



## Ministry of Environment and Climate Change Strategy

### Ministry of Forests, Lands, Natural Resource Operations and Rural Development

<b>NAME OF POLICY:</b>	Describing the Aquifer, Point of Groundwater Diversion and Point of Well Diversion in Authorizations for Diversion and Use of Groundwater
<b>APPLICATION:</b>	This policy applies to all applications for diversion and use of groundwater (transitioning and new).
<b>ISSUANCE:</b>	Executive Director, Water Protection and Sustainability Branch, Ministry of Environment and Climate Change Strategy, and Director, Water Management Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development
<b>IMPLEMENTATION:</b>	FLNRORD, ENV, OGC
<b>LEGISLATIVE REFERENCES:</b>	<i>Water Sustainability Act</i> (Ch. 15, S.B.C 2014) [WSA] Water Sustainability Regulation (B.C. Reg. 36/2016) [WSR] Groundwater Protection Regulation (B.C. Reg 39/2016)
<b>RELATED POLICIES:</b>	N/A
<b>RELATIONSHIP TO PREVIOUS POLICIES:</b>	N/A
<b>POLICY AMENDMENT PROCESS:</b>	To amend this policy a request must be made in writing to the Executive Director, Water Protection and Sustainability Branch, Ministry of Environment and Climate Change Strategy

Describing the Aquifer, Point of Groundwater Diversion and Point of Well Diversion in Authorizations for Diversion and Use of Groundwater

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July 15, 2021

Date

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July 15, 2021

Date

**APPROVED AMENDMENTS:**

<b>Effective date</b>	<b>Approval date</b>	<b>Description/Summary of Changes:</b>
August 12, 2021	July 15, 2021	New policy

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## 1. POLICY STATEMENT

Description of the aquifer, point of groundwater diversion (PG) and the point of well diversion (PW) in an authorization should provide enough information about the aquifer and the PW/PG for the licensee to be able to understand the source on which the rights are granted, but at the same time, minimize the need for future changes to the aquifer description in the authorization.

In describing the aquifer in an authorization, refer to:

- the aquifer lithology (“unconsolidated” or “bedrock” and not the aquifer classification number or precinct and aquifer material),
- the aquifer in proximity of the point of well diversion (PW) or point of groundwater diversion (PG),
- the depth from which water is to be diverted, and
- the watershed from which the point of well diversion (PW) or point of groundwater diversion (PG) is located

In describing the PW in an authorization, include the:

- well tag number (WTN) from which the approximate depth of the aquifer can be inferred.

The convention of entering the aquifer classification number or precinct and aquifer material into eLicensing remains unchanged.

## 2. DEFINITIONS

Relevant terms defined under Section 1 [*Definitions*] of the *Water Sustainability Act* (WSA): **aquifer, authorization, decision maker, drill, and groundwater** (Division 3 of the WSA).

Relevant terms defined under Section 1 [*Definitions*] of the *Water Sustainability Regulation* (WSR): **point of diversion (POD) and well tag number (WTN)**.

Relevant terms defined under Section 1 [*Definitions*] of the *Groundwater Protection Regulation* (GWPR): **well construction report**.

**New groundwater user** means a groundwater user that commences diverting, using or storing groundwater from an aquifer after the date the WSA came into force (February 29<sup>th</sup> 2016).

**Point of well diversion (PW)** means the same as **point of diversion** but is a specific reference to the well from which water is diverted from an aquifer.

**Point of groundwater diversion (PG)** means the same as **point of diversion** but is a specific reference to groundwater extracted from something other than a well with a well tag number and may come from things like ditches, dugouts, quarries that is diverted from an aquifer.

**Screen** or **screen intake** means an intake containing slots, perforations or openings and that is installed in a well to allow water but not sediments to enter from the aquifer into the well; it is the part of the well that is open to the aquifer.

**Transitioning groundwater user** means either a:

- a. Non-domestic groundwater user diverting, using or storing groundwater from an aquifer prior to the WSA coming into force, or
- b. Domestic groundwater user diverting, using or storing groundwater from an aquifer prior to a regulation under WSA s.136 [*regulations requiring authorizations for domestic use of groundwater*] coming into force that requires the user to obtain an authorization for groundwater diversion, storage and use in a specified area, if so required by that regulation.

