



Environmental Appeal Board

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DECISION NO. EAB-WSA-21-A003(a)

In the matter of an appeal under the *Water Sustainability Act*, S.B.C. 2014, c. 15

BETWEEN:	Laurentius (Larry) Koller	APPELLANT
AND:	Assistant Water Manager	RESPONDENT
BEFORE:	A Panel of the Environmental Appeal Board Shannon Bentley, Panel Chair	
DATE:	Conducted by way of written submissions concluding on October 20, 2021	
APPEARING:	For the Appellant:	Self-represented
	For the Respondent:	Livia Meret, Counsel

APPEAL

[1] This is an appeal of one term of Conditional Water Licence No. 501352 (the "Licence") issued on February 25, 2021, by Patrick Farmer, an Assistant Water Manager (the "Respondent") with the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Ministry").

[2] The Licence was issued to Mr. Koller (the "Appellant"), who is a farmer, and it authorizes the diversion and use of groundwater for irrigation. He is asking the Environmental Appeal Board (the "Board") to amend the Licence to permit him to irrigate his crop for an additional two months. The Appellant submits that the period of time allowed for water use should be extended by two months because it is necessary for irrigation purposes, whereas the Respondent submits that there is no water available in those months.

[3] Section 105(6) of the *Water Sustainability Act* (the "Act"), SBC 2014, c. 15, provides that the Board may, on appeal:

- (a) send the matter back, with directions, to the comptroller, water manager or engineer who [issued the Licence],
- (b) confirm, reverse or vary the [Licence], or
- (c) make any order that the person whose order is being appealed could have made and that the board considers appropriate in the circumstances.

BACKGROUNDThe Appellant and the Well

[4] The Appellant owns and operates Elliot Creek Ranch located north of Otter Lake in the Okanagan-Similkameen region of British Columbia. He is a cattle and sheep farmer who has been at the present location since 1987, and in the Otter Valley since 1975.

[5] Before the Appellant applied for the Licence, he held two other water licences used for irrigation purposes. The earliest licence is dated November 1926 and allows the diversion and use of 16 acre feet (approximately 19,735 cubic metres (m³)) of water per year from Elliot Creek for irrigation purposes from April 1 to September 30.

[6] According to the Respondent's submissions, an aerial survey in 2015 for drought response revealed that Mr. Koller was irrigating more hectares from Elliot Creek than allowed by his existing water licence on Elliot Creek. Subsequently, in 2016, Mr. Koller applied for a second water licence on Elliot Creek to supplement the previous licence. The second licence was issued in December 2017 and allows the diversion and use of 76,970 m³ of water per year from Elliot Creek for irrigation from April 1 to July 31.

[7] In March 2019, the Appellant applied to the Ministry for a new groundwater licence in order to irrigate 7.7 hectares of forage. The well for which this application would apply was already constructed and was drilled about twenty-five years ago but not used. Little is known about the lithology of this well, partly because all earlier records were lost in a house fire. It is identified as Well ID 49427 (the "Well").

[8] The Well is in the southwest corner of the Appellant's property within the Otter Creek/Otter Lake watershed, as well as part of the Similkameen River watershed area. Otter Lake is approximately 250 metres ("m") south of the Well, and Otter Creek is approximately 470 m east of the Well. Otter Creek flows into Otter Lake. Otter Lake flows into to the Tulameen River, which is tributary to the Similkameen River. In addition, Alvin Brook flows down to, and spills onto, the valley floor approximately 80 m south of the Well.

[9] Otter Creek and the Similkameen River watershed are subject to Water Allocation Notations. According to documents provided by the Respondent, Water Allocation Notations are management tools that provide guidance to Ministry decision makers when deciding water licence applications. For example, a "Fully Recorded" notation means that, based on information available to the Ministry, no further licences should be considered for that water source. The Water Allocation Notation for Otter Creek dates from 1988. It indicates a potential water shortage and that water availability is restricted to the freshet period from April 1 to July 31. The Water Allocation Notation for Similkameen River watershed dates from 1960. It indicates that the River is fully recorded with exceptions, and it recommends that no diversion licences be issued without supporting storage except for small domestic use or short-term irrigation.

Applicable Law – Legislative Scheme

[10] The *Act* together with its associated regulations provide the statutory framework that regulates the use of groundwater in BC. The *Act* and its regulations require users of groundwater wells that existed before February 29, 2016, and that are not used for domestic purposes, to apply for a water licence by March 1, 2022. This relatively new scheme seeks to balance a range of interests in British Columbia's water resources. As the Board stated in *Vincent Smoluk v. Assistant Water Manager* (2019-WSA-001(a), May 20, 2020), at paragraph 43:

The *WSA* is a large statute with several purposes, at times in tension. It provides for the stewardship of water resources by the province, while allowing for its beneficial use by members of the public in a variety of contexts. It grants to the province the authority and means to protect water resources, including streams, stream channels, and water resources themselves. It allows for changes in rights and responsibilities in emergency circumstances and it allows the province to monitor and enforce the use of water and the protection of water resources, including streams and stream channels.

