

# NESTLÉ WATERS CANADA ABERFOYLE ANNUAL REVIEW

April 17, 2019



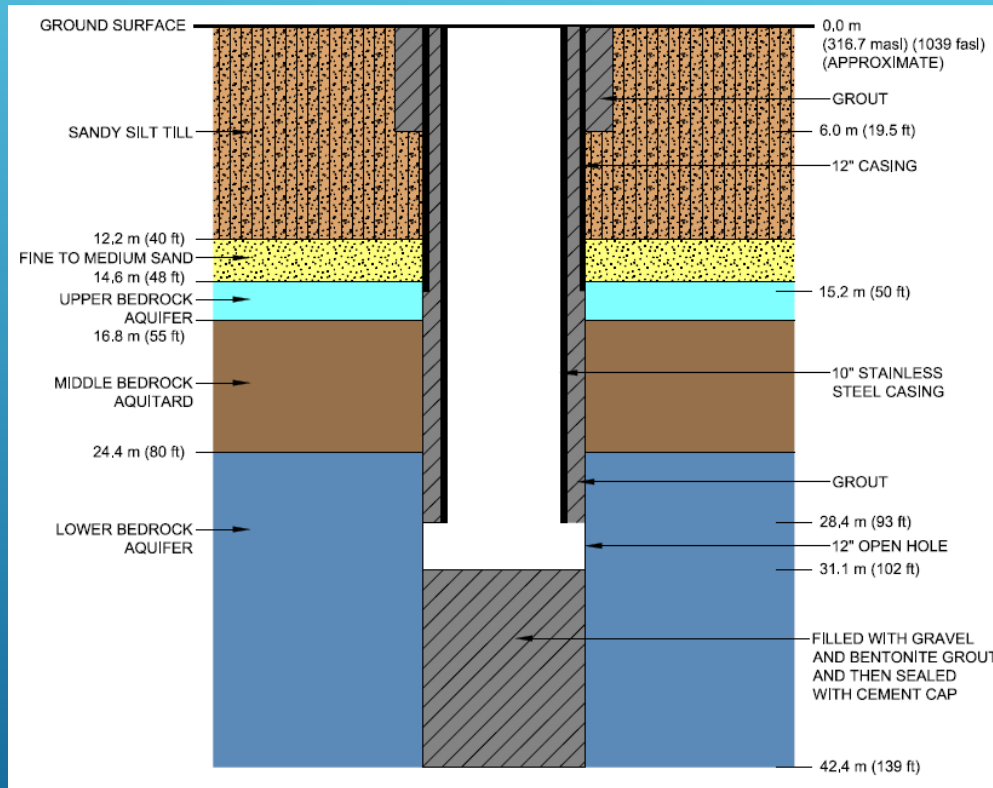
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# ABERFOYLE PERMIT

- Nestlé's water taking is governed by PTTW Number 1381-95ATPY
  - TW3-80 is used for bottling water and plant operations
  - TW2-11 is currently not in use
  - Total daily combined taking not to exceed (3.6 ML/day)
  - The PTTW renewal application was submitted in April 2016
  - Permit expired on July 31, 2016
  - The permit remains in effect under the Ontario Water Resource Act Section 34.1 (6) until a decision is made regarding the application



