

**FACT SHEET FOR NDPDES PERMIT
ND-0026964**

RED RIVER VALLEY WATER SUPPLY PROJECT

DATE OF THIS FACT SHEET – MARCH 2019

INTRODUCTION

The Federal Clean Water Act (CWA, 1972, and later amendments in 1977, 1981, and 1987, etc.) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES), which the US Environmental Protection Agency (EPA) oversees. In 1975, the State of North Dakota was delegated primacy of the NPDES program by EPA. The North Dakota Department of Environmental Quality, hereafter referred to as “department”, has been designated the state water pollution control agency for all purposes of the Federal Water Pollution Control Act, as amended [33 U.S.C. 1251, et seq.], and is authorized to take all action necessary or appropriate to secure to this state the benefits of the act and similar federal acts. The department’s authority and obligations for the wastewater discharge permit program is in the North Dakota Administrative Code (NDAC) 33.1-16 which was adopted under North Dakota Century Code (NDCC) chapter 61-28. In North Dakota, these permits are referred to as North Dakota Pollutant Discharge Elimination System (NDPDES) permits.

The following rules or regulations apply to NDPDES permits:

- Procedures the department follows for issuing NDPDES permits (NDAC chapter 33.1-16-01),
- Standards of Quality for Waters of the State (NDAC chapter 33.1-16-02.1).

These rules require any treatment facility operator to obtain an NDPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other requirements imposed by the permit.

According to NDAC section 33.1-16-01-08, the department must prepare a draft permit and accompanying fact sheet, and make it available for public review. The department must also publish an announcement (public notice) during a period of thirty days, informing the public where a draft permit may be obtained and where comments regarding the draft permit may be sent (NDAC section 33.1-16-01-07). For more information regarding preparing and submitting comments about the fact sheet and permit, please see **Appendix A – Public Involvement**. Following the public comment period, the department may make changes to the draft NDPDES permit. The department will summarize the responses to comments and changes to the permit in **Appendix D – Response to Comments**.

TABLE OF CONTENTS

BACKGROUND INFORMATION.....3

FACILITY DESCRIPTION4
 Discharge Outfall.....7

PERMIT STATUS7

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED.....8

PROPOSED PERMIT LIMITS8

EFFLUENT LIMITATIONS8

SELF-MONITORING REQUIREMENTS10

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS10
 Numerical Criteria for the Protection of Aquatic Life and Recreation.....11
 Numerical Criteria for the Protection of Human Health11
 Narrative Criteria12
 Biota Transfer.....12
 Antidegradation.....12
 Mixing Zones.....12

EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA13
 Total Residual Chlorine (TRC).....13
 pH.....13

WHOLE EFFLUENT TOXICITY13

HUMAN HEALTH14

MONITORING REQUIREMENTS14

TEST PROCEDURES14

OTHER PERMIT CONDITIONS14

PERMIT ISSUANCE PROCEDURES15

PERMIT ACTIONS15

PROPOSED PERMIT ISSUANCE15

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION.....16

APPENDIX B – DEFINITIONS19

APPENDIX C – DATA AND TECHNICAL CALCULATIONS21

APPENDIX D – RESPONSE TO COMMENTS22

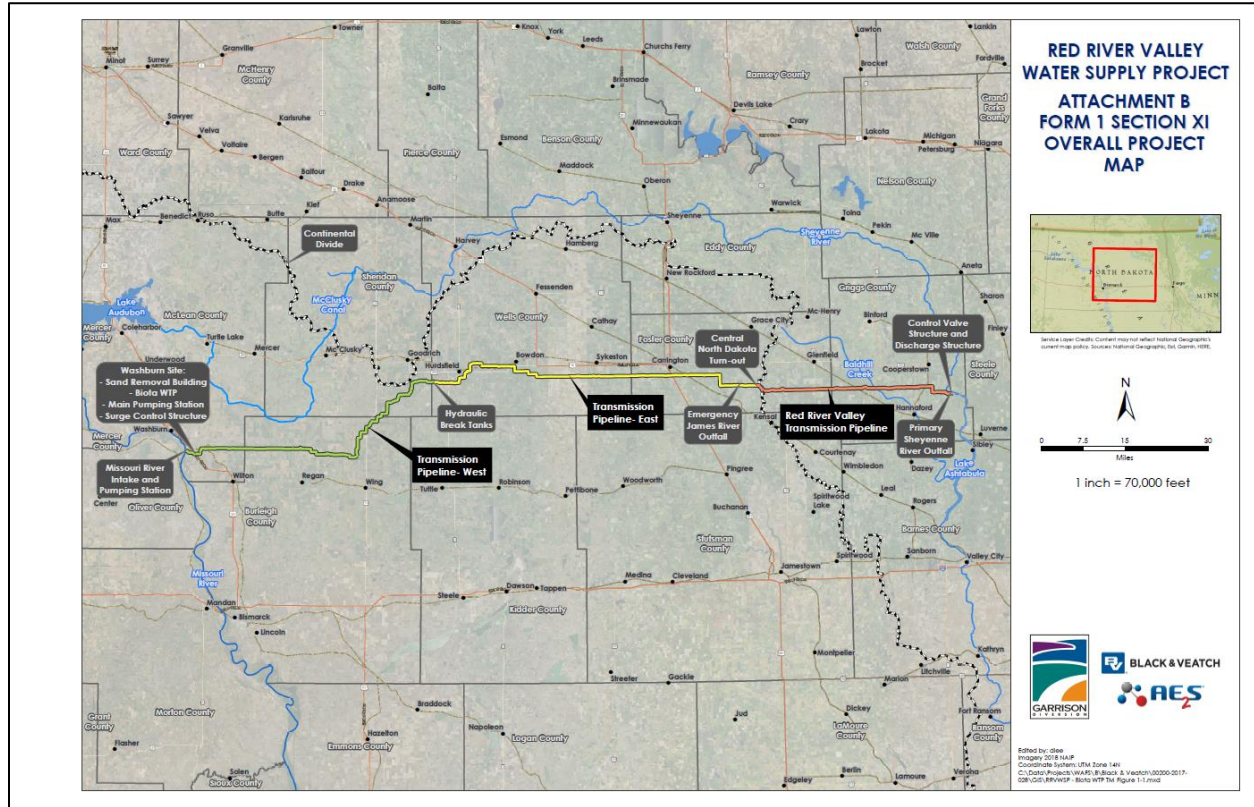
APPENDIX E – BIOTA TRANSFER35

BACKGROUND INFORMATION

Table 1 – General Facility Information

Applicant:	Garrison Diversion Conservancy District
Facility Name and Address:	Red River Valley Water Supply Project PO Box 140, Carrington, ND 58421
Permit Number:	ND-0026964
Permit Type:	Minor, Permit Issuance
Type of Treatment:	Screening, Sand/Grit Removal, Disinfection (Chlorine), Dechlorination, Discharge to Surface Water, Landfill
SIC Code:	4941 – Water Supply
Discharge Location:	001: Sheyenne River, Class IA stream Latitude: 47.36667 Longitude: -98.03750 002: James River, Class IA stream Latitude: 47.40000 Longitude: -98.79583 003: Painted Woods Creek, Class III stream Latitude: 47.22944 Longitude: -100.92694
Hydrologic Code:	09020203 – Middle Sheyenne 10160001 – James River Headwaters 10130101 – Painted Woods-Square Butte

Figure 1: Project Map, Red River Valley Water Supply Project (NDPDES Permit Application, 2019)



FACILITY DESCRIPTION

The Red River Valley Water Supply Project (RRVWSP) is a supplemental water supply project that will pump water from the Missouri River to eastern and central North Dakota; primarily in the event of severe drought conditions. The RRVWSP also would provide water to industries and augment natural stream flow during severe droughts. The RRVWSP will be operated and maintained by the Garrison Diversion Conservancy District. This proposed facility is not projected to be in operation before 2029.

Water will be taken from the Missouri River, treated, and sent 167 miles through a 72-inch diameter pipeline to the Sheyenne River near Cooperstown, ND. Water that does not meet turbidity requirements will be discharged to Painted Woods Creek east of Washburn, ND. Water that does not meet disinfection requirements will be discharged to the James River east of Carrington, ND. When in use, the project will have an average discharge rate of 145 cubic feet per second (cfs), with a maximum discharge rate of 165 cfs. When not in use, the project will maintain a base flow rate of 4 cfs.

Raw water will enter the system through a conventional intake structure in the Missouri River, approximately six miles south of Washburn, ND. The passive intake structure includes screens

EXPIRATION DATE: June 30, 2025

Page 5 of 38

that exclude material and aquatic organisms from entering the pumps and piping. The screen opening sizes are approximately 0.125 inches (3 millimeters or 3,000 microns) and have a maximum design flow inlet velocity of 0.25 feet per second. The top of the screens will be submerged a minimum of 4 feet below the average water surface elevation. The screen cleaning system will either backflush or wipe debris off the screen face and back into the river.

Screened water flows 1,500 feet to the Missouri River Pumping Station and is then pumped to the Washburn Site. The Washburn Site contains the Sand/Grit Removal Building, Biota Water Treatment Plant (WTP), Main Pumping Station, and Surge Control Structure.

