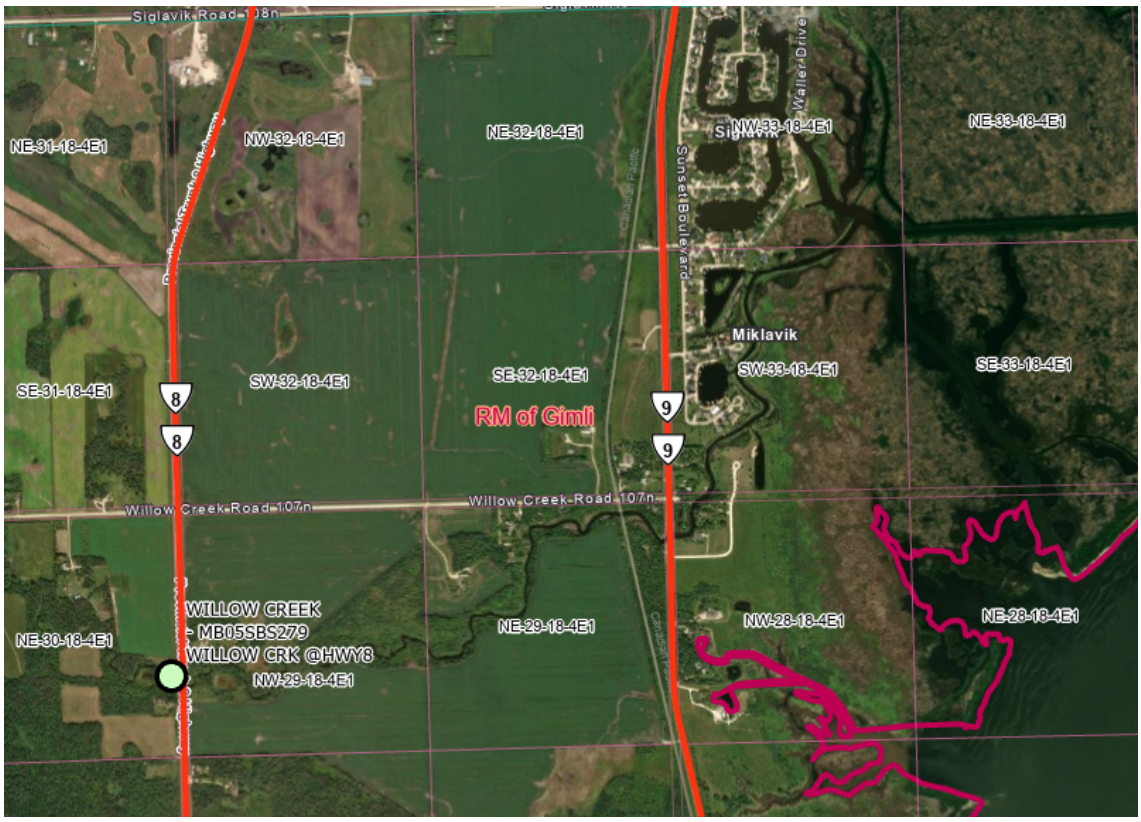
D1 This is a five-part question regarding monitoring of water quality of Willow Creek.

a. **Please confirm that the province operates a water quality monitoring location on Willow Creek.** Yes



b. **Please confirm the location where monitoring takes place.** Willow Creek at Hwy 8, decimal degress: 50.576 N, -97.0227 W

c. **Please confirm the values being monitored**. See attached files for parameters monitored and values

d. **Please confirm the frequency of monitoring**. Quarterly

e. **Please outline the length of time a dataset is available from results from this location and generalize the results of the monitoring program.** 1998 June and Aug, and then 2010 to present

D2 **Please confirm that the Water Quality Management Section has no concerns with the proposal other than**

those stated in the TAC review.

On July 16, 2024, the Water Quality Management Section confirmed that the standard effluent limit for wastewater treatment facilities across Manitoba—specifically, the total phosphorus effluent standard of less than 1 mg/L—is required at the point of discharge for the Crystal Spring Colony Farms Ltd. wastewater treatment lagoon.

Based on the proponent's calculations and this effluent standard (<1 mg/L), the maximum annual total phosphorus load from the Crystal Spring Colony Farms Ltd. facility is estimated to be 27.05 kg per year. This estimated load is considered small, representing approximately 0.0000367% of the total phosphorus load to Lake Winnipeg. As a result, the Water Quality Management Section indicated that they have no additional concerns regarding phosphorus loading from this facility.

The Water Quality Management Section requires that the applicable effluent standards be implemented and maintained at the Crystal Spring Colony Farms Ltd. wastewater treatment lagoon for all discharge events, in accordance with the Manitoba Water Quality Standards, Objectives and Guidelines Regulation (196/2011).

