

# Provincial Groundwater Update – North Area



BCGWA Regional Meetings  
October 15 2022,  
Prince George



# Outline



General Reminders

Aquifer Summary Pages

Aquifer Fact Sheets

New Ministry Re-organization

Compliance and Enforcement



# General Reminders

- Remember to update your contact information for the registry searches – this will allow clients to be able to search and contact you in the registry
- Well construction/alteration/decommission reports must be submitted within 90 days of completion
- GWELLS and Provincial websites can provide helpful information prior to and during being onsite



# Aquifer Summary Page

- [Groundwater Wells and Aquifers - Province of British Columbia \(gov.bc.ca\)](https://gov.bc.ca)

**Aquifer Search**

**Basic Search**  
Search by aquifer name or number (leave blank to see all aquifers)

**Advanced Search**  
☐ Any field match ☒ All field match

☐ Advanced mapping  
☐ Artesian advisory  
☐ Hydraulically connected  
☐ Groundwater surface water interactions  
☐ Numerical model  
☐ Other information  
☐ Pumping stress index  
☐ Water budget

**Search** **Reset**

Download all aquifers  
- [Aquifer extract \(XLSX\)](#)  
- [Aquifer extract \(CSV\)](#)

Showing 1 to 1 of 1

Aquifer number	Aquifer name	Descriptive location	Material	Litho stratigraphic unit	Subtype	Vulnerability	Size-km <sup>2</sup>	Productivity	Demand	Year of mapping
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MapBox | Government of British Columbia, DataBC, GeoBC

**BRITISH COLUMBIA** Groundwater Wells and Aquifers

Well Search | **Aquifer Search** | Registry Search | Groundwater Information

Aquifer Search / Aquifer Summary

### Aquifer 246 Summary

Aquifer number	246
Year of mapping	2020
Aquifer name	South Vanderhoof Unconsolidated
Litho stratigraphic unit	Fraser Glaciofluvial
Descriptive location	South of Vanderhoof, between Tachick and Cluculz Lakes
Vulnerability	Moderate
Material type	Sand and Gravel
Subtype	Unconfined sand and gravel - late glacial outwash
Quality concerns	
Productivity	Moderate
Size (km <sup>2</sup> )	225.6
Calculated well density	Low

MapBox | Government of British Columbia, DataBC, GeoBC

### Well Information

Number of wells correlated to the aquifer	155
Number of uncorrelated wells within mapped aquifer extent	45
Artesian wells	2 artesian wells in aquifer

### Licensing Information

The licensing summaries should be considered estimates. Due to complexities in the structure of the licensing data, reported values should be confirmed through the [e-licensing portal](#).