Sand/grit removal will be the first treatment process at the Washburn Site. The process is designed to remove 95 percent of all sand/grit greater than or equal to 100 microns at peak flow based on a specific gravity of 2.1 or higher. Aquatic species similar in size and density also would be removed. Material that is removed will be passively dried in drying beds or mechanically dewatered before disposal. Clarified water created during the dewatering process is cycled back to the headworks of the Biota Water Treatment Plant. Dried residuals that are removed during the process will be disposed in an inert landfill within the Missouri River Basin.

Following sand/grit removal, treated supply water passes through chlorine disinfection. A serpentine-style disinfection contact basin (DCB) in conjunction with the 72-inch conveyance pipeline will be used to provide the necessary chlorine contact time needed for chlorine disinfection. When flows are below 25 cfs, disinfection occurs in the DCB. For flows higher than 25 cfs, a portion of the 72-inch conveyance pipeline (7 miles at a maximum) is used along with the DCB to provide the required disinfection. Disinfection compliance will be computed automatically by measurement of the water temperature, residual chlorine, pH, and the flow in the system.

The RR/VWSP is designed to provide disinfection equivalent to 3-log inactivation of *Giardia lamblia* (*Giardia*) and 4-log inactivation of viruses. Log inactivation is used as a measurement of the disinfection capability of a treatment system. For example, 3-log inactivation of *Giardia* means that 99.9 percent of the *Giardia* present in the water would be inactivated at the end of treatment, and 4-log inactivation of viruses means that 99.99 percent of viruses would be inactivated. Inactivation requirements of other organisms are compared to the log inactivation capabilities of the treatment system to determine if these organisms will be inactivated by the system.

After the addition of chlorine, treated supply water is pumped from the Main Pumping Station to the Hydraulic Break Tanks (HBTs) near Hurdsfield, ND. The HBTs provide a point where pumped water switches to gravity flow. Water from the HBTs gravity flows to the Control Valve Structure (CVS) located southeast of Cooperstown, ND. The CVS provides flow rate control and reduces the pressure of the flowing water. A chlorine residual will be carried from the HBTs to the CVS. From the CVS, water then flows to the Pipeline Discharge Infrastructure where the energy of the water is dispersed before ultimately discharging to the Sheyenne River southeast of Cooperstown, ND.

Dechlorination occurs naturally as treated water flows through the pipeline to the point of discharge. It is likely that some residual chlorine may be present at the point of discharge

EXPIRATION DATE: June 30, 2025

Page 6 of 38

without further treatment. Sodium bisulfite will be added at the CVS to remove residual chlorine prior to treated supply water reaching the discharge structure and outfall to the Sheyenne River.

Treated water flowing through the 167-mile long, 72-inch diameter pipeline will have a low dissolved oxygen (DO) concentration by the time it reaches the end of the pipeline due to a long residence time within the pipeline (e.g., 1.7 days at 165 cfs, 72 days at 4 cfs). Reoxygenation of the treated water will occur as water exits the control weir of the CVS. Additional reoxygenation will occur as treated water passes through the energy dissipation structure at the Sheyenne River discharge.

The RRVWSP will maintain a minimum chlorine residual of 3 mg/L at the Main Pumping Station for flows up to 25 cfs, and to a location eleven miles from the Main Pumping Station for flows greater than 25 cfs.

The RRVWSP will include continuous water quality monitoring for turbidity, residual chlorine, water temperature, pH, and flow rate. Analyzers will be placed throughout the system. Outputs and measurements will be displayed locally and connected to the RRVWSP Supervisory Control and Data Acquisition (SCADA) system. Periodic grab samples will be collected for quality control, and analyzer maintenance and calibration. Pumping units and mainline isolation valves also will be controlled using the SCADA system.

In addition to physical and chemical treatment, the RRVWSP will incorporate an operational strategy. The RRVWSP will not be operated when turbidity exceeds 10 Nephelometric Turbidity Units (NTU) downstream of the sand/grit removal process.

The RRVWSP has two diversion points used to discharge supply water that does not meet treatment targets. The first diversion discharge point is at the Biota WTP. If treated water turbidity at the Biota WTP exceeds 10 NTU, the water will be dechlorinated and evacuated from the Biota WTP basins and piping. The water will be directed back to the Missouri River via an unnamed tributary of Painted Woods Creek. Any discharge from this diversion point must meet the effluent limitations of the proposed permit.

The second diversion discharge point is at the point the RRVWSP crosses the James River in the Missouri River Basin. If treated water does not meet disinfection targets by the time it reaches the HBTs, the water will be dechlorinated and the pipeline will be flushed. Any discharge from this diversion point also must meet the effluent limitation in the proposed permit.

Flows from the two diversion points could range from 4 cfs to 165 cfs depending on the type of flow through the RRVWSP at the time treatment targets could not be met.

Inspection, operation and maintenance, and capital replacement plans will be developed for the RRVSWP to minimize the potential for facility degradation and breakdowns. In addition, an Asset Management Plan will be developed that will catalog all assets along with their maintenance requirements, maintenance schedule, and life expectancy. A Capital Improvement Plan also will be developed and updated periodically to identify assets that are nearing their life expectancy and require replacement or refurbishment.

EXPIRATION DATE: June 30, 2025

The RRVWSP's application states that the facility will be equipped with controls, contingency plans, and emergency response procedures prior to start up to ensure only properly treated water is conveyed from the Missouri River Basin to the Hudson Bay Basin. The RRVWSP's application discusses how to manage water that is not properly treated. As stated previously, these controls include shutting down the system when treated water turbidity exceeds 10 NTU and diverting water before it crosses the continental divide.

Discharge Outfall

There are three active discharge outfalls associated with the facility. The description of the outfalls is provided below:

Outfall 001. Active. Final.			
Latitude: 47.36667	Longitude: -98.03750	County: Griggs	
Township: 145N	Range: 58W	Section: 22	QQ: ABC
Receiving Stream: Sheyenne River		Classification: Class IA	
Outfall Description: Only treated supply water that meets permit limits will be discharged at this outfall. All discharges will flow through an energy dissipation device before entering the Sheyenne River.			

Outfall 002. Active. Final.			
Latitude: 47.40000	Longitude: -98.79583	County: Foster	
Township: 145N	Range: 64W	Section: 2	QQ: CCC
Receiving Stream: James River		Classification: Class IA	
Outfall Description: This outfall will divert all water that does not meet permit specifications before reaching the Hydraulic Break Tanks. The discharge is to the James River which is in the Missouri River Basin and does not cross the continental divide.			

Outfall 003. Active. Final.			
Latitude: 47.22944	Longitude: -100.92694	County: McLean	
Township: 143N	Range: 81W	Section: 3	QQ: DCC
Receiving Stream: Painted Woods Creek		Classification: Class III	
Outfall Description: Discharges from this outfall only occur when the treated water exceeds 10 nephelometric turbidity units (NTUs) at the Biota Water Treatment Plant located near Washburn.			

PERMIT STATUS

The Red River Valley Water Supply Project – Sheyenne River Discharge is a new minor facility. This is the first proposed issuance of this permit. The proposed permit has effluent monitoring requirements for total suspended solids (TSS), pH, total residual chlorine (TRC), and special monitoring and reporting conditions for aquatic invasive species. The permit will expire on June 30, 2025.

SUMMARY OF COMPLIANCE WITH PREVIOUS PERMIT ISSUED

This is the first issuance of this proposed permit. No past discharge data is available.

PROPOSED PERMIT LIMITS

EFFLUENT LIMITATIONS

Discharges from water supply facilities are not regulated by national effluent guidelines. In the absence of a federal standard, limitations may be generated using Best Professional Judgment (BPJ) to ensure reasonable control technologies are used to prevent potential harmful effects of the discharge. In addition, the department must consider and include limitations necessary to protect water quality standards applicable to the receiving waters.

Using BPJ, the department determined that a daily maximum limitation of 90 mg/L for TSS is appropriate for this type of facility. Other facilities that treat and distribute water have similar limitations.

The department determined that a Daily Maximum limitation of 0.019 mg/L and 30 Consecutive Day Average limitation of 0.011 mg/L for TRC is appropriate for this type of facility. The limitations are based on the acute and chronic standards found in the Standards of Quality for Waters of the State (WQS) located at North Dakota Administrative Code (NDAC) chapter 33.1-16-02.1. The department included a footnote in the proposed permit requiring the method used to analyze TRC to have an equivalent or lower method detection limit than EPA Method 4500-CI G, Spectrophotometric, DPD. The method, found in 40 CFR 136.3, Table 1B, has a lower detection limit of at least 0.05 mg/L. Because the analytical reliability of TRC detection decreases as lower detection limits decrease, the department determined that the minimum detection limit of analytical reliability for TRC is 0.05 mg/L. Any concentration less than 0.05 mg/L will be considered in compliance with the permit. Other facilities that analyze for TRC have similar minimum detection limits.

The proposed effluent limitations shall take effect once the proposed permit becomes effective. The effluent limitations and the basis for the limitations are provided in Table 2.