### **3. REASON FOR POLICY**

#### **3.1 Entering the source aquifer name in eLicensing**

It is standard practice for a decision maker to enter the stream name in eLicensing and make reference in the authorization to the stream from which water is diverted. Having the stream name in eLicensing allows priority of rights of users diverting and using water from the same stream to be compiled and managed in relation to each other. Licensees can also search water rights on-line (from the Water Licences Query) by source to see their date of precedence relative to other users on the same stream (but not tributaries or connected aquifers).

Entering the aquifer name in eLicensing is also now standard practice for all authorizations of diversion and use of groundwater from aquifers. The convention is for staff to enter the aquifer classification number (e.g., *aquifer "608"*) as the aquifer name in eLicensing, if the aquifer has been mapped and classified. If, however, the aquifer has not yet been mapped and classified, staff enters the name of the precinct and the aquifer material (e.g., "*Dawson Creek Unconsolidated*") as the aquifer name in eLicensing. This convention is necessary because aquifers have not all been mapped and are not gazetted. Based on the number of licences issued to-date, roughly 20% divert water from unmapped aquifers.

It is a unique practice in British Columbia to record the aquifer associated with the authorized diversion in eLicensing (i.e., in the water rights database). This allows rights associated with the aquifer to be searched on-line by the public and compiled with relative ease. Other jurisdictions such as Alberta, Yukon, Washington, Montana, Oregon and Colorado do not record the aquifer in their water rights database. Hence, there is no way for the public to search for rights associated with particular aquifers – this must be compiled by groundwater staff.

#### **3.2 Change to aquifer name in eLicensing over time**

The use of precinct and aquifer material is practical but does mean that the current name associated with the unmapped aquifer in eLicensing will change over time as that aquifer becomes mapped and classified. Furthermore, in some cases, mapped aquifers may be reviewed and merged or subdivided as new information becomes available, resulting in a change in the aquifer classification number. As new areas become mapped, or aquifer numbers change, the aquifer name in eLicensing will need to be updated.

### **3.3 Entering the point of well diversion (PW)/point of groundwater diversion (PG) in eLicensing**

Similar to streams, the water staff enter the PW/PG into eLicensing by its latitude and longitude coordinates. The well tag number (WTN) for the PW is also entered into eLicensing. The WTN links the PW to the well construction report stored in the GWELLS database that contains the details of the construction of the well, the lithology encountered at depth during drilling, and the depth of the water producing zone(s). The PW/PG will be described through the latitude and longitude for its centre, details of the lithology, depth of the diversion, and watershed. The Water Licensing Watersheds name is selected from a pre-populated list within eLicensing. The Water Licensing Watersheds spatial dataset contains all the watershed boundaries and watershed names for the entire province.

### **3.4 Describing the aquifer and point of well diversion (PW)/point of groundwater diversion (PG) in the authorization and drawing**

Currently, the authorization document refers to the aquifer by either the aquifer classification number or by precinct and aquifer material, following the same format in recording the aquifer in eLicensing:

- If the aquifer has been mapped and classified: *“The aquifer on which the rights are granted is 608.”*
- If the aquifer has not yet been mapped: *“The aquifer on which the rights are granted is Dawson Creek Unconsolidated.”*

Aquifer boundaries are typically not shown on drawings, which is part of the authorization document but reference to the aquifer might appear in the drawing (e.g., labelled “Aquifer 608”).

The convention for entering the aquifer classification number or precinct and material into eLicensing is practical for associating the rights to the source and should continue. However, extending this convention to describe the aquifer in the authorization document means that many of the licences (roughly 20% or more) will need to eventually be amended when unmapped aquifers become mapped and classified. In some cases where mapped aquifers are reviewed and the aquifer number changes, amendments will also have to be made. These changes need to be kept up over time for the authorization to keep up-to date regarding the aquifer name.

