FACT SHEET FOR NDPDES PERMIT ND0027090

Cerilon GTL North Dakota Project

DATE OF THIS FACT SHEET – September 2024

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 E – Response to Comments.**

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BACKGROUND INFORMATION

Table 1 - General Facility Information

Applicant:	Cerilon GTL ND Inc.
Facility Name and Address:	Cerilon GTL North Dakota Project 14781 42nd St. NW Trenton, ND 58801
Permit Number:	ND0027090
Permit Type:	Major, Non-POTW, Issuance
Type of Treatment:	Mechanical
SIC Code:	2869 – Industrial Organic Chemicals, Not Elsewhere Classified
NAICS Code:	325199 – All Other Basic Organic Chemical Manufacturing
Discharge Location:	Missouri River, Class I Stream Latitude: 47.986944 Longitude: -103.961944
Hydrologic Code:	10110101 – Lake Sakakawea

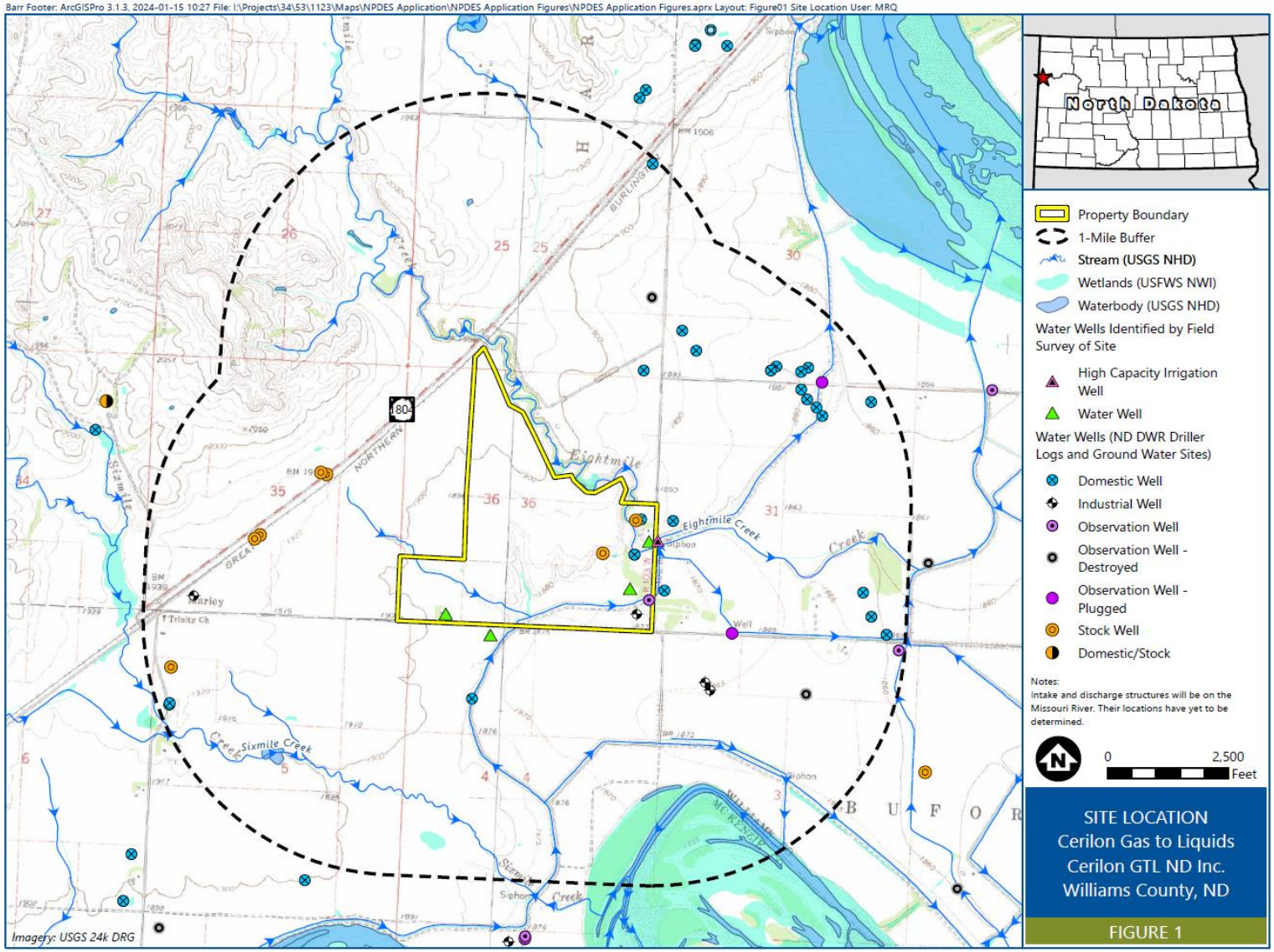


Figure 1 - Cerilon GTL Facility Topographic Map (Permit Application)

FACILITY DESCRIPTION

Overview

Cerilon GTL North Dakota Project is a facility located in Trenton, North Dakota, which will process natural gas into liquid hydrocarbon products, including ultra-low sulfur diesel, naphtha, and lubricant base oils. Process water used in the facility is a combination of raw water procured from the Missouri River and recycled process water that is treated by the on-site wastewater treatment plant (WWTP) and Reverse Osmosis (RO) system. Treated process water and RO reject water will be discharged to the Missouri River via an outfall downstream of the intake structure.

Raw water will be withdrawn from the Missouri River by West Dakota Water Company (WDW) and settled in settling ponds. The intake has been evaluated for 316(b) requirements and the department has determined this intake does not qualify for coverage. Refer to CWA Section 316(b) of this factsheet for more details.

Raw Water Treatment System

Raw water from the Missouri River will be treated on-site to ensure usability within the facility. This treatment will include settling, straining, coagulation, and filtering to remove suspended solids, dissolved solids, and dissolved organic compounds. The filter membranes are monitored continuously and may require periodic cleaning should they become fouled. The facility is proposing two types of chemical cleaning.

Process Water Treatment System

The facility has eight primary wastewater streams. These are:

- Fischer Tropsch (FT) reaction water,
- Process condensate,
- Cooling water blowdown (CWBD),
- Saturator blowdown,
- Process water from the product work-up unit (PWU),
- Oily water from the oily water sewer,
- Wastewater from the carbon capture unit (CCU), and
- Steam drum blowdowns.

The FT reaction water, saturator blowdown, CCU effluent, and PWU process water are subject to steam stripping to reduce the concentration of alcohols and other organic compounds in the wastewater stream. Oily water from the oily water sewer undergoes primary oil removal via an American Petroleum Institute (API) separator. The effluent from the steam stripper and API separator are then merged with the process condensate, CWBD and steam drum blowdowns in a buffer tank. The buffer tank aerates, homogenizes, and stabilizes the flow rate of the wastewater streams to the downstream treatment operations.

Water from the buffer tank is dosed with caustic and coagulant before being split into two dissolved air flotation (DAF) trains. Each DAF train consists of a coagulation tank followed by a flocculation tank, where an anionic polymer is dosed, and a DAF tank, where the solids are separated and collected. DAF solids are dewatered via centrifuges, with the recovered water routed back to the DAF influent. The filter cake is hauled off-site and disposed of following state and federal rules.

Clarified water from each DAF is further treated with anoxic biological treatment, aerobic biological treatment, and membrane bioreactors. Fully treated process water is then routed to the service water tank along with the treated raw water from the Missouri River. Service water is used throughout the facility and treated with sodium hypochlorite for disinfection.

Treated water must be further demineralized for use as boiler feed water to prevent scaling within the various steam generating boilers located throughout the facility. Demineralized water is prepared using RO followed by electro deionization. Reject water from electro deionization is routed back through the RO system. The brine from the RO systems will be discharged to the outfall.

Treated process wastewater, which is the brine flow from the RO, will flow into an effluent balancing tank. Here it will be aerated to increase dissolved oxygen and pH adjusted, if necessary, prior to discharge.

A series of chemicals will be used when treating the raw water and wastewater, and when cleaning membranes. A list of proposed chemicals is listed in **Appendix C**.

Effluent Discharges

There are two separate effluent discharges from the facility: stormwater discharges and treated process wastewater discharges. Stormwater discharges will be routed to Eight-mile Creek which passes through the facility. These stormwater discharges will occur intermittently and are covered by a separate permit, NDR050869 (coverage issued June 24, 2024). Treated process wastewater will be discharged through Outfall 001 to the Missouri River. The compliance sampling point is located at the pump discharge from the effluent balancing tank.