Table 2: Comparison of Effluent Limits for Outfalls 001, 002 and 003

Effluent Parameter	Average Monthly	Daily Maximum	Basis^a
Total Suspended Solids (TSS)	*	90 mg/L	BPJ
Chlorine, Total Residual (TRC) ^{b,c}	0.011 mg/L	0.019 mg/L	BPJ, WQS
pH	**		BPJ, WQS
BMPs are to be utilized so that there shall be no discharge of floating debris, oil, scum and other floating materials in sufficient amounts to be unsightly or deleterious, or oily wastes that produce a visible sheen on the surface of the receiving water.			BPJ, WQS, BMP

Table 2: Comparison of Effluent Limits for Outfalls 001, 002 and 003

The facility shall maintain in effective and good working order all treatment systems, controls, contingency plans, and response procedures to ensure aquatic invasive species are rendered inactivated before being discharged from the Missouri River Basin to the Hudson Bay Basin or from the Hudson Bay Basin to the Missouri River Basin.			BMP
Internal Limit			
Chlorine, Total Residual (TRC) ^{d, f}	*	3 mg/L Daily Minimum	BPJ
Turbidity (NTU) ^{e, g}	*	10 NTU Daily Maximum	BPJ
Notes:			
a.	The basis of the effluent limitations is given below: “BMP” refers to best management practice. “BPJ” refers to best professional judgment. “WQS” refers to effluent limitations based on the State of North Dakota’s “Standards of Quality for Waters of the State”, NDAC Chapter 33.1-16-02.1.		
b.	The minimum limit of analytical reliability for TRC is considered to be 0.05 mg/L. The analysis for TRC shall be conducted using reliable devices equivalent to EPA Method 4500-Cl G, Spectrophotometric, DPD. The method achieves a method detection limit of less than 0.05 mg/L. For purposes of the permit and reporting on the DMR form, analytical values less than 0.05 mg/L shall be considered in compliance with the permit.		
c.	In the calculation of average TRC concentrations, analytical results that are less than the method detection limit shall be considered the value of the detection limit for calculation purposes. If all analytical results used in the calculation are below the method detection limit, then the method detection limit shall be reported on the DMR; otherwise report the calculated average value.		
d.	Sampling shall take place at the Biota Treatment plant when flows are 25 cfs or less. When flows are greater than 25 cfs sampling shall take place a minimum of 11 pipeline miles downstream of the Biota Treatment plant.		
e.	Sampling shall take place downstream of the sand/grit removal process but prior to chlorination.		
f.	Water that does not meet this requirement shall be diverted to outfall 002 or outfall 003 and shall not be discharged from outfall 001.		
g.	Treated water that exceeds this requirement at the Biota Treatment Plant shall be diverted to outfall 003.		
*	This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.		

Table 2: Comparison of Effluent Limits for Outfalls 001, 002 and 003

<p>** Discharges to the Sheyenne River and James River shall have an instantaneous pH limitation between 7.0 (s.u.) and 9.0 (s.u.). Discharges to Painted Woods Creek shall be between 6.0 (s.u) and 9.0 (s.u.).</p>	
--	--

SELF-MONITORING REQUIREMENTS

Effluent parameters for outfalls 001, 002, and 003 must be representative of the supply water in the transmission pipeline following dechlorination and are sampled at a point prior to leaving the RRVWSP and before entering a water of the state.

Table 3: Self-Monitoring Requirements for Outfalls 001, 002, and 003

Effluent Parameter	Frequency	Sample Type ^a
Total Suspended Solids (TSS)	1/Week	Grab
Chlorine, Total Residual (TRC)	1/Day	Grab
pH	1/Week	Instantaneous
Flow, mgd	1/Day	Calculated
Total Flow, Mgal	1/Month	Calculated
Internal Point		
Chlorine, Total Residual (TRC) ^b	Continuous	Instantaneous
Turbidity (NTU)	Continuous	Instantaneous
Notes:		
a.	Refer to Appendix B for definitions.	
b.	Sampling shall take place at the Biota Treatment Plant when flows are 25 cfs or less. When flows are greater than 25 cfs sampling shall take place a minimum of 11 pipeline miles downstream of the Biota Treatment Plant.	

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The North Dakota State WQS (NDAC chapter 33.1-16-02.1) are designed to protect existing water quality and preserve the beneficial uses of North Dakota’s surface waters. Wastewater discharge permits must include conditions that ensure the discharge will meet the surface water quality standards. Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load (TMDL) study. TMDLs result from a scientific study of the water body and are developed in order to reduce pollution from all sources.

The Sheyenne River and James River are listed as class IA streams in the WQS. The quality of water in class IA streams must be suitable for the propagation and/or protection of resident fish species and other aquatic biota, and for swimming, boating, and other water recreation. The

quality also must be suitable for irrigation, stock watering, and wildlife without injurious effects. The Sheyenne River in this area is not classified for municipal or domestic use.

Painted Woods Creek is not specifically mentioned in the WQS and is considered a class III stream. The quality of water in class III streams must be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for recreation, and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota, and wildlife uses.

A TMDL allocation for *Escherichia coli* (*E. coli*) bacteria was finalized for the Sheyenne River in the area of Outfall 001 in 2012 (*E. coli* Bacteria TMDLs for the Sheyenne River in Nelson and Griggs Counties, North Dakota, August 2012). The department identified the recreational use of the Sheyenne River as not supported due to *E. coli* bacteria (*E. coli* bacteria are used as an indicator of recreational use risk). As a result, a TMDL for *E. coli* bacteria was developed for the river. The TMDL is intended to reduce *E. coli* bacteria counts in the Sheyenne River to meet the beneficial use of the creek.

E. coli bacteria count reductions described in the TMDL have generally been allotted to non-point sources of pollution (e.g., failing septic systems, livestock, etc.). The TMDL prescribes BMPs such as livestock management to achieve load reductions for non-point sources of pollution. A wasteload allocation for *E. coli* bacteria was not given to point sources of pollution in the watershed, such as this facility. The facility is not expected to contribute *E. coli* to the Sheyenne River; therefore the department is not adding effluent limitations or loading requirements for *E. coli* bacteria to the proposed permit.

The James River in the area of Outfall 002 and Painted Woods Creek is not listed as impaired in the 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List). There currently are no TMDLs for the particular segment of the James River or Painted Woods Creek.

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (NDAC chapter 33.1-16-02.1). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. The department uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published numeric water quality criteria for the protection of human health that are applicable to dischargers. These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (NDAC section 33.1-16-02.1-08) limit concentrations of pollutants from exceeding applicable standards of the receiving waters. The department adopted a narrative biological goal solely to provide an additional assessment method that can be used to identify impaired surface waters.

Biota Transfer

The transfer of invasive aquatic biota from the Missouri River Basin to the Hudson Bay Basin is a concern of the facility. As part of the application process, 39 aquatic invasive species (AIS) of concern were identified as possibly being transferred from the Missouri River Basin to the Hudson Bay Basin without adequate treatment. The list of concern was narrowed down to 13 AIS based on the presence of an AIS in each basin and whether an AIS is known to exist in either basin. The list was further narrowed down to two AIS based on the log inactivation requirements for each AIS compared to the log inactivation capabilities of the RRVWSP (i.e., 3-log inactivation of *Giardia* and 4-log inactivation of viruses).

After review, two AIS were identified as having the possibility of affecting the operation of the RRVWSP. A full review of the department's rationale regarding biota may be found in Appendix E.

The RRVWSP will be equipped with controls, contingency plans, and emergency response procedures to ensure only properly treated water is conveyed from the Missouri River Basin to the Hudson Bay Basin. In the event that supply water does not meet turbidity or disinfection treatment standards, the supply water will be intentionally diverted to one of two points within the Missouri River Basin. The Painted Woods Creek discharge point located near Washburn, ND will be used when turbidity standards cannot be met. The James River discharge point located near Carrington, ND will be used when disinfection standards cannot be met. The controls, plans, and response procedures, as well as the diversion of supply water that does not meet treatment targets within the Missouri River Basin will safeguard against the transfer of biota to the Hudson Bay Basin.

Antidegradation

The purpose of North Dakota's Antidegradation Policy (NDAC chapter 33.1-16-02.1 (Appendix IV)) is to:

- Provide all waters of the state one of three levels of antidegradation protection.
- Determine whether authorizing the proposed regulated activity is consistent with antidegradation requirements.

The department's fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

Mixing Zones

EXPIRATION DATE: June 30, 2025

Page 13 of 38

The department's WQS contain a Mixing Zone and Dilution Policy and Implementation Procedure, NDAC chapter 33.1-16-02.1 (Appendix III). This policy addresses how mixing and dilution of point source discharges with receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point source discharges. Depending upon site-specific mixing patterns and environmental concerns, some pollutants/criteria may be allowed a mixing zone or dilution while others may not. In all cases, mixing zone and dilution allowances shall be limited, as necessary, to protect the integrity of the receiving water's ecosystem and designated uses.

The department determined outfall-specific mixing zones were not necessary in the proposed permit based on the type of pollutants present. All effluent limitations described in the proposed permit must be met at the point of compliance for each outfall and before entering the respective receiving stream.

EVALUATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

Total Residual Chlorine (TRC)

Discharges from the facility have the potential to exceed the WQS for TRC. Based on the WQS, the department has determined that a TRC limitation of 0.011 mg/L as an average monthly and 0.019 mg/L as a daily maximum is appropriate for this type of facility.

An internal limit of 3 mg/l daily minimum for TRC is being proposed. This limitation was determined by reviewing the application and the level of chlorination required to maintain a 3-log inactivation of *Giardia* and 4-log inactivation of viruses dosage for aquatic invasive species (AIS) listed.

