

Summary of Additional Information – Part 2

No	Date	Notes
1	Technical Advisory Committee Comments	Starting on page 2
2	Department's Request for Additional Information – July 31, 2025	Starting on page 10
3	<p>Additional Information Received – October 31, 2025, on the following items:</p> <ul style="list-style-type: none"> • Response to July 31, 2025, questions • Response to well field expansion public comments • Response to Water Quality Management Section 	Refer to 2025-10-31 document on the registry
4	<p>Additional Information Received – January 16, 2026, on the following items:</p> <ul style="list-style-type: none"> • Response to well field expansion public comments • Response to Groundwater Management Section 	Refer to 2026-01-16 document on the registry
5	<p>Technical Advisory Committee Comments</p> <ul style="list-style-type: none"> • Water Quality Management Section • Groundwater Management Section 	Refer to 2026-01-27 document on the registry

DATE: February 2, 2026

TO: Public Registry

FROM: Jay Mak, P. Eng.
Senior Environmental
Engineer
Land-use, Waste
Management and Energy
Section

SUBJECT: File No. 6013.10 - RM of Springfield Water Treatment Plant Upgrades – Information for Public Registry

Please find the attached additional TAC correspondence related to RM of Springfield’s file (6013.10) for distribution to the public registries. The documents included are:

No	Technical Advisory Committee Member	Response Provided
1	Environment and Climate Change	
	Water Science and Watershed Management Branch	
	• Water Quality Management Section	September 2, 2025
	• Groundwater Management Section	August 14, 2025
2	Natural Resources and Indigenous Futures	
	Wildlife and Fisheries Branch (fisheries)	July 31, 2025

TAC Comments

DATE: September 2, 2025

TO: Jay Mak
Environmental Approvals Branch
Environment and Climate
14 Fultz, Winnipeg, MB
R3Y 0L6

FROM: Joy Kennedy
Water Quality Management Section
Environment and Climate
14 Fultz, Winnipeg, MB
R3Y 0L6

cc. Andrew Burton

PHONE NO.: 204-945-7908

SUBJECT: RM OF SPRINGFIELD, WATER TREATMENT FACILITY UPGRADE, FILE 6219.00

- In the Oct 3, 2024 Technical Memorandum for Tables:
 - 3-1 Projected Process Waste Concentrations.
 - 4-1 Estimated Downstream Concentrations During Average Flow in Cooks Creek Diversion Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 80% Recovery.
 - 4-2 Estimated Downstream Concentrations During Average Flow in Cooks Creek Diversion Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 90% Recovery.
 - 4-3 Estimated Downstream Concentrations During LOW Flow in Cooks Creek Diversion Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 80% Recovery.
 - 4-4 Estimated Downstream Concentrations During LOW Flow in Cooks Creek Diversion Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 90% Recovery.
 - 4-5 Estimated Downstream Concentrations in the Red River Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 80% Recovery.
 - 4-6 Estimated Downstream Concentrations in the Red River Compared to Tier II Water Quality Objectives Greensand Backwash and RO Concentrate @ 90% Recovery)

It is requested the proponent be required to provide the proposed facility's maximum projected waste concentration(s) from the onsite retention pond at the final discharge point.

- For Tables, the proponent established the Environment Act Proposal (EAP) water quality baseline on two (2) years of data. Water Quality Management Section recommends a recalculation of a seasonal baseline at Cook's Creek Diversion (MB05OJS007) and a seasonal baseline for Red River (MB05OCS004) for each water quality parameter, using the attached water quality data (2001 – current).
- For Tables, in addition to each of the previously examined water quality parameters please include projected waste, river baseline, and combined concentrations downstream for pH, conductivity (uS/cm), total calcium (mg/L), total magnesium (mg/L), total aluminum (mg/L), total nickel (mg/L), hexavalent chromium (mg/L), total suspended solids (mg/L), total residual chlorine (mg/L), and sodium absorption ratio (SAR).
- Where river baseline water quality metals data are total metals (contrast dissolved metals), please ensure the conversion factors within the calculator spreadsheet available <https://www.gov.mb.ca/sd/water/lakes-beaches-rivers/guidelines/index.html> are utilised to generate a total metals (ug/L) Water Quality Objectives Tier II and Water Quality Guideline Tier III, if available.