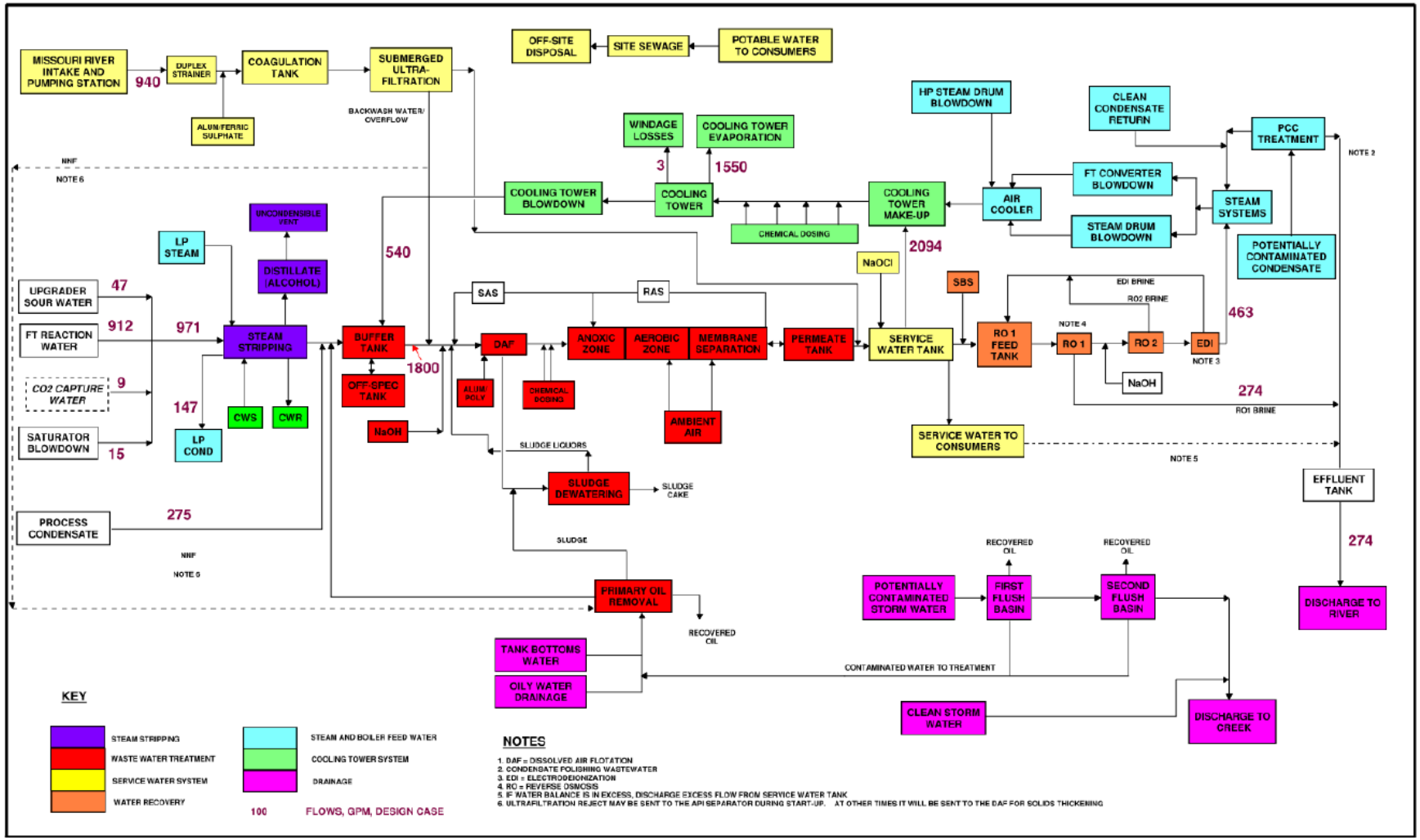


Figure 2 – Cerilon GTL Flow Diagram of Treatment System (Permit Application)

Outfall Description

The authorization to discharge provided under the proposed permit is limited to those outfalls specifically designated below. Discharges at any location not authorized under a NDPDES permit is a violation of the CWA and could subject the person(s) responsible for such discharge to penalties under Section 309 of the CWA. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within the specified timeframe outlined in this permit could subject such person(s) to penalties as provided under the CWA. There is one active outfall for this facility as described below:

Outfall 001. Active. Final Outfall. Industrial Wastewater			
Latitude: 47.986944	Longitude: -103.961944	County: Williams	
Township: 152N	Range: 104W	Section: 14	QQ: BD
Receiving Stream: Missouri River		Classification: I	
Outfall Description: This is the final outfall for treated industrial wastewater from the Cerilon GTL facility. The compliance sampling point is located at the pump discharge from the effluent balancing tank prior to the effluent leaving the facility site.			

PERMIT STATUS

This is the first proposed issuance of this permit. The department received EPA application Form 1 and 2D on February 5, 2024, with the signed copy received on April 18, 2024. The application was accepted as complete on September 25, 2024.

PROPOSED PERMIT LIMITS

The discharge of wastewater generated in this facility is regulated under 40 CFR 414, Subpart G, Bulk Organic Chemicals. The Code of Federal Regulations 40 CFR 414.74 require New Source Performance Standards (NSPS) calculations be done for 5-Day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), and pH. This facility is subject to NSPS and must not exceed the quantity (mass) determined by multiplying the process wastewater flow times the concentrations in the following table:

Table 2 - New Source Performance Standards (NSPS) 40 CFR 414.74

Parameter	Daily Maximum	Maximum Monthly Average
BOD_5, mg/l	92	34
TSS, mg/l	159	49
pH, s.u.	Within the range of 6.0 to 9.0 at all times	

40 CFR 414.74 also addresses the discharge of toxic pollutants and established effluent guidelines for those pollutants in 40 CFR 414.91 using Best Available Technology (BAT) and NSPS. This facility is subject to 40 CFR 414.91 and must not exceed the quantity (mass) determined by multiplying the process wastewater flow times the concentrations in the following table:

Table 3 - Best Available Technology and New Source Performance Standards 40 CFR 414.91

Parameter	Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)
Acenaphthene	59	22
Acenaphthylene	59	22
Acrylonitrile	242	96
Anthracene	59	22
Benzene	136	37
Benzo(a)anthracene	59	22
3,4-Benzofluoranthene	61	23
Benzo(k)fluoranthene	59	22
Benzo(a)pyrene	61	23
Bis(2-ethylhexyl) phthalate	279	103
Carbon Tetrachloride	38	18
Chlorobenzene	28	15
Chloroethane	268	104
Chloroform	46	21
2-Chlorophenol	98	31
Chrysene	59	22
Di-n-butyl phthalate	57	27
1,2-Dichlorobenzene	163	77
1,3-Dichlorobenzene	44	31
1,4-Dichlorobenzene	28	15
1,1-Dichloroethane	59	22
1,2-Dichloroethane	211	68
1,1-Dichloroethylene	25	16
1,2-trans-Dichloroethylene	54	21
2,4-Dichlorophenol	112	39
1,2-Dichloropropane	230	153
1,3-Dichloropropylene	44	29
Diethyl phthalate	203	81
2,4-Dimethylphenol	36	18

Parameter	Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)
Dimethyl phthalate	47	19
4,6-Dinitro-o-cresol	277	78
2,4-Dinitrophenol	123	71
2,4-Dinitrotoluene	285	113
2,6-Dinitrotoluene	641	255
Ethylbenzene	108	32
Fluoranthene	68	25
Fluorene	59	22
Hexachlorobenzene	28	15
Hexachlorobutadiene	49	20
Hexachloroethane	54	21
Methyl Chloride	190	86
Methylene Chloride	89	40
Naphthalene	59	22
Nitrobenzene	68	27
2-Nitrophenol	69	41
4-Nitrophenol	124	72
Phenanthrene	59	22
Phenol	26	15
Pyrene	67	25
Tetrachloroethylene	56	22
Toluene	80	26
Total Chromium	2,770	1,110
Total Copper	3,380	1,450
Total Cyanide	1,200	420
Total Lead	690	320
Total Nickel	3,980	1,690
Total Zinc	2,610	1,050
1,2,4-Trichlorobenzene	140	68
1,1,1-Trichloroethane	54	21
1,1,2-Trichloroethane	54	21

Parameter	Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)
Trichloroethylene	54	21
Vinyl Chloride	268	104

As required by NDAC 33.1-16-01-13(5), the department must include effluent limitations, if the water quality-based limitations are more stringent than the Effluent Limitation Guidelines (ELGs) and Standards (40 CFR 414.74 and 40 CFR 414.91).

Effluent Limitations
The permittee must limit and monitor all discharges as specified below:

Table 4 - Effluent Limitations for Outfall 001

	Effluent Limitations				
	Quantity [a]		Concentration		
Parameter	Maximum Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit
Biochemical Oxygen Demand (BOD_5)	113.42 lbs/day	306.91 lbs/day	25 mg/l	*	45 mg/l
Total Suspended Solids (TSS)	163.46 lbs/day	530.42 lbs/day	30 mg/l	*	45 mg/l
pH, s.u. [b]	Shall remain between 6.5 and 9.0				
Escherichia coli (*E. coli*), #/100 ml [c]	*	*	126	*	409
Ammonia as N, mg/l	Monitor Only				
Temperature, °C [d]	*	*	*	*	29.44
Oil and Grease, Visual [e]	*	*	*	*	*
Oil and Grease, mg/l [e]	*	*	*	*	10
Dissolved Oxygen (DO), mg/l	Shall not be less than 5.0 mg/l at any time				
Total Residual Chlorine, mg/l [f, g]	*	*	0.011	*	0.019
Chemical Oxygen Demand (COD), mg/l	Monitor Only				
Total Organic Carbon (TOC), mg/l	Monitor Only				
Sulfate, Total mg/l	Monitor Only				
Sulfide, Total mg/l	Monitor Only				
Chloride, Total mg/l	Monitor Only				

	Effluent Limitations				
	Quantity [a]		**Concentration**		
Parameter	**Maximum Avg. Monthly Limit**	**Daily Maximum Limit**	**Avg. Monthly Limit**	**Avg. Weekly Limit**	**Daily Maximum Limit**
Fluoride, mg/l	Monitor Only				
Bromate, mg/l	Monitor Only				
Nitrate plus Nitrite (as N), mg/l	Monitor Only				
Total Kjeldahl Nitrogen (TKN), mg/l	Monitor Only				
Nitrogen Total, mg/l	Monitor Only				
Phosphorus Total, mg/l	Monitor Only				
Metals [h]	*	*	*	*	*
Whole Effluent Toxicity (WET), TUa	Refer to Whole Effluent Toxicity (WET) Requirements				
Whole Effluent Toxicity (WET), TUc	Refer to Whole Effluent Toxicity (WET) Requirements				
Acenaphthene, lbs/day	0.07	0.20	*	*	*
Acenaphthylene, lbs/day	0.07	0.20	*	*	*
Acrylonitrile, lbs/day	0.32	0.81	*	*	*
Anthracene, lbs/day	0.07	0.20	*	*	*
Benzene, lbs/day	0.12	0.45	*	*	*
Benzo(a)anthracene, lbs/day	0.07	0.20	*	*	*
3,4-Benzofluoranthene, lbs/day	0.08	0.20	*	*	*
Benzo(k)fluoranthene, lbs/day	0.07	0.20	*	*	*
Benzo(a)pyrene, lbs/day	0.08	0.20	*	*	*
Bis(2-ethylhexyl) phthalate, lbs/day	0.34	0.93	*	*	*
Carbon Tetrachloride, lbs/day	0.06	0.13	*	*	*
Chlorobenzene, lbs/day	0.05	0.09	*	*	*
Chloroethane, lbs/day	0.35	0.89	*	*	*