Number of groundwater licences	22
Water withdrawal volume	82026 cubic metres

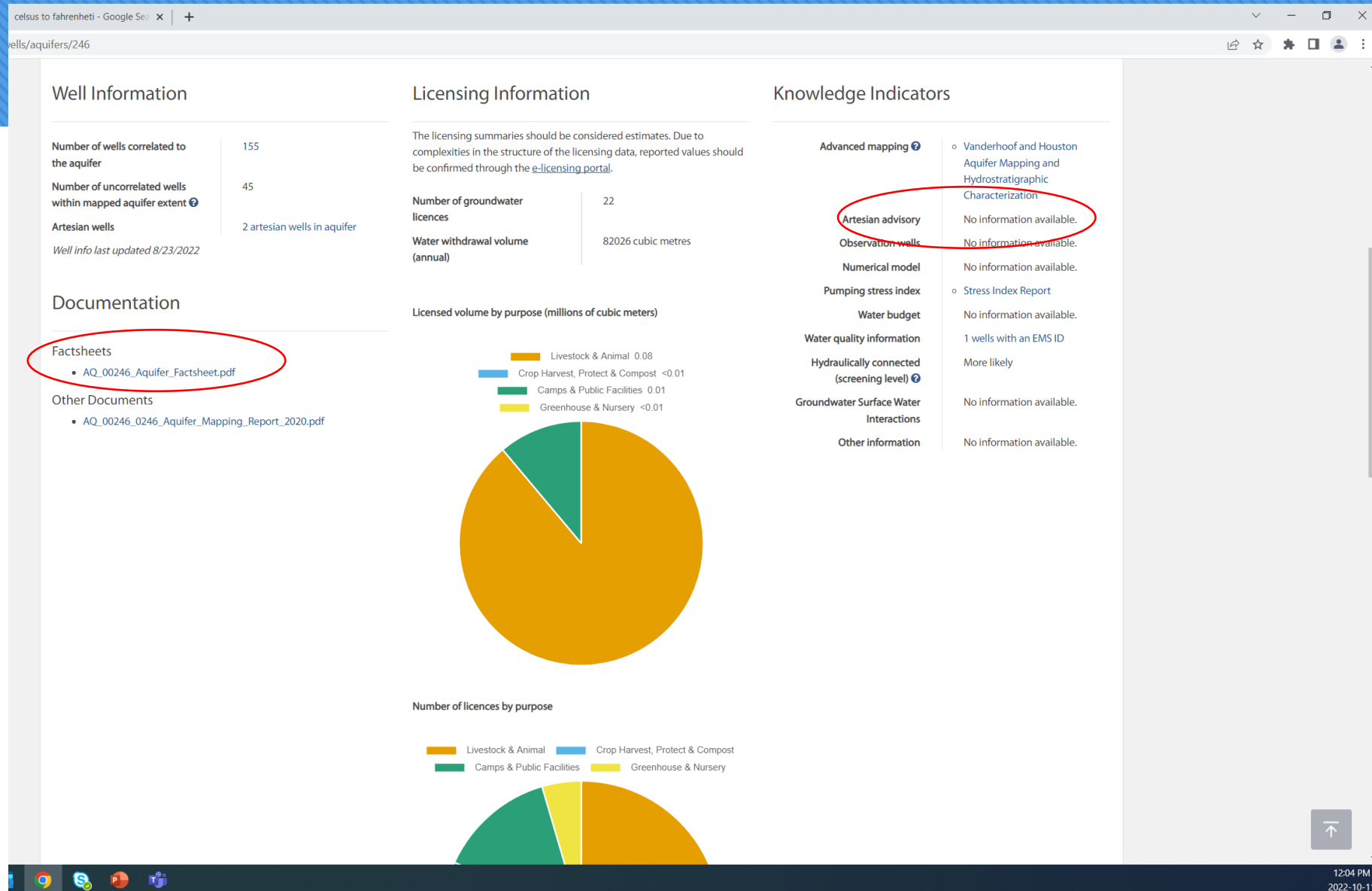
### Knowledge Indicators

**Advanced mapping**  
Vanderhoof and Houston Aquifer Mapping and Hydrostratigraphic Characterization

**Artesian advisory**  
No information available.

**Observation wells**  
No information available.

# Aquifer Summary Page



# Artesian Flowing Well Advisories

**Groundwater Wells and Aquifers**

[Well Search](#)
[Aquifer Search](#)
[Registry Search](#)
[Groundwater Information](#)

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Download all aquifers  
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 - [Aquifer extract \(CSV\)](#)

**Search in GWELLS**

Showing 1 to 10 of 12

Aquifer number	Aquifer name	Descriptive location	Material	Litho stratigraphic unit	Subtype	Vulnerability	Size-km <sup>2</sup>	Productivity	Demand	Year of mapping
33	West of Aldergrove	West of Aldergrove	Sand and Gravel	Early Fort Langley or Vashon intertill glaciofluvial/glaciomarine outwash	Confined sand and gravel - glacial	Low	73	Moderate	Moderate	2015
45		North Arm Delta	Sand and Gravel	Fraser River Sediments	Unconfined sand and gravel - large river system	High	16.3	Moderate	Low	1993
49		Vancouver-Quadra Sands	Sand and Gravel	Quadra Sands	Confined sand and gravel - glacial	Moderate	195.1	Moderate	Low	2000

**WELL DRILLING ADVISORY**  
**Flowing artesian conditions**  
**Fort St. James, B.C.**

Flowing artesian conditions exist at lower ground elevations in the District of Fort St. James, BC. Well drillers and property owners should be aware of potential complications and costs of flowing artesian wells.

## Where do flowing artesian conditions occur?

A portion of Aquifer 373 (AQ373) in the District of Fort St. James is known to have flowing artesian conditions. The area potentially under artesian pressure is located in the low-lying part of Fort St. James at the west shore of Stuart Lake. (Figure 1).



Figure 1: Fort St. James flowing artesian wells and extent of Well Drilling Advisory Area.

## What is a flowing artesian well?

A flowing artesian well is one that has been drilled into an aquifer where the pressure within the aquifer forces the groundwater to rise above the land surface naturally without using a pump. A flowing artesian well may flow on an intermittent or a continuous basis.

It is important to properly construct the well to control this flow conditions (Figure 2).

