Permit to Operate a Waterworks

Altered pursuant to section 28(9) of *The Environmental Management and Protection Act, 2010*

Permit No.: 00002313-10-00

ISSUED TO **the City of Lloydminster (the Permittee)**, the person responsible for a waterworks that is used to provide water intended for human consumption to the City of Lloydminster. The Permittee shall ensure that the water supplied by this waterworks is safe for human consumption. This waterworks consists of a Class 3 water treatment facility located at NW ¼ Section 11, Township 50, Range 28 West of the Third Meridian (ISC Surface Parcel Number 202974509) and a Class 3 water distribution facility, located in City of Lloydminster in the Province of Saskatchewan.

PURSUANT to section 28(9) of *The Environmental Management and Protection Act, 2010*, the Permit to Operate a Waterworks No. 00002313-10-00 issued to the permittee on the 31st Day of March 2025 whose waterworks is located in the City of Lloydminster and at the water treatment works located at NW ¼ Section 11, Township 50, Range 28 West of the Third Meridian in the Province of Saskatchewan, is hereby altered and amended, subject to the terms and conditions attached to this permit.

This permit takes effect on the **31st Day of March 2025**

This permit expires on the **31 Day of March 2030,** unless cancelled or suspended before that date.

Issued

_____*
Environment Officer
Water Security Agency

*☑ This digital signature affixed to the permit is legally binding and is considered a sufficient electronic signature as required under *The Electronic Information and Documents Act*, 2000. The original copy is retained by the Water Security Agency and shall be considered the official record.

Terms and Conditions

Section One: Definitions

1.1 All words and phrases have the same definitions as set out in *The Environmental Management and Protection Act, 2010*, or *The Waterworks and Sewage Works Regulations*, as the case may be.

1.2 In this permit:

(a) "*Act*" means *The Environmental Management and Protection Act, 2010;*
(b) "*Regulations*" means *The Waterworks and Sewage Works Regulations;*
(c) "Water Security Agency" means the delegated ministerial authority pursuant to the *Act* and the *Regulations*;
(d) "Environment officer" has the same meaning as defined in the *Act*;
(e) "Accredited laboratory" means a laboratory accredited pursuant to the requirements of the Canadian Association for Laboratory Accreditation in accordance with the parameters for which the laboratory has been accredited;
(f) "Positive bacteriological result" means a test result showing the presence of total coliforms, *Escherichia coli* or 200 or more organisms per 100 milliliters as an overgrowth of background bacteria;
(g) "Water Rights License" is a water rights license issued pursuant to section 50 of *The Water Security Agency Act*;
(h) "Approval to Operate Works" is an approval to operate a raw water surface water/groundwater supply works that is issued pursuant to section 59 of *The Water Security Agency Act*;
(i) "Remote monitoring" is the ability to continuously receive real time data, operational conditions, and alarms indicating adverse operational conditions from a remote location via various methods of electronic data transfer; and
(j) "Remote process control" is the ability to employ remote monitoring in addition to having the ability to make operational or process adjustments from a remote location.

Section Two: Operation

2.1 The permittee shall comply with the *Act* and the *Regulations*, and the terms and conditions of this permit.

2.2 In the event of an inconsistency between the *Act* and this permit, or the *Regulations* and this permit, the more stringent requirement shall apply.

2.3 The permittee shall have a valid Water Rights License and a valid Approval to Operate Works issued pursuant to *The Water Security Agency Act*.

2.4 The permittee shall not extend or alter the waterworks without approval of the Water Security Agency.

2.5 The permittee shall have a written quality assurance and quality control policy that is satisfactory to the Water Security Agency. The permittee shall update its quality assurance and quality control policy as needed to incorporate changes to the waterworks equipment, operational procedures, chemical use, or any other matter or thing that could affect the quality of the water produced by the waterworks. The permittee shall:

(a) provide a copy of the policy to any employee, agent or contractor performing work or service in relation to the waterworks; and
(b) inform the persons mentioned in 2.5(a) of the contents of the quality assurance and quality control policy.

