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

Regional Groundwater Protection and Licensing Update – South Area

John Pogson, Regional Hydrogeologist

The British Columbia Ground Water Association
Regional Meeting, Vernon, BC
2017/10/20

Outline

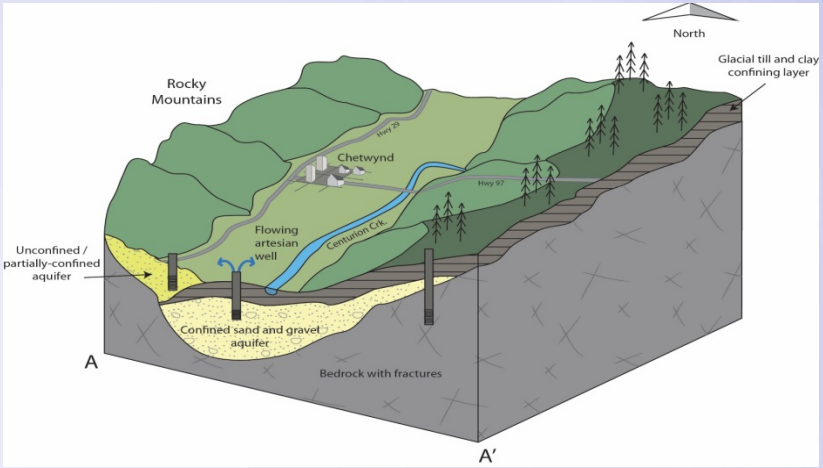
- Flowing artesian well advisories and updates
- Licensing groundwater use
- Well record submission
- Well inspections by Natural Resource Officers

Flowing artesian well - advisories

- Before drilling, drillers are encouraged to check for flowing artesian conditions well drilling advisories: http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/groundwater-wells/information-for-well-drillers-well-pump-installers/well-drilling-advisories/flowing-artesian-conditions-advisories

- Existing advisories for Kelowna; Vancouver and Chetwynd in progress

- Additional well drilling advisories are under development



Flowing artesian well

- Qualifications and experience

The registered well driller or professional stopping or controlling the flow must have the training, experience, knowledge, skills and equipment required for dealing with flowing artesian conditions.

- Preparing and budgeting

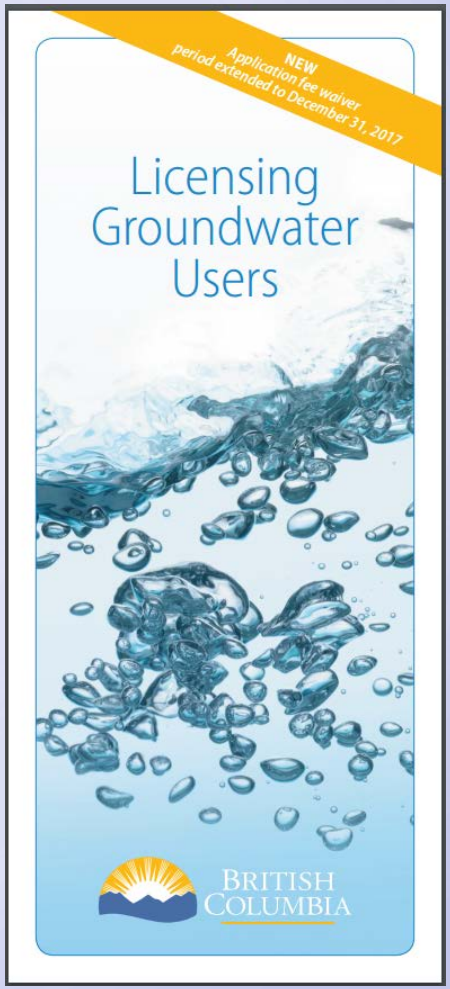
Responsibility of the well driller to advise the home owner of potential hazards associated with uncontrolled artesian flow (e.g., potential for erosion, flooding, subsidence) and the associated costs. The home owner and well driller should always have an agreement in place ahead of time to minimize any misunderstandings in the event that flowing artesian conditions are encountered.

