

Provincial Government Update



BCGWA Regional Meeting
October 21 2022

Outline



Updates for Resource Material

Update from South Area GW Science

New Ministry Re-organization

Existing Use Groundwater Deadline

Compliance and Enforcement

South Area Groundwater Science

Survey



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 \(gov.bc.ca\)](http://gov.bc.ca)

The screenshot shows the "Aquifer Search" interface. On the left, there are two search sections: "Basic Search" and "Advanced Search". The "Basic Search" section has a text input field and a "Search" button. The "Advanced Search" section has radio buttons for "Any field match" and "All field match", and a list of checkboxes for various criteria: "Advanced mapping", "Artesian advisory", "Hydraulically connected", "Groundwater surface water interactions", "Numerical model", "Other information", "Pumping stress index", and "Water budget". Below these are links to download aquifer data in XLSX or CSV formats. On the right, a map of British Columbia shows aquifer locations with orange lines. A legend indicates that orange lines represent "Cadastrals". A scale bar shows 200 km and 100 mi. The bottom of the page shows a table header with columns: "Aquifer number", "Aquifer name", "Descriptive location", "Material", "Litho stratigraphic unit", "Subtype", "Vulnerability", "Size-km²", "Productivity", "Demand", and "Year of mapping".

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

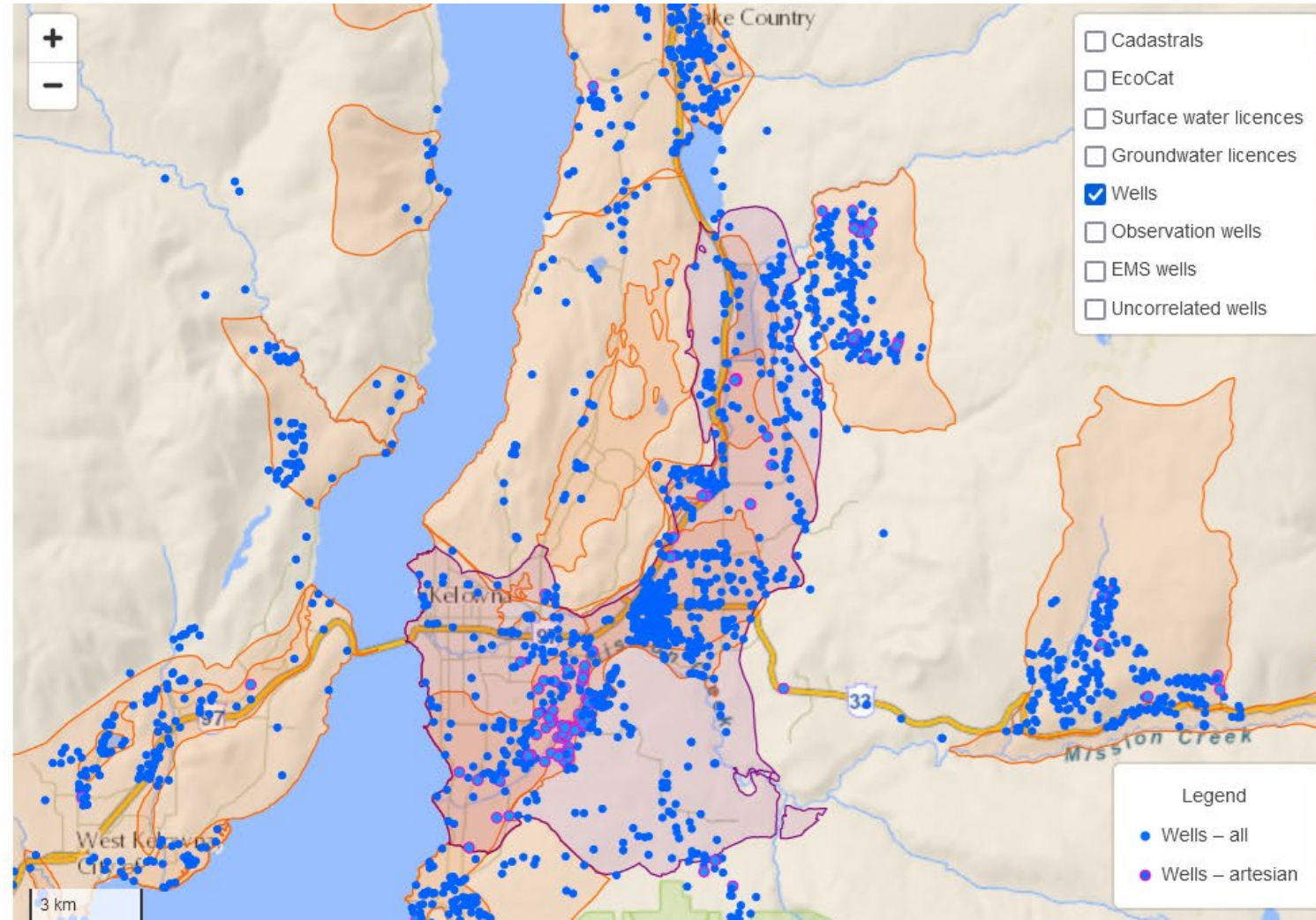
| Aquifer number↓ | Aquifer name⇅ | Descriptive location⇅ | Material⇅ | Litho stratigraphic unit⇅ | Subtype⇅ | Vulnerability⇅ | Size-km²⇅ | Productivity⇅ | Demand⇅ | Year of mapping⇅ |
|-----------------|---------------|-----------------------|-----------|---------------------------|----------|----------------|-----------|---------------|---------|------------------|
|-----------------|---------------|-----------------------|-----------|---------------------------|----------|----------------|-----------|---------------|---------|------------------|