2.6 Where all or part of a distribution system is new, extended, altered or repaired, the permittee shall after completion of the new waterworks or the alteration, extension or repair:

(a) disinfect the portion of the distribution system that is new, extended, altered or repaired, in accordance with American Water Works Association Standard C651 *Disinfecting Water Mains*, or a standard that would offer an equivalent or greater level of protection of human health, before the commencement of its use; and
(b) take water samples from the distribution system that is new or has been extended, altered or repaired, and have the samples analyzed for bacteria.

2.7 The permittee shall ensure that the operation, repair and maintenance of the waterworks is under the direction of an operator who holds at least the corresponding certificate for the classification of the waterworks as set out in the Saskatchewan Water and Wastewater Works Operator Certification Standards, December 2016 or the latest version.

Section Three: Sampling, Monitoring and Water Quality

3.1 The permittee shall cause water samples to be taken from the waterworks to test for bacteria, turbidity, chlorine and for the other parameters listed in Appendix A, at the locations, times and frequency set out in Appendix A.

3.2 The permittee shall ensure that the water provided to consumers does not exceed the limits set out in Appendix B for bacteria, turbidity, and the chemical parameters listed in that appendix. The permittee shall cause the chlorine residuals to be maintained as set out in Appendix B.

3.3 Subject to 3.4, the permittee shall have water samples analyzed by an accredited laboratory, in accordance with the *Regulations*.

3.4 The permittee may perform water sampling and on-site analysis for the parameters indicated for "on-site testing" in Appendix A or by continuous water quality monitoring equipment, when authorized to do so.

3.5 The permittee shall take water samples in accordance with the instructions provided by the institution or laboratory that provides the sampling bottles or containers.

3.6 The permittee shall ensure that all water quality monitoring and testing equipment is maintained and calibrated on a frequency as recommended by the manufacturer;

Section Four: Recordkeeping

4.1 The permittee shall maintain records containing the following information:

(a) total water pumped into the distribution system on a daily basis or the total raw water used;
(b) the types, dosages and total amounts of chemicals and ultraviolet light applied to the water for treatment;
(c) the locations from which samples for any tests conducted by the permittee of the waterworks were taken, in accordance with this permit, and the name of the person who conducted the sampling or testing and the results of those tests;
(d) any departures from normal operating procedures that may have occurred and the time and date that they occurred;
(e) any instructions that were given during operation of the waterworks to depart from normal operating practices and the name of the person who gave the instructions;
(f) any upset condition or bypass condition, the time and date of the upset condition or bypass condition and measures taken to notify others and resolve the upset condition or bypass condition;
(g) any condition of low disinfectant levels, the time, date and location of occurrence and measures taken to restore disinfectant levels to required values;
(h) the dates and results of calibrating any metering equipment and testing instruments; and
(i) the dates and types of maintenance performed on equipment and any actions taken to ensure the normal operation of the waterworks.

4.2 The permittee shall cause the operational records or logs mentioned in 4.1 to be recorded and maintained in the following manner:

(a) operational records or logs must be made in chronological order, with the dates, times and testing locations clearly indicated;
(b) entries in an operational record or log must only be made by the permittee, which includes by definition any principal or agent of a permittee;
(c) any person making an entry in an operational record or log must do so in a manner that allows the person to be unambiguously identified as the maker of the entry;
(d) operational records or logs must be maintained on a daily basis and retained for at least five years;
(e) any anomalies or instances of missing entries in an operational record or log must be accompanied by explanatory notes;
(f) operational records or logs must only contain data or information that is actually observed or produced;
(g) operational records or logs must not contain default values generated manually or by automated means; and
(h) operational records or logs maintained pursuant to clause (d) must be made available promptly on request of the Water Security Agency.

4.3 The permittee shall review the records and logs mentioned in 4.1 on a monthly basis to ensure that the operating parameters are being achieved and that the limits set out in Appendix B are not exceeded.

4.4 The permittee shall report the findings to the Water Security Agency as soon as is reasonably practicable after each review required by 4.3 should the review of the records and logs indicate that the quality of water from the waterworks has been adversely affected, that any upset condition, bypass condition or event at the waterworks has not been reported, or that on-site water quality testing records are missing.