	Effluent Limitations				
	Quantity [a]		Concentration		
Parameter	Maximum Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit
Chloroform, lbs/day	0.07	0.15	*	*	*
2-Chlorophenol, lbs/day	0.10	0.33	*	*	*
Chrysene, lbs/day	0.07	0.20	*	*	*
Di-n-butyl phthalate, lbs/day	0.09	0.19	*	*	*
1,2-Dichlorobenzene, lbs/day	0.26	0.54	*	*	*
1,3-Dichlorobenzene, lbs/day	0.10	0.15	*	*	*
1,4-Dichlorobenzene, lbs/day	0.05	0.09	*	*	*
1,1-Dichloroethane, lbs/day	0.07	0.20	*	*	*
1,2-Dichloroethane, lbs/day	0.23	0.70	*	*	*
1,1-Dichloroethylene, lbs/day	0.05	0.08	*	*	*
1,2-trans-Dichloroethylene, lbs/day	0.07	0.18	*	*	*
2,4-Dichlorophenol, lbs/day	0.13	0.37	*	*	*
1,2-Dichloropropane, lbs/day	0.51	0.77	*	*	*
1,3-Dichloropropylene, lbs/day	0.10	0.15	*	*	*
Diethyl phthalate, lbs/day	0.27	0.68	*	*	*
2,4-Dimethylphenol, lbs/day	0.06	0.12	*	*	*
Dimethyl phthalate, lbs/day	0.06	0.16	*	*	*
4,6-Dinitro-o-cresol, lbs/day	0.26	0.92	*	*	*
2,4-Dinitrophenol, lbs/day	0.24	0.41	*	*	*
2,4-Dinitrotoluene, lbs/day	0.38	0.95	*	*	*

	Effluent Limitations				
	Quantity [a]		Concentration		
Parameter	**Maximum Avg. Monthly Limit**	**Daily Maximum Limit**	**Avg. Monthly Limit**	**Avg. Weekly Limit**	**Daily Maximum Limit**
2,6-Dinitrotoluene, lbs/day	0.85	2.14	*	*	*
Ethylbenzene, lbs/day	0.11	0.36	*	*	*
Fluoranthene, lbs/day	0.08	0.23	*	*	*
Fluorene, lbs/day	0.07	0.20	*	*	*
Hexachlorobenzene, lbs/day	0.05	0.09	*	*	*
Hexachlorobutadiene, lbs/day	0.07	0.16	*	*	*
Hexachloroethane, lbs/day	0.07	0.18	*	*	*
Methyl Chloride, lbs/day	0.29	0.63	*	*	*
Methylene Chloride, lbs/day	0.13	0.30	*	*	*
Naphthalene, lbs/day	0.07	0.20	*	*	*
Nitrobenzene, lbs/day	0.09	0.23	*	*	*
2-Nitrophenol, lbs/day	0.14	0.23	*	*	*
4-Nitrophenol, lbs/day	0.24	0.41	*	*	*
Phenanthrene, lbs/day	0.07	0.20	*	*	*
Phenol, lbs/day	0.05	0.09	*	*	*
Pyrene, lbs/day	0.08	0.22	*	*	*
Tetrachloroethylene, lbs/day	0.07	0.19	*	*	*
Toluene, lbs/day	0.09	0.27	*	*	*
Total Chromium, lbs/day	3.70	9.24	*	*	*
Total Copper, lbs/day	4.84	11.28	*	*	*
Total Cyanide, lbs/day	1.40	4.00	*	*	*
Total Lead, lbs/day	1.07	2.30	*	*	*
Total Nickel, lbs/day	5.64	13.28	*	*	*
Total Zinc, lbs/day	3.50	8.71	*	*	*

	Effluent Limitations				
	Quantity [a]		**Concentration**		
Parameter	**Maximum Avg. Monthly Limit**	**Daily Maximum Limit**	**Avg. Monthly Limit**	**Avg. Weekly Limit**	**Daily Maximum Limit**
1,2,4-Trichlorobenzene, lbs/day	0.23	0.47	*	*	*
1,1,1-Trichloroethane, lbs/day	0.07	0.18	*	*	*
1,1,2-Trichloroethane, lbs/day	0.07	0.18	*	*	*
Trichloroethylene, lbs/day	0.07	0.18	*	*	*
Vinyl Chloride, lbs/day	0.35	0.89	*	*	*
Flow Effluent, MGD	Report Avg. Monthly Value	Report Max. Daily Value	*	*	*
Total Drain, MGAL	*	Report Monthly Total	*	*	*
Missouri River Parameters					
Stream Flow, upstream (cfs)	*	*	*	*	*
pH, upstream (s.u.)	*	*	*	*	*
Temperature, upstream (°C)	*	*	*	*	*

Notes:

*	This parameter is not limited. However, the department may impose limitations based on sample history and to protect the receiving waters.
a.	Loading limits based on average design flow rate of 0.4 mgd. To calculate the loading limits, multiply the flow by the concentration by the conversion factor of 8.34. [(Flow (mgd) * Concentration (mg/l)) * 8.34 = Loading (lbs/day)]. See **Appendix D – Technical Calculations**, Table 10.
b.	The pH, an instantaneous limitation, shall be between 6.5 s.u. and 9.0 s.u. Any single analysis and/or measurement outside this limitation shall be considered a violation of the conditions of this permit.
c.	*E. coli* limits shall not exceed 126 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall samples exceed 409 organisms per 100 ml for any one day.
d.	The maximum increase in river temperature, caused by a discharge, shall not be greater than 2.78 °C.

		Effluent Limitations				
		Quantity [a]		Concentration		
	Parameter	Maximum Avg. Monthly Limit	Daily Maximum Limit	Avg. Monthly Limit	Avg. Weekly Limit	Daily Maximum Limit
e.	A daily visual check shall be performed. There shall be no discharge of oily wastes that produce a visible sheen on the surface of the receiving water. If present, a grab sample shall be analyzed for oil and grease to ensure compliance with the concentration limitation.					
f.	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. This method achieves a method detection limit of less than 0.05 mg/l. For purposes of this permit and reporting on the DMR form, analytical values less than 0.05 mg/l shall be considered in compliance with this permit.					
g.	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.					
h.	The following parameters shall be sampled and analyzed for: Aluminum, Total Molybdenum, Total Cobalt, Total Iron, Total Magnesium, Total Manganese, Total Hardness, Total as CaCO3 A total hardness of the receiving stream needs to be determined every time the above parameters are tested. The hardness is used to calculate parameter criterion(s) according to Table 2 of the North Dakota Water Quality Standards.					
Stipulations:						
The dates of discharge, frequency of analyses, total number of gallons discharged, discharge flow rate, and number of exceedances shall be included on each Discharge Monitoring Report (DMR).						
Best Management Practices (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 oil wastes that produce a visible sheen on the surface of the receiving water.						
Samples taken in compliance with the monitoring requirements specified in this permit shall be taken prior to leaving the facility property or entering the receiving stream.						

SELF-MONITORING REQUIREMENTS

Monitoring Requirements

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

All effluent samples shall be collected at a point following the treatment system and prior to entering the Missouri River.

Table 5 - Self-Monitoring Requirements for Outfall 001

Parameter	Frequency	Sample Type [a, b, c]
Biochemical Oxygen Demand (BOD_5), mg/l and lbs/day	3/week	Composite
Total Suspended Solids (TSS), mg/l and lbs/day	3/week	Composite
pH, s.u.	3/week	Instantaneous
Escherichia coli, #/100 ml [d]	3/week	Grab
Ammonia as N, mg/l [e]	3/week	Composite
Temperature, °C	Continuous	Recorder
Oil and Grease, Visual [f]	Daily	Visual
Oil and Grease, mg/l [f]	Conditional	Grab
Dissolved Oxygen, mg/l	3/week	Grab
Total Residual Chlorine, mg/l	3/week	Grab
Chemical Oxygen Demand (COD), mg/l	Weekly	Composite
Total Organic Carbon (TOC), mg/l	Weekly	Composite
Sulfate, Total mg/l	Weekly	Composite
Sulfide, Total mg/l	Weekly	Composite
Chloride, Total mg/l	Weekly	Composite
Fluoride, mg/l	Weekly	Composite
Bromate, mg/l	Weekly	Composite
Nitrate plus Nitrite (as N), mg/l	Weekly	Composite
Total Kjeldahl Nitrogen (TKN), mg/l	Weekly	Composite
Nitrogen Total, mg/l [g]	Monthly	Calculated
Phosphorus Total, mg/l	Monthly	Composite

Parameter	Frequency	Sample Type [a, b, c]
Metals [h]	Semiannually	Composite
Whole Effluent Toxicity (WET), TUa	Quarterly	Grab
Whole Effluent Toxicity (WET), TUc	Annually	4-Grab
Acenaphthene, lbs/day	Semiannually	Composite
Acenaphthylene, lbs/day	Semiannually	Composite
Acrylonitrile, lbs/day	Semiannually	Composite
Anthracene, lbs/day	Semiannually	Composite
Benzene, lbs/day	Semiannually	Composite
Benzo(a)anthracene, lbs/day	Semiannually	Composite
3,4-Benzofluoranthene, lbs/day	Semiannually	Composite
Benzo(k)fluoranthene, lbs/day	Semiannually	Composite
Benzo(a)pyrene, lbs/day	Semiannually	Composite
Bis(2-ethylhexyl) phthalate, lbs/day	Semiannually	Composite
Carbon Tetrachloride, lbs/day	Semiannually	Composite
Chlorobenzene, lbs/day	Semiannually	Composite
Chloroethane, lbs/day	Semiannually	Composite
Chloroform, lbs/day	Semiannually	Composite
2-Chlorophenol, lbs/day	Semiannually	Composite
Chrysene, lbs/day	Semiannually	Composite
Di-n-butyl phthalate, lbs/day	Semiannually	Composite
1,2-Dichlorobenzene, lbs/day	Semiannually	Composite
1,3-Dichlorobenzene, lbs/day	Semiannually	Composite
1,4-Dichlorobenzene, lbs/day	Semiannually	Composite
1,1-Dichloroethane, lbs/day	Semiannually	Composite
1,2-Dichloroethane, lbs/day	Semiannually	Composite
1,1-Dichloroethylene, lbs/day	Semiannually	Composite
1,2-trans-Dichloroethylene, lbs/day	Semiannually	Composite
2,4-Dichlorophenol, lbs/day	Semiannually	Composite
1,2-Dichloropropane, lbs/day	Semiannually	Composite
1,3-Dichloropropylene, lbs/day	Semiannually	Composite