Aquifer Summary Page

Aquifer 464 Summary

| | |
|---|------------------------------------|
| Aquifer number | 464 |
| Year of mapping | 2018 |
| Aquifer name | Greater Kelowna Aquifer |
| Litho stratigraphic unit | |
| Descriptive location | Below Kelowna to Ellison Lake |
| Vulnerability | Low |
| Material type | Sand and Gravel |
| Subtype | Confined sand and gravel - glacial |
| Quality concerns | None |
| Productivity | High |
| Size (km ²) | 93.7 |
| Calculated well density  | Low |





Aquifer Summary Page

Well Information

| | |
|---|------------------------------|
| Number of wells correlated to the aquifer | 320 |
| Number of uncorrelated wells within mapped aquifer extent ? | 156 |
| Artesian wells | 48 artesian wells in aquifer |

Well info last updated 8/26/2022

Documentation

Factsheets

- [AQ_00464_Aquifer_Factsheet.pdf](#)

Other Documents

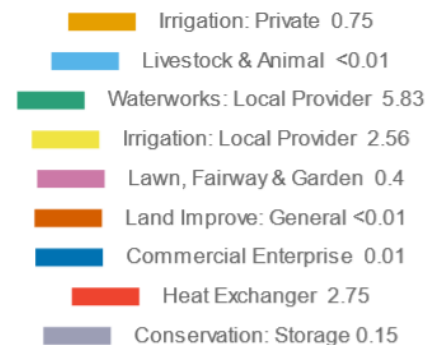
- [AQ_00464_Aquifer_Mapping_Report.pdf](#)

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 (annual) | 12458347 cubic metres |

Licensed volume by purpose (millions of cubic meters)



Knowledge Indicators

Advanced mapping ?

