



Disposal Well Dashboard Background and Instructions

VERSION 1.2: February 2022

About the Commission

The BC Oil and Gas Commission (Commission) is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.



The Commission's core roles include reviewing and assessing applications for industry activity, consulting with First Nations, ensuring industry complies with provincial legislation and cooperating with partner agencies. The public interest is protected by ensuring public safety, protecting the environment, conserving petroleum resources and ensuring equitable participation in production.

VISION

Safe and responsible energy resource development for British Columbia.

MISSION

We provide British Columbia with regulatory excellence in responsible energy resource development by protecting public safety, safeguarding the environment and respecting those individuals and communities who are affected.

VALUES

Transparency

Is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation

Is our commitment to learn, adapt, act and grow.

Integrity

Is our commitment to the principles of fairness, trust and accountability.

Respect

Is our commitment to listen, accept and value diverse perspectives.

Responsiveness

Is our commitment to listening and timely and meaningful action.



Additional Guidance

As with all Commission documents, this manual does not take the place of applicable legislation. Readers are encouraged to become familiar with the acts and regulations and seek direction from Commission staff for clarification. Some activities may require additional requirements and approvals from other regulators or create obligations under other statutes. It is the applicant and permit holder's responsibility to know and uphold all legal obligations and responsibilities.

Throughout the manual there are references to guides, forms, tables and definitions to assist in creating and submitting all required information. Additional resources include:

- [Glossary and acronym listing](#) on the Commission website.
- [Documentation and guidelines](#) on the Commission website.
- [Frequently asked questions](#) on the Commission website.
- [Advisories, bulletins, reports and directives](#) on the Commission website.
- [Regulations and Acts](#) listed on the Commission website.

Manual Revisions

The Commission is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the [Documentation Section](#) of the Commission's website. Stakeholders are invited to provide input or feedback on Commission documentation to OGC.Systems@bcogc.ca or submit feedback using the [feedback form](#).

Version Number	Posted Date	Effective Date	Chapter Section	Summary of Revision(s)
1.2	Feb. 17, 22	Feb 17, 22		This is a new document. Users are encouraged to review in full.

[LINK TO DISPOSAL WELL DASHBOARD](#)

Disclaimer

This information/tool is provided for the convenience of the industry; however, users are cautioned that the estimated capacity and forecasting relies on several approximations and assumptions that may not be appropriate for every well. The Commission accepts no liability for any errors or omissions or for loss or damages incurred by any person or business entity based on the use of this information/tool.

If there is any conflicting approval information (eg. maximum reservoir storage pressure) between the Dashboard and the formal approval document (searchable [here](#)), the formal approval document is considered the correct value. Permit holders are responsible for operating their disposal wells per the conditions of the formal approval.

Introduction

This tool aggregates operational data and approval information into plots and data tables for wells approved and operating for disposal of produced water and nonhazardous waste. Additionally, the Dashboard utilizes this data to estimate and display the remaining disposal volume capacity and date of fill-up. The Dashboard also allows for the export of the approval data utilized by the Dashboard in csv/Excel format.

The Disposal Dashboard report includes:

1. Info Tab: Contains General Information on the Dashboard and a link to this instructions document
2. Main Tab: The user selects a disposal well using its permit number (WA#) and completion event using a drop-down menu and then the following items are displayed:
 - Four plots
 - Monthly disposal volume, injection pressure, maximum approved injection pressure, and reservoir pressure vs date
 - Cumulative disposal volume, reservoir pressure, and ultimate storage pressure vs date

- Reservoir pressure vs cumulative disposal volume, plus a linear forecast of disposal capacity and lines representing the initial and ultimate reservoir pressures
 - Injectivity vs cumulative injected volume
 - Well name, WA #, completion event, and current status
 - A table summarizing the well's injection operational info, approval info, estimated capacity, and more
 - Values denoted with an asterisk (*) are estimated/forecasted values. When these values are blank, it means that a forecast was impossible due to either there only being a single data point or the linear regression returned a negative best fit slope.
3. Approval Data Tab: A table containing information from each well's Section 75 Special Project Approval Order (eg. Maximum Storage Pressure, MWHIP, etc.).
- Contains a link at the top left to download the data as a csv

Users may navigate between the 3 tabs using the arrows at the bottom center of the webpage.

This tool provides the Commission an overview for disposal well surveillance, compliance, and estimation of the province's "disposal reserves".

Instructions

Selecting a well

Wells are selected by clicking on the drop-down box titled *WA Number & CE Filter*, and then clicking the checkbox beside the desired well. The user can also type into the search bar at the top of the well list to apply a filter to the list and search for a specific well. Each disposal well is identified by its WA number and completion event. The WA number is also known as the well permit number (called license number in other jurisdictions). The plots and tables are automatically updated upon selection of a well.