Because the analytical reliability of TRC decreases with lower detection limits, the department determined that the minimum limit of analytical reliability for TRC is 0.05 mg/L. The analysis must be conducted using reliable devices that have a minimum detection limit equivalent to EPA Method 4500-Cl G, Spectrophotometric, DPD which achieves a minimum detection limit of less than 0.05 mg/L.

Turbidity

An internal limit of 10 Nephelometric Turbidity Units (NTUs) is being proposed. This limitation was determined by reviewing the application. A determination was made the turbidity shall not exceed 10 NTUs to ensure the chlorination dosage efficiency is not degraded for the inactivation of AIS.

pH

The WQS state that discharges to Class IA streams shall have an instantaneous pH limitation between 7.0 (s.u.) and 9.0 (s.u.). Discharges to Class III shall be between 6.0 (s.u.) and 9.0 (s.u.).

WHOLE EFFLUENT TOXICITY

Testing requirements and limitations for whole effluent toxicity (WET) testing are specified in 40 CFR 122.44(d)(1)(iv) & (v) for discharges that may have the reasonable potential to contribute to an in-stream excursion above a numeric or narrative criterion for whole effluent toxicity. The state water quality standards include a narrative standard related to whole effluent toxicity. The narrative standard listed in NDAC section 33-16-02.1-08(1)(a)(4) states that waters of the state shall be “free from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations which are toxic or harmful to humans, animals, plants or resident aquatic biota. For surface water this standard will be enforced in part through appropriate whole effluent toxicity requirements in North Dakota pollutant discharge elimination system permits.” The department determined no toxic effects are expected by the discharge of treated supply water. There are also no industrial waste streams being created at this facility.

HUMAN HEALTH

North Dakota’s water quality standards include numeric human health-based criteria that the department must consider when writing NDPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria. The department has not identified any chemicals in the applicant’s discharges for regulation based on the human health criteria. The department will re-evaluate this discharge for impacts to human health at the next permit reissuance.

MONITORING REQUIREMENTS

The department requires monitoring, recording, and reporting (NDAC Chapter 33.1-16-01-(21 through 23) and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit’s limits.

TEST PROCEDURES

The collection and transportation of all samples shall conform to EPA preservation techniques and holding times. All laboratory tests shall be performed by a North Dakota certified laboratory in conformance with test procedures pursuant to 40 CFR 136, unless other test procedures have been specified or approved by EPA as an alternate test procedure under 40 CFR 136.5. The method of determining the total amount of water discharged shall provide results within 10 percent of the actual amount.

OTHER PERMIT CONDITIONS

The proposed permit requires the permittee to submit an annual certification statement and report regarding the presence of aquatic invasive species in the Missouri River Basin and Hudson Bay Basin that may affect the RRVWSP. The report must summarize any accepted literature that identifies the presence of aquatic invasive species in the Missouri River Basin and Hudson Bay Basin that may affect the RRVWSP. If the information contained in the previous statement is still relevant, then the facility may state that in the certification statement. The department will evaluate new information received from the permittee or other reliable sources

to determine the appropriate action to incorporate the information, including modification of permit conditions if deemed appropriate.

PERMIT ISSUANCE PROCEDURES

PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, changes in sewage sludge practices, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludge. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

PROPOSED PERMIT ISSUANCE

This proposed permit meets all statutory requirements for the department to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of North Dakota. The department proposes to issue this permit for a term of five (5) years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to issue a permit to **Garrison Diversion Conservancy District – Red River Valley Water Supply Project** located near Washburn, Cooperstown, and Carrington, North Dakota. The permit includes treated water discharge limits and other conditions. This fact sheet describes the facility and the department's reasons for requiring permit conditions.

The department will place a Public Notice of Draft on or around **March 23, 2020** in the following papers: Bismarck Tribune, Foster County Independent, Griggs County Courier, The Forum, McLean County Independent, Grand Forks Herald, The Herald-Press, Jamestown Sun, McClusky Gazette, and Valley City Times-Record to inform the public and to invite comment on the proposed draft North Dakota Pollutant Discharge Elimination System permit and fact sheet.

The Notice –

- Indicates where copies of the draft Permit and Fact Sheet are available for public evaluation.
- Offers to provide assistance to accommodate special needs.
- Urges individuals to submit their comments before the end of the comment period.
- Informs the public that if there is significant interest, a public hearing will be scheduled.

You may obtain further information from the department by telephone, 701.328.5210, or by writing to the address listed below.

North Dakota Department of Health
Division of Water Quality
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

The primary authors of this permit and fact sheet are Dallas Grossman and Marty Haroldson.

**North Dakota Department of Environmental Quality Public Notice
Issue of an NDPDES Permit**

Public Notice Date: 3/23/2020

Public Notice Number: ND-2020-012

Purpose of Public Notice

The Department intends to issue the following North Dakota Pollutant Discharge Elimination System (NDPDES) Discharge Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Application Date: 4/5/2019

Application Number: ND0026964

Applicant Name: Red River Valley Water Supply Project

Mailing Address: PO Box 140, Carrington, ND 58421

Telephone Number: 800.532.0074

Proposed Permit Expiration Date: 6/30/2025

Facility Description

The application is for a water supply project that will pump water from the Missouri River to eastern and central North Dakota; primarily in the event of severe drought conditions. The Missouri River intake will be located in the NE1/4, SW1/4, Section 5, Township 143N, Range 83W southeast of Washburn, ND. The water treatment plant will be located in the SW1/4, NW1/4, Section 3, Township 143N, Range 83W southeast of Washburn, ND. The transmission pipeline extends from the Missouri River intake to the Sheyenne River, a Class IA stream, southeast of Cooperstown, ND. Treated water will discharge from the Sheyenne River outfall which will be located in the NW1/4, NE1/4, Section 22, Township 145N, Range 58W. Water that does not meet treatment targets will be diverted to one of two discharge points. One point will be located in the SW1/4, NW1/4, Section 3, Township 143N, Range 83W southeast of Washburn, ND and discharge to Painted Woods Creek, a Class III stream. The other point will be located in the SE1/4, SE1/4, Section 2, Township 145N, Range 64W east of Carrington, ND and discharge to the James River, a Class IA stream.

MEETING PURPOSE AND LOCATION

The Department will be holding a public hearing on the proposed facility, in which the Department invites oral comments on the application and review of the proposed water supply project.

The public hearing will be held May 12, 2020 at 1:00 p.m. at the North Dakota State University Memorial Union, with the location listed below:

North Dakota State University
Memorial Union
1401 Administration Avenue
Room Badlands
Fargo, ND 58102

Tentative Determinations

Proposed effluent limitations and other permit conditions have been made by the Department. They assure that State Water Quality Standards and applicable provisions of the FWPCA will be protected.

EXPIRATION DATE: June 30, 2025

Page 18 of 38

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by May 21, 2020 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

APPENDIX B – DEFINITIONS

DEFINITIONS Standard Permit BP 2019.05.29

1. “**Act**” means the Clean Water Act.
2. “**Average monthly discharge limitation**” means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.
3. “**Average weekly discharge limitation**” means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week.
4. “**Best management practices**” (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage areas.
5. “**Bypass**” means the intentional diversion of waste streams from any portion of a treatment facility.
6. “**Composite**” sample means a combination of at least 4 discrete sample aliquots, collected over periodic intervals from the same location, during the operating hours of a facility not to exceed a 24 hour period. The sample aliquots must be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.
7. “**Daily discharge**” means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the “daily discharge” is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
8. “**Department**” means the North Dakota Department of Environmental Quality, Division of Water Quality.
9. “**DMR**” means discharge monitoring report.
10. “**EPA**” means the United States Environmental Protection Agency.
11. “**Geometric mean**” means the n^{th} root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

12. “**Grab**” for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.
13. “**Instantaneous**” for monitoring requirements, means a single reading, observation, or measurement. If more than one sample is taken during any calendar day, each result obtained shall be considered.
14. “**Maximum daily discharge limitation**” means the highest allowable “daily discharge.”
15. “**Salmonid**” means of, belonging to, or characteristic of the family Salmonidae, which includes the salmon, trout, and whitefish.
16. “**Sanitary Sewer Overflows (SSO)**” means untreated or partially treated sewage overflows from a sanitary sewer collection system.
17. “**Severe property damage**” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. “**Total drain**” means the total volume of effluent discharged.
19. “**Upset**” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

APPENDIX C – DATA AND TECHNICAL CALCULATIONS

The development of the permit did not require technical calculations by the North Dakota Department of Environmental Quality. The department reviewed applicable water quality standards for class IA and III streams to determine the appropriate requirements to be placed in the permit. In addition, the department reviewed Total Maximum Daily Load information for the Sheyenne River and the department's 2018 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads (303(d) List).

Comparison of Missouri River Water Quality at Washburn to Sheyenne River at near Cooperstown

Data reviewed includes U.S. Geological Survey (USGS) published results from the Missouri River at Washburn, North Dakota and all water quality data collected by the N.D. Department of the Environmental Quality (DEQ) from the Sheyenne River near Cooperstown, North Dakota. A list of parameters and concentrations reviewed are also found in Attachment E of the application. Only matching parameters were compared.

All matching analytes were found in a lower concentration on average and at maximum in the Missouri than the Sheyenne. Some of these trace elements are substantially lower. Both rivers are sulfate dominated, however the average concentration of sulfate in the Sheyenne River is double the Missouri River.