Artesian advisory

Observation wells

Numerical model

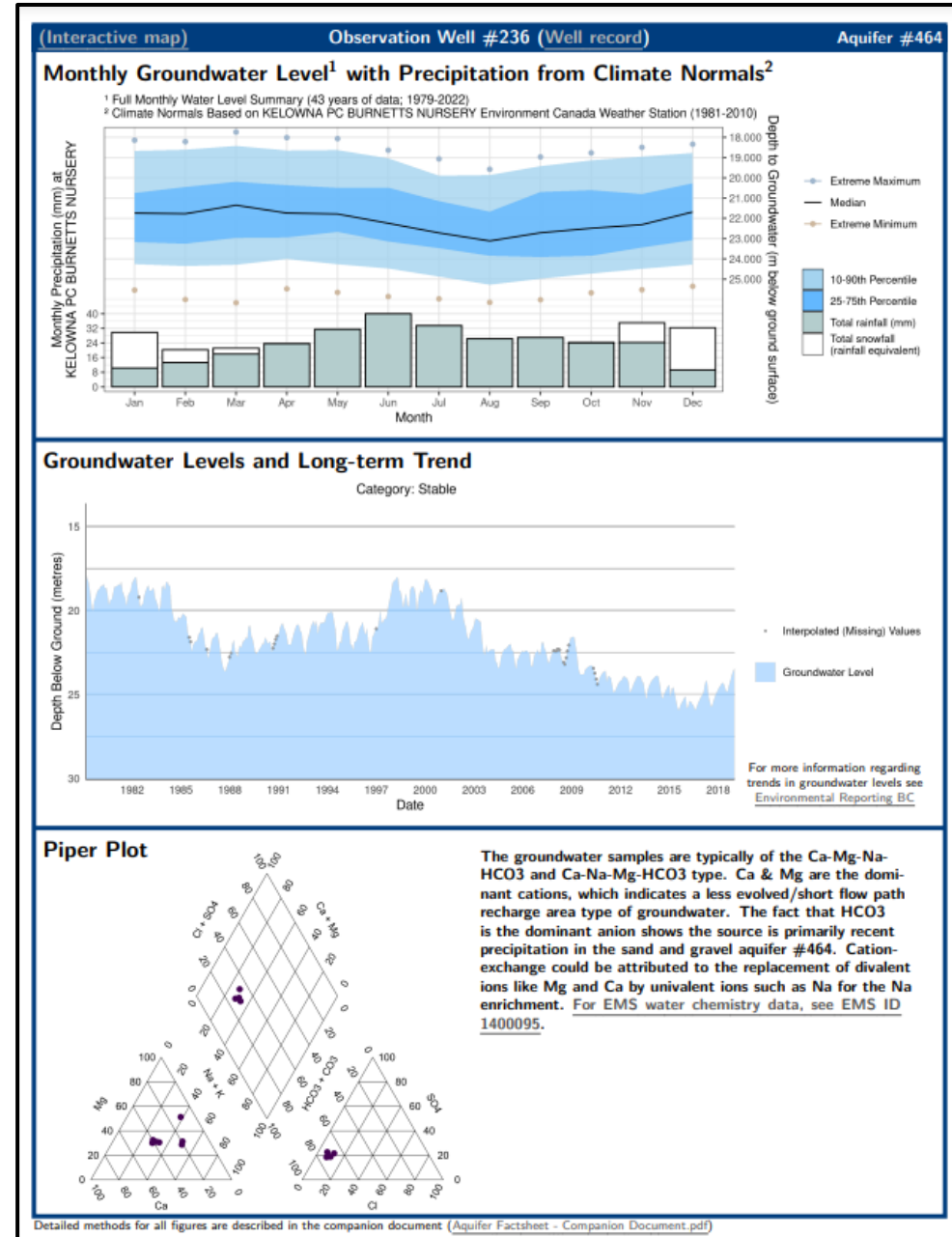
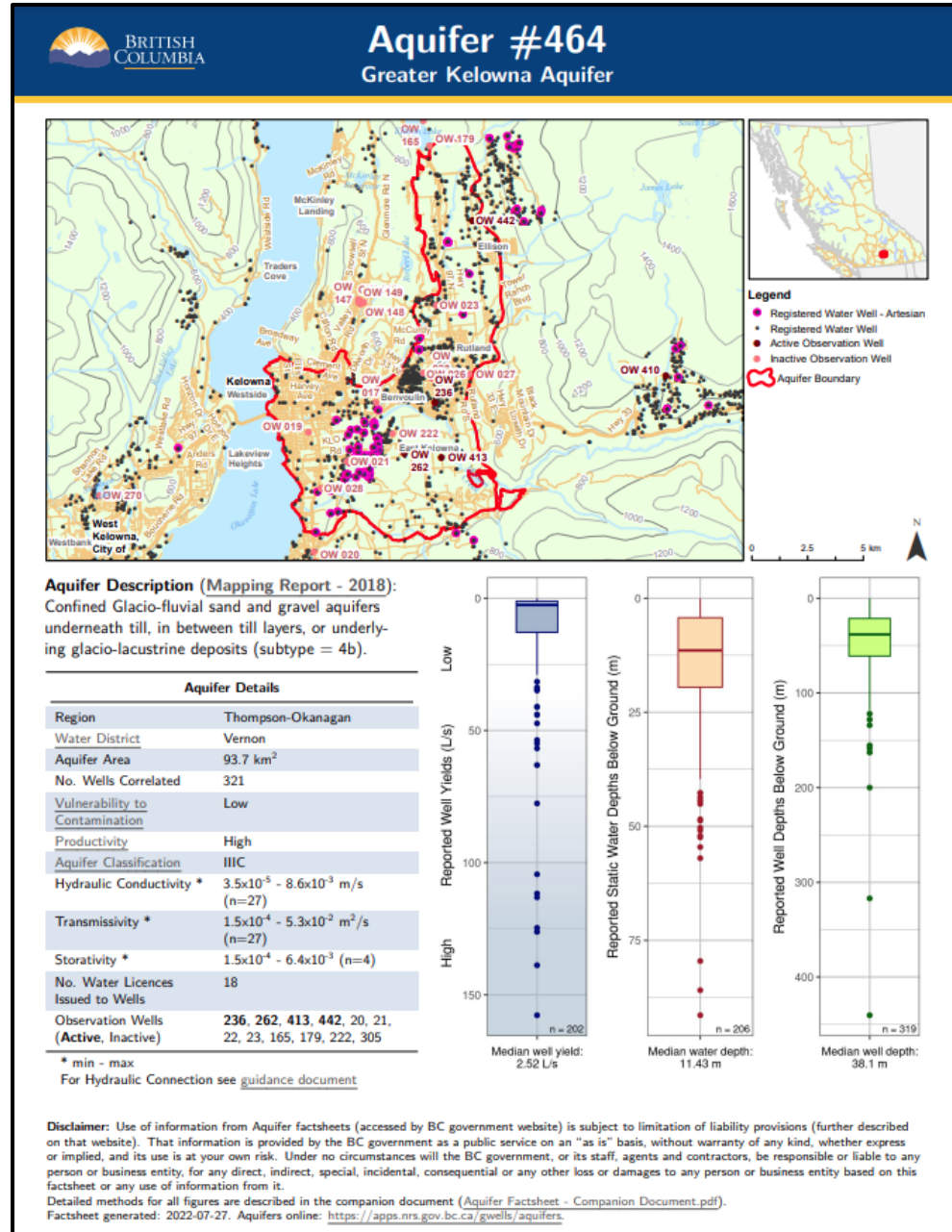
- Kelowna _ Mission_ Piteau
- Kelowna Artesian Advisory (PDF)
- Active
- 236 Water Level Analysis: Stable or Increasing
- 262 Water Level Analysis: Large Rate of Decline
- 413 Water Level Analysis: N/A
- 442 Water Level Analysis: N/A
- Inactive (data may not be available)
- No Water Level Analysis: 020 , 021 , 022 , 023 , 165 , 179 , 222
- Regional-scale Groundwater Flow Model of the Kelowna Area and the Mission