Parameter	Frequency	Sample Type [a, b, c]
Diethyl phthalate, lbs/day	Semiannually	Composite
2,4-Dimethylphenol, lbs/day	Semiannually	Composite
Dimethyl phthalate, lbs/day	Semiannually	Composite
4,6-Dinitro-o-cresol, lbs/day	Semiannually	Composite
2,4-Dinitrophenol, lbs/day	Semiannually	Composite
2,4-Dinitrotoluene, lbs/day	Semiannually	Composite
2,6-Dinitrotoluene, lbs/day	Semiannually	Composite
Ethylbenzene, lbs/day	Semiannually	Composite
Fluoranthene, lbs/day	Semiannually	Composite
Fluorene, lbs/day	Semiannually	Composite
Hexachlorobenzene, lbs/day	Semiannually	Composite
Hexachlorobutadiene, lbs/day	Semiannually	Composite
Hexachloroethane, lbs/day	Semiannually	Composite
Methyl Chloride, lbs/day	Semiannually	Composite
Methylene Chloride, lbs/day	Semiannually	Composite
Naphthalene, lbs/day	Semiannually	Composite
Nitrobenzene, lbs/day	Semiannually	Composite
2-Nitrophenol, lbs/day	Semiannually	Composite
4-Nitrophenol, lbs/day	Semiannually	Composite
Phenanthrene, lbs/day	Semiannually	Composite
Phenol, lbs/day	Semiannually	Grab
Pyrene, lbs/day	Semiannually	Composite
Tetrachloroethylene, lbs/day	Semiannually	Composite
Toluene, lbs/day	Semiannually	Composite
Total Chromium, lbs/day	Semiannually	Composite
Total Copper, lbs/day	Semiannually	Composite
Total Cyanide, lbs/day	Semiannually	Grab
Total Lead, lbs/day	Semiannually	Composite
Total Nickel, lbs/day	Semiannually	Composite
Total Zinc, lbs/day	Semiannually	Composite
1,2,4-Trichlorobenzene, lbs/day	Semiannually	Composite

Parameter	Frequency	Sample Type [a, b, c]
1,1,1-Trichloroethane, lbs/day	Semiannually	Composite
1,1,2-Trichloroethane, lbs/day	Semiannually	Composite
Trichloroethylene, lbs/day	Semiannually	Composite
Vinyl Chloride, lbs/day	Semiannually	Composite
Flow Effluent, MGD	Daily	Instantaneous
Total Drain, MGAL	Monthly	Calculated
Missouri River Parameters – collect same day as effluent ammonia as N		
Stream Flow, upstream (cfs) [e]	3/week	Usable Data Source
pH, upstream (s.u.) [e]	3/week	Usable Data Source
Temperature, upstream (°C) [e]	3/week	Usable Data Source

Notes:

a.	Refer to Appendix B for definitions unless otherwise specified.
b.	Composite samples must be representative of the quality of the discharge. A 24-hour composite sample proportioned according to flow is required where feasible. If unfeasible, the composite shall consist of a minimum of twelve (12) separate grab samples and proportioned as to flow. Sampling may be proportioned to flow by varying the time interval between each aliquot, or by varying the volume of each aliquot.
c.	"4-Grab" samples shall consist of four (4) discrete grab samples collected at intervals representative of a 24-hour sample period.
d.	Monitoring for *E. coli* shall be in effect only during the recreational season (April 1 through October 31).
e.	Missouri River parameters shall be collected/recorded the same day as ammonia as N effluent sample.
f.	A daily visual check shall be performed. There shall be no discharge of oily wastes that produce a visible sheen on the surface of the receiving water. If present, a grab sample shall be analyzed for oil and grease to ensure compliance with the concentration limitation.
g.	Total nitrogen is a combination of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN).
h.	The following parameters shall be sampled and analyzed for: Aluminum, Total Barium, Total Boron, Total Iron, Total Magnesium, Total Manganese, Total Hardness, Total as CaCO3

SURFACE WATER QUALITY-BASED EFFLUENT LIMITS

The North Dakota State Water Quality Standards (NDAC Chapter 33.1-16-02.1) are designed to protect existing water quality and preserve the beneficial uses of North Dakota's surface water. 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 a waste load allocation developed during a basin-wide total maximum daily load (TMDL) study. TMDLs result from the scientific study of the water body and are developed in order to reduce pollution from all sources.

The Missouri River is classified as a Class I stream. The quality of waters in this class shall be suitable for the propagation or protection, or both, of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of waters shall be suitable for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

The Missouri River segment that the facility discharges to is listed as all beneficial uses attained and is not listed in the 2020-2022 North Dakota Section 303(d) List of Waters Needing Total Maximum Daily Loads as impaired nor does it have a TMDL.

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface water (NDAC Chapter 33.1-16-02.1). They specify the maximum pollutants allowed in the 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 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.

Antidegradation

The purpose of North Dakota's Antidegradation Policy (NDAC 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

The department's water quality standards contain a Mixing Zone and Dilution Policy and Implementation Procedure, NDAC Chapter 33.1-16-02.1 (Appendix III). This policy address 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 dilutions allowances should be limited, as necessary, to protect the integrity of the receiving water's ecosystem and designated uses.

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

Biochemical Oxygen Demand (BOD_5)

The proposed concentration limitations of 25 mg/l monthly average and 45 mg/l daily maximum, with a sampling frequency of three (3) times per week is based on best professional judgement (BPJ) and other like permits. The proposed loading limitations of 82.57 lbs/day maximum monthly average and 220.18 lbs/day daily maximum with a sampling frequency of three (3) times per week is based on 40 CFR 414.74 and derived in accordance with criteria provided in **Appendix D,** Table 10.

Total Suspended Solids (TSS)

The proposed concentration limitations of 30 mg/l monthly average and 45 mg/l daily maximum, with a sampling frequency of three (3) times per week is based on BPJ and other like permits. The proposed loading limitations of 15.18 lbs/day maximum monthly average and 49.17 lbs/day daily maximum with a sampling frequency of three (3) times per week is based on 40 CFR 414.64 and derived in accordance with criteria provided in **Appendix D,** Table 10.

pH

The proposed limitations range of 6.5 s.u. to 9.0 s.u. for pH are based on the state water quality standards applicable to this stream classification. In accordance with NDAC 33.1-16-02.1, the pH of Class I water bodies shall remain between 6.5 and 9.0. A limitation of a pH range of 6.0 s.u. to 9.0 s.u. is provided for in 40 CFR 414.64; however, this limitation is less stringent and will not be implemented.

E. coli

The proposed *E. coli* limitation of 126 organisms per 100 mL as a monthly geometric mean and 409 organisms per 100 mL as a daily maximum is based on the state water quality standards

applicable to this stream classification. This standard applied only during the recreation season from May 1 through September 30. The limitation in the permit is meant to cover the period one month before and one month after the recreation season (April 1 through October 31).

Oil and Grease

The state water quality standards state that waters of the state must be free from oil and grease attributable to wastewater which causes a visible sheen or film upon the water. Using BPJ, the department has determined that a daily maximum limitation of 10 mg/l is appropriate for this type of facility if a visible sheen is detected. Comparable treatment systems throughout the state have a similar limitation. The department proposes a daily maximum limitation of 10 mg/l when a visible sheen is detected.

Ammonia as N

Ammonia presents both acute and chronic toxicity to aquatic life at variable levels depending on receiving stream conditions (pH and temperature). Federal Regulations (40 CFR 122.44) require the department to place limits in NDPDES permits on toxic chemicals in effluent whenever there is a reasonable potential to exceed the surface water quality criteria. According to North Dakota Game and Fish, *Oncorhynchus* are present in the Missouri River, therefore the acute criterion used in a reasonable potential analysis will be performed using the equation located in the water quality standards for *Oncorhynchus* present.

The department conducted a reasonable potential analysis for ammonia using the estimated effluent data from Table A, Form 2D. The upstream concentration used was the average from Table 1 of supplemental information to the permit application which details a summary of Missouri River water chemistry near Williston from 1950 through 1992. Numeric effluent limitations for ammonia as nitrogen will not be established in the proposed permit as there was no reasonable potential to exceed the water quality standard. However, the permittee will monitor effluent ammonia as nitrogen three (3) times per week. In addition, the permittee will collect and/or record the following Missouri River parameters three (3) times per week: pH (s.u.), temperature (°C), and flow (cfs). The Missouri River parameters will be collected or recorded the same day the effluent sample is collected. This information will be used to run a reasonable potential with actual data to determine if the department continues with monitoring or place numeric limits in next permit issuance..

Nutrients (Phosphorus and Nitrogen)

According to the North Dakota Nutrient Reduction Strategy for Surface Waters, Cerilon GTL will be classified as a Category I facility. The first step in implementing the nutrient reduction strategy for Category I facilities is to include effluent monitoring for Total Nitrogen and Total Phosphorus. Total Nitrogen is a combination of Nitrite, Nitrate, and Total Kjeldahl Nitrogen. This permit issuance will include monitoring for Total Nitrogen and Total Phosphorus to be consistent with other Category I facilities under the Nutrient Reduction Strategy.

Whole Effluent Toxicity (WET)

Acute Toxicity Testing

The department is proposing a TUa of less than 1 (<1) in order to meet the requirements of NDAC 33.1-16-02.1-08(a)(4), which states that "[a]ll waters of the state shall be: Free from substance attributable to municipal, industrial, or other discharges or agricultural practices in concentrations or combinations 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." Cerilon GTL must meet WET limits at end-of-pipe.