D3 In the second round of TAC comments, the Water Quality Management Section provided calculations of the maximum annual load of total phosphorus of the proposed lagoon. Were any other calculations on nutrient loading conducted? If so, please provide them.

The Water Quality Management Section requested calculations of the maximum annual total phosphorus load for the proposed wastewater treatment lagoon. The proponent subsequently provided the requested information. In their response, the proponent calculated the annual total phosphorus loading rate (kg/year) to Willow Creek based on the lagoon's maximum design capacity and the requirement that the facility meet a total phosphorus effluent limit of 1 mg/L at the discharge point of the secondary cell. The effluent concentration used in the calculation was 1.0 mg/L total phosphorus (TP). The calculation did not account for phosphorus absorption or uptake by natural vegetation along the 1.1 km of drainage ditch prior to Willow Creek, which would be expected to substantially reduce total phosphorus concentrations before discharge reaches the creek.

The proponent also provided calculations of adjusted constituent concentrations in Willow Creek for the following parameters: Ammonia (as N, unfiltered), Biochemical Oxygen Demand (5-day), Carbonaceous Biochemical Oxygen Demand (5-day), *Escherichia coli* (a type of fecal indicator bacteria), pH, Total Coliforms, Total Phosphorus, and Total Suspended Solids (TSS). These calculations were based on the assumption that the lagoon would meet the required discharge criteria (at the maximum allowable constituent concentrations) and that the full discharge flow would enter Willow Creek. As with the phosphorus calculation, these estimates did not include the potential reduction of phosphorus through natural uptake or assimilation within the 1.1 km of ditch along the South Malonton Drain prior to Willow Creek, which would be expected to significantly reduce phosphorus concentrations.

Average water quality data for Willow Creek, collected by the East Interlake Watershed District between 2008 and 2019, were used to support these calculations. The following table was provided by the proponent:

Tested Constituents	Average Willow Creek Concentrations[1]	Maximum Lagoon Effluent Concentration[2]	Concentration with Lagoon Discharge in June	Concentration with Lagoon Discharge in September	Objectives for Aquatic Life[6]
Ammonia, as N (unfiltered)	0.076 mg/L	1.25 mg/L	0.11 mg/L	0.34 mg/L	<0.47 mg/L[4]
BOD_5	2.98 mg/L	25 mg/L[5]	3.70 mg/L	7.87 mg/L	N/A
$CBOD_5$	Not Measured	25 mg/L	-	-	N/A
E. Coli.	91.8 cfu/100mL	200 cfu/100mL	95.3 cfu/100mL	115.8 cfu/100mL	N/A
pH	8.27	6.0	8.25[3]	8.09[3]	6.5-9.0
Total Coliforms	987.5 cfu/100ml	200 cfu/100mL	961.9 cfu/100mL	812.5 cfu/100mL	N/A
Total Phosphorus	0.06 mg/L	1 mg/L	0.09 mg/L	0.27 mg/L	N/A
TSS	40.3 mg/L	25 mg/L	39.8 mg/L	36.9 mg/L	<250 mg/L

1: East Interlake Watershed District (EIWD). 2021-03-18. "East Interlake Watershed District Quarterly Sampling" (dataset). 2.0.0. DataStream. https://datastream.org/en-ca/dataset/b34683c1-a932-4713-b68a-200b5dc94b38.
2: Provided in the *Design Objectives for Wastewater Treatment Lagoons*.
3: Calculated using stoichiometric equations for the combination of a weak acid [H^+] and base [OH^-].
4: Acceptable values range from 0.47 to 48.83 mg/L depending on pH and temperature; lowest conservative value was used.
5: No such limit exists within the *Design Objectives for Wastewater Treatment Lagoons*. Value provided by the *Manitoba Water Quality Standards, Objectives and Guidelines* for facilities serving the food processing industry or producing high levels of total nitrogen (**not applicable to this lagoon**, shown for reference only).
6: Provided in the *Manitoba Water Quality Standards, Objectives and Guidelines*.

D4 Could similar nutrient loading calculations be done comparing loading from this proposed lagoon to other typical wastewater treatment facilities in the Lake Winnipeg watershed? If so, could some examples be provided? – max licenced load for Crystal Spring is 27 kg/yr at 1 mg/L TP,

Table 1. Estimates of annual total phosphorus loads (kg/year).