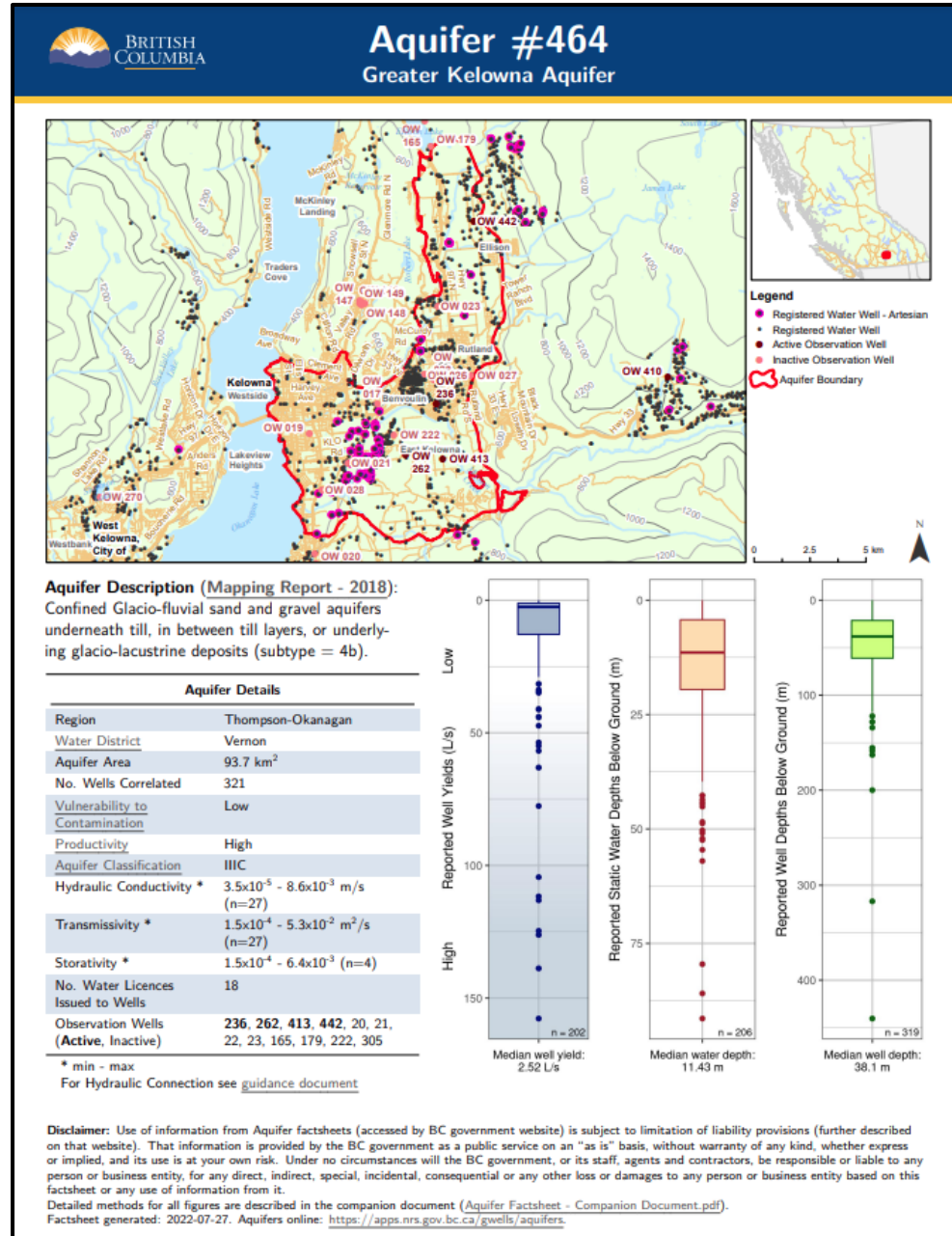
Aquifer Fact Sheets

- 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 Sheet Example



Aquifer Fact Sheet Example



| Aquifer Details | |
|--------------------------------------|--|
| Region | Thompson-Okanagan |
| Water District | Vernon |
| Aquifer Area | 93.7 km ² |
| No. Wells Correlated | 321 |
| Vulnerability to Contamination | Low |
| Productivity | High |
| Aquifer Classification | IIIC |
| Hydraulic Conductivity * | $3.5 \times 10^{-5} - 8.6 \times 10^{-3}$ m/s (n=27) |
| Transmissivity * | $1.5 \times 10^{-4} - 5.3 \times 10^{-2}$ m ² /s (n=27) |
| Storativity * | $1.5 \times 10^{-4} - 6.4 \times 10^{-3}$ (n=4) |
| No. Water Licences Issued to Wells | 18 |
| Observation Wells (Active, Inactive) | 236, 262, 413, 442, 20, 21, 22, 23, 165, 179, 222, 305 |