The department is proposing the following requirements for acute WET testing:

Table 6 - Acute WET Requirements for Outfall 001

Outfall 001 WET tests on both species shall be performed at least once per calendar quarter on both species. This requirement may be reduced upon the city requesting a toxicity testing reduction – refer to the "**Reduced Monitoring For Toxicity Testing"** section in the permit**.** This reduction would be done by using an alternating species schedule.						
Acute WET Requirements for **Outfall 001**						
Implementation	Limitations Imposed					
Effluent Dilution	0%(Control)	12.5%	25%	50%	75%	100%
Dilution Water	**Missouri River** [a]					
Testing Type	Acute Toxicity					
Species and Test Type	*Ceriodaphnia dubia* – 48 Hour Acute – Static Renewal – 20ºC					
	Pimephales promelas – 96 Hour Acute – Static Renewal – 20°C					
Endpoint	Mortality LC_{50} reported as TU_a					
Compliance Point	End-of-pipe					
Sample Frequency	Quarterly					
Sample Type	Grab					
Test Failure	Acute test failure (LC_{50}) is defined as lethality to 50% or more of the test organisms exposed to 100% effluent for *Ceriodaphnia dubia* 48-hour and *Pimephales promelas* 96-hour test. *The* 48-hour and 96-hour LC_{50} effluent value must be <1 TU_a to indicate a passing test. Any 48-hour or 96-hour LC_{50} effluent value >1 TU_a will constitute a failure. Tests in which the control survival is less than 90% are invalid and must be repeated.					
Reporting Requirements	The permittee shall report the following results of each toxicity test on the DMR for that reporting period: Report the highest TU_a for *Ceriodaphnia dubia*, Parameter No. TSM3B.					

	Report the highest TU_a for *Pimephales promelas*, Parameter No. TSN6C.
If toxicity occurs in a routine test, an additional test shall be initiated within 14 days from the date of the initial toxicity findings. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge. Should toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a Toxicity Reduction Evaluation (TRE) (see permit) shall be determined by the department. If no toxicity is found in the second test, testing shall occur as outlined in the permit.	
Notes:	
a.	When dangerous conditions exist for personnel (i.e. thin ice, melting ice, flooding, etc.) the permittee may utilize moderately hard reconstituted water upon request and approval by the department.

Acute toxicity test requirements are set out in the latest revision of "*Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms,*" EPA-821-R-02-012 (Fifth Ed., October 2002).

Chronic Toxicity Testing

The department is proposing monitoring for chronic toxicity with a sampling frequency of once per year. Test species shall consist of freshwater fleas, *Ceriodaphnia dubia* and fathead minnows, *Pimephales promelas*.

The department proposes the following requirements for chronic WET testing:

Table 7 - Chronic WET Requirements for Outfall 001

Chronic WET requirements for **Outfall 001**						
Implementation	Monitoring Only					
Effluent Dilution	0%(Control)	6.25%	12.5%	25%	50%	100%
Dilution Water	**Missouri River**[a]					
Species and Test Type	*Ceriodaphnia dubia* – 7-Day Chronic – Static Renewal – 25ºC					
	Fathead Minnow – 7-Day Chronic – Static Renewal – 25ºC					
Endpoint	Survival and Reproduction (*Ceriodaphnia dubia)* – IC25 reported as TUc					
	Larval Growth and Survival (Fathead Minnow) – IC25 reported as TUc					
Compliance Point	Monitoring Only at End-of-Pipe					
Sample Type	4-Grab					
Sample Frequency	Once per year					
Test Acceptability	Test acceptability for *Ceriodaphnia dubia* chronic must have an 80% or greater survival of all control organisms and an average of 15 or more young per surviving female in the control solutions, and 60% of surviving control females must produce three broods. If this condition is not satisfied, the test must be repeated.					

	Test acceptability for *Pimephales promelas* chronic must have 80% or greater survival in controls and an average dry weight per surviving organism in control chambers equals or exceeds 0.25 mg. If this condition is not satisfied, the test must be repeated.
Reporting Requirements	The permittee shall report the following results of each toxicity test on the DMR for that reporting period: ***Pimephales promelas* (Fathead Minnow)** Report the highest TU_c for Fathead minnow, Parameter No. TTP3B ***Ceriodaphnia dubia* (Water Flea)** Report the highest TU_c for *Ceriodaphnia dubia*, Parameter No. TTB6C. The facility shall request their WET testing providers to report a TU_a for a 48-hour survival *Ceriodaphnia dubia* and for *Pimephales promelas* which can be derived from the chronic test. The reason for this is to develop a representative Acute-to-Chronic ratio (ACR) which is used for determining reasonable potential and/or permit limitations.
If toxicity occurs in a routine test, an additional test shall be initiated within 14 days from the date of the initial toxicity findings. Should there be no discharge during a specified sampling time frame; sampling shall be performed as soon as there is a discharge. Should toxicity occur in the second test, testing shall be conducted at a frequency of once a month and the implementation of a Toxicity Reduction Evaluation (TRE) shall be determined by the department. If no toxicity is found in the second test, testing shall occur as outlined in the permit.	
Notes:	
a.	When dangerous conditions exist for personnel (i.e. thin ice, melting ice, flooding, etc.) the permittee may utilize moderately hard reconstituted water upon request and approval by the department.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "*Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,*" EPA-812-R-02-013 (Fourth Ed., October 2002).

Monitored Parameters

The water quality standards contain limitations for sulfates, chlorides, and nitrates. Sulfates and nitrates were identified in the permit application (EPA Form 2D, Table B) as believed present in the discharge with an estimated effluent concentration. The department conducted a reasonable potential analysis and determined that with the estimated discharge concentration, there was no reasonable potential to exceed the water quality standards (**Appendix D**). The facility will monitor for sulfates and nitrates and an additional reasonable potential analysis will be conducted upon permit reissuance.

The parameter for chlorides was listed in the supplemental information submitted with the permit application as a possible discharge limit. As it was not identified on EPA Form 2D, no estimated effluent concentrations numbers were submitted. The permittee will monitor for chlorides and a reasonable potential analysis will be conducted upon permit reissuance.

The parameters for COD, TOC, and sulfides were identified in the permit application (Form 2D, Table A and Table B) as believed present with estimated effluent concentration. There are no water quality standards for these parameters. The permittee will monitor for COD, TOC, and sulfides and these parameters will be reevaluated upon permit reissuance.

The metals parameters (aluminum, magnesium, molybdenum, manganese, cobalt, and iron) were identified as believed present in the permit application (EPA Form 2D, Table B). The permittee will monitor for these parameters and they will be reevaluated upon permit reissuance.

CWA Section 316(b)

The department reviewed the CWA section 316(b) criteria, 40 CFR 125.81(a). Based on the application, raw water is withdrawn from the Missouri River by WDW. The facility receives water from WDW at a flow of 1.35 million gallons per day (MGD). 316(b) is applicable to industrial facilities that withdraw more than 2 MGD, therefore, the facility is not subject to Section 316(b) of the CWA.

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 Toxic 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 permit application submitted to the department marked organic toxic pollutants regulated to protect human health as "believed absent" (EPA Form 2D, Table D). However, the effluent limitation guideline (ELG) applicable to this facility (40 CFR 414.91) does include some of these toxics. These include:

- Acenaphthene
- Acrylonitrile
- Anthracene
- Benzene
- Benzo(a)anthracene
- 3,4-benzofluoranthene
- Benzo(k)fluoranthene
- Benzo(a)pyrene
- Bis(2-ethylhexyl)phthalate
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 2-chlorophenol
- Chrysene
- Di-n-butyl phthalate
- 1,2-dichlorobenzene
- 1,3-dichlorobenzene
- 1,4-dichlorobenzene
- 1,2-dichloroethane
- 1,1-dichloroethylene
- 1,2-trans-dichloroethylene
- 2,4-dichlorophenol
- 1,2-dichloropropane
- 1,3-dichloropropylene
- Diethyl phthalate
- 2,4-dimethylphenol
- Dimethyl phthalate
- 2.4-dinitrophenol

- 2,4-dinitrotoluene
- Ethylbenzene
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Methylene chloride
- Nitrobenzene
- Phenol
- Pyrene
- Tetrachloroethylene
- Toluene
- Chromium
- Copper
- Cyanide
- Lead
- Nickel
- Zinc
- 1,2,4-trichlorobenzene
- 1,1,1-trichloroethane
- 1,1,2-trichloroethane
- Trichloroethylene
- Vinyl chloride

The draft permit includes loading limits for these toxics. The state water quality standards include criteria to protect human health for the toxics listed above. At this time, there is no discharge data for this facility, and therefore cannot conduct a reliable reasonable potential analysis to determine if the facility has the potential to exceed the human health criteria for these toxics. The department proposes to proceed with the loading limits based off the ELG for this permit issuance. Testing for these parameters should be done to sufficiently sensitive levels for a future permit evaluation. The department will monitor discharges for impacts to human health during the life of the permit and evaluate data for the next permit reissuance.

In addition to the pollutants identified in the ELG, the permit application and supplemental information submitted to the department, the permittee indicated that the parameters of Bromate and Fluoride were believed present in the discharge. These state water quality standards include a human health criteria for these parameters. The estimated concentration of these pollutants in the discharge is below the water quality standard. Monitoring for these parameters was included in the permit and the data will be evaluated for the next permit reissuance.

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 436.5. The method for determining the total amount of water discharged shall provide results within ten (10) percent of the actual amount.

Discharge Monitoring Report (DMR) Requirements

The proposed permit requires the permittee to monitor discharges and submit discharge monitoring reports (DMRs) to the department. DMRs summarize monitoring results obtained during specified monitoring periods. If no discharge occurs during a monitoring period, “no discharge” must be reported.

The proposed permit included specified intervals for submitting monthly, quarterly, and yearly DMRs. DMRs must be submitted electronically to the department in accordance with 40 CFR

127 unless otherwise waived and in compliance with 40 CFR 3. The DMR report interval is similar to other like facilities.

Outfall	Report Designator	Report Type	Report Interval
001	A	Conventional and Non-Conventional Pollutants, Flow, and Volume Information	Monthly
001	W	Whole Effluent Toxicity	Quarterly
001	M	Metals and ELGs	Semiannually

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 the 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, 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 NDPDES permit to **Cerilon GTL North Dakota Project**. The permit includes wastewater 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 **November 16, 2024** in the **Williston Daily Herald** 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 people 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 Environmental Quality
Division of Water Quality
4201 Normandy Street – 3rd Floor
Bismarck, ND 58503-1324

The primary author of this permit and fact sheet is Sarah Waldron Feld.