Section Five: Reporting and Consumer Reporting

5.1 The permittee shall submit the results of water sampling analysis performed in accordance with this permit to the Water Security Agency:
(a) in the case of a positive bacteriological result, within 24 hours following completion of the sampling analysis; and
(b) in the case of all other parameters, within 7 days following completion of the sampling analysis.

5.2 The permittee shall direct the laboratory performing its water sampling analyses to submit the results within the timeframes mentioned in 5.1 directly to the Water Security Agency, in a format in accordance with EPB 383 Water Security Agency and Ministry of Environment - Environmental Management System (SEEMS) Lab-Operator (LAB-OPR) Data File Format, in addition to submitting the written results to the permittee.

5.3 The permittee shall immediately report to the Water Security Agency any known or anticipated upset condition, bypass condition or events at or affecting a waterworks that could adversely affect the quality of water produced by the waterworks.

5.4 The permittee shall immediately report to the Water Security Agency any instance where:
(a) disinfection equipment fails;
(b) the level of disinfection identified in Appendix B is not achieved or is not anticipated to be achieved;
(c) any other parameter level identified in Appendix B is not achieved or is not anticipated to be achieved;
(d) there is a retirement, suspension, resignation, scheduled absence or termination of employment of any certified waterworks distribution or waterworks treatment operator, or any anticipated retirement, suspension, resignation or termination that results in the waterworks not being under the direction of a certified operator that holds at least the corresponding certificate for the classification of those works; or
(e) a system depressurization has occurred.

5.5 The permittee shall instruct its employees, agents and contractors performing work or service in relation to the waterworks, of their obligation under section 34(1) of the *Regulations* and to report to the Water Security Agency any instance as described in 5.4 and any known or anticipated upset condition, bypass condition or events at or affecting a waterworks that could adversely affect the quality of water produced by the waterworks.

5.6 The permittee shall as soon as reasonably practical report any of the events mentioned in 5.3 or 5.4 to the Water Security Agency.

5.7 The permittee shall, once per calendar year, provide the consumers supplied by the waterworks with a notification of:
(a) the quality of water produced or supplied by the waterworks in comparison with the levels set out in this permit; and
(b) the permittee's compliance with sample submission requirements described in this permit.

5.8 Within 30 days after providing consumer notification required by 5.7, the permittee shall provide a written copy of the notification to the Water Security Agency.

5.9 The permittee shall maintain records for all parameters that are specified to be tested "on-site" as indicated in Appendix A and make them available to the Water Security Agency upon request. For all other parameters, the permittee shall ensure that reporting is conducted in accordance with section 37 of the *Regulations.*

Section Six: Inspection

6.1 An environment officer may enter the waterworks at any time to conduct an inspection to ensure that the permittee is complying with this permit, the *Act* or the *Regulations*.

6.2 Upon the request of an environment officer, the permittee shall immediately provide any books, records, logs, graphs, papers, documents, or data, including any computer, digital or electronic records, logs, graphs, files or data maintained with respect to the waterworks.

Section Seven: General

7.1 A copy of this permit shall be posted in a conspicuous place at the waterworks.

7.2 The permittee shall provide each operator of the waterworks with a copy of this permit and the *Regulations*.

7.3 The Water Security Agency may cancel, alter or suspend this permit for the reasons and in the manner set out in the *Act*.

7.4 The permittee shall apply for renewal/alteration of this permit at least 60 days prior to its expiry.

7.5 In the event of any inconsistency between a previously issued Permit to Operate a Waterworks, and the terms and conditions of this Permit to Operate a Waterworks, the terms and conditions of this permit prevail.

7.6 This permit does not replace or supersede any approvals, licenses or authorizations that may be required due to municipal, provincial or federal legislation. The permittee shall maintain in force any and all such approvals, licenses or authorizations that may be required.