In the authorization, the PW and PG are also currently referred to in the text as the point of well diversion and point of groundwater diversion respectively and plotted and labelled with the PW or PG number on the drawing. In some drawings, the WTN is included in brackets next to the PW. While the spatial location describes the PW/PG, there are two added dimensions – depth and watershed – that may add clearer context to the PW/PG and the source.

## **4. LEGISLATION**

Application of precedence of rights, *Water Sustainability Act* (WSA) s.22 is based on the specific situation, locality, and nature of hydraulic connection to other sources, and authorization holders on those other sources, at the time of a decision.

The definition “location description” is contained within the definitions of the *Water Sustainability Regulation* (WSR). A location description of the aquifer is referenced in WSR Part 2, s.3 and s.5(b).

## **5. PROCEDURES**

An objective in describing an aquifer and PW/PG in the authorization is to achieve a balance between minimizing amendment workload as a result of source name changes and transparency for the licensee in understanding the groundwater source on which their right is granted. The current convention of naming aquifers in the authorization document is transparent but will require changes to aquifer numbers to be kept up to date in the authorization. Describing the aquifer in the authorization document based on more factual information, such as the depth and watershed, that don’t change with time (as opposed to the aquifer name –i.e., the aquifer classification number) provides acceptable transparency and minimizes the need for amendments when aquifer names are updated. Licensees can still search on-line (from the Water Licences Query) by “aquifer name” to see their date of precedence relative to other users on the same aquifer but must first click on their specific Points of Well Diversion (PW)/Points of Groundwater Diversion (PG) (Licences) on iMAPBC to get the aquifer name.

Including a depth and watershed from which water is diverted will also improve the description of the aquifer in the authorization document.

### **5.1 Describing the aquifer in an authorization**

In the authorization document, the aquifer can be adequately described by its lithology, immediate location, depth (of producing zone) and watershed.

#### **5.1.1 Aquifer lithology**

Staff can refer to the aquifer as “unconsolidated” or “bedrock” in the authorization and leave out the aquifer classification number or precinct and aquifer material (i.e., “aquifer name”) off the drawing and the authorization. The aquifer lithology is determined:

- from the driller’s lithological description and well completion information (e.g., depth of screen interval or bottom of well) in the well construction report
- or if lithology is lacking, by staff based on lithology of neighboring wells or diversions of similar depth or physiographic-geological setting.

If staff believe the aquifer classification number is beneficial, one way to include that information can be in the covering letter to which the authorization is attached.

#### **5.1.2 Aquifer location**

Staff can refer to the aquifer’s immediate location by referencing the proximal area of the PW/PG even if the aquifer extends beyond the proximal area (the plan attached with the authorization shows the location of the PW/PG).

### **5.1.3 Aquifer depth inferred from depth of the point of well diversion**

Describing the depth of the aquifer at the location of the PW/PG can be challenging and subjective (e.g., the top of the aquifer must be interpreted; some well construction reports for dug wells, driven wells, and older drilled wells do not contain lithologic descriptions). What is known with greater certainty for many wells/diversions is the depth from which water is produced (e.g., screened or fractured depth/interval), or the well depth itself.

### **5.1.4 Aquifer Watershed**

Staff can refer to the aquifer's watershed by referencing the Water Licensing Watersheds spatial layer which contains the name and boundaries for all watersheds within the province. Staff would then select from the pre-populated Water Licensing Watersheds list within eLicensing.

## **5.2 Describing the Point of Well Diversion/Point of Groundwater Diversion in an Authorization**

In describing the PW/PG in an authorization, include the:

- WTN (in brackets) for the PW,
- location of the PW/PG on the attached plan (with the WTN in brackets)

The inclusion of the WTN for the PW in the text will draw a link to the lithologic description, screen intake, water-bearing fracture location information found in the well construction report. Suggested text for describing the aquifer and the PW/PG is shown in Table 1. The description of the aquifer and of the PW/PG in Appendix A and B are examples of how wording can be applied in an authorization for an unconsolidated aquifer and a bedrock aquifer, respectively.

### **5.3 Point of well diversion has not yet been drilled prior to issuance of the authorization**

For a well that has not been drilled prior to issuing an authorization (e.g., no testing or assessment was required by the decision maker), the aquifer material (i.e., unconsolidated or bedrock) and the watershed should be known beforehand to be described in the authorization. The decision maker could enter a Condition such as a “leave to commence” type clause. This would not be an issue in many cases where the target aquifer is known with high certainty.