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

Public Notice Date: 11/13/2024 Public Notice Number: ND-2024-027

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: 2/5/2024 Application Number: ND0027090

Applicant Name: Cerilon GTL North Dakota Project
Mailing Address: First Canadian Centre 350 7th Ave. SW, Calgary, AB T2P 3N9
Telephone Number: 403.827.5844

Proposed Permit Expiration Date: 12/31/2029

Facility Description
This application is for a facility near Trenton, ND, Township 152N, Range 104W, Section 14, which will process natural gas into liquid hydrocarbon products, including ultra-low sulfur diesel, naphtha, and lubricant base oils. The facility will continually discharge an average of 0.4 million gallons per day of treated process wastewater. All discharges are made to the Missouri River, a Class I stream.

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 FWPCAA will be protected.

Information Requests and Public Comments
Copies of the application, draft permit, and related documents are available for review. For further information on making public comments/public comment tips please visit: https://deq.nd.gov/PublicCommentTips.aspx. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 4201 Normandy Street, Bismarck ND 58503-1324 or by calling 701.328.5210.

All comments received by December 15, 2024 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.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. Language assistance services are available free of charge to you. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5210 or deqEJ@nd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

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.

DEFINITIONS Whole Effluent Toxicity (WET) BP 2023.01.05

20. "**Acute toxic unit**" ("TUa") is a measure of acute toxicity. TUa is the reciprocal of the effluent concentration that causes 50 percent of the organisms to die by the end of the acute exposure period (i.e., 100/"LC50").

21. "**Chronic toxic unit**" ("TUc") is a measure of chronic toxicity. TUc is the reciprocal of the effluent concentration that causes no observable effect on the test organisms by the end of the chronic exposure period (i.e., 100/"IC25").

22. "**Inhibition concentration**", ("IC"), is a point estimate of the toxicant concentration that causes a given percent reduction (p) in a non-quantal biological measurement (e.g., reproduction or growth) calculated from a continuous model (e.g., Interpolation Method).

23. "**LC50**" means the concentration of toxicant (e.g., effluent) which is lethal to 50 percent of the organisms exposed in the time period prescribed by the test.

24. "**No observed effect concentration**", ("NOEC"), is the highest concentration of toxicant (e.g., effluent) to which organisms are exposed in a chronic toxicity test [full life-cycle or partial life-cycle (short term) test], that causes no observable adverse effects on the test organisms (i.e., the highest concentration of effluent in which the values for the observed responses are not statistically significantly different from the controls).

25. **"Static Non-Renewal Test"**, the test organisms are exposed to the same test solution for the duration of the test.

26. **"Static-Renewal Test"**, the test organisms are exposed to a fresh solution of the same concentration of sample every 24-hour other prescribed interval, either by transferring the test organisms from one test chamber to another, or by replacing all or a portion of solution in the test chambers.

27. **"Toxicity Reduction Evaluation (TRE)"**, is a site-specific study conducted in a step-wise process to identify the causative agents of effluent toxicity, isolate the source of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity after the control measures are put in place.

APPENDIX C – CHEMICALS

Table 8 - Proposed Chemicals and Usage

Treatment Process	Proposed Chemical	Proposed Usage (ppm)	Purpose
Cooling Tower	Sodium Hypochlorite	0.5 – 5	Disinfection
Cooling Tower	Antiscalant	TBD	Control scaling in the cooling tower circuit
Cooling Tower	Corrosion Inhibitor	TBD	Control corrosion in the cooling tower circuit
Cooling Tower	Dispersant	TBD	Control fouling in the cooling tower circuit
Dissolved Air Flotation (DAF)	Coagulant	5 – 20 Al	Enhanced clarifier performance
DAF	Sodium Hydroxide	20 – 100 as NaOH	Raise pH of feed to biological process and ensure pH is in the optimum range for coagulant
DAF	K-nutrients (KOH)	0 – 2 as K	Provide the necessary potassium for biomass growth
DAF	N-nutrients (ammonium sulfate)	0 – 20 as N	Provide the necessary nitrogen for biomass growth
DAF	P-nutrients (phosphoric acid)	1 – 5 as P	Provide the necessary phosphorus for biomass growth
DAF	Antifoam	5	Prevent foaming in the aeration basin of the biotreater
DAF	Acetic Acid	0 – 1,000	Provides a source of carboxylic acids similar to real feedwater
DAF	Flocculant (anionic polymer)	0.5 – 2	Promote floc formation for enhanced clarification
Deaerator	Oxygen Scavenger	TBD	Control corrosion in the steam circuit
Deaerator	Corrosion Inhibitor	TBD	Control corrosion in the steam circuit
Firewater Storage Tank	Sodium Hypochlorite	0.5 – 1.5	Disinfection
Membrane Bioreactor (MBR)	Sodium Hypochlorite	25	Chemical cleaning of biofouling
MBR	Citric Acid	20 – 50	Chemical cleaning of inorganic fouling (scale)
Reverse Osmosis (RO)	Sulfuric (or hydrochloric) Acid	20 – 50	Lower pH of cleaning solution to remove limescale
RO	Sodium Hydroxide	25 – 100 as NaOH	Chemical cleaning of biofouling and organic fouling
RO	Antiscalant	0 – 5	Control calcium carbonate deposition on RO membranes

RO	Non-oxidizing biocide	5 – 10	Control biofilm growth; carry out chemical cleaning
RO	Sulfuric (or hydrochloric) Acid	0 – 20	Lower pH to prevent scale deposition on RO membranes
RO	Sodium Bisulfite	1 – 5	De-chlorination of RO feedwater and final effluent discharge
RO	Sodium Hydroxide	1 – 5	Raise pH in RO2 to help rejection rate of CO_2
Sludge Dewatering	Cationic Polymer	8 kg/ton of sludge dry solids	Enhanced sludge dewatering performance
Submerged ultrafiltration (SUF)	Sodium Hypochlorite	25	Chemical cleaning of biofouling
SUF	Citric Acid	25 – 50	Chemical cleaning of inorganic fouling (scale)
SUF	Coagulant	5 – 20 as Al	Enhanced clarification; removal of dissolved organics from river water
Utility Water Tank	Sodium Hypochlorite	0.5 – 1.5	Disinfection
Notes:			
The facility will provide Safety Data Sheets (SDSs) and concentration usage to the department once specific chemicals are selected. Once provided, chemical usage will be evaluated on a chemical-by-chemical basis, and additional effluent limitations or restrictions may be issued.			

APPENDIX D – TECHNICAL CALCULATIONS

Critical Low Flow

USGS gage station 06185500 on the Missouri River near Culbertson, MT and USGS gage station 06329500 on the Yellowstone River near Sidney, MT, were used to determine critical low flows using the DFLOW (3.1b) program. Outfall 001 is located downstream of the confluence of the Yellowstone River with the Missouri River. Flow data from gage station 06185500 was combined with flow data from gage station 06329500 to give an estimated flow for this stream reach. There is no available USGS station after the confluence of the Yellowstone River with the Missouri River prior to Lake Sakakawea. Flow data was analyzed from September 2004 through September 2024.

Combined Low Flows

DFLOW 1B3 (ACUTE)	6380	CFS	DFLOW 1Q10 (ACUTE)	6660	CFS
DFLOW 4B3 (CHRONIC)	7890	CFS	DFLOW 7Q10 (CHRONIC)	7650	CFS
DFLOW 30B10 (AMMONIA)	8870	CFS			

USGS Gage Station 60185500 – Missouri River

DFLOW 1B3 (ACUTE)	3760	CFS	DFLOW 1Q10 (ACUTE)	3810	CFS
DFLOW 4B3 (CHRONIC)	3940	CFS	DFLOW 7Q10 (CHRONIC)	4090	CFS
DFLOW 30B10 (AMMONIA)	4080	CFS			

USGS Gage Station 06329500 – Yellowstone River

DFLOW 1B3 (ACUTE)	938	CFS	DFLOW 1Q10 (ACUTE)	951	CFS
DFLOW 4B3 (CHRONIC)	1310	CFS	DFLOW 7Q10 (CHRONIC)	1610	CFS
DFLOW 30B10 (AMMONIA)	2250	CFS			

REASONABLE POTENTIAL

Ammonia as N

The reasonable potential for ammonia is provided below. The determination was conducted utilizing the Technical Support Document for Water-Quality based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The upstream concentration used was the average from Table 1 of supplemental information to the permit application which details a summary of Missouri River water chemistry near Williston from 1950 through 1992. A default CV of 0.6 was used. Ammonia as N have 3 times per week monitoring in the proposed permit, so a n=12 was used when calculating the statistical multiplier.

Receiving Water Concentration (RWC) Reasonable Potential (RP) Determination

Technical Support Document (TSD) For Water Quality-based Toxics Control
EPA/505/2-90-001; March 1991

Facility Name:	Cerilon GTL	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0027090	1Q10 Acute	6660	cfs
Daily Maximum Flow (mgd):	0.40	1B3 Acute	6380	cfs
Daily Average Flow (mgd):	0.40	7Q10 Chronic	7650	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	7890	cfs
Statistical Multiplier:	1.4			
Upstream Concentration:	0.0600	mg/l	**Parameter:**	
Effluent Concetration (max):	2.0000	mg/l	**Ammonia as N**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)
Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
Qe = Effluent Design Flow
Ce = Highest effluent concentration reported.
pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)
Cs = Background concentration of the receiving water.