7.7 Where any notice or reporting is required to be given by the permittee, it shall be provided to:

Water Security Agency
Kris Dushire
402 – 1101 – 101st Street
North Battleford, SK
Telephone: 306.441.5774
Email: kris.dushire@wsask.ca

After hours, weekends and holidays, the Water Security Agency can be contacted by calling the Upset Report Line at 1.844.536.9494**.**

Appendix A

Permit to Operate a Waterworks
Monitoring Schedule
Permit No.: 00002313-10-00

Parameter(s)	Station Number	Testing Required	Limit Applied	Raw Water Sampling Locations and Minimum Sampling Frequency[1]
		Yes	Yes	
1. *Giardia* and *Cryptosporidium*	SK05EF0042	X		Semi-annually and following upsets or significant events that may affect raw water quality from the raw water entering the water treatment plant.
2. Turbidity (on-site testing)	N/A	X		Once (1) per day from the raw water entering the water treatment facility.

Parameter(s)	Station Number	Testing Required	Limit[1] Applied	Treated Water Sampling Locations and Minimum Sampling Frequency[1]
		Yes	Yes	
1. Bacteriological Total coliform *Escherichia coli*	SK05EF0005	X	X	Eight (8) samples every week from representative locations in the distribution system. Repeat and special samples resulting from follow-up to a contaminated sample, and other samples are not considered as regular sample submissions.
2. Chlorine Residual (on-site testing)	N/A	X	X	Continuously for free residual in the water entering the distribution system; AND at the same frequency and locations as for bacteriological sampling, for free and total residuals.
3. Turbidity (on-site testing)	N/A	X	X	Continuously from the filter effluent from each filter AND Continuously from watering entering the distribution system; AND At the same frequency and locations as for bacteriological sampling.
4. Chemical - General Alkalinity Bicarbonate Calcium Carbonate Chloride Conductivity Fluoride Hardness Magnesium Potassium Nitrate pH Sodium Sulphate Total dissolved solids	SK05EF0005	X	Limits apply to Nitrate and Fluoride	Once (1) every three (3) months, from the treated water at the water treatment plant. One sample must be taken in each of the following periods: January to March, April to June, July to September and October to December.
5. Chemical – Health Aluminium Antimony Arsenic Barium Boron Cadmium Chromium Copper Iron Lead Manganese Selenium Silver Uranium Zinc	SK05EF0005	X	Limits apply to Arsenic, Barium, Boron, Cadmium, Chromium, Lead, Selenium and Uranium	Once (1) every three (3) months, from the treated water at the water treatment plant. One sample must be taken in each of the following periods: January to March, April to June, July to September and October to December.

6. Pesticides Atrazine Bromoxynil Carbofuran Chlorpyrifos Dicamba 2,4-D Diclofop-methyl Dimethoate Malathion MCPA Pentachlorophenol Picloram Trifluralin	SK05EF0005	X	X	Once (1) every two (2) years, from the treated water at the water treatment plant. The next sample to be taken in the 2025 calendar year.
7. Trihalomethanes (THMs) and Haloacetic Acids (HAA_5)	SK05EF0005	X	X	Twice (2) every three (3) months from the water in the distribution system. Two samples must be taken in each of the following periods of every year: January to March, April to June, July to September, and October to December. Samples are to be collected from two distinct representative location at the extremities of the distribution system. The same sampling locations are to be used each time samples are collected
8. Cyanide and Mercury	SK05EF0005	X	X	Once (1) every six (6) months, from the treated water at the water treatment plant. One sample must be taken in each of the following periods of every year: January to June and July to December.
9. Synthetic Organics Benzene Benzo(a)pyrene Carbon tetrachloride Dichlorobenzene 1,2 Dichlorobenzene 1,4 Dichloroethane 1,2 Dichloroethylene 1,1 Dichloromethane Dichlorophenol 2,4 Ethylbenzene Monochlorobenzene Perfluorooctane sulfonate (PFOS) Perfluorooctanoic Acid (PFOA) Tetrachloroethylene Tetrachlorophenol 2,3,4,6 Toluene Trichloroethylene Trichlorophenol 2,4,6 Vinyl chloride Xylene	SK05EF0005	X	X	Once (1) every two (2) years, from the treated water at the water treatment plant. The next sample to be taken in the 2025 calendar year.
10. Microcystin-LR and/or Total Microcystins	SK05EF0013	X	X	Once (1) every month from the water treatment plant during the algal bloom period.
11. Ultraviolet Disinfection (on-site testing)	N/A	X	X	Continuously for ultraviolet dosage, ultraviolet transmittance, and flow rate in the water entering the ultraviolet disinfection system(s).

