegradation review is to evaluate whether the proposed activity will satisfy the antidegradation standards in part 7050.0265. If, in the commissioner's judgment, the antidegradation standards described in part 7050.0265 will not be satisfied, the commissioner shall provide written notification to the applicant of the deficiencies and provide recommendations necessary to satisfy the antidegradation standards in part 7050.0265.

The Agency has conducted an antidegradation review of the information submitted by Enbridge and other reliable information available. The Agency has determined that the discharge satisfies the standards in Minn. R. part 7050.0265 as described in the section of this document titled "Minn. R. 7050.0280".

In receiving waters that are currently impaired, the cumulative impacts from activities in the watershed are currently causing negative water quality impacts. Since the discharge will be controlled by restrictive effluent limits, the discharge will be of similar or higher quality than the receiving water and therefore will not cause changes in the existing water quality. Receiving waters that are not impaired have been identified as high quality. Cumulative impacts from activities in these watersheds are not currently causing water quality impairments. Since the discharge will be controlled by restrictive effluent limits, the discharge water will not cause changes in the existing water quality.

Preliminary antidegradation determination

Minn. R. 7050.0280, Subp. 4. - Preliminary antidegradation determination. Based upon the review described in subpart 3, the commissioner shall prepare a written preliminary antidegradation determination as to whether the antidegradation standards described in part 7050.0265 are satisfied. The preliminary antidegradation determination must be included with the commissioner's preliminary determination to issue or deny the permit according to part 7001.0100. If, in the commissioner's judgment, the antidegradation standards are not satisfied, reasons why they are not satisfied must be included in the preliminary antidegradation determination.

Based on the Agency's review of the antidegradation assessment, correspondence with the Permittee, and other information available to the commissioner, the Agency has made a preliminary determination that the proposed activity satisfies the standards in Minn. R. 7050.0280 and 7050.0265.

Public notice and comment

Minn. R. 7050.0280, Subp. 5. - Opportunity for comment. The commissioner shall:

A. include the preliminary antidegradation determination with the public notice to issue or deny the permit according to part 7001.0100, subpart 4;

B. distribute the public notice according to part 7001.0100, subpart 5; and

C. provide opportunity for comment on the preliminary antidegradation determination according to part 7001.0110.

This preliminary antidegradation determination is included with the public notice to issue the NPDES/SDS permit which is distributed according to Minn. R. 7001.0100 and allows for public review and comment.

Final antidegradation determination

Minn. R. 7050.0280, Subp. 6. - Final antidegradation determination. The commissioner shall consider comments received under subpart 5 before preparing a written final antidegradation determination. The final antidegradation determination must include a statement of whether the proposed activity achieves or fails to achieve the antidegradation standards specified in part 7050.0265. The final antidegradation determination must be included with the commissioner's final determination to authorize or not authorize the proposed activity according to part 7001.0140.

After the public notice period, the commissioner will consider all comments received. The commissioner will then issue a final antidegradation determination stating whether the proposed activity achieves or fails to achieve the antidegradation standards.

Minn. R. 7050.0265**Antidegradation standards when changes in existing water quality are reasonably quantifiable**

Minn. R. 7050.0265, Subp. 1 – Scope. This part applies to activities regulated by the following control documents:

A. new, reissued, or modified individual NPDES wastewater permits;

Enbridge has applied for a new NPDES/SDS individual industrial permit for the discharge of HDD buoyancy control and hydrotest water and changes in existing water quality are reasonably quantifiable. Therefore, the antidegradation standards of Minn. R. 7050.0265 apply.

Existing uses will be maintained and protected and attainment of water quality standards will not be precluded

Minn. R. 7050.0265, Subp. 2 – Protecting existing uses. The commissioner shall approve a proposed activity only when existing uses and the level of water quality necessary to protect existing uses are maintained and protected.

Minn. R. 7050.0265, Subp. 4 - Protecting beneficial uses. The commissioner shall not approve a proposed activity that would permanently preclude attainment of water quality standards.