# ABERFOYLE SUPPLY WELL TW3-80



# MONITORING PROGRAM

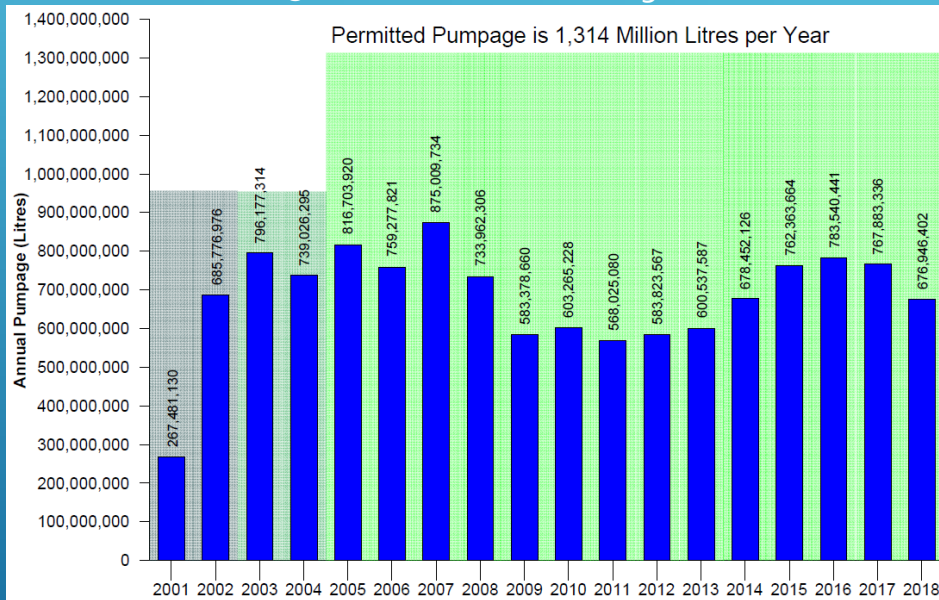
- Groundwater and Surface Water Monitoring Program consists of:
  - Monitoring at 82 points within 1.8 km of Aberfoyle Well TW3-80.
  - Monitored features include streams, wetlands, the aquifers and private residential wells.





