GWELLS Enhancements

Update on Recently Completed Enhancements

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Water Protection and Sustainability Branch

Aquifer Search Updates

Smaller Enhancements

1. GW Licensing volume disclaimer
2. Change to the Hydraulically Connected Field
3. Change “Artesian advisory” to "Drilling and operation advisory”
4. Addition of new “tool tips”
5. Changes to the Main Aquifer Search page
   - Remove “Hydraulically Connected”
   - Change “Artesian Advisory” to “Drilling and operation advisory”

Aquifer Search Updates

Well Information

Number of wells correlated to the aquifer	77
Number of uncorrelated wells within mapped aquifer extent	56
Flowing artesian wells	3 artesian wells in aquifer

Well info last updated 4/4/2023

Documentation

Factsheets

- AQ_00318_Aquifer_Factsheet.pdf

Other Documents

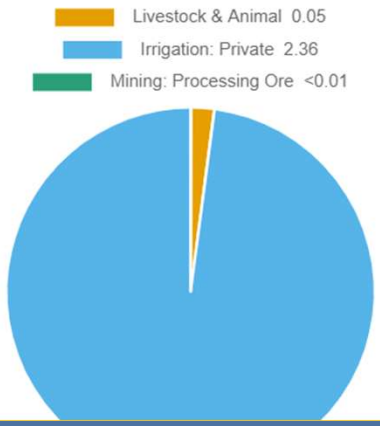
- AQ_00318_Aquifer_Mapping_Report.pdf

Licensing Information

The licensing summaries should be considered estimates. Total volume is likely more than what is indicated in charts due to domestic use and unprocessed licence applications. Due to complexities in the structure of the licensing data, reported values should be confirmed through the e-licensing portal.

Number of groundwater licences	11
Water withdrawal volume (annual)	2414624 cubic metres

Licensed volume by purpose (millions of cubic meters)



Knowledge Indicators

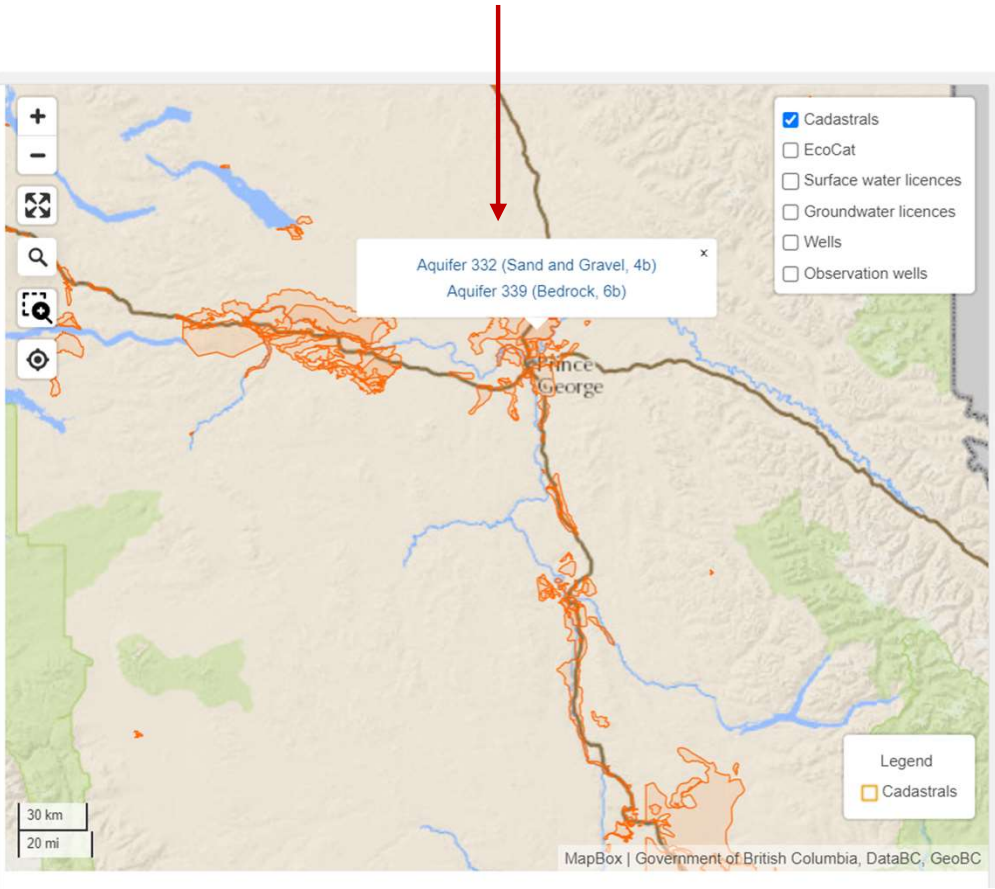
Advanced mapping	North Okanagan 2018 - Piteau
Drilling & operation advisory	No information available.
Observation wells	No information available.
Numerical Model	No information available.
Aquifer notations	Fully Recorded
Water Budget	No information available.
Water quality information	0 wells with an EMS ID
Hydraulically connected (screening level)	See Guidance on Determining Likelihood of Hydraulic Connection
Groundwater Surface Water Interactions	No information available.
Other information	Hydrogeology and Environmental Flow Needs Assessment of a Groundwater Licence Application near Lumby, B.C.