APPENDIX D – RESPONSE TO COMMENTS

On January 2, 2019, the North Dakota Department of Environmental Quality (Department) received an application from Garrison Diversion Conservancy for an individual North Dakota Pollutant Discharge Elimination System (NDPDES) permit, relating to the Red River Valley Water Supply Project (RRVWSP). An updated application was received on April 5, 2019 and the final application was received on August 8, 2019. When the fact sheet and draft permit to discharge were completed, the Department issued on or about April 23, 2020 a public notice that was published in the following papers: Griggs County Courier, Bismarck Tribune, Foster County Independent, The Forum, McLean County Independent, Grand Forks Herald, The Herald Press, The Jamestown Sun, McClusky Gazette, Valley City Times-Record; and posted to the Department's website - <https://deq.nd.gov/PublicNotice.aspx>. A list of federal, state, and international government offices along with private entities were also notified of the website posting. The Department also maintains a list of mailing addresses to which letters of notification were sent. An updated public notice was issued in response to the Covid-19 pandemic. This updated public notice was published on or about May 7, 2020. This update allowed the Department to host the public hearing remotely to accommodate the circumstance. No testimony was given during the hearing.

Below are summaries of the written comments received during the public comment period. Although there are specific responses to each comment, the document should be read in its entirety with the understanding that a response to one comment may be applicable to additional comments. The Department has updated the proposed permit and fact sheet to provide clarification and address comments received during the comment period. Substantive changes are discussed in the responses.

As you read the following response to comments note that aquatic nuisance species (ANS) is interchangeable with aquatic invasive species (AIS). Also, National Pollutant Discharge Elimination System (NPDES) and North Dakota Pollutant Discharge Elimination System (NDPDES) are referencing the same draft permit.

Garrison Diversion Conservancy District Comments:

1. In the last sentence of the third paragraph on page 7 of the permit, we suggest removing the words "maintains or" because you do not desire to maintain biota transfer potential.

Department Response: Thank you for your comment. To remove the possibility of confusion the Department will update this sentence. The new sentence shall read:

"Any action taken is to ensure this facility reduces biota transfer potential into the HBB."

2. In the second stipulation in Table 1 on page 9 of the permit, we suggest replacing "to ensure aquatic invasive species are not discharged" with "to ensure the transfer of aquatic invasive species are minimized" or something similar to recognize the nature of logarithmic inactivations.

EXPIRATION DATE: June 30, 2025

Page 23 of 38

Department Response: Thank you for your comment. The Department agrees that updating this sentence can better reflect the objective of the Biota Treatment Plant design. The new sentence shall read:

“The facility shall maintain in effective and good working order all treatment systems, controls, contingency plans, and response procedures to ensure aquatic invasive species are rendered inactivated before being discharged from the Missouri River Basin to the Hudson Bay Basin or from the Hudson Bay Basin to the Missouri River Basin.”

3. In the last row of Table 2 on page 8 of the Fact Sheet, we suggest replacing "to ensure aquatic invasive species are not discharged" with "to ensure the transfer of aquatic invasive species are minimized" or something similar to recognize the nature of logarithmic inactivations.

Department Response: Thank you for your comment. Please refer to the Department's response to comment # 2.

4. In the second sentence of the second paragraph on page 13 of the Fact Sheet, we suggest replacing "a 4-log inactivation dosage for aquatic invasive species (AIS) listed" with "3-log inactivation of Giardia and 4-log inactivation of viruses" to be consistent with the treatment objectives.

Department Response: Thank you for your comment. The Department will update this sentence to be consistent with previous sections of the Fact Sheet. The new sentence shall read:

“This limitation was determined by reviewing the application and the level of chlorination required to maintain a 3-log inactivation of Giardia and 4-log inactivation of viruses dosage for aquatic invasive species (AIS) listed.”

5. In the third sentence of the second paragraph on page 24 of the Fact Sheet, we suggest replacing "4-log inactivation level" with "3-log inactivation of Giardia and 4-log inactive of virus levels" to be consistent with the treatment objectives.

Department Response: Thank you for your comment. The Department will update this sentence to be consistent with previous sections of the Fact Sheet. The new sentence shall read:

“These four AIS have been found to be treatable between the sand/grit removal, 3-log inactivation of Giardia, and 4-log inactivation of viruses level of the proposed facility.”

6. In the second sentence of the first paragraph on page 25 of the Fact Sheet, we suggest replacing "will ensure this AIS is not transferred" with "will ensure the transfer of this AIS is minimized" or something similar to recognize the nature of logarithmic inactivations.

Department Response: Thank you for your comment. The Department will update this sentence to provide more clarity. The new sentence shall read:

“As documented in the application, treatment of the larvae Quagga mussel by chlorine and adult Quagga mussel by the proposed sand/grit removal system will ensure any viable form of this AIS is not transferred in the HBB via the proposed pipeline.”

Government of Canada:

7. Canada maintains that it is critically important to reduce risks to the Hudson Bay basin in order to ensure the protection of Canadian economic and environmental interests and shares Manitoba's concerns about the RRVWSP project. Accordingly, Canada strongly encourages the State of North Dakota to give due consideration to the concerns and recommendations outlined in the Province of Manitoba's public comment letter pursuant to this draft National Pollutant Discharge Elimination System (NPDES) permit.

Department Response: Thank you for your comment. The Department has reviewed Canada's concerns and determined the Treaty is not relevant to this state permitting action. The standards for issuing a permit are set out in the Department's rules, and the Department has determined the project meets the applicable requirements. Although a predecessor project was jointly referred to the International Joint Commission, the Department is not aware of any such referral for this project. Also, please refer to the Department's response to Manitoba's comments.

Manitoba Agriculture and Resource Development:

8. The 2001 Secretarial Determination is no longer accurate or sufficient more than 19 years later.

Department Response: Thank you for your comment.

A Secretarial Determination is not required here, as this is a state project that is not subject to the Dakota Water Resources Act.

The Department recognizes that new information and technology have helped better address aquatic nuisance species. The information referred to in the Northwest Area Water Supply (NAWS) Project and RRVWSP Environmental Impact Statement (EIS) is a starting point to build the base of information for Aquatic Nuisance Species (ANS). With continuing research and requested input from the public and other agencies and groups, the Department will continue to build and evaluate the information base for ANS. Minnesota's Department of Natural Resources listed a new species that was then evaluated. Please refer to the Department's response to question #22.

9. The permit should provide for treatment of classes of aquatic invasive species

Department Response: Thank you for your comment. The Department agrees the species can be listed by classes, however, the Department decided to list individual species to ensure the information found for inactivation would be organism specific. This approach ensures that each organism is specifically researched and addressed without the possible deficiencies of just

EXPIRATION DATE: June 30, 2025

Page 25 of 38

looking at a class of organisms. The department understands that most organisms in a class should react relatively the same, however, there could arise a situation that this may not hold true.

10. A proposed annual literature review for new aquatic invasive species is less effective than proactive multi-barrier treatment for classes of AIS

Department Response: Thank you for your comment. The Department does not agree that literature reviews and treatment are mutually exclusive. Literature reviews will help provide new information that may require more evaluation, even after a permit issuance. This type of condition adds to the safety factor of not spreading ANS and being more proactive instead of being more reactive at a permit reissuance. Also, refer to the Department's response to comment #19 and #20.

11. Inter-Basin transfer of the New Zealand Mud Snail must be prevented, not reviewed annually

Department Response: Thank you for your comment. The New Zealand mud snail (NZMS) has a long invasion history dating back to 1859. The New Zealand mud snail has been found in the headwaters of the Missouri River located in Montana and in Wyoming. The NZMS, as of 1991, has also been located in the Great Lakes while being identified in other parts of North America. University of California – Riverside Entomology Department states that there are no feasible eradication technologies for controlling the snail. The concept is drawing the first line of defense against the snail through containment. Findings show the spread of the snail is strongly associated with recreational freshwater fishing and wading gear. Other activities associated with the spread of the snail are transferring game fish from NZMS areas, the transfer of aquatic plants, and from sand and gravel pits. Information provided by the University of California was found on their website: <https://civr.ucr.edu/invasive-species/new-zealand-mud-snail>

The Department defends the idea of using a literature review in conjunction with proposed treatment and removal. The United States Geological Survey has a resource map for the NZMS located at: <https://nas.er.usgs.gov/viewer/omap.aspx?SpeciesID=1008> Resources like this along with information provided in response to comment #19 and #21 will help in identifying AIS prior to becoming an issue for the Biota Treatment Plant.

12. Chlorine resistance and turbidity increase the need for filtration

Department Response: Thank you for your comment. Please refer to Department response to comment # 20. An advantage of using chlorine is that once the contact time (CT) has been met at pipeline mile 11, inactivation continues until the chlorine is used up. Note that if the internal limit for Nephelometric Turbidity Unit (NTU) or Total Residual Chlorine (TRC) are not met then the water must be discharged prior to crossing the divide. For this reason, outfall 2 and 3 are included in the design of the Biota Treatment Plant. The hydraulic break tanks are located at the peak of the pipeline route and are approximately 70 pipeline miles downstream from the Biota Treatment Plant.

As stated in the application, if the Biota Treatment Plant cannot meet the 10 NTUs the plant will shut down and drain the pipe so disinfection practices can take place before the system is back on-line. Also, refer to the Department's response to comment #11 and #13.