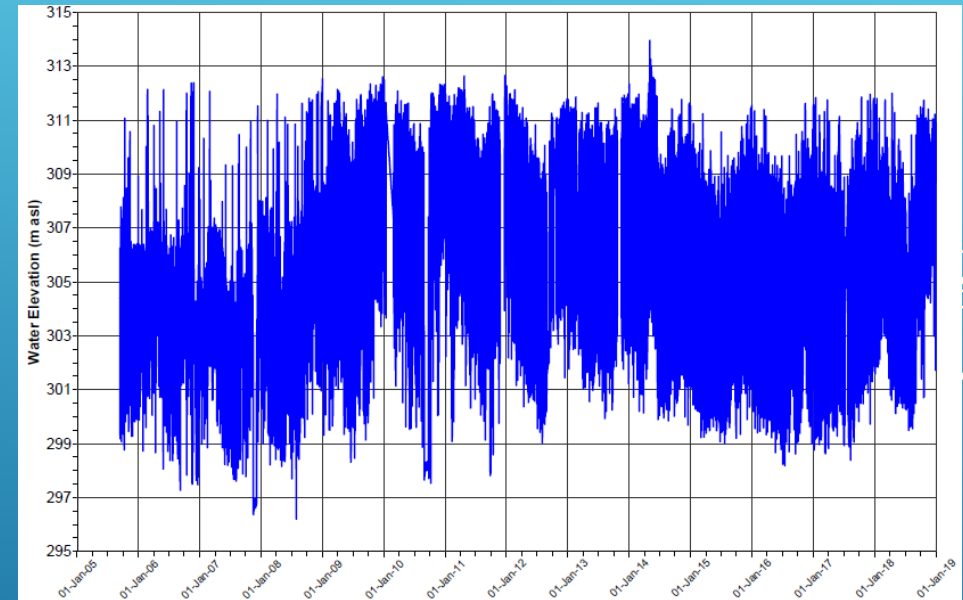
# TW3-80 ANNUAL WATER TAKING

TW3-80 Annual Water Takings



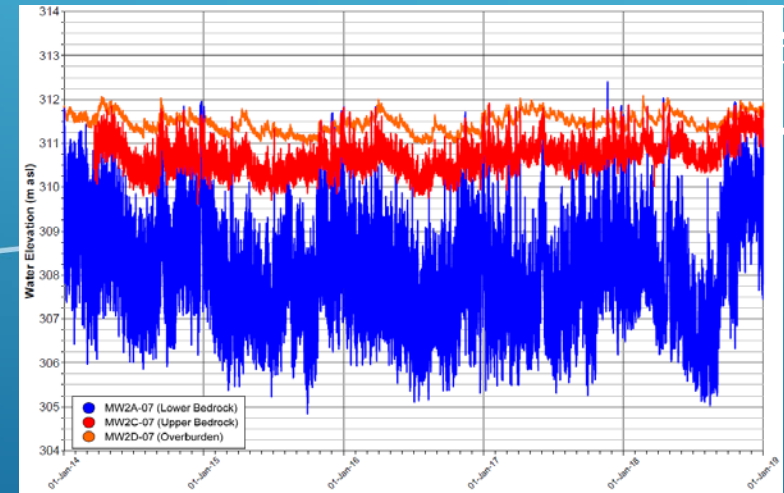
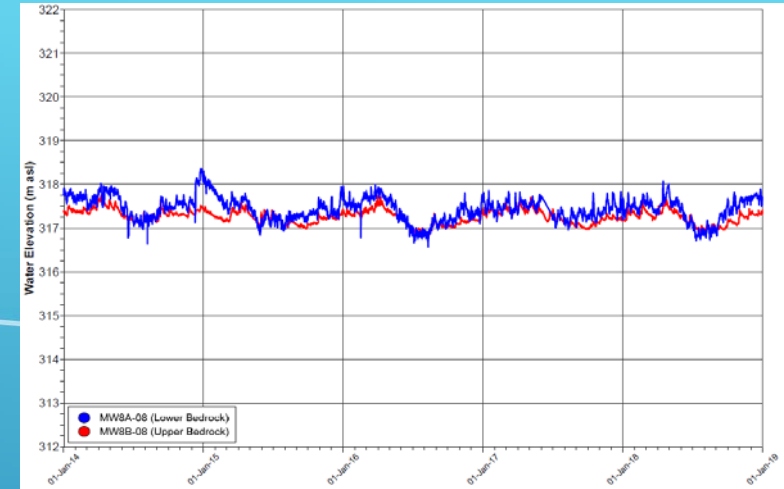
*Water takings change with consumer demand but remain within allowable limits.*

TW3-80 Hydrograph



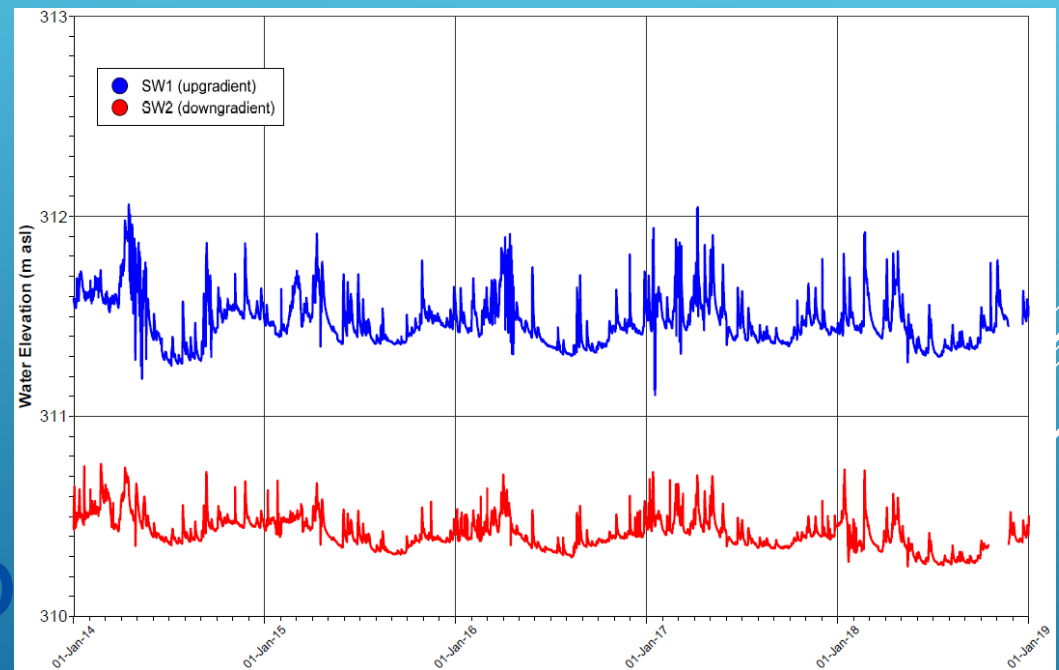
*Water levels inside production well TW3-80 are monitored in real-time. The withdrawal rate from TW3-80 determines the water level in TW3-80. Withdrawal rates and water levels change daily, seasonally and annually.*