- Constructing a well for flowing conditions

For bedrock aquifers, the bottom of the casing should be sealed securely into the bedrock to ensure the flowing water can not rise up through the annular space of the well.
For sand and gravel aquifers, a permanent outer casing should be grouted into the lowest confining layer before the inner production casing is drilled into the aquifer. An annular seal should be installed between the two casings to ensure flowing water can not rise up between the casings.

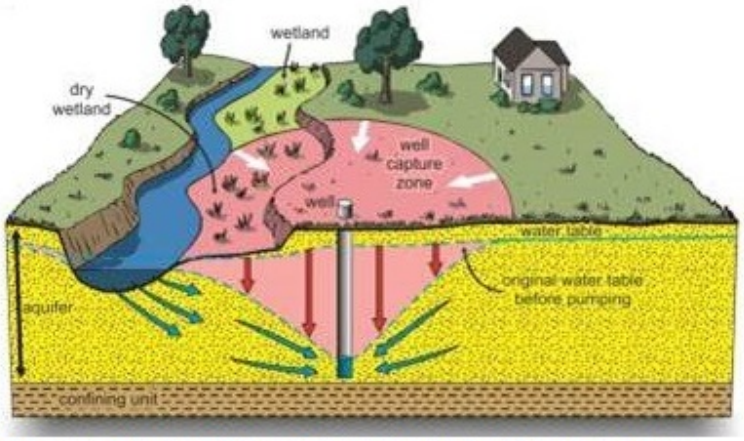
Licensing Groundwater Use

- Licence or Use Approval now required for non-domestic groundwater use: irrigation, industrial, water supply etc.
- Drillers required to submit a well report for most classes of new wells, including domestic.
- Domestic purpose wells are exempt from licensing.
- Existing users (on or before Feb 29, 2016) must apply by March 1, 2019 to have historical use recognized and lawfully divert groundwater. Application fee exemption until December 31, 2017.
- New users (after February 29, 2016) require a licence before the water can be lawfully diverted.
- Licensing gives greater security to water users.
- Apply at: FrontCounterBC.gov.bc.ca

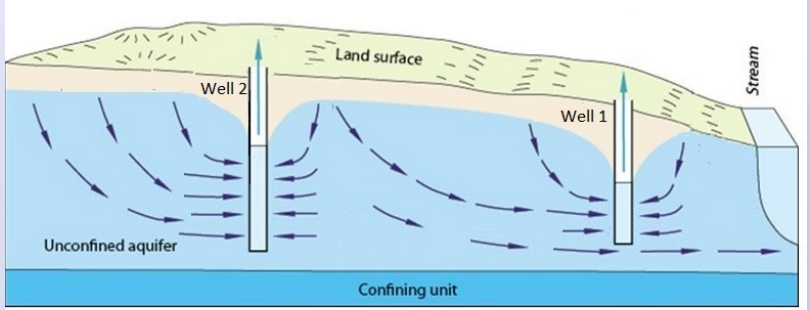


Licensing Groundwater Use – Hydraulic Connectivity

- New requirement to consider Environmental Flow Needs (EFNs) in streams when reviewing applications for surface water and groundwater in connected aquifers.
- Groundwater diversion can affect surface water flows, even at a distance.
- Depending on the specifics of the application, if connected stream has water availability issues a new Licence may be refused or have limits - even if the well has already been drilled.