Minnesota rules require protection of existing uses and maintenance of the level of water quality necessary to protect those uses (Minn. R. 7050.0265 subp. 2). Minnesota rules also prohibit a proposed activity that would permanently preclude attainment of water quality standards (Minn. R. 7050.0265, subp. 4). To evaluate whether the proposed HDD buoyancy control and hydrotest wastewater discharges comply with these rule provisions, the Agency considered information submitted by Enbridge, other reliable information available, determined the methods of analyzing the data, determined existing water quality, and analyzed projected effluent discharges. The Agency evaluation determined that protection of existing and beneficial uses is achievable because: the water being used for HDD buoyancy control and the hydrotest is being returned to its origin; the pipe will be cleaned prior to filling for HDD buoyancy control, which occurs after the HDD pre-test and with hydrotest water; the hydrotest wastewater will be treated prior to discharge as described above. Therefore, the water will be the same quality, or better, than when it was pumped out of the source.

HDD buoyancy control and hydrotest water that is discharged to a surface water will discharge back to its original source. Due to the use of frac tanks, sand filters, bag filters, potentially carbon filters and other BMPs, the discharge water is expected to be similar in quality, if not better in quality, than the source water. This means the proposed activity will avoid net increases in loading of any parameters of concern and therefore existing uses and the level of water quality necessary to protect them will be maintained and protected.

The parameters of concern identified for the proposed project are TSS, iron, iron discoloration, and manganese. The following paragraphs summarize the Agency's review of the proposed project for each of these parameters of concern.

Total Suspended Solids: TSS is a parameter of concern for all discharge locations. Enbridge examined all the discharge locations and the applicable regional TSS water quality standards (WQSs) and estimated anticipated TSS levels in the HDD buoyancy control and hydrotest wastewater discharge based on the discharge locations, the regional TSS WQSs, statewide discharge limitations, and TSS levels in the water prior to HDD buoyancy control and hydrostatic testing. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be discharged to frac tanks and treated prior to discharge by sand filters, bag filters, and potentially carbon filters, if needed, so that hydrotest wastewater discharge TSS levels meet the most restrictive limit in the permit. Properly designed and operated filters are expected to remove nearly all of the TSS in the hydrotest water.

Iron: Iron concentration is a parameter of concern for three discharges, SD001, SD002 and SD004, because the receiving waters at these locations are Class 1C, protected as drinking water sources. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be discharged to frac tanks and treated prior to discharge by sand filters, bag filters, and potentially carbon filters if needed. In addition, drinking water intakes are located over 25 miles downstream of the discharge locations. Due to the long distance to the closest drinking water intake, the amount of dilution provided by the receiving water, and the treatment provided, no negative impacts are expected.

Iron discoloration: Water discoloration due to iron is a parameter of concern. Iron in the water can react with oxygen to produce a red particulate in the water. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be discharged to frac tanks and treated prior to discharge by sand filters, bag filters, and potentially carbon filters if needed. Since oxidized iron is a particulate, it will be removed by the same type of treatment used for removal of TSS. Due to the treatment provided, no negative impacts are expected.

Manganese: Manganese concentration is a parameter of concern for three discharges, SD001, SD002 and SD004, because the receiving waters at these locations are Class 1C, protected as drinking water sources. Prior to conducting the hydrotest, the pipe will be cleaned which will remove contaminants from the inside of the pipe. After the hydrotest, the water will be discharged to frac tanks and treated prior to discharge by sand filters, bag filters, and potentially carbon filters if needed. In addition, drinking water intakes are located over 25 miles downstream of the discharge locations. Due to the long distance to the closest drinking water intake, the amount of dilution provided by the receiving water, and the treatment provided, no negative impacts are expected.

There will be no physical alteration to surface waters and therefore compensatory mitigation is not necessary

Minn. R. 7050.0265, Subp. 3 – Compensatory mitigation.

A. The commissioner shall allow compensatory mitigation as a means to preserve an existing use when there is a physical alteration to a surface water only when all of the following conditions are met:

The scope of this review is limited to the NPDES-permitted discharges from the proposed project by Enbridge. The proposed activity addressed in this review will not result in a physical alteration to a surface water and thus, compensatory mitigation as a means to preserve an existing use is not necessary. Physical alteration to a surface water is being prevented through the use of energy dissipating BMPs at the point of discharge and limitations on the rate of water allowed to be discharged. Issues related to physical alterations of surface waters due to construction activities and compensatory mitigation are addressed in the Section 401 certification antidegradation review.

High quality waters will be protected

Minn. R. 7050.0265 subp. 5 – Protecting surface waters of high quality. Items A to D apply to surface waters the commissioner determines to be of high quality.