# GROUNDWATER MONITORING



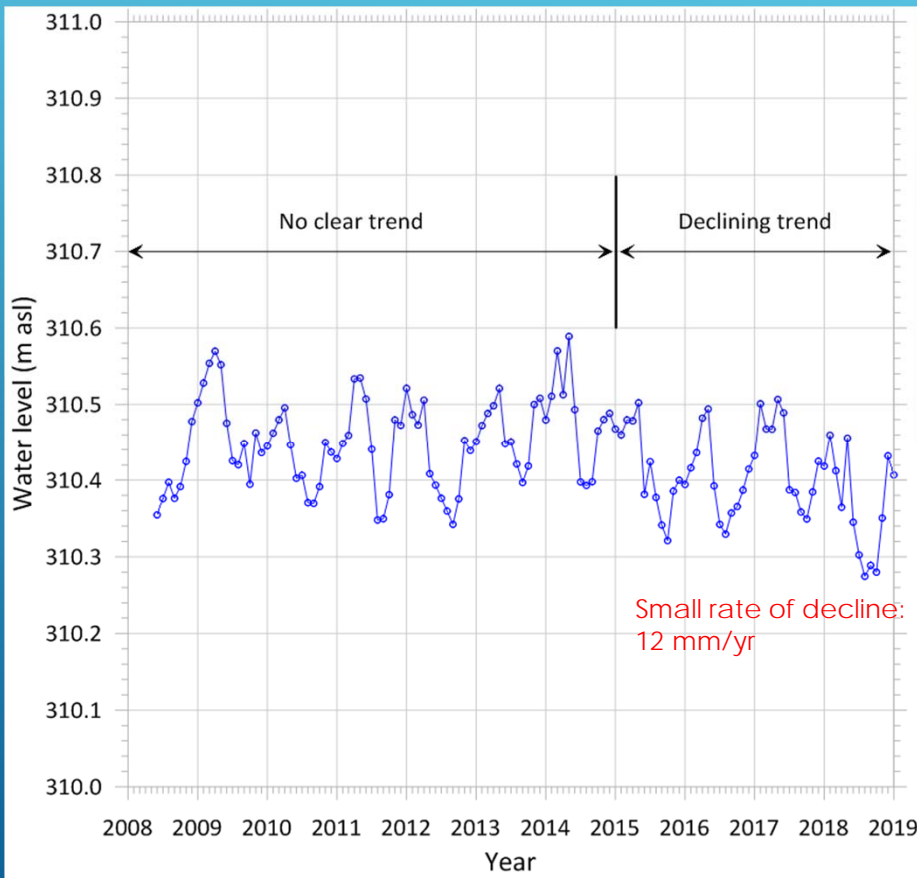
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# SURFACE WATER MONITORING

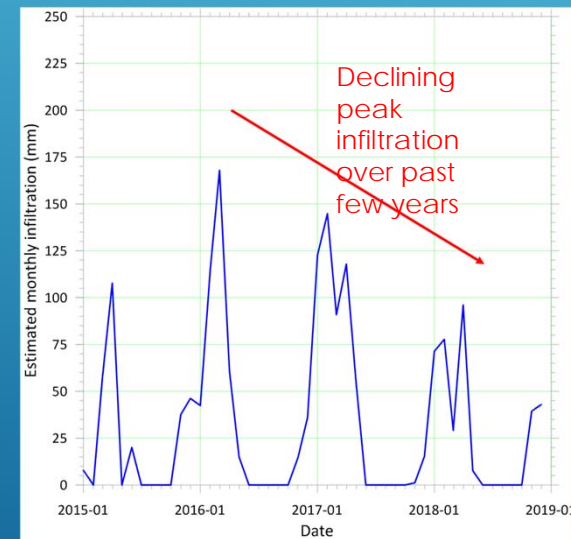
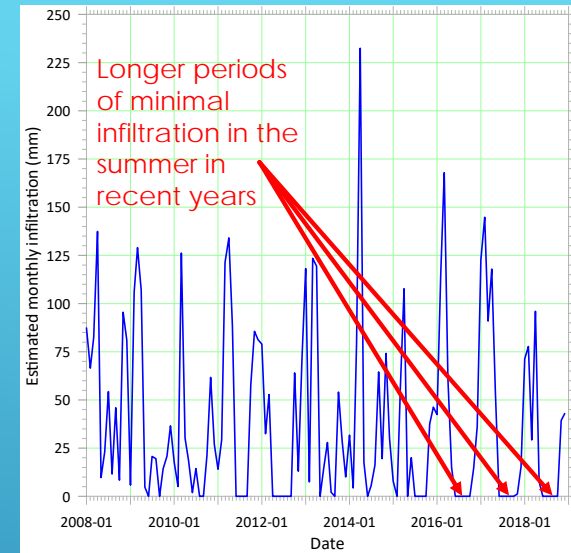