[1] Limits for identified parameters are provided in Appendix B.

Appendix B

Permit to Operate a Waterworks
Permit Limits
Permit No.: 00002313-10-00

The following water quality limits apply where identified in Appendix A.

Bacteriological:

Accredited laboratory may use method 9222 or 9223 as per *Standard Methods for the Examination of Water and Wastewater*, *22nd edition, 2012,* to comply with the following limits:

(a) total coliform levels of zero organisms detectable per 100 millilitres;
(b) *Escherichia coli* levels of zero organisms detectable per 100 millilitres; and

Chlorine Residual

(a) a free chlorine residual of not less than 0.1 milligrams per litre in the water entering a distribution system; and
(b) a total chlorine residual of not less than 0.5 milligrams per litre or a free chlorine residual of not less than 0.1 milligrams per litre in the water throughout the distribution system.

Ultraviolet Disinfection

As per the Ultraviolet Validation Test Certificate a minimum validated dosage of no less than 12 mJ/cm^2 at a maximum flow rate of 315m^3/hr per unit and a minimum ultraviolet transmittance of 76.7% in the treated water shall be maintained in order to achieve 3 log inactivation credit for cryptosporidium and giardia

Disinfection

(a) The water treatment facility must achieve a minimum of 4.0 log removal/inactivation of viruses which can be achieved through a combination of physical removal and/or disinfection.
(b) The water treatment facility must achieve a minimum of 2.0 log inactivation of viruses through disinfection.
(c) The water treatment facility must achieve a minimum of 3.0 log inactivation/removal of *Giardia lamblia* cysts and *Cryptosporidium parvum* oocysts through conventional chemically assisted surface water treatment and disinfection.
(d) The water treatment facility must achieve a minimum of 0.5 log *Giardia* inactivation through disinfection.
(e) The water treatment facility must maintain a free chlorine residual of not less than 0.1 milligrams per litre in the water entering the distribution system.

Turbidity:

Waterworks, regardless of the source, must maintain turbidity levels for water entering the distribution systems at levels that will always result in acceptable microbiological quality and that will not compromise disinfection.

Requirements by Source/Treatment type:

Source/Treatment	Routine Standard	Max. Allowable Exceedance Duration	Absolute Maximum
Surface water [1,2] - Monthly average source turbidity greater than or equal to 1.5 NTU and employing chemically assisted filtration	Not to exceed 0.3 NTU, in more than 5% of discrete measurements, each calendar month OR more than 5% of the time each calendar month, if continuous monitoring employed.	Not to exceed 0.3 NTU for more than 12 consecutive hours, if continuous monitoring employed.	Never to exceed 1.0 NTU.
Surface water [1,2] - Monthly average source turbidity less than 1.5 NTU and employing chemically assisted filtration	Not to exceed 0.2 NTU, in more than 5% of discrete measurements, each calendar month or more than 5% of the time each calendar month if continuous monitoring employed.	Not to exceed 0.2 NTU for more than 12 consecutive hours if continuous monitoring employed.	Never to exceed 1.0 NTU.

Chemical – Health	**Parameter**	**MAC[1] (mg/L)**	**IMAC[2] (mg/L)**
	Arsenic	0.01	
	Barium	1	
	Benzene	0.005	
	Benzo(a)pyrene	0.00001	
	Boron		5
	Bromate	0.01	
	Cadmium	0.005	
	Carbon tetrachloride	0.005	
	Chlorate	1	
	Chlorite	1	
	Chromium	0.05	
	Cyanide	0.2	
	Dichlorobenzene,1,2	0.2	
	Dichlorobenzene,1,4	0.005	
	Dichloroethane,1,2		0.005
	Dichloroethylene,1,1	0.014	
	Dichloromethane	0.05	
	Dichlorophenol,2,4	0.9	
	Fluoride	1.5	
	Haloacetic Acids[3]	0.08	
	Lead	0.01	
	Mercury	0.001	
	Microcystin-LR	0.0015	
	Monochlorobenzene	0.08	
	Nitrate as NO_3	45	
	Selenium	0.01	
	Tetrachlorophenol,2,3,4,6	0.1	
	Trichloroethylene	0.05	
	Trichlorophenol,2,4,6	0.005	
	Trihalomethanes[4]	0.1	
	Uranium	0.02	
	Vinyl Chloride	0.002	