Aquifer Search Updates

Smaller Enhancements

6. Aquifer Map Call-out Boxes additional info
   - Aquifer lithology (bedrock/sand &gravel), and
   - Aquifer subtype (1a, 1b, 2, 3, etc.)

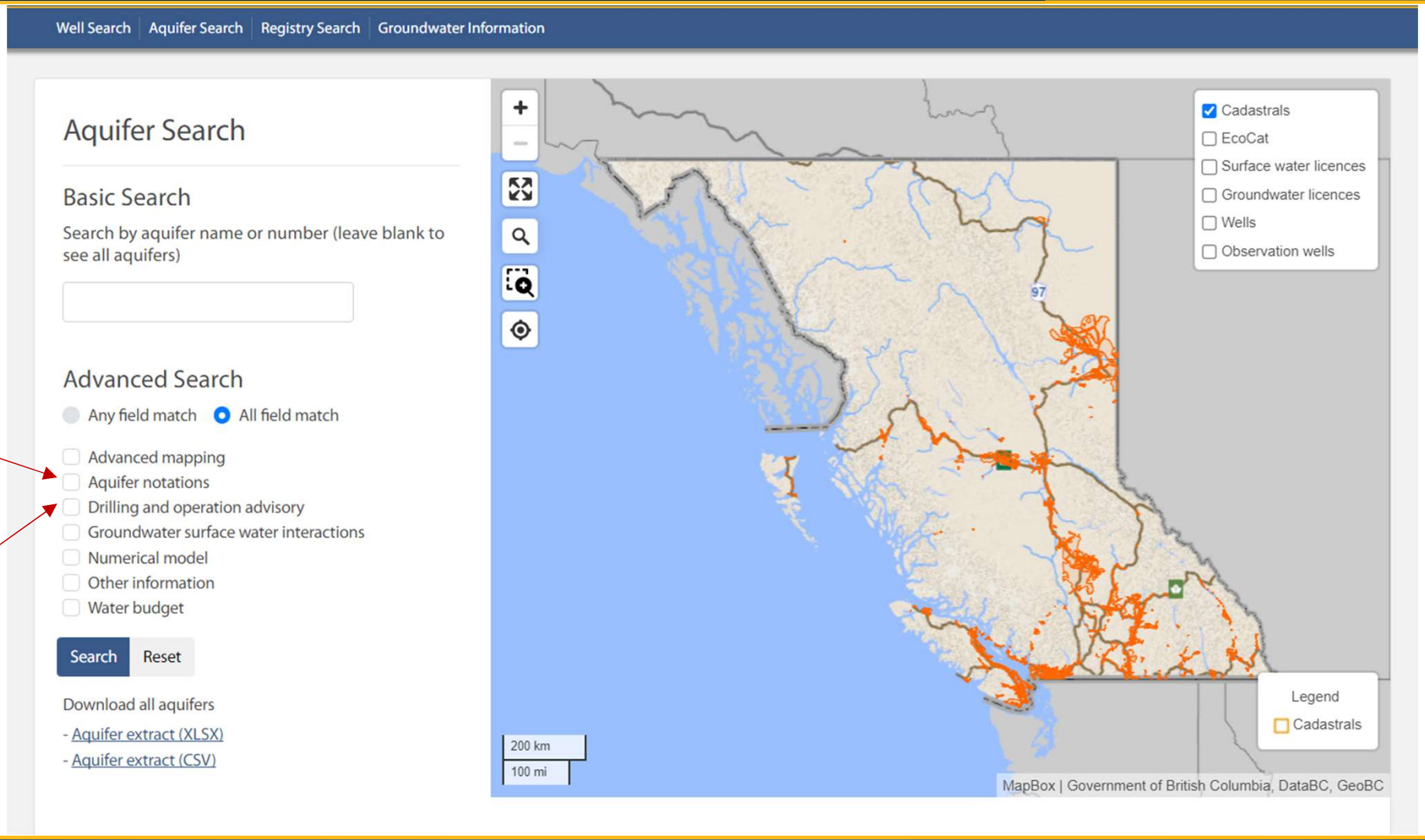
     e.g., Aquifer 51 (Sand and Gravel, 4b)