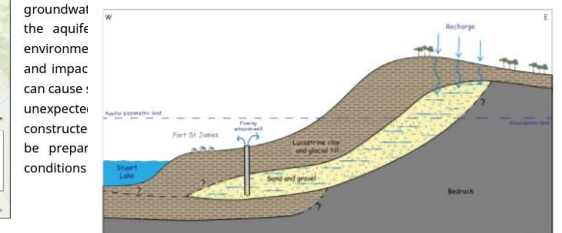


Figure 2: Simplified schematic of the AQ373. The piezometric level is related to the groundwater pressure in the aquifer and it is described as the imaginary height that the water level will rise in a well penetrating a confined aquifer.

WELL DRILLING ADVISORY No. 2022-01



# Aquifer Fact Sheets

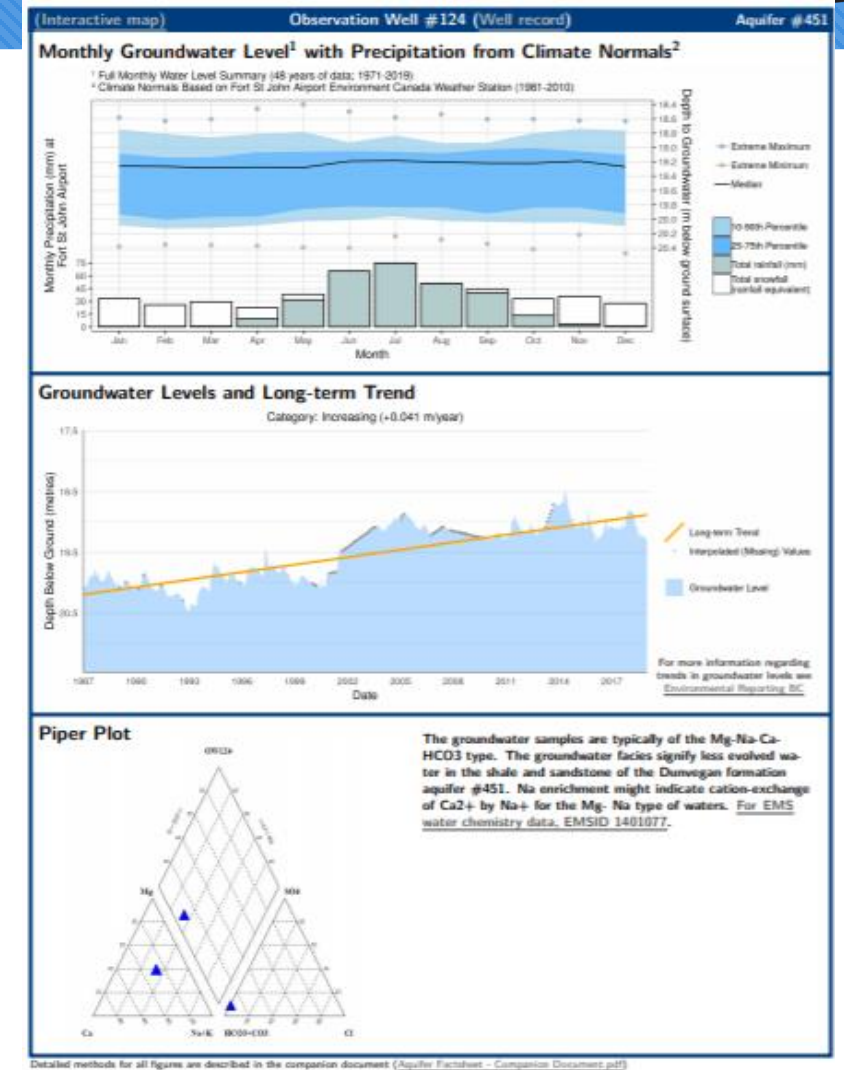
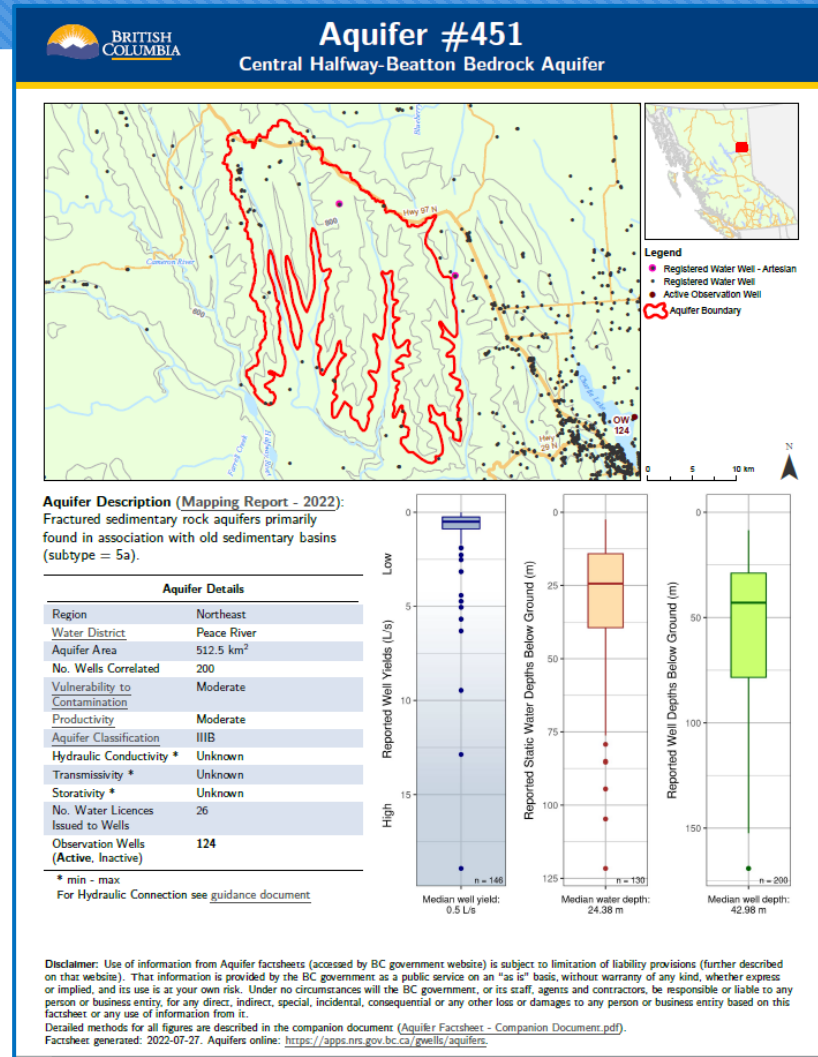
- In March 2019, Aquifer Factsheets were first published online through the Aquifer Summary Page.
- Latest update in July 2022 included adding over 1200 Aquifer Factsheets.
- New info includes hydraulic conductivity, storativity and transmissivity values
- Can be used to gather information prior constructing/altering wells