13. UV Treatment is essential

Department Response: Thank you for your comment. An advantage chlorination has at this facility is the detention time in the pipeline, even after the calculated inactivation of ANS has already been met. The inactivation level of 3 mg/l for TRC will be maintained for a minimum of 11 miles when the pipeline is running over 25 cfs. This allows for inactivation with any remaining free chlorine to continue for an additional 59 miles prior to crossing the continental divide. Also, refer to Department response to comments #19 and #20.

The United States Environmental Protection Agency has published a document "Wastewater Technology Fact Sheet Ultraviolet Disinfection" EPA 832-F-99-064 dated September 1999. Organisms covered in Table 1 are bacteria, protozoa, helminths, and viruses. This document lists a disadvantage of using ultraviolet disinfection, which is that, "Organisms can sometimes repair and reverse the destructive effects of UV through a "repair mechanism," known as photoreactivation, or in the absence of light known as "dark repair."

This supports the decision that chlorination without ultraviolet treatment will be effective for this project.

14. Monitoring of water treatment performance should be reliable and continuous, not periodic

Department Response: Thank you for your comment. The Department concurs with updating the sample frequency and sample type in the fact sheet and permit for the internal point. The sample frequency will be updated to "Continuous" and the sample type will be updated to "Instantaneous" for both TRC and turbidity. Please refer to the Department's response to comment #20.

15. Measures to mitigate and prevent system upsets and bypasses should be strengthened, and emergency plans and procedures implemented

Department Response: Thank you for your comment. The facility must run the Biota Treatment Plant as described in the application and supporting information along with permit requirements. Please refer to the Department's response to comment #20. The permittee also needs to follow the entire permit, specifically, Part III(B) Proper Operation and Maintenance.

16. Concerns related to the McClusky Canal

Department Response: Thank you for your comment. The McClusky Canal was listed in the original application; however, subsequent applications removed the McClusky Canal as a source of water to be transported through the proposed pipeline for the RRVWSP. Any future water intakes to be added to the RRVWSP would need to be included in a proposed permit and would need to go through the public comment period and be authorized by the Department.

17. More protective treatment will also be cost-effective.

Department Response: Thank you for your comment. Please refer to the Department's response to comment #19 and #20.

18. The discharge authorization expires years before the proposed operation

Department Response: Thank you for your comment. The Department understands that some projects may need to obtain a permit years in advance of any possible discharge. This may be done for many reasons, such as obtaining funding for the project. Other facilities in the state have obtained a discharge permit years in advance of the facility start-up.

A National Pollutant Discharge Elimination System (NPDES) permit is typically issued for no longer than five years. Around one-hundred and eighty days prior to the permit expiration date the permittee is to submit a new application. Once the Department has processed the new application and drafted the Fact Sheet and draft permit, another Public Notice is issued in which the public will have a chance to comment on the draft documents.

Minnesota Department of Natural Resources:

Concerns:

19. The proposed chlorination treatment focuses only on current conditions and does not provide effective treatment for all classes of aquatic invasive species, pathogenic species, and microbiological components that are: (1) currently unknown, but present and/or (2) will be present in the future in the Missouri R. basin. More effective treatment options that will provide full protection now and into the future are available and feasible (e.g., Northwest Area Water Supply Project [NAWS]).

Department Response: Thank you for your comment. The proposed treatment system was designed for the current known conditions and identified ANS presented in the application. For other known ANS and for those to yet be identified, the Department required the literature review to provide an early warning system. This literature review is a crucial part of the puzzle to ensure the Biota Treatment Plant maintains its effectiveness on ANS removal and inactivation. Many organizations in the reaches of the Missouri River and Yellowstone River will play a vital role in early detection of ANS. The North Dakota Game and Fish Department is another resource as they provide an online ANS observation report form. This form along with other ANS information can be found at: <https://fws.gov/fisheries/ANS/index.html> This and other information will help provide the early detection required to keep the Biota Treatment Plant in permit compliance while providing a constant source of quality water.

The North Dakota Department of Environmental Quality formerly known as the North Dakota Department of Health is on the Aquatic Invasive Species Committee (AISC) as a reviewer of the 2018 "North Dakota Aquatic Nuisance Species Management Plan". This allows the Department to have a more thorough review of submitted ANS documentation, which at a minimum is to be submitted on an annual basis.

Multiple commenters have compared the treatment for biota in the RRVWSP to the treatment planned for NAWS, another trans-basin water supply project. There are, however, some significant differences between the two projects.

First, the NAWS project included technical and financial assistance from the Federal Bureau of Reclamation, which triggered the requirement for a federal environmental impact statement (EIS) under the National Environmental Policy Act (NEPA). Since the RRVWSP is not a federal project, an EIS is not required. The RRVWSP is being reviewed under state water pollution control rules and section 402 of the federal Clean Water Act. (CWA).

Second, RRVWSP is required to meet the technical standards for protection of the environment set forth in the state water pollution control rules. NEPA does not require the control technology selected meets specific water quality criteria, only that the decisions makers have the information to make an informed decision. The final decision on treatment technology for the NAWS project was a negotiated settlement and should not be interpreted to require any specific treatment technology.

Third, each project has different characteristics based on the final discharge. Requirements for this facility is to inactivate ANS which is appropriate for a discharge into a stream.

Although the processes are different, the Department did review the final EIS for the NAWS project and considered ANS identified during the process. This process is captured in Appendix E of the Fact Sheet.

Another point to note is the Department considered impacts from the transfer of biota across the Missouri River Basin/Hudson Bay Basin continental divide. Biota are considered a non-conventional pollutant and the Department reviewed the possibility of biota for compliance with the narrative Water Quality Standard NDAC 33.1-16-02.1-08(1)(e), which prohibits the discharge of pollutants which shall "1. Cause a public health hazard or injury to environmental resources; 2. Impair existing or reasonable beneficial uses of the receiving waters..." Following EPA's "Technical Support Document For Water Quality-based Toxics Control" EPA/505-90-001 dated March 1991, the Department reviewed each species to determine if they may be discharged at levels that would cause or contribute to a public health hazard, injury to environmental resources or impairment of beneficial use.

This review is shown in Appendix E of the Fact Sheet, which details the specific analysis for each species. The Department determined that based on the design and operation of the facility, as well as the geographic distribution of ANS, that no reasonable potential exists for 36 of the 39 species identified. The Department has required continued monitoring for the NZMS and parasitic flatworm identified only in the Missouri River Basin. Specific requirements are found in the Special Conditions section of the permit. Also, more detailed information can be found in Appendix E.

20. The proposed intake filtration system of 3mm is also insufficient to prevent the spread of all AIS and is much coarser than what MNDNR requires for water appropriation permits. In addition, authorization of bypasses not exceeding limitations presents unnecessary and avoidable risk.

EXPIRATION DATE: June 30, 2025

Page 29 of 38

Department Response: Thank you for your comment. The intake filtration of 3mm is the first step in the process. The Biota Treatment Plant then takes the raw water and sends it through a sand/grit removal process. This sand/grit removal system is proposed to remove 95 percent of particles 0.1mm in size, or larger, with a specific gravity of 2.1 or higher. Chlorination is the next step. Free chlorine residual shall be maintained at 3 mg/l at the plant and up to 11 pipeline miles. Supplemental information was provided by the Garrison Diversion Conservancy in a letter dated February 22, 2020 and June 18, 2020 and was used in updating the record. This information detailed the sand/grit removal system and recalculated the distance required to meet the inactivation requirements.

Any discharge or bypass that meets permit limitations would ensure no ANS or other parameter of concern would adversely impact the environment, thus meeting the goal of the project.

The Department notes in the Outfall Description of the proposed draft permit how water will be diverted if treatment has not been met. To ensure clarity on this point, the Department will add language to Table 1 located in Part I(B)(1). Footnote "e" and "f" will be added to the Notes section of Table 1 and be referenced in the internal limit section for TRC and NTU as stated below:

"e. Water that does not meet this requirement shall be diverted to outfall 002 or outfall 003 and shall not be discharged from outfall 001."

"f. Treated water that exceeds this requirement at the Biota Treatment Plant shall be diverted to outfall 003."

21. The monitoring proposed as part of the draft NPDES permit relies on periodic review of literature to identify new species and subsequent treatment adaptations. This approach may result in the transport of harmful biota before detection. Instead, MN DNR recommends anticipating potential new invasive species occurrences, and incorporating more effective prevention efforts through robust treatment.

Department Response: Thank you for your comment. Please refer to response to comment #19. The literature review as described in response #19 plays a vital role to help technology adjust to those current unknowns. According to the animated map showing the time lapse distribution of the NZMS on the United States Geological Survey's website: <https://nas.er.usgs.gov/queries/SpeciesAnimatedMap.aspx?speciesID=1008> the distribution of the NZMS starts in 1987 and updates to the current time frame. The NZMS was first observed in western Montana in 1995 and then in Wyoming in 1996. Since the first observation of the NZMS spread has been mostly contained to the local area of the first observation. In 2002 there was a location in south central Montana, but has shown to have not migrated upstream at present time.

The rate of spread for the *Icelandonchopator microcotyle* a parasitic flatworm is not easily characterized. According to (Appendix A, Constructed Project Components) from the NAWS Project Supplemental Environmental Impact Statement, states that this parasitic flatworm has eluded characterization due to its apparent scarcity (both presence throughout and abundance within hydrologic basins).