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# SW2 TREND ANALYSIS



Infiltration considers precipitation, temperature, evapotranspiration and soil water holding capacity





# BIOLOGICAL MONITORING AT ABERFOYLE

- The water temperature is best suited for species with intermediate temperature requirements like Creek Chub and Common Shiner, which are the most abundant species in the creek.
- Ecological communities include a diverse assemblage of wetland, forest, thicket and meadow types.
- The ecological communities are in good to excellent condition and support high levels of biodiversity.
- The communities have remained stable with some minor changes in species composition from year to year.



# SUMMARY

- The trend of water level variation within the Lower Bedrock Aquifer is stable and the groundwater taking from TW3-80 has not caused a long-term decline in the aquifer water level.
- Long-term declining water level trends in the Upper Bedrock Aquifer and overburden aquifer have not been observed.
- Surface water levels fluctuate in response to precipitation and snow melt.
- The water temperature suitability for the fish species are consistent with previous years.
- Biological monitoring indicates that there have not been any significant changes to the terrestrial and aquatic parameters.

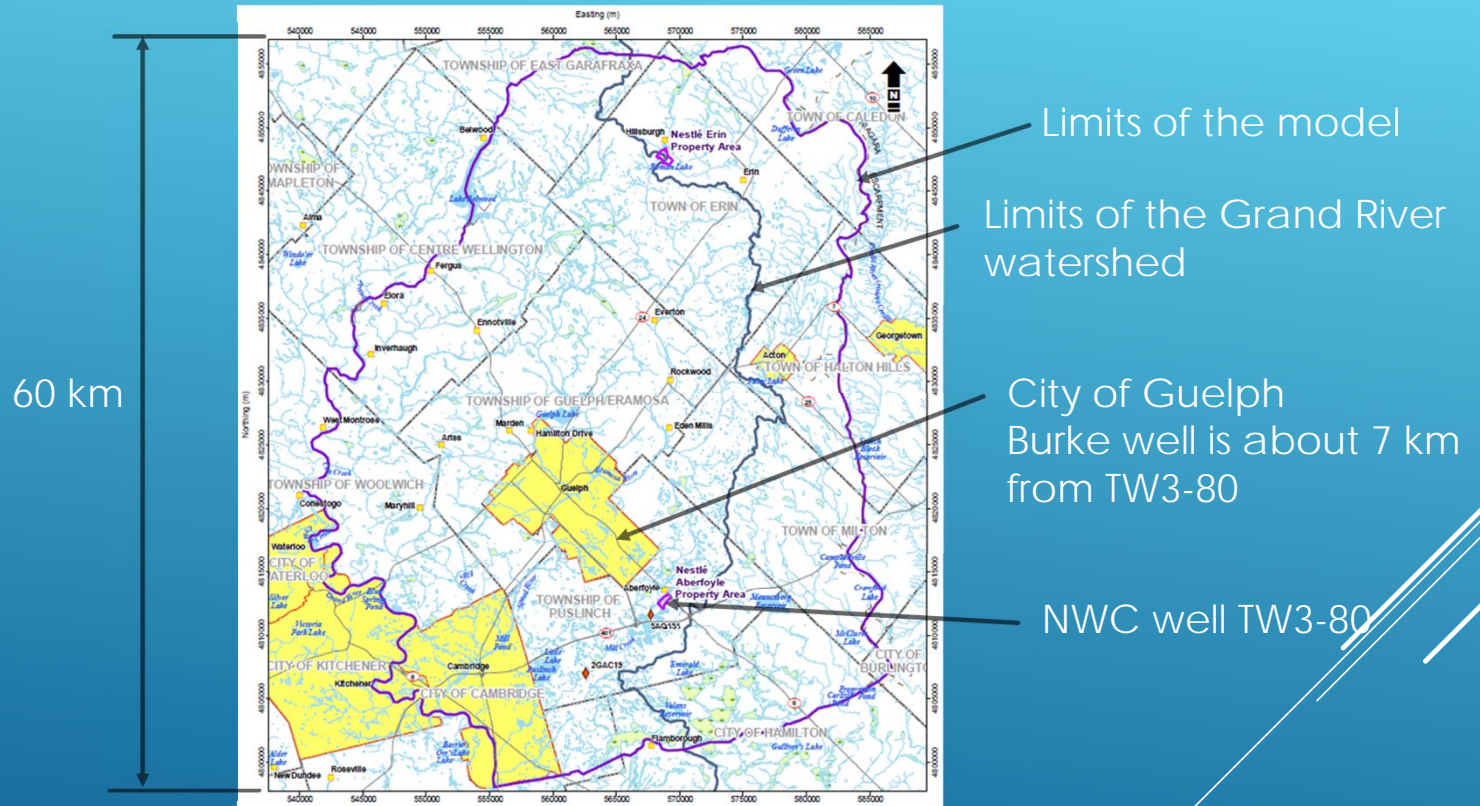


# APPLICATION OF THE GGET TIER 3 GROUNDWATER MODEL TO ASSESS POTENTIAL CUMULATIVE IMPACTS FROM NWC'S GROUNDWATER TAKINGS

- The NWC production well at Aberfoyle is located within the limits of the Guelph-Guelph/Eramosa Township Tier 3 groundwater model.
- The Tier 3 model has been approved by the Lake Erie Source Protection Region and is the best tool that is available for assessing the potential cumulative impacts of NWC's water takings.