Facility	License No.	Allowable License Load (kg/year) Estimate	Recent Load (kg/year) Estimate
*Town of Gimli	2587	3066 (phase I), 4709 (phase II)	*477.6
Town of Winnipeg Beach	3165	527	-
Greenwald Colony Farms	3434	21	-
*City of Selkirk	3273	4380	*380.8
*Grindstone Prov. Park, lagoon	2848	no volume in license, TP limit	*2.4
~New Bothwell, RM of Hanover (can include industry)	1524	no volume in license, TP limit	~171.4
~Mitchell, RM of Hanover	2765	no volume in license, TP limit	~191.9

Allowable license Load (kg/year) Estimate calculated using licensed design volumes and TP limit (<1.0 mg/L).
* 2024 Recent Load (kg/year) Estimates calculated using discharge data of average monthly concentrations and volumes.
~2025 Recent Load (kg/year) Estimates calculated using discharge data of average monthly concentrations and volumes.
- no data

D5 Is the Department aware of any other potential sources of discharge (impacted runoff, treated wastewater, etc.) into Willow Creek.

Community of Siglavik (which is on Willow Creek and downsteam of our monitoring site) uses holding tanks with waste trucked to Gimli for treatment. Possible grey water pits in this area.

D6 During the June 4, 2025 community learning session, several questions were asked by attendees about how Environment Act Licenses are enforced. What processes are in place to manage instances where effluent quality varies from licence limits, including emergency discharges.

How Environment Act licences are enforced

Environment Act licences are legally binding and enforced to protect Manitoba's environment and public health. Compliance is monitored by Environment Officers using a risk-based approach, including inspections, review of required reports, and follow-up where issues arise. Licence holders must monitor their operations and maintain effluent sampling results, which may be reviewed or verified through independent sampling during discharges.

What happens if effluent exceeds licence limits

Responses to exceedances are situational and risk-based, considering the seriousness and duration of the exceedance, environmental sensitivity, due diligence and compliance history. Manitoba uses progressive enforcement, which may include education, warnings, orders, charges, licence changes, or further enforcement action.

How emergency discharges are handled

Emergency discharges are managed under a specific policy framework. Effluent discharged outside the discharge dates stated in their Environment Act Licence must meet Manitoba Water Quality Guidelines to ensure that emergency discharges do not pose an unacceptable risk to the environment. Each case is reviewed on a case-by-case basis, and where an evaluation determines that the emergency discharge does not pose an unacceptable risk to the environment and meets the Manitoba Water Quality Guidelines, a temporary suspension of the licence clause related to discharge dates may be authorized. Emergency discharges are assessed after the event using the same risk-based, progressive enforcement approach.

D7 Please confirm the effluent discharge standards for domestic sewage lagoons and continuous discharge wastewater treatment plants in Manitoba.

Note that not all wastewater treatment lagoons are intermittent discharge facilities and not all wastewater treatment plants are continuous discharge facilities. Accordingly, the effluent discharge standards for wastewater treatment lagoons and continuous discharge wastewater treatment plants in Manitoba are the same. Effluent quality requirements are determined by the discharge regime (intermittent versus continuous), not by the treatment system. The standards are proscribed in the Manitoba Water Quality Standards, Objectives, and Guidelines Regulation under The Water Protection Act. Environment Act licences may be more restrictive than the standards based on the site-specific assessment.

The standards for municipal wastewater effluent discharged to a water body are as follows:

200 fecal coliform organisms / 100 mL or 200 *Escherichia coli* organisms / 100 mL
- 25 mg/L Carbonaceous Biochemical Oxygen Demand (if the facility has an ammonia and/or total nitrogen limit)
- 25 mg/L Biochemical Oxygen Demand (if the facility does not have an ammonia and/or total nitrogen limit)
- 25 mg/L Total Suspended Solids (excluding growing algae)
- 1 mg/L total phosphorous or demonstrated nutrient reduction strategy for specified facilities
- 15 mg/L total nitrogen for specified facilities
- Site-specific total ammonia limits for continuously discharging facilities

Additionally, all municipal wastewater treatment facilities in Manitoba that discharge to a water body and meet the applicability criteria are subject to the federal Wastewater Systems Effluent Regulations (WSER), which establish minimum national effluent quality standards that are less restrictive than Manitoba's standards.

D8 To what extent do watershed management plans developed and approved under The Water Protection Act considered when evaluating Environment Act proposals such as this one?

Manitoba's Watershed Planning and Programs, delivered through the Watershed Districts Program, rely on Integrated Watershed Management Plans (IWMPs) to identify priority actions such as water quality improvements and flood mitigation, with an emphasis on locally driven, sustainable watershed management. This program typically does not participate in the Technical Advisory Committee (TAC) for Class 2 wastewater treatment facilities, as comments on effluent quality are provided through the Water Quality Management Section of the Branch, which incorporates relevant considerations from Watershed Planning and Programs.

All Environment Act licences for developments that discharge nutrients to surface water require the proponent to actively participate in relevant future watershed-based management studies, plans, or nutrient reduction programs approved by the Director for the affected watershed and associated waterways.

In response to public comments received for this Environment Act Proposal, the Branch sought TAC input directly from Watershed Planning and Programs. Program staff reviewed the proposal and noted that the Willow Creek Integrated Watershed Management Plan identifies flooding as a common issue in the ditch receiving lagoon effluent. However, staff indicated that the hydraulic assessment submitted with the application adequately addresses these concerns by incorporating measures intended to reduce flooding within the waterway. No additional concerns were identified.