* min - max

For Hydraulic Connection see [guidance document](#)



Water Allocation Notations

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/water-allocation-notations>






Water Allocation Notations - updated October 3, 2022

| REGION NAME | DISTRICT PRECINCT NAME | NOTATION DESCRIPTION SOURCE NAME-NOTATION TYPE- EFFECTIVE DATE | POINT COMMENT | POINT CODE | WATER RIGHTS MAP | NTS CODE (1:50K) | SOURCE | GAZETTED/ ALIAS |
|-------------|------------------------|--|---|------------|---------------------|------------------|--------------------------|--------------------|
| CARIBOO | CAR - CHILCOTIN | DAVIS SPRING - FR - 1981/01/26 | FULLY RECORDED; 0365384. | NO37026 | 93.C.054 | 093C/11 | Davis Spring | A |
| CARIBOO | CAR - CHILCOTIN | FINGER SPRING - PWS - 1976/03/10 | POSSIBLE WATER SHORTAGE; 0323898. | NO37035 | 92.O.088 | 092O/16 | Finger Spring | A |
| CARIBOO | CAR - CHILCOTIN | HAINES SPRINGS - FR - 1904/07/25 | FULLY RECORDED; 0242424. | NO37040 | 92.O.095 | 092O/14 | Haines Springs | A |
| CARIBOO | CAR - CHILCOTIN | HEATH SPRING - AR - 1970/12/18 | REFUSED NO WATER; 0296736. | NO37043 | 93.B.013 | 093B/3 | Heath Spring | A |
| CARIBOO | CAR - CHILCOTIN | NORTH JORGENSEN CREEK - PWS - 2002/11/27 | POSSIBLE WATER SHORTAGE 5000127 | NO77421 | 93.C.039 | 093C/8 | North Jorgensen Creek | A |
| CARIBOO | CAR - CHILCOTIN | CEDAR CREEK - FR - 2003/01/06 | FULLY RECORDED FOR ALL PURPOSES 5001732 | NO77466 | 92N/NE(16-d) | 092N/16 | Cedar Creek | A |
| CARIBOO | CAR - CHILCOTIN | IR 13 MARSH - FR - 2003/01/08 | FULLY RECORDED 5000123 | NO77471 | 93.C.029 | 093C/1 | IR 13 Marsh | A |
| CARIBOO | CAR - CHILCOTIN | IR 14 MARSH - FR - 2002/01/08 | FULLY RECORDED 5000123 | NO77474 | 93.C.029 | 093C/1 | IR 14 Marsh | A |
| CARIBOO | CAR - CHILCOTIN | CHILANKO RIVER - PWS - 2003/01/10 | POSSIBLE WATER SHORTAGE 5001761 | NO77481 | 93.C.019 | 093C/1 | Chilanko River | G |
| CARIBOO | CAR - CHILCOTIN | WHITE SAND CREEK - FR - 2001/05/03 | FULLY RECORDED 5001699 | NO77494 | 92N/NE(16-d) | 092N/16 | White Sand Creek | G |
| CARIBOO | CAR - CHILCOTIN | CHARLIE CREEK - FR-EXC - 2002/09/26 | FULLY RECORDED WITHOUT FULL BACKUP STORAGE EXCEPT FOR SMALL CONSUMPTIVE USES 5001725 | NO77262 | 92.N.078.2 | 092N/9 | Charlie Creek | A |
| CARIBOO | CAR - CHILCOTIN | MONS CREEK - OR - 1989/09/26 | SPECIAL FISHERIES CONCERN 5000962 | NO64931 | 92.O.066 | 092O/10 | Mons Creek | G |
| CARIBOO | CAR - CHILCOTIN | BETTY CREEK - FR-EXC - 1996/02/01 | FULLY RECORDED FOR ALL PURPOSES WITHOUT FULL BACKUP STORAGE EXC SMALL DOMESTIC 5756 | NO71955 | 93.C.073 | 093C/12 | Betty Creek | G |
| CARIBOO | CAR - CHILCOTIN | WINDOW ROCK SPRING - PWS - 1992/01/27 | POSSIBLE WATER SHORTAGES - 5001137 | NO67473 | 92.O.087 | 092O/15 | Window Rock Spring | A |



Water Resource Atlas



Navigation Markup Query Analysis

Full Extent Zoom In Zoom Out Pan Back

Navigation Tools

Layers


Filter Layers...  