Aquifer Notations

- Add Aquifer Notations field to each Aquifer Summary Page
- Add “Aquifer Notations” as an advanced aquifer search option
- If aquifer has “Possible water shortage” notation, AND it falls within West Coast or South Coast Regions, add “and/or Saline Intrusion Issues” to the notation.

Aquifer Notations and Advisories



Aquifer Notations

Well Information

Number of wells correlated to the aquifer	1042
Number of uncorrelated wells within mapped aquifer extent	1219
Flowing artesian wells	6 artesian wells in aquifer

Well info last updated 3/6/2023

Documentation

Factsheets

- AQ_00709_Aquifer_Factsheet.pdf

Other Documents

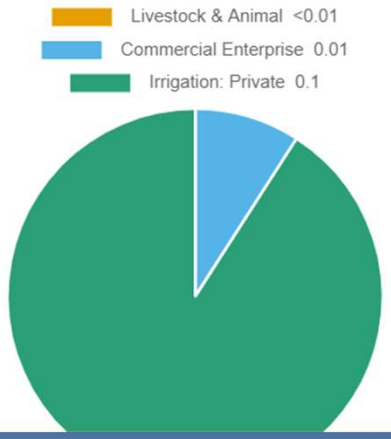
- AQ_00709_Aquifer_Mapping_Report.pdf

Licensing Information

The licensing summaries should be considered estimates. Total volume is likely more than what is indicated in charts due to domestic use and unprocessed licence applications. Due to complexities in the structure of the licensing data, reported values should be confirmed through the e-licensing portal.

Number of groundwater licences	3
Water withdrawal volume (annual)	104551 cubic metres

Licensed volume by purpose (millions of cubic meters)



Knowledge Indicators

Advanced mapping	No information available.
Drilling & operation advisory	No information available.
Observation wells	Active ○ 196 Water Level Analysis: Stable or Increasing ○ 197 Water Level Analysis: Stable or Increasing ○ 316 Water Level Analysis: Stable or Increasing ○ 385 Water Level Analysis: N/A Inactive (data may not be available) ○ No Water Level Analysis: 194 , 195 , 317
Numerical Model	○ Characterizing Recharge to Fractured Bedrock in a Temperate Climate (Gabriola Is.)
Aquifer notations	Possible Water Shortage and/or Saline Intrusion Issues
Water Budget	○ Water Budget Project: RDN Phase one (Gabriola, DeCourcey &