For more information on the NZMS and parasitic flatworm, refer to Appendix E of the Fact Sheet for this facility.

22. DNR is particularly concerned about the potential transfer of sturgeon iridovirus and its impact on lake sturgeon along with other impactful fish pathogens or diseases. Since 1990, MN DNR has invested heavily in population re-stocking, restoration and connection of rivers and spawning habitat for lake sturgeon throughout the Red River Valley. The iridovirus causes death in hatchery settings and has been detected in wild Shovelnose and Pallid sturgeon in the Missouri downstream of Fort Peck.

Department Response: Thank you for your comment. After reviewing documentation on the Missouri River Sturgeon Iridovirus (MRSIV) the Department has concluded that MRSIV is found in both the Missouri River Basin and the Hudson Bay Basin. The Department understands the impact MRSIV can have on hatchery raised Sturgeon. Literature review suggests that MRSIV related mortality among sturgeon increases as the density of sturgeon increases. This may be one reason that MRSIV has been found to be devastating in a hatchery setting while findings of no real impact have been documented in the wild.

A consensus among Federal fish hatcheries located in the upper portion of the Missouri River is that ultraviolet (UV) light may not be effective against MRSIV. This supports literature indicating that MRSIV is passed vertically (gametes) within the Sturgeon. If this is the case, then treating water with UV for the inactivation for MRSIV is of little value.

Fish hatcheries have been using a testing method for MRSIV called polymerase chain reaction (PCR). Note, the Bozeman National Fish Hatchery (NFH) recently discontinued testing for MRSIV due to the decreasing numbers of MRSIV-positive cases. The Garrison NFH and Miles City NFH have also seen a decrease in MRSIV-positive cases over the last 5-10 years. The NFHs attribute this to implementing broodstock rearing practices that prevent MRSIV transmission.

The United States Fish and Wildlife Service (USFWS) published "Shovelnose Sturgeon Iridovirus Sampling in the Missouri River, Below Gavins Point Dam, South Dakota and Nebraska" dated 2002. Region 6 of the USFWS stated that three Service facilities have cultured sturgeon in which the iridovirus was detected: Gavins Point National Fish Hatchery, Valley City National Fish Hatchery, and Garrison National Fish Hatchery.

The proposed Biota Treatment Plant has been designed to treat the water and provide a 4-log inactivation for viruses, which means 99.99 percent of viruses would be inactivated.

Some of the above information was compiled by the Garrison Diversion Conservancy in a document named "Technical Notes for the Missouri River Sturgeon Iridovirus" dated June 18, 2020. This document was added to the record by the request of the Department and based on comments received during the public comment period.

Recommendations:

EXPIRATION DATE: June 30, 2025

Page 31 of 38

23. Require that water treatment effectively treat and remove all possible taxa including aquatic plants, animals, mollusks, cyanobacteria, protozoa, fungi, bacteria, viruses, animal parasites, and other pathogens as life stages such as larvae, fish and fish eggs, and seeds.

Department Response: Thank you for your comment. The water treatment plant has been designed to effectively treat and inactivate all aquatic nuisance species as listed in the application and supporting documentation. Please refer to the Department's response to questions # 19 and # 20.

24. Require filtration of water through screens no greater than 40 microns or 0.04 millimeters (mm) prior to basin transfer. The filtration should occur in redundancy with other disinfecting processes for pathogen transfer such as chlorine and/or ultraviolet (UV) light. MN DNR is currently using UV light filtration to treat various pathogens at our state hatcheries. UV light filtration prevents the need to further treat water with added chlorine. Filtration and disinfection systems should also have back-ups in the event of a power loss or shutdowns in case of failures.

Department Response: Thank you for your comment. Please refer to the Department's response to questions #12, #13, and #20. Other responses may also reflect the information to address this question.

25. Prohibit cross-basin discharges of untreated water in the by-pass conditions of the permit. Require additional precautions at the time of the screening facility installation to ensure no pumping of water is pumped before the screen is installed and functioning as intended. Backflushed water that is discharged at the screening facility should not be routed through the pipeline without being re-treated.

Department Response: Thank you for your comment. The permit already does not allow the discharge of water across the continental divide that does not meet the limits outlined. As stated in the application, any water that does not meet the requirements prior to crossing the divide will be discharged at outfall 002 or 003 and the pipeline will need to be disinfected prior to placing the pipeline back into service. This information is provided in the section "Outfall Description". The Department will restate this information in Table 1 of the proposed permit and will be labeled with footnote "e" and "f".

26. Require all equipment intended for use at a project site to be free of invasive species and aquatic plants prior to being transported. Require inspection and disinfection of all equipment prior to transport from the worksite. For more information, refer to the "Best Practices for Preventing the Spread of Aquatic Invasive Species".

Department Response: Thank you for your comment. This is beyond the scope of the proposed permit.

27. MN DNR recommends the NPDES permit also include financial assurances to address potential cross-basin biota transfer. Financial assurances would become effective should biota transfer were to occur and assist in the invasive species management within the Red River Basin watershed.

Department Response: Thank you for your comment. This is beyond the scope of the proposed permit and outside the Department's authority.

Standing Rock Sioux Tribe:

28. The Corps of Engineers violated the Clean Water Act by utilizing Nationwide Permit 12 for section 404 compliance;

Department Response: Thank you for your comment. This is beyond the scope of the proposed permit and outside the Department's authority.

29. The Corps' approval may have violated the Endangered Species Act, due to the impacts of construction on Pallid Sturgeon critical habitat;

Department Response: Thank you for your comment. This is beyond the scope of the proposed permit and outside the Department's authority.

30. The Corps should prepare an environmental impact statement and disclose the potential effects to the environment and cultural resources;

Department Response: Thank you for your comment. This is beyond the scope of the proposed permit and outside the Department's authority.

31. The proposed conditions in the NPDES permit will not avoid migration of invasive aquatic species.

Department Response: Thank you for your comment. Please refer to the Department's response to comment #19, #20, #21, and #22.

U.S. Environmental Protection Agency – Region 8:

32. Monitoring requirements are unclear or absent for some of the draft permit effluent limitations.

Department Response: Thank you for your comment. The Department concurs with your comment on use of terminology "treated water" and "supply water". The fact sheet and draft permit have been updated to show the change from using "supply water" and updated to "treated water". Specifically, page 7 of the factsheet in the "Outfall 003. Active. Final" table and the same table on page 6 of the draft permit.

In regard to bullet "b" of this comment, which discusses no monitoring and/or inspection requirements are specified for "...floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water." The Department has reviewed this comment and has revised the language to:

EXPIRATION DATE: June 30, 2025

Page 33 of 38

“BMPs are to be utilized so that there shall be no discharge of floating debris, oil, scum and other floating materials in sufficient amounts to be unsightly or deleterious, or oily wastes that produce a visible sheen on the surface of the receiving water.”

Under 40 CFR 122.44(k), BMPs may be utilized where limitations are infeasible. The department reviewed NDAC 33.1-16-02.1 and revised the language to reflect the WQS more closely. Due to “unsightly” being subjective, the department has determined that 40 CFR 122.44(k) applies to this narrative WQS.

33. Allowing for residual chlorine monitoring a "maximum" of seven pipeline miles downstream of the Biota Water Treatment Plant's Main Pumping Station, could allow for sampling to occur which is not representative of adequate residence time, based on the necessary residual chlorine residence indicated in the fact sheet.

Department Response: Thank you for your comment. The Department concurs with your comment. To ensure the contact time for chlorine is met, the Department will update this section to reflect changing “Maximum” and replace it with “Minimum”. This will ensure the contact time needed with the total residual chlorine level will be available for the 3-log inactivation of *Giardia lamblia* and 4-log inactivation of viruses is being achieved.

34. Additional background information or references to confirm information and methods used to determine that the receiving water will be protected from biological contamination.

Department Response: Thank you for your comment. New information has been developed as a result of this comment. The Department requested Garrison Diversion Conservancy to calculate the Contact Time (CT) needed when using a pH of 9.0 s.u. as the permit limit shown in the draft permit. An updated CT calculation provided to the Department dated June 18, 2020 now shows a distance of 11 miles will be needed to meet the inactivation required for ANS. The fact sheet and draft permit will be updated to reflect this change.

35. The fact sheet has several inconsistencies in its identification and categorization of aquatic invasive species subject to annual literature review requirements.

Department Response: Thank you for your comment. Two species, *Vibrio cholera* (cholera bacteria) and *Aphanizomenon flos-aquae* (blue-green algae) were reviewed during the drafting of the proposed permit. However, these two species were inadvertently not listed in the fact sheet. Due to the number of species and the complexity of how these species are grouped the Department will update Appendix E in the fact sheet and use a table structure to help with organization.

The North Dakota Game and Fish Department responded to the Department's request for information in a December 20, 2019 letter in regard to ANS locations within a basin. Based on these comments the Department requested Garrison Diversion Conservancy to respond. In a February 10, 2020 letter, the Garrison Diversion Conservancy provided an update to table 1-2 of the permit application. This updated table is the one used by the Department while drafting the fact sheet and draft permit. The fact sheet will be updated to reflect what version of table 1-2 was used.