[11] Under the *Act*, no one is permitted to divert water from a stream or an aquifer unless first authorized under the provisions set out in the *Act* or its regulations. The Assistant Water Manager, pursuant to section 14(1)(f) of the *Act*, has the power to issue conditional water licences authorizing the use of water, and to determine the terms and conditions that should apply to the licence.

[12] In reviewing an application to divert water from an aquifer, the *Act* sets out factors that the Assistant Water Manager must consider. First, section 14(4) requires the Assistant Water Manager to take into account the quantity of water diverted from the aquifer under section 6(4), which authorizes the diversion and use of water from an aquifer for domestic purpose, subject to some exceptions.

[13] Second, section 15(1) requires the Assistant Water Manager to consider the environmental flow needs ("EFN") of a stream if the Assistant Water Manager considers the aquifer is reasonably likely to be hydraulically connected to that stream. The phrase "environmental flow needs" is defined in section 1 of the *Act*:

"environmental flow needs", in relation to a stream, means the volume and timing of water flow required for the proper functioning of the aquatic ecosystem of the stream

[14] In order to do that, the *Act* permits the Assistant Water Manager to order specific assessments be performed and assessment reports to be conducted by a qualified person. That information may assist the Assistant Water Manager in determining the EFN of the applicable stream.

The Licence

[15] After receiving the Appellant's application, a Water Authorization Officer with the Ministry took the following steps to collect information in order to make recommendations on the application to the Respondent:

- During the Summer of 2019, a Ministry Water Authorization Officer conducted a site visit to verify the location of the Well.

- The Appellant's application was referred to John Pogson, a Regional Hydrologist with the Ministry, to assess the likelihood of a hydraulic connection between the aquifer and streams in the area.
- The Appellant's application was referred to Ryan Whitehouse, a Senior Aquatic Ecologist with the Ministry, to assess the potential impact of the Appellant's proposed groundwater extraction from the aquifer on the EFN of Otter Lake and other streams in the area.
- A Water Licence Technical Report (the "Technical Report") dated January 6, 2021, was prepared by Sophie Michaelsen, a Water Authorizations Officer with the Ministry, and it included relevant information, data and historical documents from the Ministry and other sources, such as:
 - a water allocation map of area;
 - other water licences in the area;
 - an Agriculture Demand Water Report; and
 - Water Allocation Notations in the area.

[16] The Respondent reviewed the Appellant's application together with the information compiled by the Water Authorization Officer (listed above), and issued the Licence on February 25, 2021, pursuant to the *Act*.

[17] The Licence authorizes the Appellant to divert and use 18,450 m³ of water from the Well pursuant to fifteen terms and conditions. Of the fifteen terms, the following ones are relevant to this appeal:

- a) The aquifer on which the rights are granted is the Tulameen Unconsolidated.
...
- c) The precedence date is March 8, 2019.
- d) The purpose for which this licence is issued is irrigation.
...
- f) The period of the year during which the water may be used is May 1 to July 15.
...
- j) The licence is issued under the *Water Sustainability Act* (the Act). The exercise of rights under the licence is subject to that Act and its regulations, the terms and conditions of the licence, orders under the Act and the rights of licensees whose rights have precedence on the stream or on an aquifer. ...
...
- l) The licensee shall install a flow measuring device to the satisfaction of an Engineer under the *Water Sustainability Act*.
- m) The licensee shall retain flow meter records for inspection upon request by an Engineer under the *Water Sustainability Act*.

[18] The Appellant was satisfied with all the terms of the Licence except "f" - the period of the year during which the water may be used.

The Appeal of the Licence

[19] The Appellant appealed to the Board on March 17, 2021. The Appellant seeks an extension of the irrigation period, specified in the Licence, to September 15. He submits that this additional irrigation time is needed to allow sufficient time to nurture the hay crop and eliminate the chance of the hay plants dying in the winter.

[20] This appeal was heard based on written submissions provided by the parties.

ISSUE

[21] The question to be answered in this appeal is whether the Board should grant the Appellant's request to extend the irrigation period under the Licence from July 15 to September 15.

DISCUSSION AND ANALYSIS

Submissions from the Parties

[22] In a prehearing conference on July 28, 2021, the parties and the Board all agreed that the Respondent in this case would provide their submissions first, with the Appellant's submissions to follow. The Respondent would then have the opportunity to provide a final reply. This was done to assist the Appellant in organizing his submissions and evidence.

Respondent's Submissions

[23] The Respondent's submissions include an affidavit affirmed by the Respondent, along with the reports and information the Respondent relied upon in making the decision. The Respondent also referred to several past decisions of the Board, which the Respondent submits supports his position.