Well Search Page

Smaller Enhancements

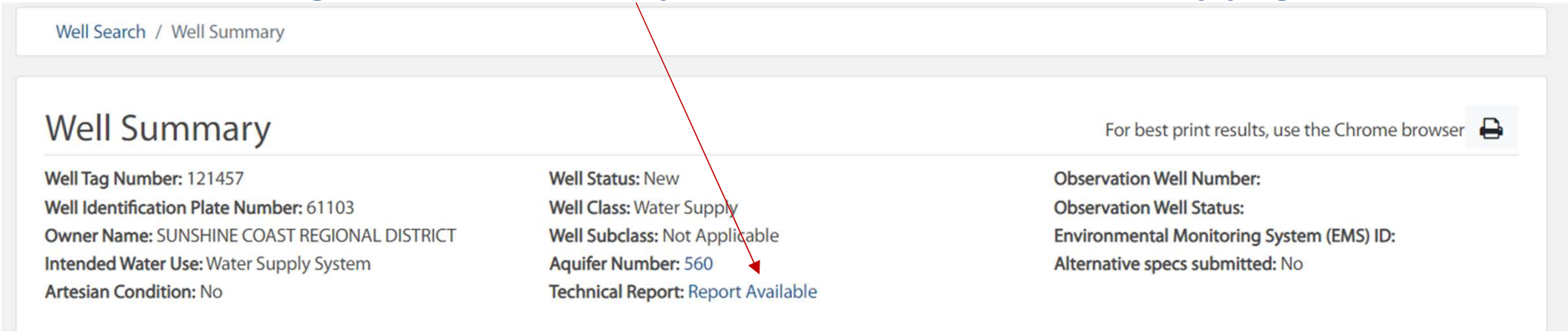
1. **Add “conductor casing” to list of casing drop options**

2. **Add additional text to the General Disclaimer on the Well Submission page**
   - any notes and comments that are included in well reports filed under WSA and its regulations) will be made available to the public by the government in accordance with the Open Government License-British Columba (OGL-BC)

Well Summary Page Updates

Smaller Enhancements

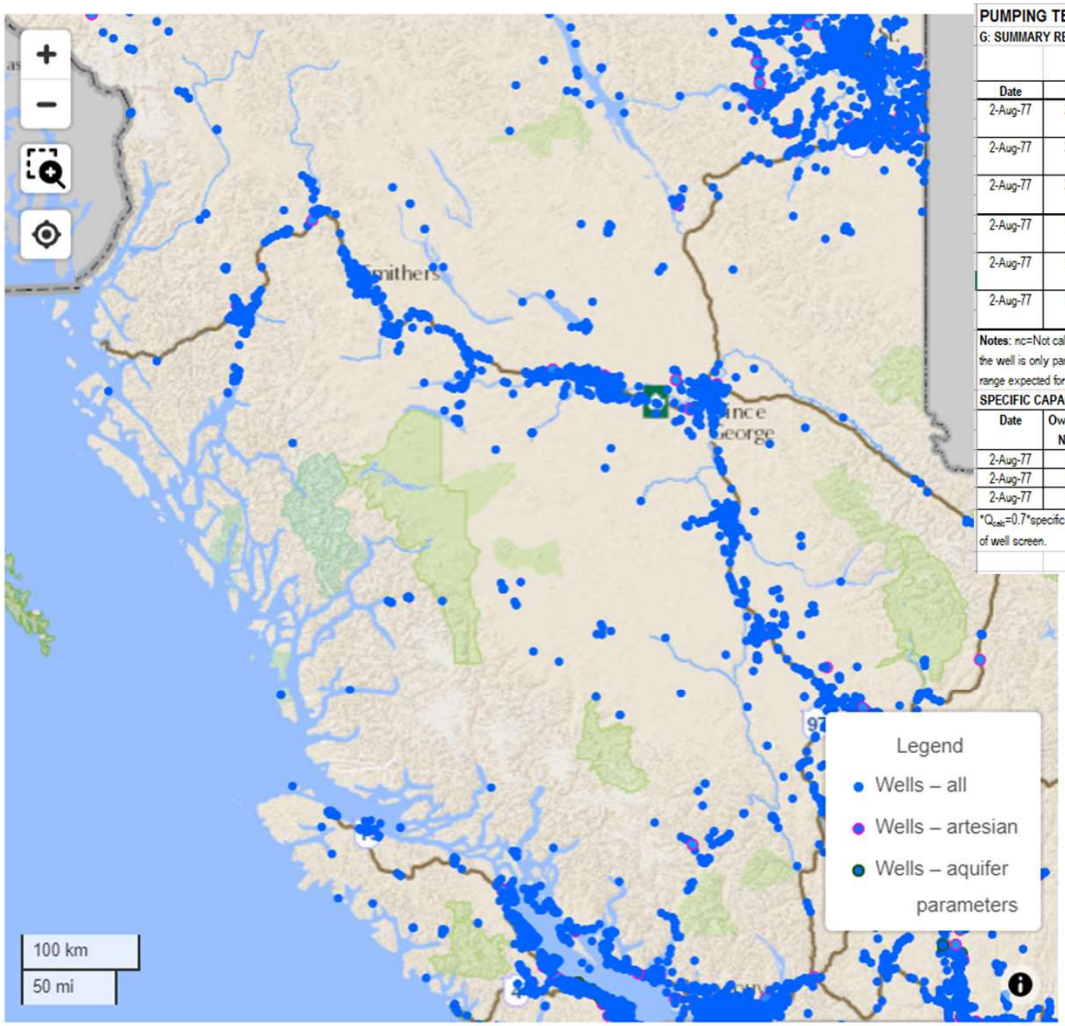
1. New flag for "Technical Reports" on each well summary page