- Where hardness is used in the total metals objectives calculator, please use the hardness of the receiving water bodies. Please document the hardness value used in the calculator as a footnote to the tables.
- For Tables (4-1, 4-2, 4-3, 4-4, 4-5, 4-6) in the Oct 3, 2024 Technical Memorandum, Please compare the final combined concentration of the river(s) and wastewater stream with Water Quality Objectives Tier II and Water Quality Guidelines Tier III. To assist in the review, please highlight any exceedances of the Water Quality Objectives and Guidelines.
- For review of the final combined concentrations in each Cook's Creek Diversion and Red River, please utilise the same units as the published guidelines in Manitoba Water Quality Standards, Objectives, and Guidelines. While license limits are usually established on a case by case basis in Manitoba, for protecting intermittent streams please note end-of-pipe limits at irrigation objectives or guidelines may be needed.
- The Water Quality Management Section recommends that total dissolve solids (TDS) in mg/L not exceed the upstream Red River TDS mg/L average between June – Nov.
- The fluoride levels in the process waste streams appear very high (5090 – 8440 ug/L). While there is no fluoride water quality data available for Cook's Creek Diversion or Red River, please estimate the concentration for fluoride after the confluence of the Water Treatment Plant (WTP) discharge pipe into Cook's Creek Diversion and in the Red River. In addition, utilize the Canadian Council of Ministers of the Environment (CCME) protection of aquatic life, long term concentration for fluoride of 120 µg/L in all Tables (column 5).
- Can the proponent confirm the maximum daily flow for the proposed discharge rate (m³/S) from the onsite retention pond to Cook's Creek Diversion?
- As per the *Manitoba Water Quality Standards, Objectives and Guidelines Regulation* (196/2011) the minimum design flows should be verified by professional hydrologists within the Government of Manitoba. Where the legal description of the location of the discharge pipe is SE-9-11-5e1, the attached flow information, are from professional hydrologists within the Government of Manitoba. The minimum design flows at the Cook's Creek Diversion are <0.003 m³/S, and when discharge within intermittent streams is <0.003 m³/S, minimum levels of quality should be maintained in order to not exceed Tier II – Water Quality Objectives within downstream water bodies to which the intermittent stream is tributary.
 - In the Oct 3, 2024 memo, the proponent has utilized 25% of the 7Q10 flow of the Red River to calculate the downstream concentrations in the Red River. However, 25% is considered a maximum amount and the mixing zone can be determined in a case by case basis. Given the proximity to other discharges in the Red River it is recommended the proponent utilize 25% of 7Q10 flow Red River during the month of November (20.41 m³/s) to calculate downstream concentrations in the Red River.
- The Water Quality Management Section recommends the discharge period from the onsite retention pond occur between June 15 and Nov 15.
- The Water Quality Management Section defers to the Groundwater Management Section regarding questions of groundwater movement.
- The Water Quality Management Section is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water. Therefore it is recommended that the license require the proponent to actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director.

Regards,

Joy Kennedy

Attachment file names:

6219.00.Copy of RepWzMAIN.OJS007.CCD.OCS004.Red.R.measurement.pull.2001-2025.xls

6219.00.Copy of SWMS.CCD.andRR.lowflow.table.xls

From: Wang, Zijian <Zijian.Wang@gov.mb.ca>

Sent: August 14, 2025 1:34 PM

To: Mak, Jay <Jay.Mak@gov.mb.ca>

Subject: RE: 6013.10

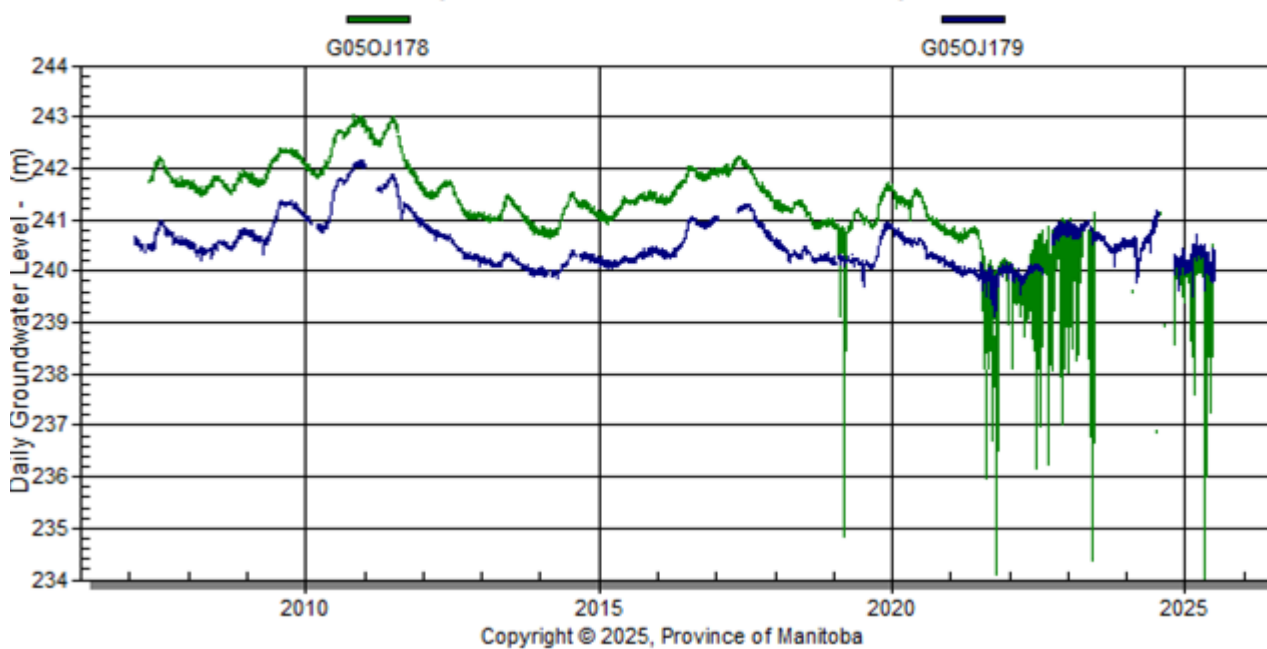
Hello Jay,

The Groundwater Management's review of the wellfield expansion EAP 6013.10 identifies several areas where additional clarification, monitoring, and analysis are warranted to ensure sustainable groundwater management. To further support sustainable groundwater management and strengthen the ongoing assessment, we would like to offer the following observations and recommendations for your consideration:

1. [page 31 – 10.6.2] The expansion project may cause the freshwater/saline boundary to migrate closer to the project sites over time. It is recommended that monitoring of this boundary be included as part of the ongoing monitoring plan and considered in the scope of future work.
2. [page 44 – 12.1] With continuous pumping over decades, the cone of depression will gradually expand, eventually impacting wells and creeks, much further from the well than short-term tests suggest. “For a given pumping rate, the drawdown cone in a low-transmissivity aquifer will be deeper and narrower than in a high-transmissivity aquifer”, but, the area of influence will increase with time as water is removed from storage. Agreed.” It was further noted that the conditions of the drawdown cone will develop gradually within the aquifer as the total annual usage increases. As a result, well interference impacts should be reviewed regularly as part of the Groundwater Monitoring Plan.[page 3 – 5.]”
3. [page 48 – 12.2] For clarity and transparency, it may be helpful to provide additional detail on how the maximum simultaneous well pumping rate was determined in the proposal.
4. [page 48 – 12.2] Similarly, clarifying the rationale for the values and assumptions used in Table 10, Note 2—such as the basis for available drawdown and the assumed well interference—would strengthen the assessment of sustainable yields.
5. [page 54 – 13.1] The 72-hour pumping test is a standard industry practice, typically applied for aquifer characterization and capacity assessment, however, it may not adequately reveal longer-term or cumulative interference effects, especially for neighboring wells and other groundwater sourced users. Well interference and aquifer impacts may develop over multiple seasons for the given transmissivity in sandstone aquifer.
6. [page 56 – 13.2] Hydrograph data from provincial wells completed in both the sandstone and carbonate aquifers (OJ178 and OJ179) show that the groundwater level response in the carbonate aquifer at OJ179 is significantly greater than 5% of the drawdown in the sandstone, especially during periods of municipal pumping. The attached hydrograph of both demonstrates that cumulative impacts in the carbonate aquifer may be much greater than concluded in the report, particularly in the context of future, long-term operations. In addition, the time-series comparison of groundwater levels at stations G05OJ178 and G05OJ179 clearly shows a persistent head difference (gap) between the two aquifers prior to 2021, reflecting the confining effect of the intervening shale layer. However, since mid-2021, this head gap has largely disappeared, with groundwater levels in both aquifers converging and fluctuating together. This loss of head separation strongly suggests that the confining effect has been compromised, most likely due to increased municipal pumping. As a result, the hydraulic connection between the sandstone and carbonate aquifers has been enhanced, allowing pumping impacts to rapidly transmit between both units

