

Erin Spring Summary

2017

Nestlé Waters Canada
Erin Spring Site



Erin Overview

Nestlé Waters Canada has been a proud community partner, environmental steward, and employer in Wellington County for the last 18 years. Water supply sustainability is as critical to Nestlé as it is to the community.

Nestlé bottles water from the Erin Spring Site at the Aberfoyle facility in Puslinch, near the City of Guelph, in Southern Ontario. The Erin Spring Site is located in the Township of Erin in Wellington County. Pumping for commercial purposes from an on-site well, referred to as TW1-88, began in March 2000 (see Figure 1 for the well location). The water is piped to a nearby stainless steel water storage silo that is used for short-term storage where highway tanker trucks are filled. The water taking is governed by a Permit to Take Water (PTTW) issued by the Ontario Ministry of the Environment and Climate Change (MOECC), which allows Nestlé to withdraw water at an instantaneous rate of up to 773 L/min for a total of 1,113,000 L/day. From April to September, the allowed instantaneous rate and daily rate can increase up to 946 L/min and 1,362,240 L/day (peaking rate), provided the average daily taking over the month does not exceed 1,113,000 L/day. The current permit expired on August 31, 2017.

Nestlé submitted a permit renewal application for well TW1-88 to the MOECC in May 2017. The application seeks the same withdrawal limits as the current permit. In accordance with the Ontario Water Resources Act, Section 34.1 (6), Nestlé continues to legally operate under the existing permit until a decision is made regarding the renewal of the permit.



Figure 1. Nestlé Erin Spring Property

Nestlé has conducted testing and studies over the years to ensure that their operations do not diminish the quality and availability of water for other users or the environment. Permit conditions require Nestlé to monitor the natural and pumping-related variations in groundwater and surface water levels, including private wells belonging to local residents. Additionally, Nestlé evaluates wetland vegetation, species diversity, and stream flow to ensure that the groundwater withdrawal does not affect the habitat of water-dependent ecology.

Nestlé is dedicated to managing the water source for long-term sustainability because their business depends on it and because it is the right thing to do. There have been no adverse impacts on the aquifer or ecosystems resulting from 18 years of Nestlé's Erin operations.

2017 Annual Monitoring Report

Supply Well TW1-88

An aquifer is a highly permeable rock or sand formation that stores and transmits significant quantities of water. An aquitard is an impermeable rock or clay formation that impedes the movement of groundwater.

In the Erin Spring area, groundwater for water supplies is typically derived from a surficial sand and gravel aquifer or a dolostone bedrock aquifer. The surficial overburden aquifer and the deeper bedrock aquifer (Guelph Aquifer) supply water to surrounding residences. Nestlé's well TW1-88 withdraws water from the Guelph aquifer. Since its original construction, the well has been enlarged and filled with cement in the bottom portion of the hole to improve water quality. The current well configuration consists of an 8" diameter stainless steel casing set through the overburden and 2.3 m into the bedrock. Water enters the well from the Guelph aquifer (open portion of hole) between 21.8 and 39.0 metres below ground. The Guelph and surficial sand and gravel aquifers are separated by a till aquitard, which resists the flow of water between the two aquifers.

TW1-88 Permit

Nestlé is permitted to take water from TW1-88 at a rate of up to 773 L/min, or a maximum of 1,113,000 L/day. From April to September, the allowed instantaneous rate and daily rate can increase up to 946 L/min and 1,362,240 L/day (peaking rate), provided the average daily taking over the month does not exceed 1,113,000 L/day. The annual taking over 365 days is limited to 406,245,000 L. Nestlé does not withdraw this full amount of water since water is only withdrawn when it is needed for bottling. In 2017, Nestlé withdrew 16% of the permitted volume for the year. The most water Nestlé withdrew in a single day in 2017 was 57% of the permitted daily limit of 1,113,000 L. The annual volumes of water taken from 2000 to 2017 are shown on Figure 2. The volume of water withdrawn from TW1-88 in 2017 was approximately 20% lower than the total reported for 2016.