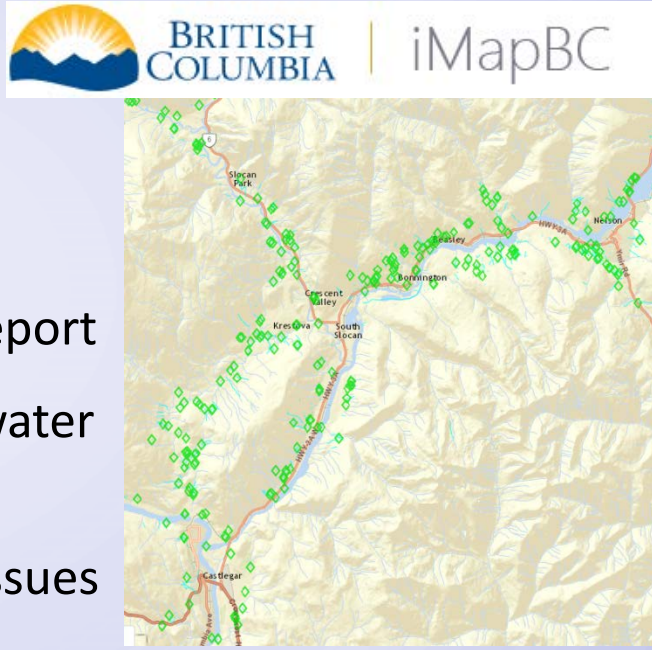
Groundwater diversion can impact stream flow.
Image: Canada's Groundwater Resource 2014.



Both wells divert water flowing towards the connected stream.
Source: adapted from USGS 2017

Licensing Groundwater Use – understanding water availability

- Water may not be available in some parts of the province
- Having an understanding of water availability before drilling reduces risk, e.g., professional assessment report
- iMapBC has some information about streams with water notations and restrictions
- Also consider local knowledge of water availability issues
- In areas with issues (e.g., low stream flows, drought), recommend client talk to FLNRORD staff before drilling (call FrontCounter BC).



Well record submission

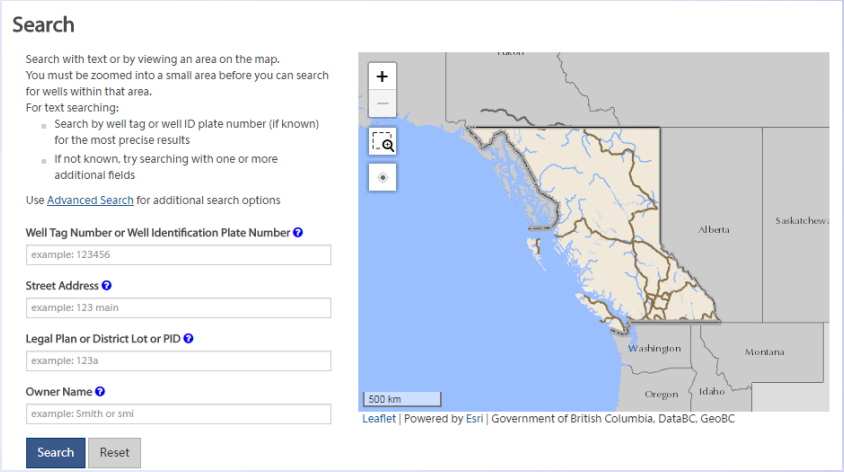
- Well construction and well decommissioning reports are required to be submitted to government for certain types of wells

Class of Well	Subclass of Category	Well Construction	Well Decommission
Water Supply	All	✓	✓
Recharge or injection	Made by drilling or boring	✓	✓
Dewatering	Permanent	✓	✓
Closed-loop Geoexchange	All	One per system	One per system

- A report is required for ANY well that encounters flowing artesian conditions

GWELLS

- New groundwater and aquifer application to replace the WELLS Database
- Functionality to be released in phases
- First phase: Search
- Project goal:



Develop an integrated system for record submission and use of groundwater data, which meets the needs of different user groups in order to support:

- *water resource management,*
- *groundwater authorizations,*
- *aquifer classification and mapping,*
- *groundwater related studies, and*
- *compliance.*

Natural Resources Officer (NRO) training for well inspections

- Better utilize provincial resources
- NRO training completed across the province
- iPad well inspection form makes data collections/sharing more efficient
- Some regions have set inspection priorities (water supply system wells, etc.)
- Opportunity to inform owners of regulatory changes and their responsibilities
- More well inspections conducted by NROs to be expected across the province

Thank you!