[24] In summary, the Respondent submits that the Licence, including all of its terms and conditions, should be confirmed. He says he relied on recommendations in the Technical Report to attach to the Licence specific terms and conditions for the water's use. The Respondent submits that the limited period for water use "coincided with water availability during the freshet period and was intended to preserve environmental flows in hydraulically connected streams during the latter half of the irrigation season."

[25] The Respondent's submissions include an affidavit affirmed by Ms. Michaelsen, the author of the Technical Report. Numerous documents are attached as exhibits to her affidavit, including the Technical Report and the information and reports she considered when preparing the Technical Report. The Technical Report was signed off by Ms. Michaelsen on January 6, 2021. The Technical Report is a nine-page report that provides an Executive Summary and consolidates all the data and information collected through referrals to other Ministry staff, documents, data review, and site visits pertaining to this particular application.

[26] After considering the information contained in the Technical Report, the Respondent made findings regarding hydraulic connection, environmental flow needs, and species at risk that are relevant to the terms and conditions attached to the Licence. The Respondent's findings on each of those topics are discussed below.

i. Hydraulic Connection (Well to Aquifer to Lake/Creek)

[27] The Respondent concluded that there is a likely connection between the Well, the Tulameen Unconsolidated aquifer, and Otter Lake/Otter Creek as well as other streams on that watershed. This conclusion was guided by the information that the Respondent received from John Pogson, a Regional Hydrogeologist employed by the Ministry to provide expert technical advice. Mr. Pogson's affidavit (dated August 20, 2021) and attached exhibits were presented to the Board as expert evidence. One exhibit is his Letter Report dated July 4, 2021 (the "Pogson Report").

[28] The Pogson Report provides technical advice on the issues involving aquifers and groundwater science, including an assessment of whether there is a likely hydraulic connection between groundwater in aquifers and water in adjacent streams.

[29] Mr. Pogson attended the Well site with the Appellant, the Respondent, and the Water Authorization Officer (who also provided an affidavit) on May 6, 2021.

[30] The Pogson Report notes that the Well is in an aquifer that is not listed in the Ministry's "GWELLS" database of aquifers. Based on a review of available well construction records in the area, the Pogson Report states that the aquifer is "sub-type 4a" which is "characterized as unconfined glaciofluvial outwash or ice contact sand and gravel aquifers generally formed near or at the end of the last period of glaciation". The Pogson Report also states that the aquifer boundaries are "inferred to coincide with mapped extent of quaternary deposits", which are described as "unconsolidated superficial deposits (sediments) that are geologically recent". It also notes that this aquifer is referred to as "Tulameen Unconsolidated" in the Licence.

[31] The Pogson Report describes the relationship between the Tulameen Unconsolidated aquifer and adjacent streams. After considering the site observations and measurements of distance between groundwater level and ground surface, together with technical data for this and other wells in the area, and professional literature, the Pogson Report concludes that the Tulameen Unconsolidated aquifer "is hydraulically connected to Otter Lake/Otter Creek and other streams in that watershed". The Pogson Report also states that "extraction from the aquifer would affect water levels in Otter Lake/Otter Creek and other streams in that watershed."

[32] The Pogson Report concludes on page 7 that:

It is my opinion based on the desktop review of data provided above, data collected during my May 6, 2021 site visit, and the technical guidance referenced, that it is reasonably likely that the subject well would intercept groundwater that would otherwise make its way to Otter Lake or Otter Creek, and therefore, the subject well is hydraulically connected to those streams.

ii. Determination of Environmental Flow Needs

[33] The Appellant's application was referred to Ryan Whitehouse, a Senior Aquatic Ecologist employed by the Ministry to provide expert technical advice. Mr.

Whitehouse was to conduct an EFN Assessment of Elliot and Otter Creek to determine the EFN of those streams and their aquatic ecosystems.

[34] Mr. Whitehouse was specifically asked to: 1) review an earlier EFN Assessment he conducted in 2017 on Otter Creek and Elliot Creek for Mr. Koller's 2016 water licence application on Elliot Creek; and, 2) relate that 2017 EFN Assessment to the Appellant's application, because the Tulameen Unconsolidated aquifer is reasonably likely to be hydraulically connected to streams in the watershed.

[35] The Respondent provided the Board with an affidavit affirmed by Mr. Whitehouse, who was presented as an expert witness. In his affidavit, Mr. Whitehouse states that "in view of the likely hydraulic connection between the aquifer and the streams in that watershed, my conclusion was that similar concerns (as were identified in the 2017 EFN assessment) would arise in terms of potential impacts from groundwater extraction on the EFN requirements of those streams, particularly given the proximity of the well and aquifer to Otter Creek, Otter Lake, Otter Lake Park and Otter Lake Protected Area, and the overall sensitivity of the Similkameen River watershed area".