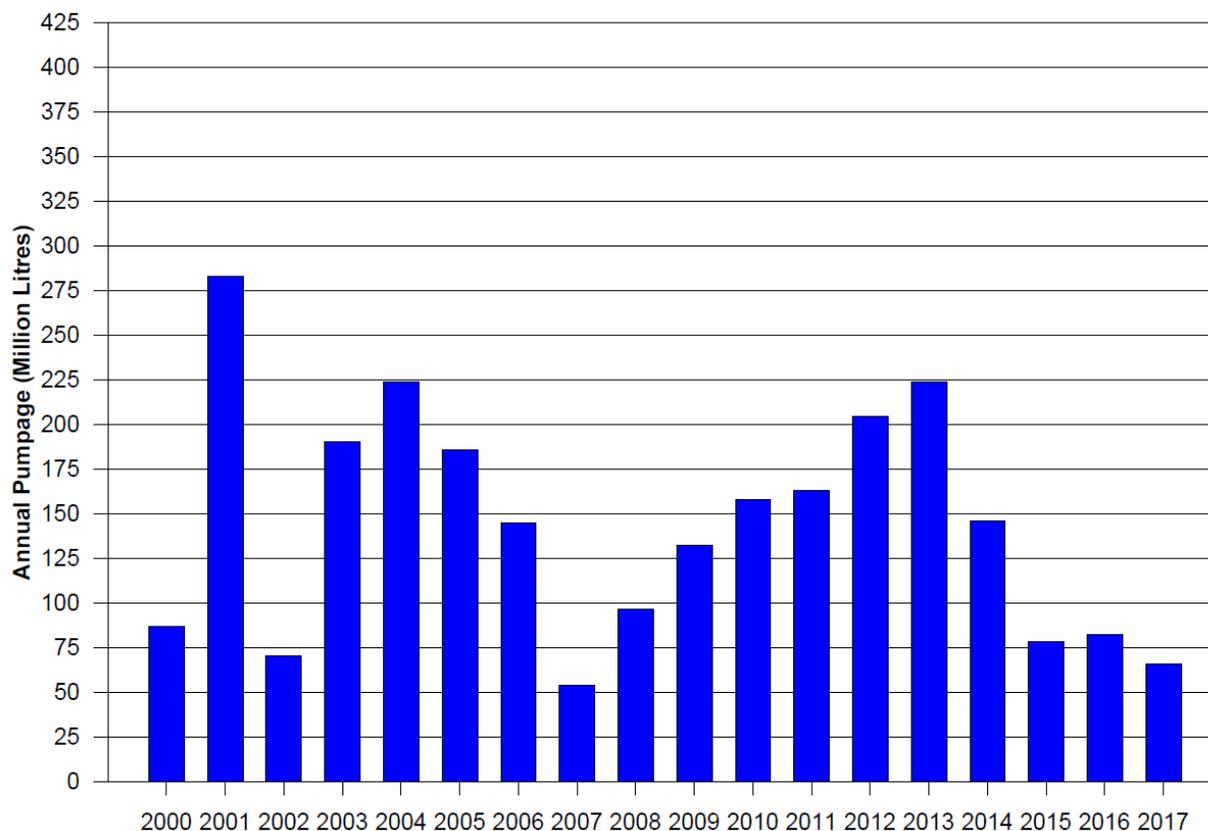


Figure 2. TW1-88 Annual Water Takings

Monitoring Overview

Site Monitoring

Independent scientists are contracted by Nestlé to monitor the groundwater system, surface water features, wetlands, and natural environment at the Erin site. Water extraction rates from TW1-88 are recorded by Nestlé and reported to the MOECC. Monitoring efforts ensure that Nestlé’s operations do not adversely affect the groundwater, surface water, and natural environments.

The groundwater and surface water monitoring program consists of monitoring at 47 points within 1.3 km of TW1-88 each month as follows:

- TW1-88 (production well);
- 9 monitoring well nests of between one and two wells each (a total of 15 wells) that are completed at various levels in the bedrock and the overburden;
- 1 staff gauge to measure surface water levels in a wetland;
- 6 surface water stations to measure stream and pond levels;
- 7 mini-piezometer nests (a total of 14 piezometers) to measure shallow groundwater levels; and
- 10 private wells.

The ecological monitoring consists of:

- Aquatic monitoring;
- Terrestrial monitoring; and
- Water temperature monitoring.

Monitoring Results

Groundwater monitoring shows that water levels in the bedrock aquifer vary with pumping by Nestlé and with some minor seasonal fluctuation. Nestlé’s pumping results in short-term water level changes, which decrease with distance from the supply well.

Figure 3 illustrates groundwater conditions on Nestlé’s property at a well approximately 450 m southeast of TW1-88. Monthly average water levels (bottom graph) are shown for the bedrock aquifer (blue) and overburden (red). Monthly pumping volumes (black line in the bottom graph) and monthly precipitation (top graph) are also shown.