However, if the well was drilled into a different aquifer than the one targeted and referred to in the authorization, an amendment to the authorization would be necessary (e.g., if, during drilling, the target aquifer was found to be dry or absent and the well had to be drilled deeper to intercept groundwater in a deeper aquifer). Where an authorization is issued prior to drilling of the well, it is prudent to require as a condition of the authorization to have the applicant submit the well construction report directly to the decision maker prior to commencement of water use and within 90 days after the well has been drilled to verify the target aquifer as described in the authorization.



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Table 1. Suggested wording to describe the aquifer and the PW/PG in an authorization document.

Aquifer Type	Suggested Wording
Unconsolidated aquifer (e.g., sand and gravel)	<p><i>a) The aquifer on which rights are granted is comprised of unconsolidated materials within the ABC River Watershed located at approximately XX m below ground surface.</i></p> <p><i>b) The point(s) of well diversion(s) (WTN XXXXX) /groundwater diversion(s) is/are located approximately as shown on the attached plan.</i></p>
Bedrock aquifer	<p><i>a) The aquifer on which rights are granted is comprised of bedrock materials within the ABC River Watershed at approximately XX m below ground surface.</i></p> <p><i>b) The point(s) of well diversion(s) (WTN XXXXX) is/are located approximately as shown on the attached plan.</i></p>

## 6. TEMPLATES

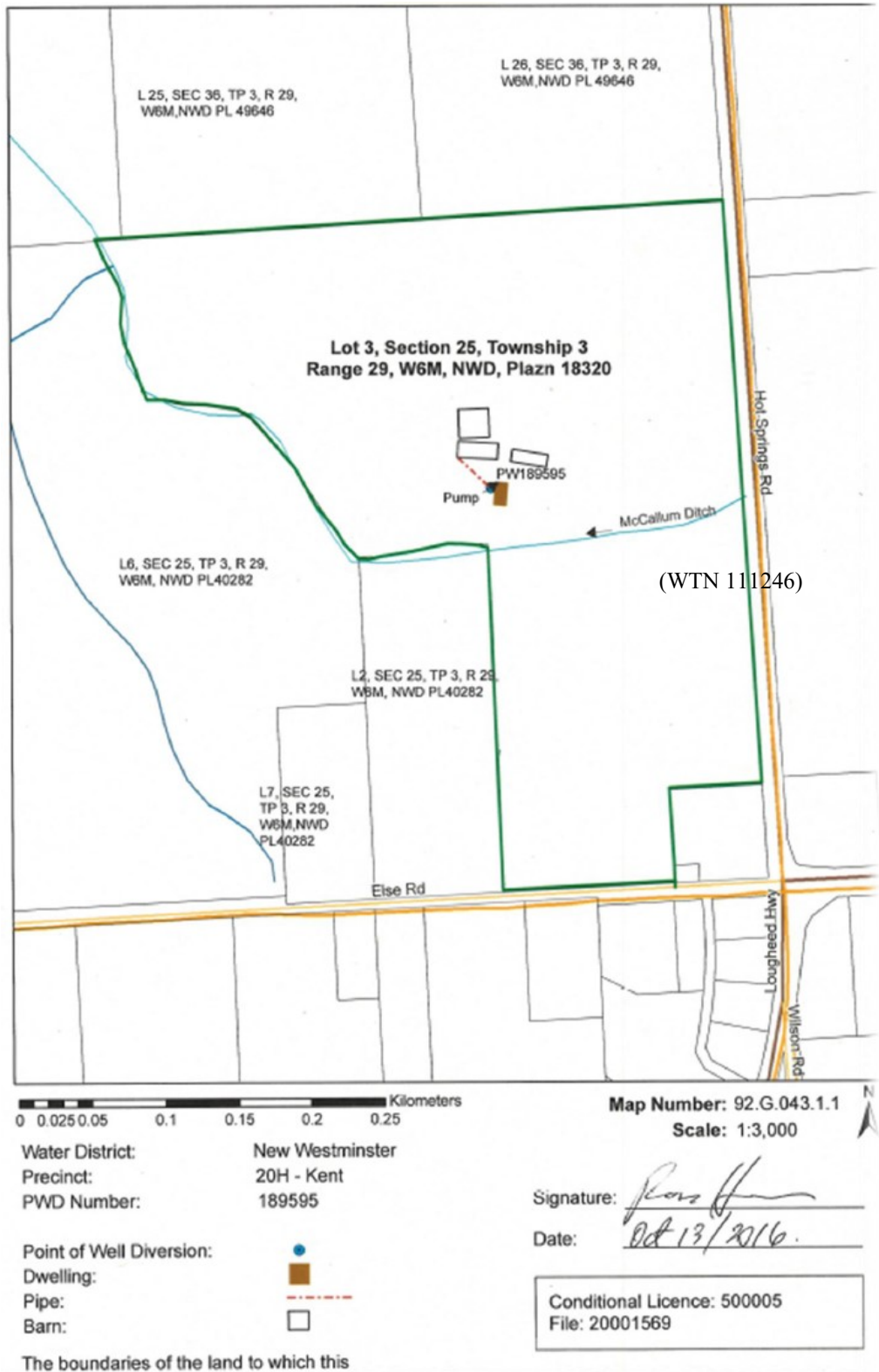
### **TEMPLATE A. SUGGESTED WORDING TO DESCRIBE AN UNCONSOLIDATED AQUIFER IN AN AUTHORIZATION.**