# LIMITS OF THE TIER 3 MODEL





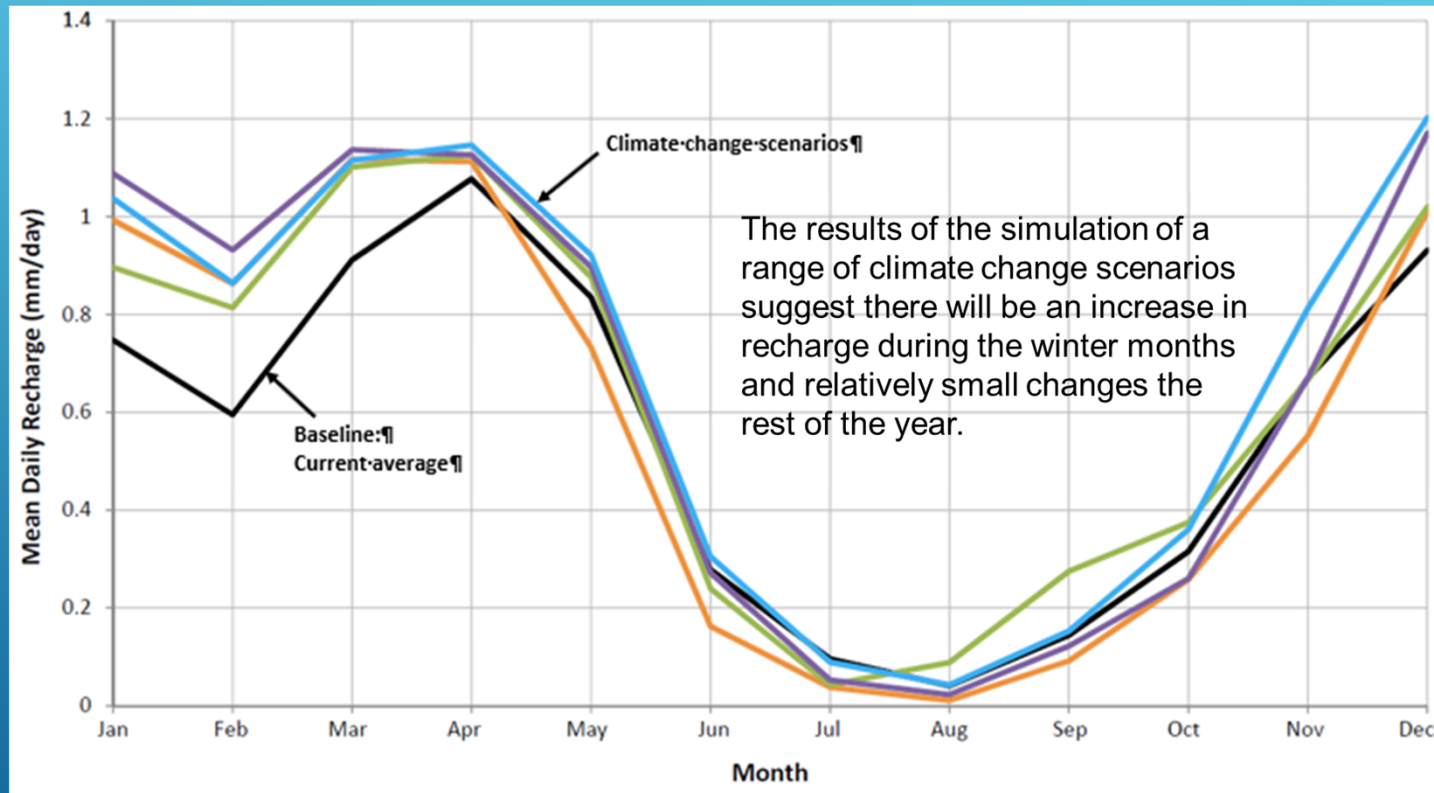
# RANKING OF POTENTIAL RISKS TO GUELPH MUNICIPAL WATER QUANTITIES

**TABLE 1 Threats Ranking**

Water Quantity Threat	Greatest % Impact	Rank	Well under Greatest % Impact
<b>Municipal Well Takings</b>	91%	-	Queensdale
Queensdale well	72%	1	Queensdale
Arkell System (Arkell 1, Arkell 6, Arkell 7, Arkell 8, Arkell 14, Arkell 15 wells and artificial recharge and collector system)	53%	2	Arkell 8
Clythe Creek well	32%	4	Clythe Creek
Calico well	24%	5	Calico
Sacco well	22%	6	Sacco
Helmar well	19%	7	Helmar
Smallfield well	19%	8	Smallfield
Carter wells	17%	9	Carter Wells
Water St. well	17%	10	Water St.
Burke well	15%	11	Burke
Membro well	13%	12	Membro
Downey well	12%	13	Downey
University well	7%	16	University
Dean well	4%	17	Dean
Paisley well	2%	18	Paisley
Future Municipal Takings: Hamilton Drive (GET)	<1%	22	-
<b>All Permitted, Non-Municipal Takings</b>	51%	-	Dean
5080-8TAKK2 (River Valley Developments)	50%	3	Membro
All other Permitted, Non-Municipal Takings Inside WHPA-Q except Dewatering, Commercial, and Industrial Permits (32 permits as of 2008)	10%	14	Emma
1245-AB8RMW (Gay Lea Foods)	2%	19	Emma
1381-95ATPY (Nestle Waters)	1%	20	Burke
5448-9FLM5E (Holody Electro Plating)	<1%	23	-
5736-8QSS7B (Flochem)	<1%	24	-