Qe - Acute	0.40	mgd	Qs - 1Q10	4302.36	mgd
Qe - Chronic	0.40	mgd	Qs - 1B3	4121.48	mgd
Ce	2.0000	mg/l	Qs - 7Q10	4941.90	mgd
Cs	0.0600	mg/l	Qs - 4B3	5096.94	mgd
Stat	1.38				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.0625	mg/l	RWC - 7Q10	0.0622	mg/l
RWC - 1B3	0.0626	mg/l	RWC - 4B3	0.0621	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	0.365	mg/l	Chronic Criterion	1.4429	mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		**CCC RP Present:**	
1Q10 Acute OR	**NO**	**7Q10 Chronic OR**	**NO**
1B3 Acute	**NO**	**4B3 Chronic**	**NO**

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Flow Variable Calculated Effluent Ammonia Concentrations in mg/l						Estimated	
Discharger:	Cerilon GTL			Enter the upstream ammonia in mg/l:		Yes	0.06
Stream:	Missouri River			Enter the receiving stream pH:		Yes	8.00
Enter receiving stream flow (CFS):			8,870	Enter the receiving stream temperature in De	51 F	Yes	10.40
Mixing Zone Percentage/CFS:		10%	887.0	Enter the effluent drain rate (MGD):		Yes	0.40
Enter increments to calculate stream flow:				Enter increments to calculate drain rate:			0.1
					Mixing Zone Dilution Rate:		1434.2
					Overall Dilution Rate:		14333.0

Maximum allowable ammonia in mg/l																
	Water Quality Standard			8.6527	Water Quality Standard:			0.3650	Water Quality Standard:			3.6074	Water Quality Standard:			1.4429
	1hr Acute (Daily Maximum)				Intermittent 1 hr Acute *Oncorhynchus* Pres				Intermittent 4 Day Chronic				Continuous 30 Day Chronic			
DRAIN MGD →	0.30	0.40	0.50	0.60	0.30	0.40	0.50	0.60	0.30	0.40	0.50	0.60	0.30	0.40	0.50	0.60

Sulfates

The reasonable potential for sulfates is provided below. The determination was conducted utilizing the Technical Support Document for Water-Quality based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The upstream concentration used was the average from Table 1 of supplemental information to the permit application which details a summary of Missouri River water chemistry near Williston from 1950 through 1992. A default CV of 0.6 was used. Sulfates have weekly monitoring in the proposed permit, so a n=4 was used when calculating the statistical multiplier.

Receiving Water Concentration (RWC) Reasonable Potential (RP) Determination

Technical Support Document (TSD) For Water Quality-based Toxics Control
EPA/505/2-90-001; March 1991

Facility Name:	Cerilon GTL	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0027090	1Q10 Acute	6660	cfs
Daily Maximum Flow (mgd):	0.40	1B3 Acute	6380	cfs
Daily Average Flow (mgd):	0.40	7Q10 Chronic	7650	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	7890	cfs
Statistical Multiplier:	1.6			
Upstream Concentration:	190.0000	mg/l	**Parameter:**	
Effluent Concetration (max):	1500.0000	mg/l	**Sulfates**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)
Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
Qe = Effluent Design Flow
Ce = Highest effluent concentration reported.
pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)
Cs = Background concentration of the receiving water.

Qe - Acute	0.40	mgd	Qs - 1Q10	4302.36	mgd
Qe - Chronic	0.40	mgd	Qs - 1B3	4121.48	mgd
Ce	1500.0000	mg/l	Qs - 7Q10	4941.90	mgd
Cs	190.0000	mg/l	Qs - 4B3	5096.94	mgd
Stat	1.55				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	191.9831	mg/l	RWC - 7Q10	191.7267	mg/l
RWC - 1B3	192.0701	mg/l	RWC - 4B3	191.6742	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	250	mg/l	Chronic Criterion	250.0000	mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		**CCC RP Present:**	
1Q10 Acute OR	**NO**	**7Q10 Chronic OR**	**NO**
1B3 Acute	**NO**	**4B3 Chronic**	**NO**

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Nitrates

The reasonable potential for nitrates is provided below. The determination was conducted utilizing the Technical Support Document for Water-Quality based Toxics Control, EPA/505/2-90-001, March 1991 (TSD; March 1991). The upstream concentration used was the average from Table 1 of supplemental information to the permit application which details a summary of Missouri River water chemistry near Williston from 1950 through 1992. A default CV of 0.6 was used. Nitrates have weekly monitoring in the proposed permit, so a n=4 was used when calculating the statistical multiplier.

Receiving Water Concentration (RWC) Reasonable Potential (RP) Determination

Technical Support Document (TSD) For Water Quality-based Toxics Control
EPA/505/2-90-001; March 1991

Facility Name:	Cerilon GTL	Receiving Stream:	Missouri River	
NDPDES Permit:	ND0027090	1Q10 Acute	6660	cfs
Daily Maximum Flow (mgd):	0.40	1B3 Acute	6380	cfs
Daily Average Flow (mgd):	0.40	7Q10 Chronic	7650	cfs
Stream Design Mixing:	10.0%	4B3 Chronic	7890	cfs
Statistical Multiplier:	1.6			
Upstream Concentration:	0.3400	mg/l	**Parameter:**	
Effluent Concetration (max):	20.0000	mg/l	**Nitrates**	

$$RWC = \frac{(StatQeCe)+(Cs(pmf)Qs)}{Qe+(pmf)Qs}$$

Outfall: 001

RWC = Receiving water concentration, the resultant magnitude of concentration in the receiving water after effluent discharge concentration (also known as the in-stream waste concentration)
Stat = Statistical multiplier for effluent parameter (Table 3-1 and 3-2; page 57 of the TSD)
Qe = Effluent Design Flow
Ce = Highest effluent concentration reported.
pmf = Partial mix factor, percent of Qs allowed for mixing by State authority.
Qs = Receiving Water Flow (1Q10 or 1B3 for acute and 7Q10 or 4B3 for chronic)
Cs = Background concentration of the receiving water.

Qe - Acute	0.40	mgd	Qs - 1Q10	4302.36	mgd
Qe - Chronic	0.40	mgd	Qs - 1B3	4121.48	mgd
Ce	20.0000	mg/l	Qs - 7Q10	4941.90	mgd
Cs	0.3400	mg/l	Qs - 4B3	5096.94	mgd
Stat	1.55				
pmf	10.0%				

Acute RP			Chronic RP		
RWC - 1Q10	0.3685	mg/l	RWC - 7Q10	0.3648	mg/l
RWC - 1B3	0.3697	mg/l	RWC - 4B3	0.3640	mg/l

Criterion Maximum Concentration (CMC)			Criterion Continuous Concentration (CCC)		
Acute Criterion	10	mg/l	Chronic Criterion	10.0000	mg/l

If the calculated RWC is greater than its respective criterion then there is RP and if RWC is less than the criterion then there is no RP.

CMC RP Present:		**CCC RP Present:**	
1Q10 Acute OR	**NO**	**7Q10 Chronic OR**	**NO**
1B3 Acute	**NO**	**4B3 Chronic**	**NO**

The North Dakota State Water Quality Standards (WQS) Chapter 33-16-02.1 use biologically based design and harmonic mean flows to determine Water Quality Based Effluent Limits (WQBELs) and Whole Effluent Toxicity (WET) limits.

Loading Calculations

Loading limits were calculated using the estimated design discharge flow of 0.4 MGD. Concentration limits are based off of 40 CFR 414.74 and 40 CFR 414.91. The calculations from concentrations to loading are in the below table:

Table 9 - Outfall 001 Loading Limit Calculations

Parameter	Average Design Flow (MGD)	Concentration		Quantity	
		Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)	Daily Maximum (lbs/day)[a, b]	Maximum Monthly Average (lbs/day) [a, b]
BOD5, mg/l	0.4	92	34	306.91	113.42
TSS, mg/l	0.4	159	49	530.42	163.46
Acenaphthene	0.4	59	22	0.20	0.07
Acenaphthylene	0.4	59	22	0.20	0.07
Acrylonitrile	0.4	242	96	0.81	0.32
Anthracene	0.4	59	22	0.20	0.07
Benzene	0.4	136	37	0.45	0.12
Benzo(a)anthracene	0.4	59	22	0.20	0.07
3,4-Benzofluoranthene	0.4	61	23	0.20	0.08
Benzo(k)fluoranthene	0.4	59	22	0.20	0.07
Benzo(a)pyrene	0.4	61	23	0.20	0.08
Bis(2-ethylhexyl) phthalate	0.4	279	103	0.93	0.34
Carbon Tetrachloride	0.4	38	18	0.13	0.06
Chlorobenzene	0.4	28	15	0.09	0.05
Chloroethane	0.4	268	104	0.89	0.35
Chloroform	0.4	46	21	0.15	0.07
2-Chlorophenol	0.4	98	31	0.33	0.10
Chrysene	0.4	59	22	0.20	0.07
Di-n-butyl phthalate	0.4	57	27	0.19	0.09
1,2-Dichlorobenzene	0.4	163	77	0.54	0.26
1,3-Dichlorobenzene	0.4	44	31	0.15	0.10
1,4-Dichlorobenzene	0.4	28	15	0.09	0.05
1,1-Dichloroethane	0.4	59	22	0.20	0.07

Parameter	Average Design Flow (MGD)	Concentration		Quantity	
		Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)	Daily Maximum (lbs/day)[a, b]	Maximum Monthly Average (lbs/day) [a, b]
1,2-Dichloroethane	0.4	211	68	0.70	0.23
1,1-Dichloroethylene	0.4	25	16	0.08	0.05
1,2-trans-Dichloroethylene	0.4	54	21	0.18	0.07
2,4-Dichlorophenol	0.4	112	39	0.37	0.13
1,2-Dichloropropane	0.4	230	153	0.77	0.51
1,3-Dichloropropylene	0.4	44	29	0.15	0.10
Diethyl phthalate	0.4	203	81	0.68	0.27
2,4-Dimethylphenol	0.4	36	18	0.12	0.06
Dimethyl phthalate	0.4	47	19	0.16	0.06
4,6-Dinitro-o-cresol	0.4	277	78	0.92	0.26
2,4-Dinitrophenol	0.4	123	71	0.41	0.24
2,4-Dinitrotoluene	0.4	285	113	0.95	0.38
2,6-Dinitrotoluene	0.4	641	255	2.14	0.85
Ethylbenzene	0.4	108	32	0.36	0.11
Fluoranthene	0.4	68	25	0.23	0.08
Fluorene	0.4	59	22	0.20	0.07
Hexachlorobenzene	0.4	28	15	0.09	0.05
Hexachlorobutadiene	0.4	49	20	0.16	0.07
Hexachloroethane	0.4	54	21	0.18	0.07
Methyl Chloride	0.4	190	86	0.63	0.29
Methylene Chloride	0.4	89	40	0.30	0.13
Naphthalene	0.4	59	22	0.20	0.07
Nitrobenzene	0.4	68	27	0.23	0.09
2-Nitrophenol	0.4	69	41	0.23	0.14
4-Nitrophenol	0.4	124	72	0.41	0.24
Phenanthrene	0.4	59	22	0.20	0.07
Phenol	0.4	26	15	0.09	0.05
Pyrene	0.4	67	25	0.22	0.08