FACT SHEET FOR NDPDES PERMIT ND-0026964
GARRISON DIVERSION CONSERVANCY DISTRICT
EXPIRATION DATE: June 30, 2025
Page 34 of 38

Garrison Diversion Conservancy also submitted a document dated February 22, 2020, which provided more detailed information on the New Zealand Mud snail and the parasitic flatworm.

APPENDIX E – BIOTA TRANSFER

Transfer of invasive biota from the Missouri River Basin (MRB) to the Hudson Bay Basin (HBB) has been of concern to Garrison Diversion (GD) and the North Dakota Department of Environmental Quality (department) staff from the outset of the permitting process. As a starting point, GD used a list of thirty-nine (39) aquatic invasive species (AIS) provided in the Northwest Area Water Supply (NAWS) Project Supplemental Environmental Impact Statement (SEIS) that could potentially be transferred from the MRB to the HBB. Of these 39, GD determined the documented location of each species, separating species by whether they were present, or their presence was unknown in either basin. Presence or absence was mostly cited within the NAWS report, though there were some additional resources used by GD. Of these 39, GD determined that six (6) were not found in the HBB or MRB and they were:

Number	Aquatic Invasive Species
2	<i>Novirhabdovirus spp.</i> – Infectious hematopoietic necrosis
3	<i>Novirhabdovirus spp.</i> – Viral hemorrhagic septicemia virus
4	<i>Ictalurid Herpesvirus 1</i> – Channel catfish virus
5	<i>Rhabdovirus carpio</i> – Spring viremia of carp virus
6	<i>Isavirus spp.</i> – Infectious salmon anemia virus
12	<i>Vibrio cholera</i> - Cholera

Twenty-two (22) species were found globally through the MRB and HBB and thus are currently not considered too meet treatment of AIS, and they were:

Number	Aquatic Invasive Species
9	<i>Streptococcus faecalis</i> – Strep
11	<i>Pseudomonas aeruginosa</i> – bacteria
14	<i>Mycobacterium spp.</i> – tuberculosis or leprosy
15	<i>Yersinia ruckeri</i> – Enteric redmouth disease
16	<i>Escherichia coli</i> – E. coli
17	<i>Legionella spp.</i> – Legionnaire’s disease
18	<i>Salmonella spp.</i> – Salmonella
19	<i>Dreissena polymorpha</i> – Zebra mussel
24	<i>Actheres pimelodi</i> – Parasitic copepod
25	<i>Ergasilus spp.</i> – Parasitic copepod
28	<i>Giardia lamblia</i> – Backpacker’s diarrhea
29	<i>Entamoeba histolytica</i>
30	<i>Cryptosporidium parvum</i>
31	<i>Ichthyophthirius multifiliis</i> – Ich or white spot disease
32	<i>Ichthyophonous hoferi</i> – Ichthyophonosis
33	<i>Branchiomyces spp.</i> – Branchiomycosis
34	<i>Saproleginia spp.</i> – Saprolegniosis or winter fungus disease
35	<i>Exophiala spp.</i> – Black yeast
36	<i>Phoma herbarum</i>
37	<i>Anabaena flos-aquae</i> – Blue-green algae
38	<i>Microcystis aeruginosa</i> – Blue-green algae
39	<i>Aphanizomenon flos-aquae</i> – Blue-green algae

Four (4) AIS were not known to be present in the MRB but known to be present in the HBB and they are listed below. No further consideration is required for these AIS.

Number	Aquatic Invasive Species
1	<i>Aquabirnavirus spp.</i> – Infectious pancreatic necrosis virus
8	<i>Aeromonas salmonicida</i> – Furunculosis
10	<i>Flavobacterium columnare</i> – Columnaris disease
13	<i>Edwardsiella spp.</i>

Four (4) AIS were detected in the MRB and HBB, however, their presence cannot be verified as “global” or “throughout” the basin and thus needed further review. These AIS were:

Number	Aquatic Invasive Species
7	<i>Renibacterium salmoninarum</i> – Bacterial kidney disease
22	<i>Polypodium hydriforme</i> – Intracellular parasitic cnidarian
23	<i>Myxobolus cerebralis</i> – Whirling disease
27	<i>Corallotaenia minutia</i> – Parasitic tapeworm

These four AIS have been found to be treatable between the sand/grit removal, 3-log inactivation of *Giardia*, and 4-log inactivation of viruses level of the proposed facility. This can be verified in Appendix E “Transbasin Effects Analysis Technical Report” from the U.S. Bureau of Reclamation for the Northwest Area Water Supply Project, (Pascho, R.J. M.L. Landolt, and J. E. Ongerth, 1995, Inactivation of *Renibacterium salmoninarum* by free chlorine, *Aquaculture*, Volume 131, issue 3-4), (Hoffman, G.L., and J.J. O’Grodnick. 1977. Control of whirling disease (*Myxosoma cerebralis*): effects of drying, and disinfection with hydrated lime or chlorine. *Journal of Fish Biology* 10:175-179), and (Ershath, M.M., Namazi, M.A., Saeed, M.O., 2019, *Effect of Cooling Water Chlorination on Entrained Selected Copepods Species*, *Biocatalysis and Agricultural Biotechnology*, Vol. 17, Jan. 2019, page 129-134; Latimer, D.L., Brooks, A.S., Beeton, A.M., 2011 *Toxicity of 30-minute Exposures of Residual Chlorine to the Copepods *Limnocalanus macrurus* and *Cyclops Biscupidatus thomasi**, *Journal of Fisheries Research Board of Canada*, 1975:32(12) page 2495-25011). This was documented in a letter from the Garrison Diversion Conservancy District dated February 10, 2020.

Three (3) AIS are known to be present in the MRB but not in the HBB and they were:

Number	Aquatic Invasive Species
20	<i>Dreissena rostriformis bugensis</i> – Quagga mussel
21	<i>Potamopyrgus antipodarum</i> – New Zealand mudsnail
26	<i>Icelanochondrion microcotyle</i> – Parasitic flatworm

As documented in the application, treatment of the larvae Quagga mussel by chlorine and adult Quagga mussel by the proposed sand/grit removal system will ensure any viable form of this AIS is not transferred into the HBB via the proposed pipeline. Two species listed in table 1-5 of the application that GD was unable to determine effectiveness for were the New Zealand

EXPIRATION DATE: June 30, 2025

Page 37 of 38

mudsnail (*Potamopyrgus antipodarum*) and a parasitic flatworm (*Icelanonchohaptor microcotyle*).

According to the cited documents provided in the application, the New Zealand mudsnail is found in western waters of the United States but has not been found in North Dakota. Documented information on the parasitic flatworm shows this organism has been identified to be in the MRB, however, this organism looks to be limited by physical exclusion. The department has determined the facility will need to do a literature review of these two organisms. This literature review will be done on an annual basis. Should either organism be found in the MRB within North Dakota and continue to be unknown within the HBB during the literature review, the department will work with the facility to identify possible upgrades to the treatment process to ensure these organisms do not pass through the treatment plant and be discharged into the HBB.

The department will also require the facility to include a literature review of the other 11 species identified in table 1-3 of the application. This is to ensure no new information has been found that might lead to a possible biota transfer from the MRB to the HBB via the facility pipeline.

The department may also act to address biota if it becomes aware of pertinent new information from other reliable sources.

Below is a more detailed summary of the New Zealand mudsnail and the parasitic flatworm.

As of the date of this rationale, the New Zealand mudsnail (hereafter, NZM) has been restricted to the upper reaches and tributaries of the Missouri River in Montana and Wyoming. The only new observation in 2019 was at a private fish hatchery near the Bitterroot River near Missoula, Montana. In 2018, there were only two new observations reported near Bozeman, Montana. Though found in the Missouri and Yellowstone Rivers, there has been little to no reported downstream movement in recent years. Databases should be followed, and literature review should continue to occur throughout the Missouri River to ensure that the NZM does not move downstream from either the Missouri or Yellowstone Rivers into Lake Sakakawea and the downstream reach of the river (with an interest in the water intake).

The distribution of *Icelanonchohaptor microcotyle* was studied by Kritsky et al. (1972) in the Missouri River. The species was found to have infected river carpsucker at Lake Sakakawea near Williston, Lake Sakakawea in the Little Missouri Bay and in the Moreau River in South Dakota. The species was found in small numbers on individual fish during the study and was theorized to be found throughout the Upper Missouri River system. At the time of this rationale, the species has only been found to impact river carpsucker with little to no deleterious effect to the fish. To date, state records indicate no river carpsucker have been found in the Red River Basin. The permittee did find one record of river carpsucker in the Red River, but it is unknown if the identification was confirmed. This species requires a copepod intermediate host in which to develop before it enters the viscera of its fish host, typically a catfish (Befus and Freeman 1972; Rosas-Valdez et al. 2004). Based on the size of these organisms, particle filtration or microfiltration would be effective methods for physical exclusion.

This parasitic flatworm has eluded characterization due to its apparent scarcity (both presence throughout and abundance within hydrologic basins). For these reasons, the potential

EXPIRATION DATE: June 30, 2025

Page 38 of 38

consequences of an introduction of this organism, no matter what the source of introduction, would not be expected (Appendix A, Constructed Project Components) from the Northwest Area Water Supply Project Supplemental Environmental Impact Statement.

Neither species were found in the National Rivers and Streams database from 2013 – 2014.

The above aquatic invasive species listing references the latest updated AIS information included in a letter provided February 10, 2020 from GD.