All Recharge Reduction Areas (due to future land use)	9%	15	Burke
All Non-Permitted Takings (WWIS-Domestic)	1%	21	Helmar

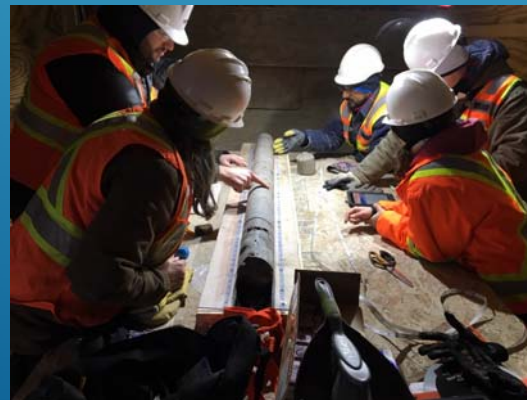


# POTENTIAL EFFECTS OF LONG-TERM CLIMATE CHANGE



# UofG GROUNDWATER RESEARCH PARTNERSHIP

- Drilled 3 monitoring wells in Aberfoyle
- Will improve understanding of the local flow system
- Will provide additional monitoring data to Puslinch Township
- Part of a larger project involving Nestlé, UofG, Local Townships, City of Guelph, and other stakeholders.



# CONCLUDING REMARKS

- Nestlé Waters Canada is committed to a rigorous monitoring program and long-term sustainability.
- Information is shared broadly with our community stakeholders including through:
  - Community Open Houses
  - Weekly Community Office Hours
  - Technical Engagement meetings at the community, municipal and provincial level to provide updates and new information
  - First Nations Engagement
- The monitoring data from over 18 years of operation in Aberfoyle show that there are no negative impacts to the long-term sustainability of the aquifer or ecosystem.





# ADDITIONAL INFORMATION

For additional information on Nestlé Waters Canada in Aberfoyle and Erin, please contact:

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