☒ Operational Layers


+ ☒ Aquifers

+ ☒ Water Wells

- ☒ Water Licensing

☐  Water Allocation Notations


- Points

☐  Streams with Water


Allocation Notations

☒ ☐ Aquifers with Water

Allocation Notations

☐  Water Reservations - Points

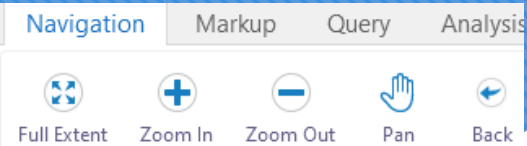
Points

☐  Water Reserves - Streams





Water Resource Atlas



Navigation Tools

Layers

Filter Layers...

☒ Operational Layers

+ ☒ Aquifers

+ ☒ Water Wells

- ☒ Water Licensing

☐ ☒ Water Allocation Notations

- Points

☐ ☒ Streams with Water

Allocation Notations

☒ ☐ Aquifers with Water

Allocation Notations

☐ ☒ Water Reservations -

Points

☐ ☒ Water Reserves - Streams

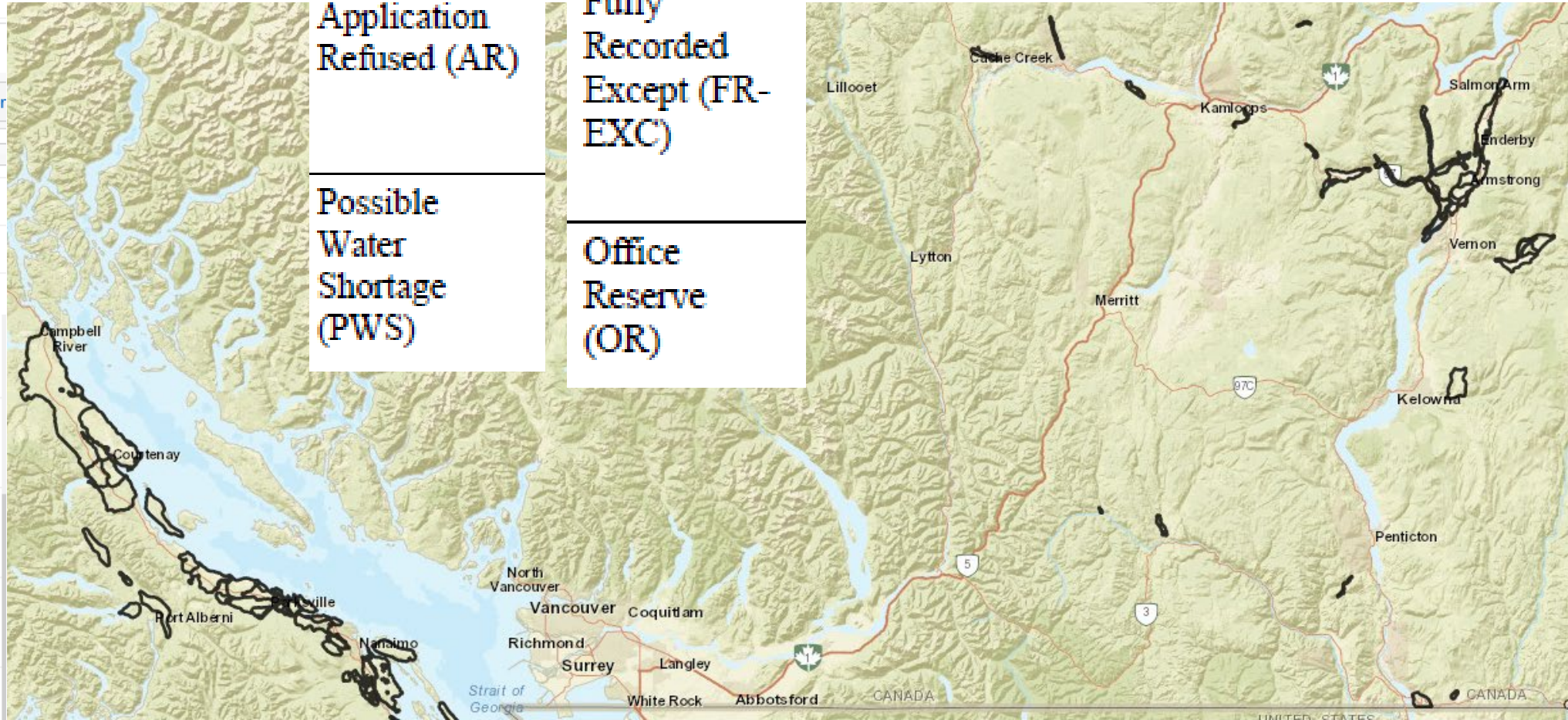
Notation
Type

Application
Refused (AR)