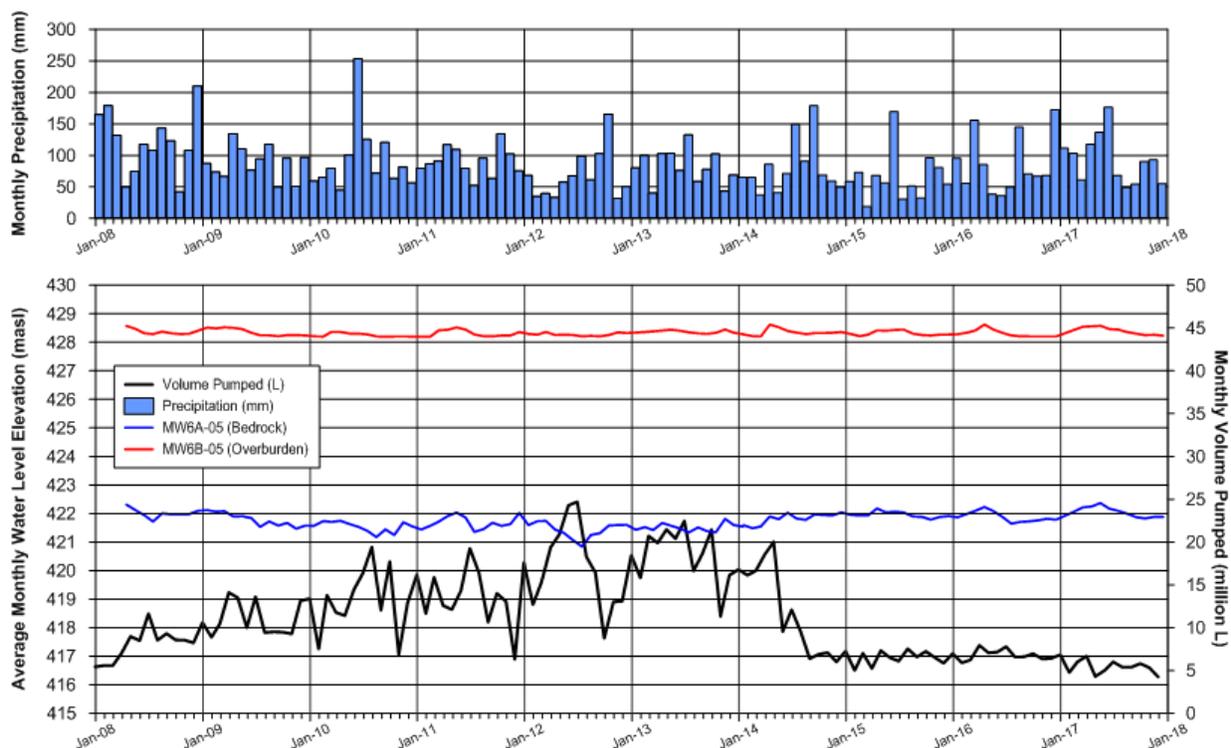


Figure 3. Hydrograph of Monitoring Wells 450 m Southeast of TW1-88

The water levels in the bedrock are stable over the years with no long-term declining trend due to pumping TW1-88. Water level fluctuation in the overburden are not due to pumping TW1-88, but due to natural seasonal changes and recharge (i.e. peak water levels typically observed during the spring recharge). The bedrock and overburden aquifers are not observed to be actively hydraulically connected



at the current rate of taking. Water levels in 2017 are within the range of water levels observed in the past.

Water level fluctuations within the surface water are the result of seasonal and long-term variations in precipitation and recharge and are not the result of pumping from TW1-88. Dry period occurred in certain years (e.g. 2016) due to climate but there is very little relation between Nestlé pumping and shallow water levels.

Overall, the trend of water level variation in the production aquifer is stable and the groundwater taking from TW1-88 has not caused a long-term declining trend in the aquifer water level. No impacts are observed to the overburden aquifer nor to the surface water features.

Summary

Nestlé Waters Canada takes its environmental stewardship responsibilities seriously and is committed to sustainable management of natural resources. Nestlé is committed to being accessible and answering questions throughout the permit renewal process. Nestlé's Erin water withdrawal activity has not resulted in adverse impacts to groundwater, surface water, wetlands, or other natural resources.