

**South Georgian Bay Lake Simcoe Source Protection Region**

**Regional Municipality of York Assessment Report Amendment under 2.34 of the Clean Water Act:
Summary and Rationale for Changes**

Purpose:

The purpose of this report is to inform all relevant bodies responsible for implementing South Georgian Bay Lake Simcoe Source Protection Plan policies in York Region of proposed changes to the wellhead protection areas (WHPAs) and vulnerability scores for the Newmarket and Aurora wellfield, resulting from the proposed addition of a well in Aurora and removal of a well in Newmarket. And further to inform all implementing bodies that previously existing Source Protection Plan policies will apply to all new locations.

Background:

In 2016, the Regional Municipality of York drilled a new municipal supply well in order to recover lost well capacity due to aging infrastructure and water quality issues. Before water can be provided to the public from the new well it must be incorporated into the South Georgian Bay Lake Simcoe Source Protection Plan. Technical work, including delineation of wellhead protection areas (WHPAs) and vulnerability analysis, must be completed before a new well can be added to the Source Protection plan.

Golder Associates Ltd. was retained by the Regional Municipality of York to update the existing York Region groundwater flow model and to assist with the delineation of wellhead protection areas and completion of a vulnerability assessment. As part of the technical work, staff at the Regional Municipality of York have also updated the threats assessment and have delineated the impervious surfaces, percent managed lands and livestock density mapping for the updated WHPAs. In addition to the new well, the technical work captures the future removal of Newmarket well 14 from the Aurora / Newmarket well system.

Following completion of the technical work, the Source Protection Authority can initiate amendments under Section 34 of the *Clean Water Act*. As part of the Section 34 process, proposed amendments are taken to all relevant implementing bodies for pre-consultation, all affected Municipalities for endorsement and finally to the public with a 35 day online consultation period. Public consultation is expected to occur in January 2020, after which the proposed amendments will be presented to the Lake Simcoe Couchiching/Black River Source Protection Authority Board for their consideration, and to the Minister of Environment, Conservation and Parks for approval. Upon plan approval from the Minister, the Assessment Report formally becomes part of the Plan and all existing policies will apply to the updated wellhead protection areas.

Summary of Changes:

As part of the technical work to incorporate the new Aurora well (PW7) and remove Newmarket well 14, York Region updated their 2013 groundwater flow model in 2019. Updates to the model better reflect

the current state of knowledge of the Yonge Street Aquifer and are more representative of observed data and of the current conceptual understanding of Yonge Street Aquifer. This work vastly improves upon the 2007/2009 groundwater model originally used to delineate the York WHPAs.

As a result of the 2019 model update and addition of the new Aurora well, wellhead protection areas expanded slightly within the Newmarket and Aurora wellfield, with the majority of expansion within the WHPA-D towards the south and into the City of Richmond Hill, in the CTC Source Protection Region. Similarly, the internal vulnerability scores within the Newmarket and Aurora wellfield have changed as a result of the model re-calibration and are now classified as Low (>25 year water to well advection time) within the entire wellfield.

Although there were several changes to the Newmarket and Aurora wellfield WHPAs and vulnerability scores, no additional threats were identified within the wellfield. In contrast, as a result of the proposed changes to the vulnerability scores, four existing fuel threats would be removed. However, no risk management plans (RMPs) will be removed as the properties with the removed fuel threats have other significant drinking water threats that require RMPs.

Updates to both the Source Protection Plan and the Regional Municipality of York Assessment Report are required to incorporate the updated technical work completed by the Regional Municipality of York. These changes will include the following:

- updating the well count for Newmarket and Aurora;
- removing all reference to Newmarket well 14;
- updating the threat enumeration to account for threat verification since the Source Protection Plan came into effect and for changes as a result of the updated vulnerability scores;
- updating all mapping/figures and associated text for the WHPAs and vulnerability scores;
- updating the chemical, pathogen, and DNAPL threat figures to account for changes in vulnerability scores
- updating the % managed lands, livestock density, and % impervious surfaces figures to account for changes in land use since the Source Protection Plan came into effect
- updating the number of potential conditions based on a re-evaluation conducted as part of the technical work

Finally, there are no proposed changes to the existing Source Protection Plan policies. Although WHPAs and vulnerability scores have changed, no additional threats were identified and thus, the existing source protection plan policies are considered to adequately protect the new Aurora well.