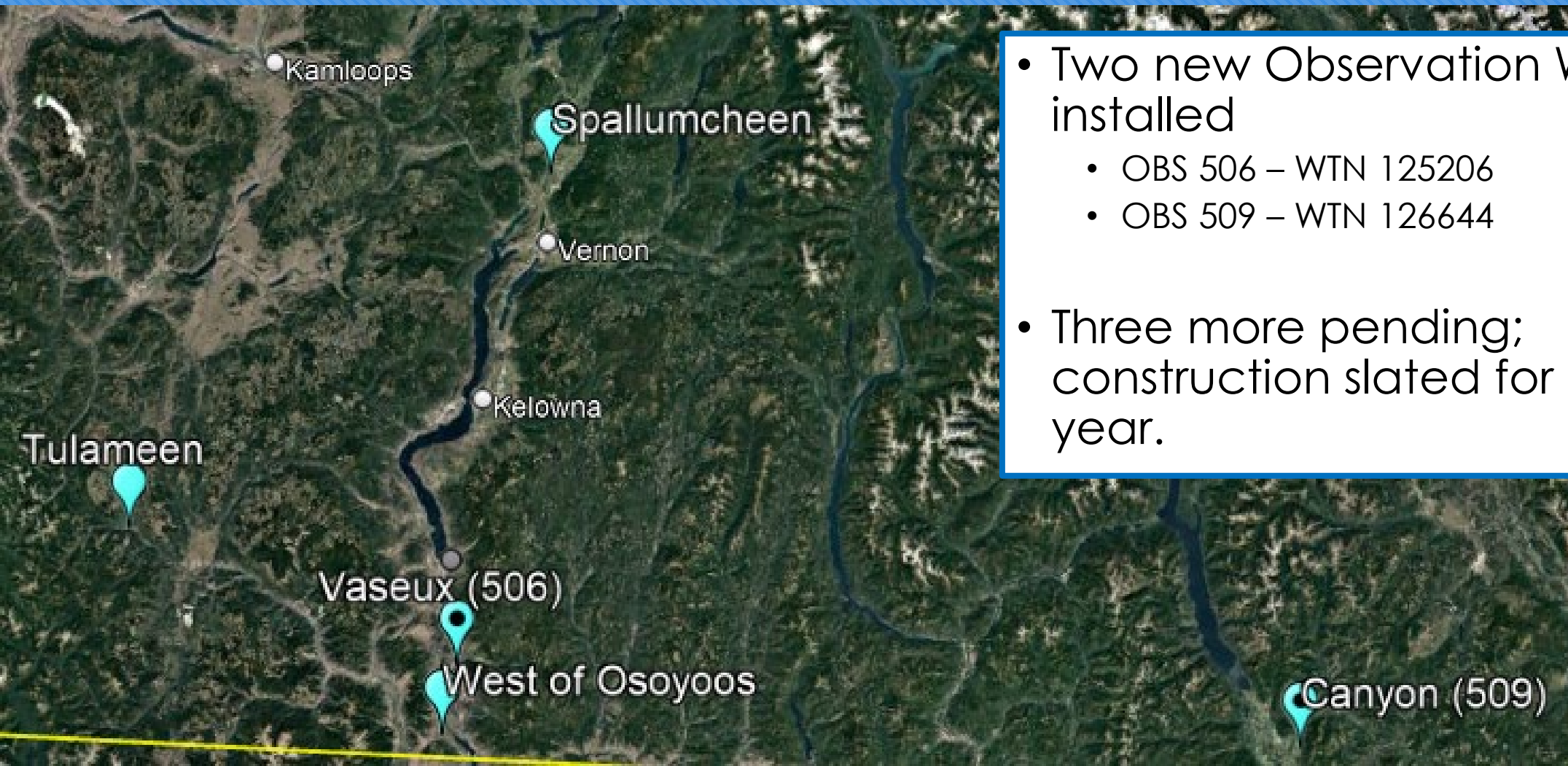
Fully
Recorded
Except (FR-
EXC)

Possible
Water
Shortage
(PWS)

Office
Reserve
(OR)