2. Halos on GWELLS well map search to find wells with pumping test data

- A halo shows up around any wells with either hydraulic conductivity, storativity, or transmissivity data
- The legend shows halos as "Wells – Aquifer parameters"

Well Summary Page Updates



PUMPING TEST, WELL AND AQUIFER SUMMARY - PAGE 4

G: SUMMARY RESULTS

				TRANSMISSIVITY			STORATIVITY (dimensionless)		CONDUCTIVITY		
Date	Well	Description	Method	T_1	T_2	Units	S_1	S_2	K_1	K_2	Units
2-Aug-77	37733	Pumping well	Theis	79	nc	m^2/day	nc	nc	7	nc	m/d
				6364	nc	USgpd/ft			24	nc	ft/d
2-Aug-77	37733	Pumping well	Jacob	77	nc	m^2/day	nc	nc	7	nc	m/d
				6163	nc	USgpd/ft			23	nc	ft/d
2-Aug-77	37733	Pumping well	Theis Recovery	39	nc	m^2/day	nc	nc	3.6	nc	m/d
				3165	nc	USgpd/ft			12	nc	ft/d
2-Aug-77	17595	Observation Well	Theis	nc	nc	m^2/day	nc	nc	nc	nc	m/d
				nc	nc	USgpd/ft			nc	nc	ft/d
2-Aug-77	17595	Observation Well	Jacob	56	nc	m^2/day	2.3E-03	nc	6	nc	m/d
				4504	nc	USgpd/ft			19	nc	ft/d
2-Aug-77	17595	Observation Well	Theis Recovery	106	nc	m^2/day	nc	nc	11	nc	m/d
				8516	nc	USgpd/ft			37	nc	ft/d

Notes: nc=Not calculated, e.g. storativity not calculated (not valid) for pumping well. For derivation of K, assumption of methods is that well is fully penetrating the aquifer; therefore test provides a conservative estimate of K if the well is only partially penetrating the aquifer. Values of T & K are consistent between methods and wells. Storativity value is within the range expected for an confined aquifer. Conductivity values are in the low end of the range expected for a gravel aquifer (Heath, R. 1983. Basic Groundwater Hydrology).