Prepared by:

Tara Harvey
Hydrogeology Assistant

Bill Thompson
Project Manager, South Georgian Bay – Lake Simcoe Source Protection Region

List of Anticipated Amendments to the SGBLS Source Protection Plan

No.	Section of SGBLS Source Protection Plan (including York Region Assessment Report)	Brief Description of Proposed Amendment	Estimated Timing to Submit Proposed Amendment to MECP
SGBLS Assessment Report			
1.	Front Material	Updated content to include new figure with updated WHPA, updated well count, and updated significant threats for Aurora and Newmarket wellfield	May 2020
2.	Chapter 13, Section 13.1 Introduction	Updated date that information is current up to	May 2020
3.	Chapter 13, Section 13.3 Aurora/Newmarket well supplies	Updated well counts for Aurora and Newmarket well supplies and indicated removal of Newmarket well 14 from Aurora/Newmarket well supply	May 2020
4.	Chapter 13, table 13-3 and Table 13-4	Added Municipal well information for Aurora well 7 and removed information for Newmarket well 14	May 2020
5.	Chapter 13, Section 13.3.1.2 Groundwater Vulnerability	Updated discussion for the intrinsic vulnerability of Aurora/Newmarket wellfield to reflect new technical work	May 2020
6.	Chapter 13, Section 13.3.1.5 Vulnerability Score	Added reference to revised vulnerability score mapping by Golder 2019	May 2020
7.	Chapter 13, Section 13.3.1 Uncertainty Rating	Added clarification that uncertainty rating was not changed	May 2020
8.	Chapter 13, Section 13.3.2 drinking water issues evaluation	Updated well counts, added details of water quality for new Aurora well 7, and removed mention of Newmarket well 14	May 2020
9.	Chapter 13, Section 13.3.3 Drinking water threats evaluation	Added details regarding threats verification work conducted since the effective date of the SPP	May 2020
10.	Chapter 13, Section 13.3.3.2 List of Drinking Water Threats - Conditions	Updated number of potential conditions based on 2019 re-evaluation	May 2020
11.	Chapter 13, Section 13.3.3.3 Identifying Areas of Significant/Moderate/Low threats – activities	Updated references to table of drinking water threat circumstances for Pathogen parameters, chemical parameters and DNAPL chemical parameters	May 2020
12.	Chapter 13, Section 13.3.3.5 Enumerating drinking water threats and Table 13-6	Updated description of number of existing and potential significant drinking water threats based on updated technical work	May 2020
13.	Chapter 13, Figure 13-1 and Figure 13a-1	Updated figure to include amended Aurora/Newmarket WHPA	May 2020
14.	Chapter 13, Figure 13a-2	Updated figure to show amended intrinsic vulnerability for Aurora/Newmarket well supply	May 2020
15.	Chapter 13, Figure 13a-3	Updated figure to show amended vulnerability score for both Aurora and Newmarket well supply	May 2020
16.	Chapter 13, New Figure 13a-4	Combined and updated figures for areas of significant, moderate or low threats – pathogens for Aurora and Newmarket	May 2020
17.	Chapter 13, New Figure 13a-5	Combined and updated figures for areas of significant, moderate or low threats – chemicals for Aurora and Newmarket	May 2020

18.	Chapter 13, New Figure 13a-6	Combined and updated figures for areas of significant, moderate, or low threats – DNAPLs for Aurora and Newmarket	May 2020
19.	Chapter 13, New Figure 13a-7	Combined and updated figures for managed lands in Aurora and Newmarket	May 2020
20.	Chapter 13, New Figure 13a-8	Combined and updated figures for livestock density in Aurora and Newmarket	May 2020
21.	Chapter 13, New Figure 13a-9	Combined and updated figures for total impervious surface area in Aurora and Newmarket	May 2020
22.	References	Added new technical work reports from York and Golder to References list	May 2020
SGBLS Source Protection Plan			
23.	Summary of Amendments	Updated list of amendments to include Aurora and Newmarket S.34 update May 2020	May 2020
24.	Section 7.2	Added new section 7.2.6 to provide details on consultation process take for Aurora and Newmarket S.34 amendment	May 2020
25.	Table 2	Updated well count for Aurora and Newmarket wellfields	May 2020