[36] Mr. Whitehouse provided the Respondent with a letter report dated June 21, 2021 (the "Whitehouse Report"), which was also provided to the Board. The Whitehouse Report contains his expert opinion on potential impacts of groundwater extraction from the Tulameen Unconsolidated aquifer on the EFN requirements of Otter Creek/Otter Lake and other streams in the watershed. The Ministry has an Environmental Flow Needs Policy (the "EFN Policy") that applies to applications for water licences and approvals for short-term water use where the source of water is a river, creek or aquifer that is reasonably likely to be hydraulically connected to a river or creek. The EFN Policy calls for risk assessment and the identification of cautionary measures, including developing site-specific EFN thresholds, where the water allocation decision will significantly impact the EFN of a stream.

[37] The Whitehouse Report outlines the following:

- The 2017 EFN Assessment was originally conducted out of concern that the Otter Creek watershed already had a Water Allocation Notation on it.
- Mr. Whitehouse evaluated the risk of the new allocation using the Ministry EFN Policy which outlines a risk assessment process that ranks risk to the ecosystem from Risk Management Level 1 (low risk) to Risk Management Level 3 (high risk).
- The 2017 EFN Assessment is relevant to the present application.
- The connection between the Well and Otter Lake/Otter Creek and the calculated risk levels and potential for interference with their aquatic ecosystem remains relevant to the present licence application.
- For May and June, the EFN Policy suggests Risk Management Level 2 (medium risk) but the stream flows observed suggest that additional allocation would not negatively impact fish or the broader aquatic ecosystem.
- For July, the average monthly flows vary widely between years and over the month. This is typical of a transitional month between freshet and summer

base flow periods. During below average flow years and towards the end of typical Julys, the hydrologic data confirms that there may not be surplus water available for allocation.

- For August and September, during the average flow year, the hydrologic data observed in Otter Creek confirms there is not a surplus for allocation so it is at Risk Management Level 3. During an infrequent low flow event (1 in 5 years), this interference could result in flows dropping below a critical environmental flow threshold¹ of 5% of the Mean Annual Discharge.
- Conclusion: "... based on assessment of groundwater extraction from the aquifer on streams reasonably likely to be in hydraulic connection with the aquifer, my opinion remains that, in order to protect the EFNs of Otter Lake/Otter Creek, water is only available for diversion and use from May 1 to July 15."

iii. Umatilla Dace – Species at Risk

[38] After Mr. Whitehouse prepared the Whitehouse Report, the Ministry undertook a project to better understand the aquatic ecology in Otter Creek and the broader Similkameen River watershed. Mr. Whitehouse was involved with this project. According to Mr. Whitehouse, the principal goal of this project "was to determine the extent of aquatic species at risk." Samples were taken during a field visit to Otter Creek on July 27, 2021, to determine the presence of Umatilla dace, a fish that is included on Schedule 3 of the federal *Species at Risk Act*, and is considered "Threatened" by the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") based on the limited area of occupancy and expected future loss of habitat or deterioration of habitat quality. The results of the sample are not yet known.

[39] Mr. Whitehouse concludes his affidavit by stating that:

- in Summer 2021, the water flows in Tulameen River (immediately downstream of Otter Creek) by July 31 were "below presumptive environmental flow needs thresholds and are considered sub-optimal for fish and aquatic life";
- flows in the surrounding tributaries are at or below 10% of mean annual discharge and are approaching critical flow thresholds (presumably, he was referring to conditions existing on or about August 25, 2021, when his affidavit was affirmed); and
- the Provincial drought level for the Similkameen River Watershed increased to level 4² and a request to currently licensed water users in the watershed to reduce diversion by 30% has been sent out.

¹ The *Act* defines the term critical environmental flow threshold "in relation to the flow of water in a stream, means the volume of water flow below which significant or irreversible harm to the aquatic ecosystem of the stream is likely to occur".

² B.C. uses a six level drought classification (ranging from a low of 0 to a high of 5) to explain the severity and appropriate level of response to drought conditions.

iv. Summary of Respondent's Considerations

[40] In the Respondent's affidavit dated August 25, 2021, he describes the process he followed, and the factors he considered, in coming to his decision to issue the Licence and the terms and conditions attached to it.

[41] The considerations of particular importance to his decision granting the Licence but restricting the period of diversion and use to May 1 – July 15 were:

- the aquifer and Well's hydraulic connection to Otter Lake and Calvin Brook;
- the earlier Water Allocation Notations for the Similkameen River and Otter Creek, indicating that the watershed was already experiencing periodic water shortages during low flows and periods of drought, particularly in the latter half of the irrigation season;
- the 2017 EFN Assessment for Otter Creek;
- the EFN data for Otter Creek that indicated a shortfall in the latter half of the irrigation season;
- the 2017 EFN Assessment made it clear that the addition of further licensed demand during the latter half of the irrigation season could not be justified given the risk management levels identified for the area for the latter half of the irrigation season;
- given the hydraulic connection of the aquifer/Well to Otter Lake and Calvin Brook, these concerns also extended to groundwater diversion from the connected aquifer; and
- the ecosystem values at risk in the watershed area, such as populations of fish, which require stream flows to be maintained at or above EFN (as percentage of mean annual discharge, described on a monthly basis in the 2017 assessment) during their life stages, which would not be met during the last half of the irrigation season if licensed demand were to be increased during that period.

