



Geoscience BC

Geoscience BC Report 2022-13

Georeferencing and Data Capture of 2019–2021 National Instrument 43-101 Reports in British Columbia to Update the Existing Dataset

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N.D. Barlow, P.Geo. (Purple Rock Inc.)

J.R. Barlow, P.Eng. (Purple Rock Inc.)

K.E. Flower (Purple Rock Inc.)

Background

Public geoscience data is essential to mineral exploration. The goal of this project is to make an additional stream of primary public geoscience data in British Columbia, the National Instrument (NI) 43-101 technical reports, more readily accessible and integrated with other data.

In 2007, the Canadian Securities Administrators (CSA) and its provincial member organizations began to require technical reports conforming to the NI 43-101, the *Standards of Disclosure for Mineral Projects*. The NI 43-101 technical reports contain valuable geoscience and exploration data, prepared by 'qualified professionals' (QP) and filed by companies listed on a Canadian stock exchange regardless of where in the world the exploration occurs. Unfortunately, SEDAR.com (Figure 1), the website that hosts these reports, provides no interface to identify which reports contain geoscience information relating to British Columbia properties or to spatially locate associated projects, which makes the reports difficult to integrate with other public geoscience data. Geospatial indexing of these reports is not a priority for the CSA.

Assessment reports (available in the ARIS database; <https://aris.empr.gov.bc.ca/>) are also sources of primary data from the mineral exploration industry. To keep mineral titles in good

standing, companies submit assessment reports to the BC Mineral Tenures Branch, which remain confidential for one year. These might include the same or similar information as NI 43-101 reports; however, some companies choose to pay cash in lieu of submitting assessment reports. Public companies are obliged to submit NI 43-101 reports (which are not subject to the one-year period of confidentiality), and these reports might include information unavailable in assessment reports.

For a more detailed discussion of the importance of these reports, please see Barlow et al. (2020).



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SEARCH FOR COMPANY DOCUMENTS

Company Name All (or type a name)	Document Type All
Industry Group All	Date of Filing ... From February 19 2020 To August 19 2020
Sort documents by ... <input checked="" type="radio"/> Company Name <input type="radio"/> Document Type <input type="radio"/> Date of Filing	<input type="button" value="Search"/> <input type="button" value="Clear"/> <input type="button" value="SEARCH HELP"/>

Figure 1. Screenshot of SEDAR's search screen (<http://sedar.com>).

Phase 1

In 2016, Geoscience BC approved Phase 1 of this project. The goal of Phase 1 was to gain access to the NI 43-101 reports available on SEDAR.com for analysis and review, and to obtain permission to publish metadata derived from the reports. In 2018, Phase 1 was completed when the reports were released by the CSA to Geoscience BC for metadata capture and analysis to update the MINFILE database.

Phase 2

The purpose of Phase 2 of this project was to identify, from all NI 43-101 reports, which reports relate to BC (Barlow et al., 2020), create a metadata index and geospatial layer for these

reports (which is available on both Geoscience BC’s Earth Science Viewer and the BC Geological Survey’s MapPlace 2), and use the data to update the MINFILE database, thus, adding the corpus of information contained within NI 43-101 reports in BC to the public geoscience database. As the CSA tracks where companies are headquartered, but not where their projects are located (and many mining companies are based in Vancouver or Toronto), we used a variety of methods to select BC-related reports; for further details, see Barlow et al. (2020). Phase 2 was completed in August 2020, with 996 reports identified as related to BC properties between 2005 and 2019.

Current work

In September 2021, Geoscience BC approved an update to the existing dataset generated in Phase 2, to repeat the same procedure for new SEDAR reports in 2019–2021. That work is the subject of this report.

Numbers and statistics

From the 14 137 NI 43-101 technical reports (>2 million pages) provided over several instalments by the CSA, we determined 1262 reports relate to BC properties, ranging from 2005 to 2021 (the last year provided by the CSA as of the time of writing). Our work found 62 reports from 2005 to 2019 that were missed, and 204 new SEDAR reports from 2019 to 2021.

Table 1 presents how many MINFILE occurrences were modified in series 2020 (described as phase 2 above) and series 2022 (described as current work above).

Table 1. MINFILE occurrence modifications by update series.

Series	MINFILE modifications			
	No action	Update	New	Total
2020	9	2701	81	2791
2022	0	1520	65	1585
Total	9	4221	146	4376

MINFILE modification levels are defined as follows: *No action* means that the MINFILE occurrence record already referred to the NI 43-101 technical report prior to our work. *Update* means that the MINFILE record was modified (in series 2022, 595 of these involved only changes to the bibliography; the rest were more substantial). *New* means that a new MINFILE record was created because an occurrence described in the NI 43-101 technical report was not previously documented in MINFILE.