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Multiple Station Time-Series Comparison



7. [page 57 – 13.3] While the Theis equation is widely used for initial assessments, it is generally not recommended for predicting offsite impacts in long-term pumping scenarios. Its assumptions—such as an infinite aquifer—rarely hold true over decades. Predictions become less accurate the longer the ideal assumptions are applied. More sophisticated, site-specific models that account for boundaries, heterogeneity, and variable recharge should be considered for long-term projections. Additionally, the report notes that drawdown calculations are “very conservative” (assuming no recharge, continuous pumping), yet the use of the Theis model inherently assumes infinite horizontal inflow (equivalent to infinite recharge), which is inconsistent with the no-recharge scenario. More sophisticated approach would enhance the accuracy of predicted offsite impacts and better align with observed site conditions.
8. [page 58 – 13.3.3] The projected long-term drawdown (up to 33 ft at ½ mile) could exceed historic seasonal or climatic lows, which may stress existing wells not designed for such conditions. Additionally, with long-term operation, empty storage in the sandstone aquifer may induce sustained downward flow from the overlying limestone (carbonate) aquifer. This could affect the integrity of the intervening shale layer, potentially increasing hydraulic connection between the two aquifers in the future, even though the current analysis assumes the shale aquitard is intact.
9. [page 58 – 13.3.3] The observed low drawdown in the Carbonate Aquifer is reassuring, but the analysis admits that hydraulic connection can vary greatly depending on the number and type of interconnecting wells and the thickness of the shale. In areas with more connections or compromised shale, drawdown effects could be much larger than currently observed. Although borehole leakance is mentioned, leakance coefficients are not quantified, nor is the potential for vertical flow through defective or abandoned wells. This could underestimate potential impacts on the Carbonate Aquifer and on domestic wells, and it also challenges the appropriateness of Theis-based predictions in these contexts.

Let me know if you have any questions.

Thanks,
Zijian

From: McLeod, Andrew <Andrew.McLeod@gov.mb.ca>
Sent: July 31, 2025 11:31 AM
To: Mak, Jay <Jay.Mak@gov.mb.ca>
Cc: Kroeker, Derek <Derek.Kroeker@gov.mb.ca>
Subject: RE: Request for review by June 24, 2024: RM of Springfield 6219.00

Hi Jay,

With a review of the proposal documents and a brief review of the trends within the posted comments I can confirm that from a fish and fish habitat perspective the Fisheries Branch has no concerns about either project from a fish and fish habitat focus. As long as the water quality parameters meet guidelines as determined appropriate by ECC WQM potential impacts to fish and fish habitat will be well within safe levels.

Thank you

Andrew McLeod
Fish Habitat Specialist - Sustainable Fisheries Section
Manitoba Fisheries Branch
Box 20 - 14 Fultz Blvd
Winnipeg, MB R3Y 0L6
(204) 915-6697



From: Mak, Jay <Jay.Mak@gov.mb.ca>
Sent: July 31, 2025 11:53 AM
To: [REDACTED]
Subject: 6013.10/6219.00 - Request for information

Hello,

The preliminary review of your Environment Act Proposal is now complete.

Please consider this email as a request for additional information and please provide:

- a single lay out map that shows the existing infrastructure and the new components being proposed in both proposals
- an estimate of greenhouse gases generated by the proposed development
- a summary of the alternative water treatment technologies considered
- a summary of the assumptions and data used to calculate the population growth or projected water use estimates in Section 1.1.2 or 1.1.3

We received the following Technical Advisory Committee comments and public comment on this proposal. They will also be available on the public registry soon.

Please let me know if you have any questions.

Thanks,

Jay Mak, M.Sc., P.Eng.
Senior Environmental Engineer
Land Use, Waste Management, and Energy Section
Environmental Approvals Branch
Department of Environment and Climate Change
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T: (204) 619-0709 /F: (204) 945-5229/ Email: Jay.Mak@gov.mb.ca