[42] In conclusion, the Respondent submits that extending the use of water to September 15 as requested by the Appellant would present a risk of "additional harm to the proper functioning of the aquatic ecosystems of the connected streams, particularly to Otter Creek/Otter Lake and Calvin Brook but also potentially to other streams in the watershed area."

Appellant's Submissions

[43] After commencing the appeal, the Appellant provided his first submission on June 30, 2021 in response to the Respondent's submissions. The Appellant requests that the "Elliot and Otter Creek EFN Assessment" prepared by Mr. Whitehouse be removed from the list of documents because the research technique he used failed in the following ways:

- it references "Wilson Creek", which is unknown to the Appellant in the vicinity of Elliot Creek and cannot be found online at the BC Geographical names website; and

- it fails to acknowledge the disclaimer for the use of historical hydrometric data on the Environment Canada website for water level and flow information. The disclaimer states, in part, that:
 - the Government of Canada accepts no liability for the accuracy, suitability, reliability, usability, completeness or timeliness of the data;
 - the near real-time information presented on the website is received via satellite or land-line transmissions from hydrometric gauging stations operated by Environment Canada and its partners;
 - the data are transmitted automatically with limited verification and review for quality assurance; and
 - subsequent quality assurance and verification procedures may result in differences between what is currently displayed and what will become the official record.

[44] In addition, the Appellant provided a link to the COSEWIC website referencing the Umatilla dace, which states that this fish was designated as “threatened” in 2010.

[45] Later, after receiving the Respondent’s expert evidence, the Appellant provided further submissions to the Board (dated September 23, 2021).

[46] In summary, the Appellant states that when he made his application for the groundwater licence, he used, as directed, the BC Water Calculator – an interactive map that provides reports on parcels of land.

[47] The BC Water Calculator reports that the Appellant’s land has a growing season of 110 to 113 days. He submits that his farming operations “need water to prepare the growing season as well as water to put the crop to ‘bed’ for the season.” He also noted that “The irrigation pipe has to be drained by September 15 as our elevation (+/- 800 meters (2700 ft)) is susceptible to a night or two of -10C shortly after that date. We have lost aluminum pipe to freezing.”

[48] In response to the Pogson Report, the Appellant submits that although the Pogson Report does demonstrate “a lot of inferred analytical desktop data he does stay objective and impartial” in making two comments. In that regard, the Appellant refers to the following statements in the Pogson Report:

- The aquifer in which WTN 117161 [the Well] is completed is not a numbered or named aquifer in the GWELLS aquifer database. ...
- The results are an approximation only and do not account for important factors such as stream bed conductivity (that was not measured) and aquifer heterogeneities that can retard the impact of streamflow depletion.

[49] The Appellant says he searched the EFN Policy to understand the rationale for the July 15 date in condition (f) of the Licence, and he has concluded that it is an arbitrary date proposed by statutory decision-makers. He submits that “elevation, population and, in the case of farming, the growing season has to be considered”. He also submits that while he appreciates the Respondent erring on the side of caution, he feels the following three factors should allow him the water needed for his growing season:

- the BC Water Calculator's report of the growing season for his land;
- the Well has penetrated an unknown (new) aquifer; and
- the hydrogeologist's "disclaimer" that his report does not account for stream bed conductivity, the unique character of the aquifer which can retard the impact of streamflow depletion.

Respondent's Reply to the Appellant's Submissions

i. The Pogson Report

[50] In reply to the Appellant's concerns about the Pogson Report stating that the aquifer is not a numbered or named aquifer in the GWELLS database, the Respondent says not being named or numbered as an aquifer in the GWELLS database does not diminish an aquifer's significance, nor does it preclude an assessment of the likelihood of hydraulic connection to streams. Using his expertise and experience, Mr. Pogson "used available data to establish the aquifer type for further consideration of and conclusion on the likelihood of hydraulic connection and stream flow depletion".