Parameter	Average Design Flow (MGD)	Concentration		Quantity	
		Daily Maximum (µg/l)	Maximum Monthly Average (µg/l)	Daily Maximum (lbs/day)[a, b]	Maximum Monthly Average (lbs/day) [a, b]
Tetrachloroethylene	0.4	56	22	0.19	0.07
Toluene	0.4	80	26	0.27	0.09
Total Chromium	0.4	2,770	1,110	9.24	3.70
Total Copper	0.4	3,380	1450	11.28	4.84
Total Cyanide	0.4	1200	420	4.00	1.40
Total Lead	0.4	690	320	2.30	1.07
Total Nickel	0.4	3,980	1,690	13.28	5.64
Total Zinc	0.4	2610	1050	8.71	3.50
1,2,4-Trichlorobenzene	0.4	140	68	0.47	0.23
1,1,1-Trichloroethane	0.4	54	21	0.18	0.07
1,1,2-Trichloroethane	0.4	54	21	0.18	0.07
Trichloroethylene	0.4	54	21	0.18	0.07
Vinyl Chloride	0.4	268	104	0.89	0.35

Notes:

a. All concentrations, except BOD_5 and TSS, were converted from µg/l to mg/l in order to calculate loading.

b. Loading limits were calculated by multiplying the flow by the concentration by the conversion factor of 8.34. [(Flow (mgd) * Concentration (mg/l)) * 8.34 = Loading (lbs/day)]

APPENDIX E – RESPONSE TO COMMENTS

The department did not receive any comments during the public comment period. The following review was provided by the North Dakota:

NORTH Dakota | Parks & Recreation
Be Legendary.

November 21, 2024

Sarah Waldron Field
NDDEQ NDPDES
Bismarck, ND

Re:ND0027090 Cerilon GTL North Dakota Project – Trenton

Dear Sarah,

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above-proposed NDPDES permit project for Cerilon GTL North Dakota project in Trenton, North Dakota.

NDPRD's scope of authority and expertise covers properties that NDPRD owns, leases, or manages; properties protected under Section 6(f) of the Land and Water Conservation Fund (LWCF); rare plants; and ecological communities established through the Natural Heritage Program.

The project does not appear to affect properties NDPRD owns, leases, or manages.
The project does not appear to affect properties protected under Section 6(f) of the LWCF.

A North Dakota Natural Heritage biological conservation database query determines if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, no plant, animal species of concern, or significant ecological communities were documented within or immediately adjacent to the project site.

We appreciate your commitment to rare plant, animal, and ecological community conservation, management, and inter-agency cooperation. For additional information, please contact me at 701-328-5370, 701-220-3377 (cell), or kgduttenhefner@nd.gov.

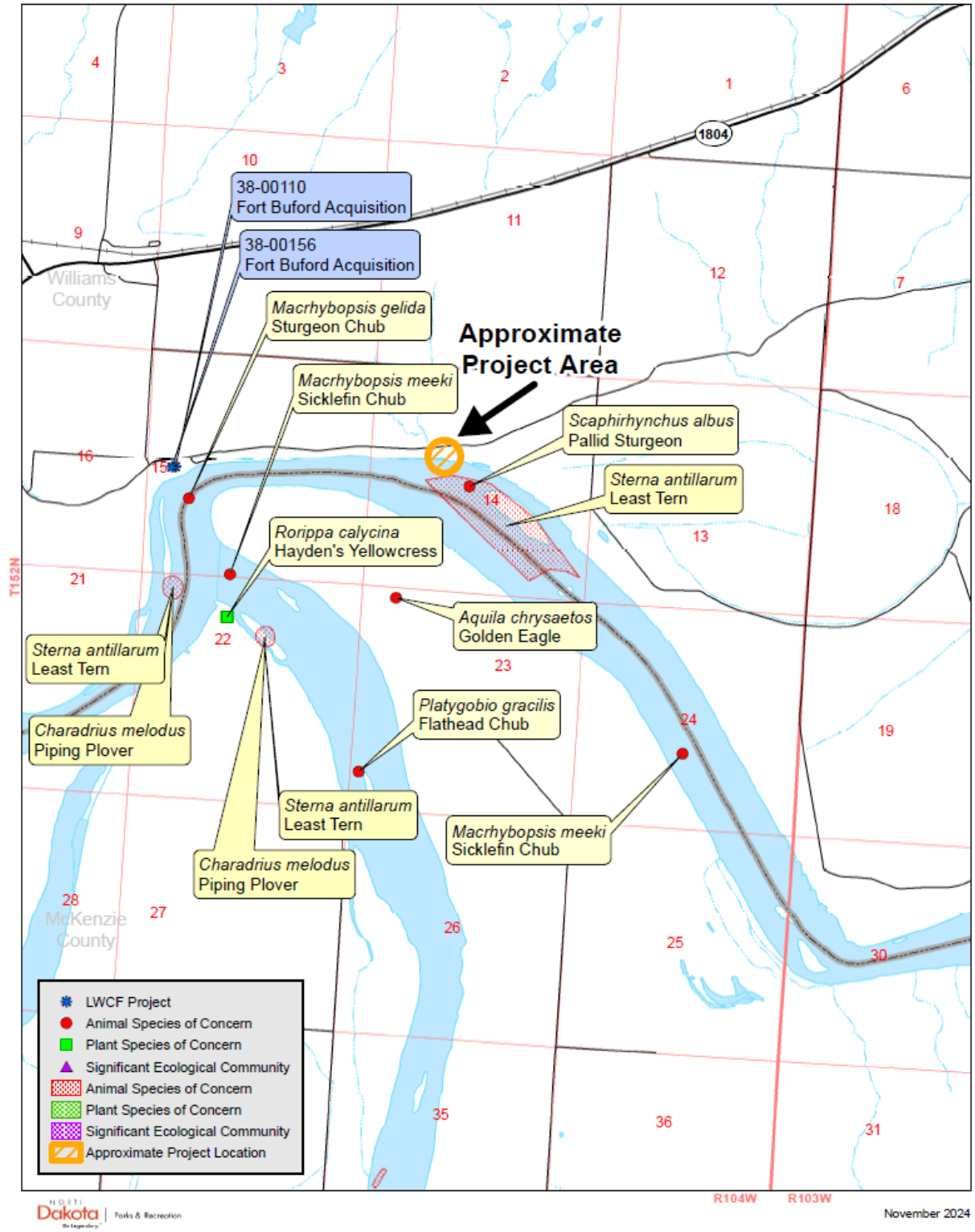
Thank you for the opportunity to comment on the proposed project.

Sincerely,
Kathy Duttenhefner

Kathy Duttenhefner, Chief Natural Resources Division

604 E Boulevard Ave Dept. 750 | Bismarck, ND 58505
PHONE: 701-328-5357 | FAX: 701-328-5363 | EMAIL: parkrec@nd.gov | WEBSITE: www.parkrec.nd.gov

North Dakota Parks and Recreation Department
North Dakota Natural Heritage Inventory



North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Aquila chrysaetos	Golden Eagle	S3	G5		152N104W - 23; 151N103W - 05; 152N104W - 18; 151N103W - 04; 153N103W - 28; 152N104W - 05; 152N104W - 30; 152N103W - 31; 151N103W - 08; 152N103W - 18; 153N104W - 26; 153N103W - 35; 152N104W - 04; 152N104W - 10; 152N103W - 30; 151N104W - 06; 151N104W - 14	McKenzie, Williams	1982-08-06		G
Charadrius melodus	Piping Plover	S1S2	G3	LE,LT	152N104W - 22	McKenzie	1989	Medium	S
Charadrius melodus	Piping Plover	S1S2	G3	LE,LT	152N104W - 22	Williams	1987	Medium	S
Macrhybopsis gelida	Sturgeon Chub	S2	G3		152N104W - 15	McKenzie, Williams	1994-07-07		S
Macrhybopsis meeki	Sicklefin Chub	S2	G3		152N104W - 24	McKenzie	1994-07-07		S
Macrhybopsis meeki	Sicklefin Chub	S2	G3		152N104W - 15; 152N104W - 22	McKenzie	1994-08-04		S
Platygobio gracilis	Flathead Chub	SNR	G5		152N104W - 22; 152N104W - 23	McKenzie	1994-08-04		S
Rorippa calycina	Hayden's Yellowcress	SH	G3		152N104W - 22; 152N104W - 20; 152N103W - 32; 151N104W - 16; 152N104W - 16; 151N104W - 03; 151N104W - 08; 153N103W - 34; 152N104W - 09; 152N104W - 34; 152N103W - 20; 151N104W - 04; 153N103W - 33; 152N104W - 21; 152N104W - 13; 152N104W - 26; 152N103W - 08	McKenzie, Williams	1858		G
Scaphirhynchus albus	Pallid Sturgeon	S1	G2	LE	152N104W - 14; 152N104W - 24; 152N104W - 11; 152N104W - 23; 152N104W - 15; 152N104W - 13; 152N104W - 12; 152N104W - 22; 152N104W - 10	McKenzie, Williams	1994-09-28	Low	M
Sterna antillarum	Least Tern	S1	G4	PS:LE	152N104W - 22	McKenzie	1990-07	Medium	S
Sterna antillarum	Least Tern	S1	G4	PS:LE	152N104W - 14	McKenzie, Williams	1999-07-12	Medium	
Sterna antillarum	Least Tern	S1	G4	PS:LE	152N104W - 22	Williams	1987-07	Medium	S