A. The commissioner shall not approve a proposed activity when the commissioner makes a finding that prudent and feasible prevention, treatment, or loading offset alternatives exist that would avoid degradation of existing high water quality. When the commissioner finds that prudent and feasible prevention, treatment, or loading offset alternatives are not available to avoid degradation, a proposed activity shall be approved only when the commissioner makes a finding that degradation will be prudently and feasibly minimized.

All receiving waters were evaluated to determine if they are of high quality.

Five receiving waters were determined to not be of high quality because they are impaired for one of the parameters of concern. The Red River (SD001), the Middle River (SD003) and the Clearwater River (SD005) are all impaired for turbidity. The Mississippi River (SD017) is impaired for TSS. The Tamarac River (SD002) is impaired for poor aquatic macroinvertebrate and fish communities and high suspended solids was identified as a stressor.

Four receiving waters were assumed to be of high quality because there is no water quality sampling data available. These receiving waters are Island Lake (SD009), Eagle (Clear) Lake (SD012), Chub Lake (SD020), and Daggett Brook (SD025). Assuming these waters are of high quality is the most conservative manner of approaching the fact that there is no data. Eagle (Clear) Lake, Chub Lake and Daggett Brook are located in the North region where the TSS water quality standard is 15 mg/L from April through September. In order to protect the uses of these three receiving waters, the effluent limits for TSS will be set at the North region water quality standard of 15 mg/L from April through September and at the TSS state discharge restriction limit of 30 mg/L from October through March or at the TSS level of the receiving water, whichever is more restrictive. Island Lake is located in the Central region where the TSS water quality standard is 30 mg/L. In order to protect the uses in Island Lake, the effluent limits for TSS will be set at the Central region water quality standard of 30 mg/L or at the TSS level of the receiving water, whichever is more restrictive. Assigning these effluent limits will avoid degradation of existing high water quality.

Water quality data for the remaining receiving waters was analyzed to determine if they are of high quality. Analysis showed all of the remaining receiving waters are of high quality. In all cases, TSS effluent limits will be set at either the regional water quality standard, 30 mg/L or at the TSS level of the receiving water, whichever is more restrictive. Assigning these effluent limits will avoid degradation of existing high water quality.

Since the proposed activity avoids degradation of existing high water quality, Items B, C, and D of subp. 5 are not applicable. Items B, C, and D of subp. 5 only apply when a proposed activity will result in degradation of existing high water quality.

Protection of restricted outstanding resource value waters

Minn. R. 7050.0265, subp. 6. - Protecting restricted outstanding resource value waters. The commissioner shall restrict a proposed activity in order to preserve the existing water quality as necessary to maintain and protect the exceptional characteristics for which the restricted outstanding resource value waters identified under part 7050.0335, subparts 1 and 2, were designated.

The Mississippi River at SD017 is designated as a restricted outstanding resource value water (ORVW-R) under the Scenic classification. Scenic rivers are those rivers that exist in a free-flowing state and with adjacent lands that are largely undeveloped. This project will not impact the free-flowing state of the river or cause development along the river and, therefore, will not impact this ORVW-R.

Protection of prohibited outstanding resource value waters

Minn. R. 7050.0265, subp. 7. - Protecting prohibited outstanding resource value waters. The commissioner shall prohibit a proposed activity that results in a net increase in loading or other causes of degradation to prohibited outstanding resource value waters identified under part 7050.0335, subparts 3 and 4.

There will be no discharges to prohibited outstanding resource value waters.

Protection against impairments associated with thermal discharges

Minn. R. 7050.0270, Subp. 8 - Protection against impairments associated with thermal discharges.

When there is potential for water quality impairment associated with thermal discharges, the commissioner's allowance for existing water quality degradation shall be consistent with section 316 of the Clean Water Act, United States Code, title 33, section 1326. When a variance is granted under section 316(a) of the Clean Water Act, United States Code, title 33, section 1326, antidegradation standards under this part still apply.

The pumping and use of surface water is not expected to add heat to the water and, therefore, the discharged water will be approximately the same temperature as the receiving water. No thermal impacts are expected.

Conclusion

Based upon the Agency's review of the information provided in the antidegradation assessment, correspondence with Enbridge, and other information available to the commissioner concerning the activity, the commissioner has made a preliminary determination that the proposed activity satisfies the standards in Minn. R. 7050.0280 and 7050.0265 as well as federal surface water pollution control statutes and rules administered by the Agency.