[51] In reply to the Appellant's concern that the Pogson Report made conclusions based upon inferences from desktop data, the Respondent says that certain conclusions were informed through the application of Mr. Pogson's expertise as a hydrologist. The Respondent then identified where an inference was made in the Pogson Report, and its justification, as follows:

- The Pogson Report inferred the aquifer boundaries to coincide with the mapped extent of quaternary geological deposits. The Respondent replies that the "use of quaternary geology mapping and existing groundwater construction records are important and commonly used elements of aquifer mapping".
- The Pogson Report inferred groundwater flow direction. The Respondent replies that "the use of points and linear features of known hydraulic head are commonly used to interpret groundwater flow direction". Also, groundwater will flow from higher groundwater levels to lower levels in unconfined aquifer systems.
- The Pogson Report inferred that recharge occurs from infiltration of precipitation and surface water features. The Respondent replies that "this interpretation is reasonably based on the unconfined nature of the aquifer, the material that comprises the aquifer, the presence of constant head boundaries ... that roughly bisect the aquifer longitudinally".
- The Pogson Report inferred that the Well is likely intercepting groundwater that would otherwise discharge to Otter Creek and Otter Lake. The Respondent notes that the Pogson Report states that "the static groundwater elevation at [the Well] is higher than the stream elevation at the nearest points to Otter Creek and Otter Lake. Since groundwater flows from areas of high groundwater to low groundwater, the groundwater flow is expected to flow from the area near the well to the adjacent surface water bodies." Also, Mr. Pogson's Report states on page 3 that "Induced infiltration of streamflow

occurs when the discharge from the pumping well is sufficiently great to reverse the hydraulic gradient, causing surface water to flow from the surface water body into the groundwater system and toward the well.”

[52] In reply to the Appellant’s concerns about the “disclaimer” that the Pogson Report does not account for stream bed conductivity, the unique character of the aquifer which can retard the impact of streamflow depletion, the Respondent says that the Appellant provided no site-specific testing information, such as a pumping test or stream flow monitoring, which would have provided more site-specific aquifer data. The Respondent also submits that Mr. Pogson relied upon a conservative method that is widely used to estimate the timing of potential effects of hydraulic connection to streams.

ii. The Whitehouse Report

[53] In reply to the Appellant’s concerns with Mr. Whitehouse’s evidence references a creek that is unknown to the Appellant, the Respondent acknowledges that Wilson Creek is not within the Otter Valley. The Respondent goes on to submit that this is not a reason to disregard the other evidence in the 2017 EFN Assessment which included Elliot Creek and Otter Creek.

[54] In reply to the Appellant’s concerns with Mr. Whitehouse’s references to Umatilla dace, the Respondent notes that COSEWIC and the BC Conservation Data Center both identify the Umatilla dace as threatened. While the Appellant may be referring to a portion of the COSEWIC report that concludes that none have been found in Otter Creek since 1992, and therefore, this population is probably extirpated, the Respondent submits extirpation has never been confirmed, so efforts continue to assess the presence of Umatilla dace in Otter Creek. The Respondent further submits that potential extirpation of a species is not a suitable justification to remove protections that could help them to become re-established. Many species have been re-established after local extirpation.

[55] In reply to the Appellant’s concerns that the Whitehouse Report fails to acknowledge the disclaimer for the use of historical hydrometric data on the Environment Canada website for water level and flow information, the Respondent submits that while the website does have that disclaimer, it is the best available data. The Respondent says that the data is collected over a 39-year period, which is greater than the 30 years normally accepted by the Province, and it “represents a fair and accurate distribution of hydrologic data in the location”.

[56] In summary, the Respondent continues to maintain that extending the period of water use to the entire irrigation season would present a risk of additional harm to the proper functioning of the aquatic ecosystems of the connected streams, particularly to Otter Creek/Otter Lake and Calvin Brook, and potentially to other streams in the watershed area. The Respondent reiterates his concern that, beyond the EFN to sustain the streams’ ecosystem, the lack of water availability in the latter half of the irrigation season is longstanding, and the restriction on the period of use is consistent with the Water Allocation Notations for the area.

Panel’s Findings

[57] The Respondent has submitted reports containing scientific analysis of data in support of his decision. The Respondent has also tendered two expert reports: the Pogson Report; and the Whitehouse Report. The Respondent provided those expert reports in accordance with the Board's Rule 25, which sets notice requirements for expert evidence. The Appellant did not object to those reports being tendered as expert evidence, and I accept them as such.

[58] The Appellant did not provide expert reports to support his position, although that is not fatal to his appeal. The focus of the Appellant's submissions is on publicly available information from Provincial databases and online research, coupled with critical analysis of the Respondent's expert reports. It would have been helpful if the Appellant had monitored stream flow or provided pumping tests which could have provided recent site-specific data. Given that the Licence requires the Appellant to install a flow metering device to record the rate and volume of water diverted under the Licence, and to retain flow meter records for inspection upon request (Licence conditions L and M), I feel confident that this will provide additional and current data directly from the Well for future decisions.

[59] Section 9 of the *Act* provides the Respondent with the authority to grant water licences, and section 14 provides him with the discretion to determine the terms and conditions that must be followed in using water under a licence.