Plots

The legend for each plot is displayed at the top of each plot. Some plots have zoom sliders (black line with white circles on each side) on their X and/or Y axis to allow the user to zoom into a desired portion of the plot.

Approval Data Export

From tab 3, Approval Data Tab, users may download the approval data by clicking the link at the top left ("Click here to download this data as CSV"). This link brings the user

to a page called “BCOGC External Reports”. To download the approval information, click on the Actions button, then click the Download option from the list, select the desired file format from the pop-up window and click the download button (see figure 1).

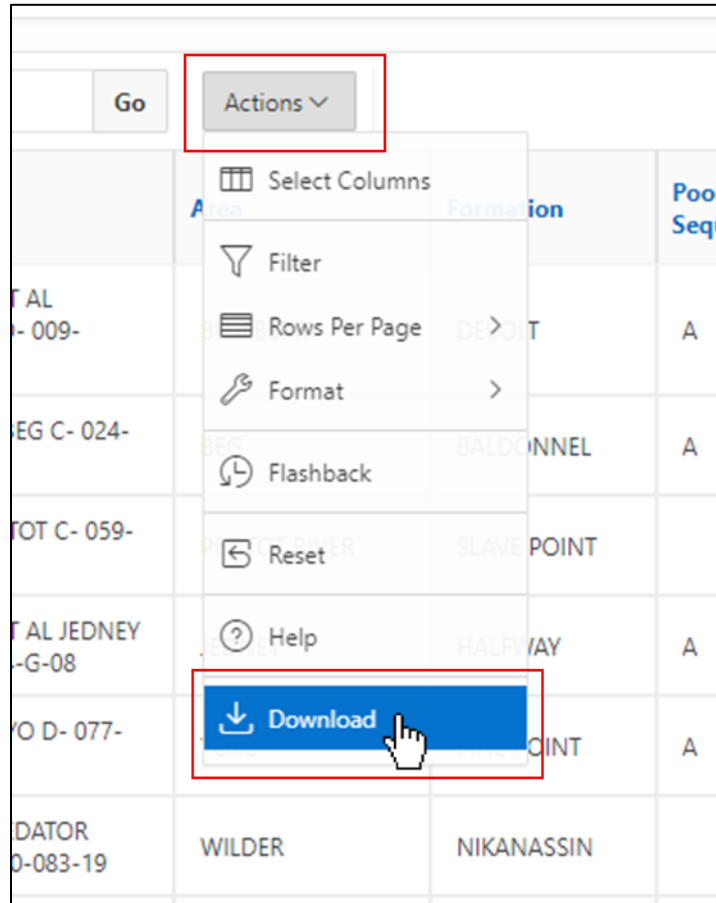


Figure 1: Approval Data Export

Forecast Assumptions

- Wells will inject at a flat rate equal to the average rate of their last year on injection
 - In reality, injection rate is dependent on several variables (disposal needs in the area, injectivity, etc.) and will change over time
- Forecasted disposal rate has a lower bound of 150m³/month
 - This is somewhat arbitrary. It was done to stop wells with very low injection rates from going on forever.
- Cumulative Disposal Volume and change in reservoir pressure are linearly related

- In theory, should be correct for semi-infinite aquifer with incompressible fluids, but in reality, many factors make the relationship stray from linearity, such as
 - Compressible gas, water, oil, formation
 - Multi-laminated reservoirs, etc.
- Only one isolated disposal reservoir per disposal well
 - Sometimes proximal production/injection in the same formation can impact the reservoir pressure at a disposal well
- Reservoir pressure tests are assumed to be true stable reservoir pressures
 - In reality, some tests are not stable or may have other reliability issues. Additionally, the method used to “pick” the reservoir pressure may not be consistent from one test to the next.
- Wells will continue injection until they reach their capacity
 - If no further disposal needs in area, operator will cease injection prior to reaching capacity
 - Scale, water compatibility issues, and other operational issues can end a disposal well’s operational life early

If you have any questions regarding this tool, please contact:

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Glossary

Term/Acronym/Abbreviation	Description
CE / Comple Ev	Completion Event
Cum	Cumulative
Depl	Depleted
Disp	Disposal
Inj	Injection/Injected

Injectivity	[Injection Rate] / [Wellhead Injection Pressure] – an approximate measure of how easy/difficult it is to inject fluid into a formation
Mo	Month
MWHIP	Maximum wellhead injection pressure
Pres	Pressure
Res	Reservoir
Vol	Volume