D9 Can you provide the standard terms and conditions for a typical Environment Act License for a similar domestic wastewater treatment lagoon? We understand that each license is unique and may have specific terms and conditions based on specific concerns or issues, but assume there are general requirements for these types of facilities.

In Manitoba, wastewater treatment facilities, including wastewater treatment plants and lagoons, are regulated as licensed developments under The Environment Act. An Environment Act Licence authorizes the construction, operation, and maintenance of the engineered wastewater treatment lagoon at a specified legal location in accordance with an approved Environment Act Proposal prepared by a professional engineer licensed in Manitoba. Licences are site-specific and apply only to the approved development; any alteration, expansion, or operational modification requires prior written approval through a Notice of Alteration. While site-specific, licences follow a consistent framework addressing construction, operation, monitoring, reporting, and decommissioning.

General licence conditions require that all generated wastewater be directed to the approved wastewater treatment lagoon or other authorized facilities; that the facility be operated by certified personnel in compliance with applicable regulations; and that monitoring, sampling, reporting, and record-keeping be conducted using approved methods. Licensees must prevent, report, and promptly remedy odours, spills, equipment failures, and unauthorized releases, comply with all applicable legislation, obtain required permits prior to construction, suspend work if heritage resources are encountered, comply with nutrient management requirements, and participate in watershed-based management or nutrient reduction initiatives as directed by the Director.

Wastewater treatment lagoon licence conditions for construction typically require that the lagoon be built in accordance with Information Bulletin – Design Objectives For Wastewater Treatment Lagoons, which establishes minimum requirements for liner systems (such as soil liners, cut-off systems or synthetic liners), embankments, cell configuration, storage capacity, seepage control, and groundwater protection. Specific terms and conditions in any licence imposes detailed construction and operational controls, including advance notification; strict erosion, sediment, spill, invasive species, and waste management measures during construction; installation, testing,

approval, and submission of construction certification.

The construction licence conditions for wastewater treatment lagoons are site-specific and vary depending on the liner type, treatment system, and site-specific environmental risk. Clay-lined wastewater treatment lagoons are subject to conditions addressing material suitability, placement, compaction, and permeability verification, cut-off liner systems focus on trench construction, continuity, and interception of seepage pathways; and synthetic liner systems, such as high-density polyethylene (HDPE), require detailed material specifications, testing, installation timing, reporting, and regulatory approval prior to use. Where Submerged Attached Growth Reactor (SAGR®), aeration, or other mechanical treatment systems are incorporated, additional construction conditions apply for equipment installation and commissioning.

The operational licence conditions limit organic and hydraulic loading, depth, freeboard, and septage acceptance; prohibit effluent discharge except as authorized; establish effluent quality requirements based on discharge regime; impose additional controls where chlorination is used; and require ongoing maintenance of dykes, vegetation, erosion protection, and burrowing animal control to ensure long-term integrity.

The monitoring and reporting licence conditions require immediate notification of exceedances of operating depth or freeboard, with investigation, engineering assessment, and remedial planning where exceedances occur in consecutive years. Licences also require effluent quality monitoring prior to and during discharge, comprehensive record-keeping for loading, inspections, sampling, discharges, maintenance, and overflows, submission of annual compliance reports, and prior Director approval for any alteration to the licensed development. Licences generally require construction to commence within three years, allow revocation for non-compliance, and permit amendment or re-approval where new evidence warrants changes.

Environment Act Licence No. 3434 issued to Greenwald Colony Farms Ltd. authorizes a domestic clay-lined wastewater treatment lagoon with an intermittent effluent discharge regime. As a result, the effluent limits specified in that licence are directly comparable to those proposed for the Harbour Colony (formerly the New Development for Crystal Spring Colony) wastewater treatment lagoon with an intermittent effluent discharge regime. https://www.gov.mb.ca/sd/eal/registries/6192/3434.pdf

Licence No. 3458 issued to Brookdale Holding Co. Ltd. for the Sprucewood Colony wastewater treatment lagoon with a synthetic liner , which treats domestic and slaughterhouse wastewater similar to the liner proposed for Harbour Colony (formerly known as the New Development for Crystal Spring Colony) wastewater treatment lagoon. https://www.gov.mb.ca/sd/eal/registries/6198/3458.pdf

The draft Environment Act Licence for 7317434 Manitoba Ltd. - Harbour Colony (formerly the New Development for Crystal Spring Colony) includes a site-specific licence condition limiting wastewater generation from the abattoir, together with monitoring and annual reporting requirements for the hydraulic and organic loading associated with abattoir wastewater, reflecting a tailored regulatory measure to address the inclusion of that activity.