[60] This authority and discretion, however, is not unlimited. Section 15(1) of the *Act* requires the Respondent, and now the Board, to consider the EFN of a stream when considering an application for a licence to withdraw water from a stream or aquifer that is reasonably likely to be hydraulically connected to that stream. So, in considering the Appellant's application, the Respondent first needed to determine whether there was a hydrologic connection, which he did.

[61] The Respondent provided expert evidence of a likely hydrologic connection between the Well and the aquifer (Tulameen Unconsolidated), and between the aquifer, Otter Lake, Otter Creek and other streams nearby.

[62] I agree with the Appellant that a desktop review coupled with the inferences made in reaching a determination about hydrologic connections provide a less than absolute conclusion. I also recognize that in spite of the Well having been drilled 25 years ago, there is little, if any, site specific data. Consequently, the expert opinion evidence is, by necessity, based on other available data. With that in mind, I find it helpful that the Respondent has identified where each inference was made in the expert evidence, and has clearly explained each inference, because it allows me to follow the logic chain and reasoning that led to the conclusions in the expert evidence. After reviewing the specific inferences made and the rationale for making them, I find that the Pogson Report provides convincing evidence that there is likely a hydraulic connection between the Tulameen Unconsolidated aquifer, which the Well draws from, and Otter Creek and/or Otter Lake and likely other streams in the area.

[63] Turning to the EFN of those streams, I find that the Respondent's expert evidence outlined the environmental flow needs of the ecosystem in which the Well is connected, and provided monthly and annual flow and discharge estimates. These estimates were measured against other licensed uses and the flow needs of the ecosystem as a whole, including, for example, habitat and species needs. This

information was evaluated against the Ministry's EFN Policy that provides a framework for assessing the risk that proposed water use would affect the EFN of the water source, and identifying cautionary measures. As noted above, the EFN Policy risk management measures are conservative and provide a means to categorize risk levels from low (Risk Management Level 1) to high (Risk Management Level 3) as well as taking into account special considerations such as the presence of sensitive species or habitats.

[64] The evidence indicates that the amount of water requested in the Appellant's application for the Licence could be safely accommodated during April, and could be accommodated at a Risk Management Level 2 during May and June. In July, however, the stream flow amounts varied widely, and therefore, water use under the Licence would be at Risk Management Level 2 with risk of stepping up to Risk Management Level 3. In August and September, there was no surplus water beyond the EFN, so any water use during those months would be at Risk Management Level 3.

[65] The EFN Policy factored in the potential presence of Umatilla dace as a special consideration. I agree with the Appellant that the consideration of the possible presence Umatilla dace in the stream is less relevant at this time, given that there is little, if any, current evidence of their presence. The Respondent's evidence is that samples were taken to determine their presence, but the results of that testing were unknown when the submissions on this appeal concluded. Therefore, I find the presence of Umatilla dace to be speculative at best, and I do not consider it appropriate to factor them into this decision.

[66] Other evidence I find relevant are the Water Allocation Notations for Otter Creek (1988) and the Similkameen River watershed (1960). The Water Allocation Notations tell me that those areas already experience water shortages. Specifically, the Water Allocation Notation for Otter Creek indicates that water availability is restricted to the freshet period from April 1 to July 31. The Water Allocation Notation for the Similkameen River watershed indicates that the River is fully recorded with exceptions, and it recommends that no diversion licences be issued without supporting storage except for small domestic use or short-term irrigation. Subsequent to those Notations, the evidence shows that the Ministry has sent letters to water licence holders in the area notifying them of low water levels or dry creeks and requesting a reduction in water usage. Those letters indicate drought conditions in the past (1998 and 2015). Mr. Whitehouse's affidavit notes that the Ministry has more recently sent letters requesting a reduction in water usage.

[67] Regarding the Appellant's submission that there is a disclaimer on the Environment Canada website in relation to the use of historic water level and flow information, I appreciate the Appellant's concern. I agree that a disclaimer may, in some circumstances, undercut the substance of an expert opinion. However, in this situation, I find the disclaimer assists me in weighing the evidence.

[68] The disclaimer states, in part, that:

- the Government of Canada accepts no liability for the accuracy, suitability, reliability, usability, completeness or timeliness of the data;

- the near real-time information presented on the website is received via satellite or land-line transmissions from hydrometric gauging stations operated by Environment Canada and its partners;
- the data are transmitted automatically with limited verification and review for quality assurance; and
- subsequent quality assurance and verification procedures may result in differences between what is currently displayed and what will become the official record.

[69] The presence of the disclaimer, coupled with the Respondent's reply that the data is collected over a 39-year period and "represents a fair and accurate distribution of hydrologic data in the location" provides me with a clearer understanding of what is or is not known about the location. This evidence, coupled with the presence of two Water Allocation Notations in the area and a current EFN Assessment, provides a snapshot of the water needs to protect the health of this ecosystem. I find this technical evidence supports limiting the Appellant's water use under the Licence. The question is whether the current May 1 to July 15 time frame should be extended to September 15 as requested by the Appellant.