New Observation Wells

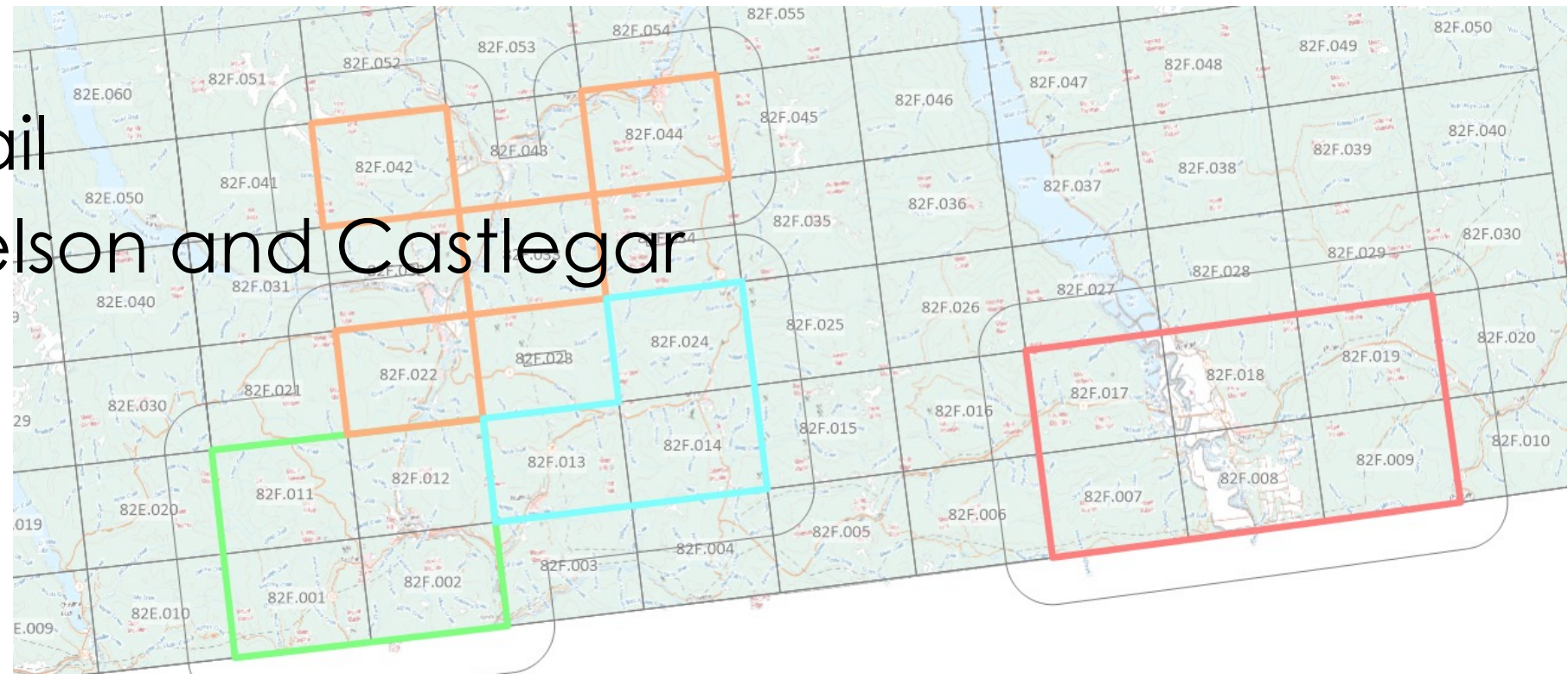


- Two new Observation Wells installed
 - OBS 506 – WTN 125206
 - OBS 509 – WTN 126644
- Three more pending; construction slated for this year.

Aquifer Mapping Project

Expanding aquifer mapping in the Kootenays:

- Creston
- Rossland/Trail
- Between Nelson and Castlegar
- Salmo



Vaseux Creek Project

In partnership with the Okanagan Nation Alliance (ONA), this research project focuses on groundwater - stream interactions across an alluvial fan to inform water management in an area with known water scarcity





Vaseux Creek Project – Year 2



In Year 2, we are continuing to work with our project partners to:

- collect, analyse and interpret groundwater and surface water data,
- analyse soil samples,
- collect aerial imagery, and
- create hydrostratigraphic mapping to further develop our site conceptual model.



New Ministry Re-Organization

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



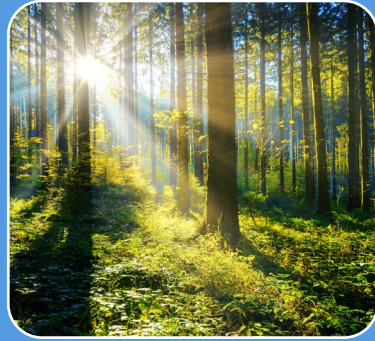
Ministry of Forests

New ministry with staff from
existing ministries



Ministry of Land, Water
and Resource Stewardship

Who does
what now?



Ministry of Forests

- Regional operations for the WSA & GWPR
- Compliance and Enforcement for WSA & GWPR
- Regional groundwater science and operations staff
- Groundwater and surface water authorizations
- Dam safety and drought management



Ministry of Land, Water and Resource Stewardship

- Crossover between WSA & DWPA (& minor overlap with EMA)
- Source to tap protection (new strategy)
- Provincial water policy & water quality guidelines
- Aquifer mapping & GWELLS management
- Water policy & ecosystems staff



Ministry of Environment and Climate Change Strategy

- Environmental Management Act (EMA)
- Observation well network management
- Pollution, spills & remediation
- Point source water contamination



EUGW Deadline

March 1, 2022 was the deadline for historical non-domestic groundwater users (pre-2016) to apply for a water licence.

Qualifying users that missed the deadline are now unauthorized. All future applications will be treated as new water use.


Thousands of applications received leading up to deadline, creating significant backlog that has become an obstacle to identifying unauthorized users.

Compliance and Enforcement

- Compliance is primarily complaint-based driven. Formal complaints can be reported as a Natural Resource Violation (NRV)
 - Can also go through alternative agencies such as local GPO, Front Counter referrals, etc.
- Compliance projects are undertaken when resources available

[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 ✗ |
| add attachment... |
| <small>Note: The number of attachments is limited to 10, and the total combined size of attachments must not exceed 20MB.</small> |
| *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: |
| <input type="text"/> |

Compliance and Enforcement



Upcoming Compliance Project – **Well Record Submissions**

- Focus on 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.

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

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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