# Aquifer Fact Sheets



In March 2019, Aquifer Factsheets were first published online through the Aquifer Summary Page. Latest update in July 2022 includes over 1200 Aquifer Factsheets.







# New Ministry Re-Organization

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



Ministry of Forests

Ministry of Environment  
and Climate Change  
Strategy



Ministry of Environment and  
Climate Change Strategy

New ministry with staff from  
existing ministries



Ministry of Land, Water and  
Resource Stewardship



## Ministry of Forests

- Regional Hydrogeologists
- Groundwater Protection Officers
- Compliance and Enforcement for WSA
- Groundwater and surface water authorizations
- Dam safety and drought management



## Ministry of Land, Water and Resource Stewardship

- Water policies and guidelines
- Aquifer mapping
- Source to tap protection
- Provincial water quality guidelines
- GWELLS management




## Ministry of Environment and Climate Change Strategy

- Observation well network management
- Pollution and spills
- Remediation
- Point source water contamination
- Environmental Management Act

# Compliance and Enforcement

- Generally prioritises formal complaints through the Natural Resource Violations (NRV), direct to GPO, Front Counter referrals etc.
- Conduct additional compliance projects where resources are available
- Best way to address an issue is to make a complaint – this can be anonymous through the NRV or even to the Groundwater Protection Officer
- [Compliance and Enforcement Program - Ministry of Forests, Lands and Natural Resource Operations \(gov.bc.ca\)](http://gov.bc.ca)

SECTION A. YOUR INFORMATION	
*Last name:	*First name:
<input type="text"/>	<input type="text"/>
*Email address:	*Daytime phone number:
<input type="text"/>	<input type="text"/>
	Cell number:
	<input type="text"/>
Mailing address:	
<input type="text"/>	
Your property address (if different from above):	
<input type="text"/>	
<input type="text"/>	