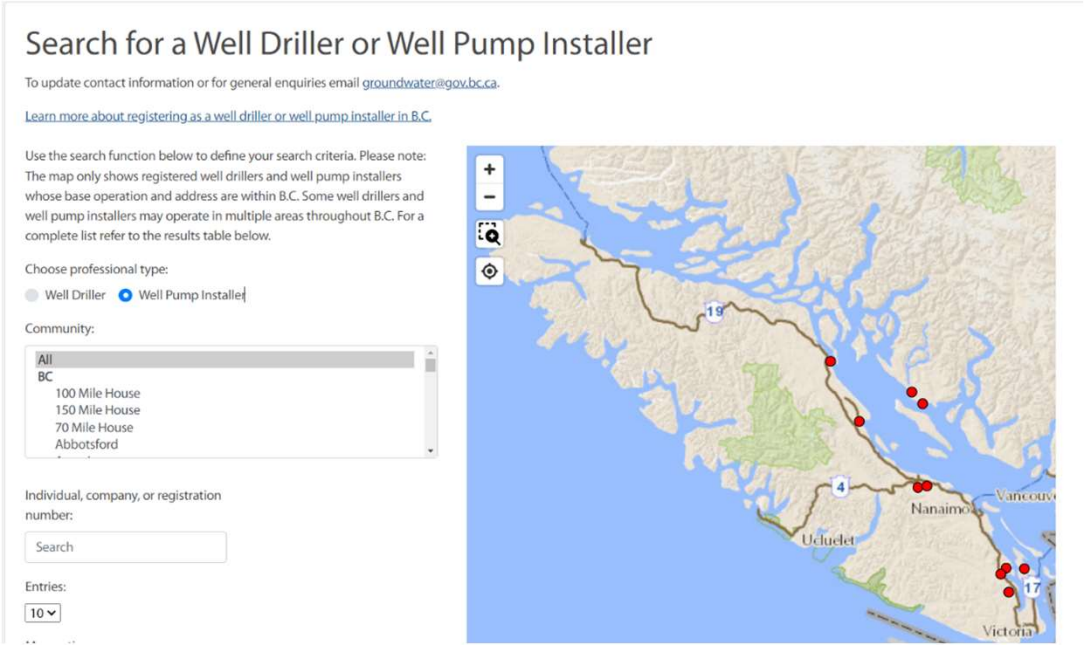
SPECIFIC CAPACITY & WELL YIELD ESTIMATE

Date	Owner Well Number	Well Tag Number	Description	Time	Pumping rate (L/s)	Drawdown (m)	Specific capacity (L/s/m)	Specific capacity (USgpm/ft)	Available drawdown (m)	Long-term well capacity, Q*		
2-Aug-77	77-1	37733	Pumping well	1 hour	23.3	7.7	3.0	15	19.7		L/s	USgpm
2-Aug-77	77-1	37733	Pumping well	1 day	18.4	12.4	1.5	7.2	19.7	Q_{calc}	13	203
2-Aug-77	77-1	37733	Pumping well	100 days	18.4	19.8	0.93	4.5	19.7	Q_{pump}	18	292

*Q_{calc}=0.7*specific capacity*available drawdown, if $Q_{calc} > Q_{pump}$, long term capacity for well taken as Q_{pump} (weighted average of pumping rates). Available drawdown calculated as depth between static water level and top of well screen.

Driller/Pump Installer Registry

- **A new map search feature is live for finding Well Drillers and Well Pump Installers (Phase 1)**



- **Phase 2 (pending) will be using the map feature to click a region to see what WD/WPI is operational in that area.**
  - **Currently shows business address (town) and not the area in which they operate. Expected to go live ~May 2023.**

Pending Updates: Well Summary Page

Larger Enhancement

- Increased ability to add pumping test data
- Currently can add 1 value for transmissivity, hydraulic conductivity, and storativity PER WELL.
- New feature will allow multiple tests (datasets) and multiple analysis/interpretation to be added to each well.
- Underway, but expected to be in production ~May 2023.

Questions? Comments?

Thank you!

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