#### **CONDITIONAL WATER LICENCE**

The owner(s) of the land to which this licence is appurtenant are hereby authorized to divert and use water as follows:

- a) The aquifer on which rights are granted is comprised of unconsolidated materials within the ABC River Watershed at approximately XX m depth below ground surface.
- b) The point of well diversion (WTN 111246) is located approximately as shown on the attached plan.
- c) The date from which this licence shall have precedence is xx.
- d) The purpose(s) for which this licence is issued are Livestock & Animal.
- e) The maximum quantity of water which may be diverted for Livestock & Animal is 273.0 cubic metres per year.
- f) The period of the year during which the water may be used in January 1 to December 31.
- g) The land upon which the water is to be used and to which this licence is appurtenant is Lot 3, Section 25, Range 29, West of the Sixth Meridian, Township 3, New Westminster District, Plan NWP 18320.
- h) The authorized works are well, pipe and pump which are fully constructed and which shall be located approximately as shown on the attached plan.
- i) The construction of the said works has been completed and the water is being beneficially used. The licensee shall continue to make regular beneficial use of the water in a manner authorized herein.

Describing the Aquifer, Point of Groundwater Diversion and Point of Well Diversion in Authorizations for Diversion and Use of Groundwater



**TEMPLATE B. SUGGESTED WORDING TO DESCRIBE A BEDROCK AQUIFER IN AN AUTHORIZATION.**

**CONDITIONAL WATER LICENCE**

The owners of the land to which this licence is appurtenant are hereby authorized to divert and use water as follows:

- a) The aquifer on which rights are granted is comprised of bedrock materials within the ABC River Watershed at approximately XX m depth below ground surface.
- b) The point of well diversion (WTN 111246) is located approximately as shown on the attached plan.
- c) The date from which this licence shall have precedence is xx.
- d) The purpose for which this licence is issued is industrial lawn, fairway and garden is 68 cubic metres per year.
- e) The period of the year during which the water may be used in May 1 to September 30.
- f) The land upon which the water is to be used and to which this licence is appurtenant is Section 4, Range 1 East, North Saanich District.
- g) The authorized works are a well, pipe and distribution system which shall be located approximately as shown on the attached plan.
- h) The authorized works are well, pipe and pump which are fully constructed and which shall be located approximately as shown on the attached plan.
- i) The construction of the said works has been completed and the water is being beneficially used. The licensee shall continue to make regular beneficial use of the water in a manner authorized herein.
- j) The authorized works may not be physically connected to the District of North Saanich distribution system or any downstream plumbing that is served by that system without approval.