[70] As the Appellant submitted, the July 15 date in condition F of the Licence is not identified in the EFN Policy. Although I agree that the date is not identified in the EFN Policy, I find that the purpose of the EFN policy is not to specify conditions in individual water licences. Rather, the EFN Policy is a screening tool used to assess the likelihood that a water licence application, if granted, will affect the EFN of the proposed water source. It is intended to be applied where there is limited site-specific hydrological and/or biological data, as in the present case.

[71] Moreover, I find that the July 15 date in condition F of the Licence is not arbitrary. The date generally aligns with the Otter Creek Water Allocation Notation that restricts water availability to the freshest period, April 1 to July 31, as well as with the EFN Assessment which concludes that Risk Management Levels 2 to 3 are present during July. Given that July is a month in which the risk level shifts from Risk Management Level 2 to the more severe Risk Management Level 3, it is logical that mid-month is when the shift may occur and licensed water withdrawal should cease. This conclusion is supported by the following comments on page 5 of the Technical Report:

In the second half of July flows [in Elliott Creek and Otter Creek] decline towards the seasonal summer low flows. During the second half of the month flows likely drop to closer to 20% MAD [mean annual discharge] and the cumulative [licensed] withdrawals likely exceed 20% of the Mean Monthly discharge. Estimate of low flow conditions suggests that the flow could fall as low as 10% of the MAD during the second half of July. This period should be considered flow sensitive and high risk for additional diversions.

August and September are both high risk periods for additional diversions.

[72] Table 5 (monthly discharges observed in Otter Creek) on page 13 in the 2017 EFN Assessment shows that the lowest flows in Otter Creek were observed between August and November. As noted on page 13 in the 2017 EFN Assessment, months when the mean monthly discharge is below 10% of mean annual discharge

(MAD) are high sensitivity. Table 6 in the 2017 EFN Assessment shows that during low flow conditions expected to occur every 5 years, 30-day minimum flows in Otter Creek drop well below the threshold for high sensitivity streams (10% MAD), approaching a level considered to be critical low flows (5% MAD).

[73] Hence, I find that the May 1 – July 15 period of water usage in the Licence is supported by the available technical data, the Respondent's expert's evidence and is necessary to protect the proper functioning of the aquatic ecosystem, but particularly to Otter Creek/Otter Lake as they are likely hydraulically connected to the aquifer that is the water source for the Licence.

[74] I find that the Appellant's claim that he needs to extend irrigation until September 15 to prepare the crop for winter is supported by the Provincial calculator, that labels his land as having a growing time of 110 to 113 days. This information is not refuted by the Respondent. However, I also note that his water licence dated November 1926 allows the diversion and use of 16 acre feet (approximately 19,735 m³) of water per year from Elliott Creek for irrigation purposes from April 1 to September 30. Therefore, he has a right to use water from Elliott Creek to irrigate his crops in August and September.

[75] Moreover, I note that the Agriculture Demand Water Report attached to the Technical Report states that the annual irrigation demand for the 46 acres of that the Appellant irrigates is 96,740 m³, based on an irrigation season of 124 days from May 15 to September 15. His three water licences provide a combined total of approximately 115,115 m³ of water for irrigation purposes. Thus, his licensed water supply for irrigation actually exceeds his irrigation needs. If the time frames when his licences allow water diversion do not align exactly with the timing of his irrigation needs, then I suggest he explore the legislation to see if it is possible to store water in the earlier part of the irrigation season for use later in the season when he is unable to withdraw water under the Licence.

[76] The challenge under the *Act* is in balancing the irrigation needs of the Appellant with the needs of the ecosystem. For the reasons given above, I find the balance is met by permitting water use for a shorter time frame than sought by the Appellant. I find the terms and conditions in the Licence are supported by the technical information and the expert reports.

[77] While I recognize that the Appellant's irrigation needs extend for two months beyond the term of the Licence, I hope the Appellant takes comfort, as I do, in several related factors: 1) this is a *conditional* licence which authorizes his use of the water before a *final* licence is issued; 2) the Licence requires installation of a flow metering device on the Well; and 3) that device will provide additional and site specific data to inform future water usage decisions. Furthermore, as stated above, he has another licence that allows him to use water from Elliot Creek for irrigation during August and September, his total licensed supply of irrigation water exceeds his total needs for the irrigation season, and he has not explained why he needs more water than his licences provide.

DECISION

[78] I have considered all of the submissions and evidence provided by the parties, whether I specifically mention them in this decision or not.

[79] For the reasons provided above, and pursuant to my powers under section 105(6) of the *Act*, I confirm the conditions in the Licence and dismiss this appeal.

“Shannon Bentley”

Shannon Bentley, Panel Chair
Environmental Appeal Board

May 2, 2022