SECTION B. VIOLATION DESCRIPTION
*Location of VIOLATION (nearest town, waterway, road name, legal property description, etc.):
<input type="text"/>
Attach a map or sketch, if possible.
<input type="button" value="Choose File"/> No file chosen <span style="color: red;">✗</span>
<a href="#">add attachment...</a>
<i>Note: The number of attachments is limited to 10, and the total combined size of attachments must not exceed 20MB.</i>
*Nearest City/Town
<input type="text"/>
VIOLATION GPS location (If unknown, please use mapping icon below to obtain coordinates. Zoom to the location of the violation to auto-populate the Latitude and Longitude.):
Latitude: <input type="text"/> Longitude: <input type="text"/> 
Name, address and phone number of party/parties alleged to be responsible:
<input type="text"/>
Description of alleged party/parties (sex, race, weight, height, eyes, hair, eyeglasses, build, complexion, features, clothing, smoker/non-smoker, etc.):
<input type="text"/>
Vehicles associated with this VIOLATION (make, model, colour, year, licence plate number):
<input type="text"/>
Date and time of VIOLATION: <input type="text"/> , <input type="text"/> : <input type="text"/> : <input type="text"/> <input type="checkbox"/> date range
Is the VIOLATION in progress? <input type="radio"/> Yes <input type="radio"/> No
*Describe the nature of the VIOLATION:



# Basic Compliance Process (varies with region and resources)

Complaint/Issue is received through reporting or directly to staff member

Assigned to appropriate staff and Ministry depending on the issue and nature of the violation

Inspection is completed if necessary, by appropriate staff. This could include the GPO, habitat specialist, surface water specialist and/or a Natural Resource Officer

Appropriate compliance action depending on the risk and chance of compliance

Examples:

- An Advisory>Warning>Order
- A ticket from the NRO
- An Order

Making some kind of complaint is the best way to get any issue addressed

## Anonymity

- NRV forms can be submitted anonymously, put "anonymous or NA where applicable
- You could also call the GPO and state that you wish to remain anonymous

# Compliance and Enforcement



- Upcoming Compliance Project – Well Record Submissions
- Well records that have not been submitted within 90 day requirement
- Will be completed across the Province
- An initial letter will be sent to all drillers to inform them of the upcoming compliance project and to promote submitting any outstanding records without any enforcement action

Increase well record database to better inform groundwater and well construction decisions

Enforce compliance on those not following the requirement

Gather insight on the record submission process to make it more accessible where possible

# Survey



- Background:
  - We are improving the search capabilities of the [well drillers/well pump installers registry](#)
  - Current method – select a community – will only list personnel whose office is physically located in that community
  - No way to search surrounding area; personnel likely operate in multiple areas
- What we need from you:
  - Feedback today (survey included)

## Search for a Well Driller or Well Pump Installer

To update contact information or for general enquiries email [groundwater@gov.bc.ca](mailto:groundwater@gov.bc.ca).

[Learn more about registering as a well driller or well pump installer in B.C.](#)

Choose professional type:

☒ Well Driller ☐ Well Pump Installer

Community:

Aldergrove

Armstrong

Big Lake

Bowen Island

Bridesville

Burnaby

Burns Lake

Individual, company, or registration number

Entries:

10 ▾

Search

Reset



# GWELLS Well Driller/Well Pump Installer Search



Implementation	Benefits	Challenges
Map (WD/WPI specify radius)	<ul style="list-style-type: none"> <li>-Easy for user: can zoom/pan, visual</li> <li>-Easy for new WD/WPI to specify radius on application form</li> </ul>	<ul style="list-style-type: none"> <li>-Harder/more costly to implement</li> <li>- Hard for WD/WPI to specify a radius; might work in some communities and not others</li> </ul>
Map (use location from registry – one point per WD/WPI)	<ul style="list-style-type: none"> <li>-Easy for user: can zoom/pan, visual</li> </ul>	<ul style="list-style-type: none"> <li>-Harder/more costly to implement</li> <li>-No option for WD/WPI to specify which communities they belong to</li> </ul>
Map (WD/WPI specify communities they operate in – multiple points per WD/WPI)	<ul style="list-style-type: none"> <li>-Easy for user: can zoom/pan, visual</li> </ul>	<ul style="list-style-type: none"> <li>-Harder/more costly to implement</li> <li>-Repetitive for WD/WPI working in multiple areas</li> <li>-Cumbersome to add all possible communities to WD/WPI application form</li> </ul>
Community List	<ul style="list-style-type: none"> <li>-Easier/cheaper to implement</li> </ul>	<ul style="list-style-type: none"> <li>-Cumbersome to add all possible communities to WD/WPI application form</li> </ul>
Region List	<ul style="list-style-type: none"> <li>-Easier/cheaper to implement</li> <li>-Easy for new drillers/pump installers to specify region on application form</li> </ul>	<ul style="list-style-type: none"> <li>- Personnel might not operate throughout entire region (misleading)</li> </ul>



# Questions?



# Thank you!

Natural Resource Violations

1-877-952-7277

[Compliance and Enforcement  
Program - Ministry of Forests,  
Lands and Natural Resource  
Operations \(gov.bc.ca\)](#)

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