Radiological[5]	**Parameter**	**MAC (Becquerels/L)**
	Gross Alpha	0.5
	Gross Beta	1
	Lead-210 (^{210}Pb)	0.2
	Radium-226 (^{226}Ra)	0.5
	Tritium (^{3}H)	7000
	Strontium-90 (^{90}Sr)	5
	Iodine (^{131}I)	6
	Cesium-137 (^{137}Cs)	10

Chemical – Pesticides	**Parameter**	**MAC (mg/L)**	**IMAC (mg/L)**

Atrazine		0.005
Bromoxynil		0.005
Carbofuran	0.09	
Chlorpyrifos	0.09	
Dicamba	0.12	
2,4-D[6]		0.1
Diclofop-methyl	0.009	
Dimethoate		0.02
Malathion	0.19	
MCPA[7]		0.1
Pentachlorophenol	0.06	
Picloram		0.19
Trifluralin		0.045

[1] Maximum Acceptable Concentration

[2] Interim Maximum Acceptable Concentration

[3] Haloacetic acids refer to the total levels of monochloroacetic acid, dichloroacetic acid, trichlororacetic acid, monobromoacetic acid and dibromoacetic acid and is based on a locational running average of a minimum of quarterly samples taken from the water mains within a distribution system.

[4] Trihalomethanes refers to the total levels of chloroform, bromodichloromethane, dibromochloromethane, and bromoform and is based on an annual average of 4 seasonal samples collected from the water mains within the distribution system.

[5] Radiological - Water samples may be initially screened for radioactivity using gross alpha and gross beta activity determinations. Compliance with the standards may be inferred if the measurements for gross alpha and gross beta activity are less than 0.5 Bq/L (becquerels per litre) and 1.0 Bq/L, respectively, as these are lower than the strictest Maximum Acceptable Concentrations. If these values are exceeded then Table 3 of the *Guidelines for Canadian Drinking Water Quality—Summary Table, Health Canada, 2012*, as amended from time to time, applies.

[6] 2,4 Dichlorophenoxyacetic Acid

[7] 2-Methyl-4-Chlorophenoxyacetic Acid

Appendix C

Permit to Operate a Waterworks
Water Treatment Plant – Wastewater Discharged to Environment
Permit No.: 00002313-10-00

Parameter	Station Number	Testing Required	Limit[1] Applied	Treated Water Sampling Locations and Minimum Sampling Frequency
		Yes	Yes	
1. Chlorine Residual[2] (on-site testing)	N/A	X	X	Once (1) every week for total residual in the water entering the receiving environment.
2. Aluminum	TBD	X		Once (1) every month from the water entering the receiving environment.
3. Total Suspended Solids	TBD	X	X	Once (1) every month from the water entering the receiving environment.

[1] Limits for identified parameters are provided in Appendix D.

[2] If employing the DPD method of total chlorine determination, procedures must compensate for manganese interference.

[3] The accredited laboratory must adhere to the following biological test methods:

Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout

(Reference Method EPS 1/RM/13 Second Edition)

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow Trout

(Reference Method EPS 1/RM/50)

Appendix D

Permit to Operate a Waterworks
Water Treatment Plant – Wastewater Discharged to Environment
Permit Limits
Permit No.: 00002313-10-00

The following water treatment plant wastewater quality limits apply where identified in Appendix C.

Chlorine Residual
Non-detectable levels.

Total Suspended Solids
Shall not exceed 25 milligrams per litre.

Acute Lethality
Shall be non-lethal to 50% or more of test organisms at 100% effluent concentration.