As expected, the reports were spatially distributed throughout the province and concentrated in areas of active exploration (Figure 2). Although only two years of SEDAR updates were considered in the current work, compared to 14 years in series 2020, we found and completed a large number of MINFILE additions.

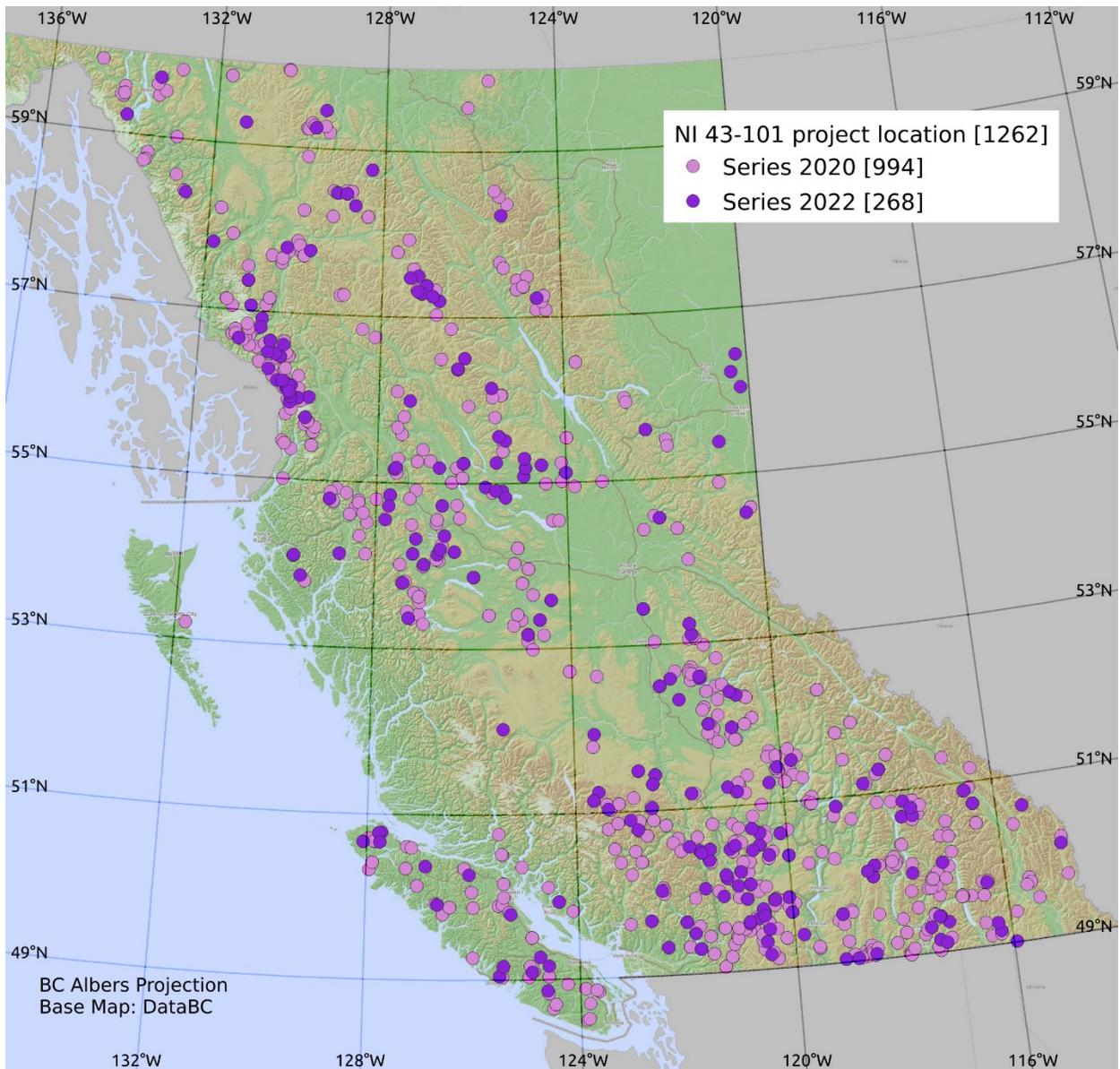


Figure 2. Geographic distribution of National Instrument 43-101 reports relating to properties in British Columbia. The number in square brackets is the number of associated reports.

As of March 2022, many of these occurrences are still being reviewed by the BC Geological Survey and changes identified through this project will be part of the public database in the future.

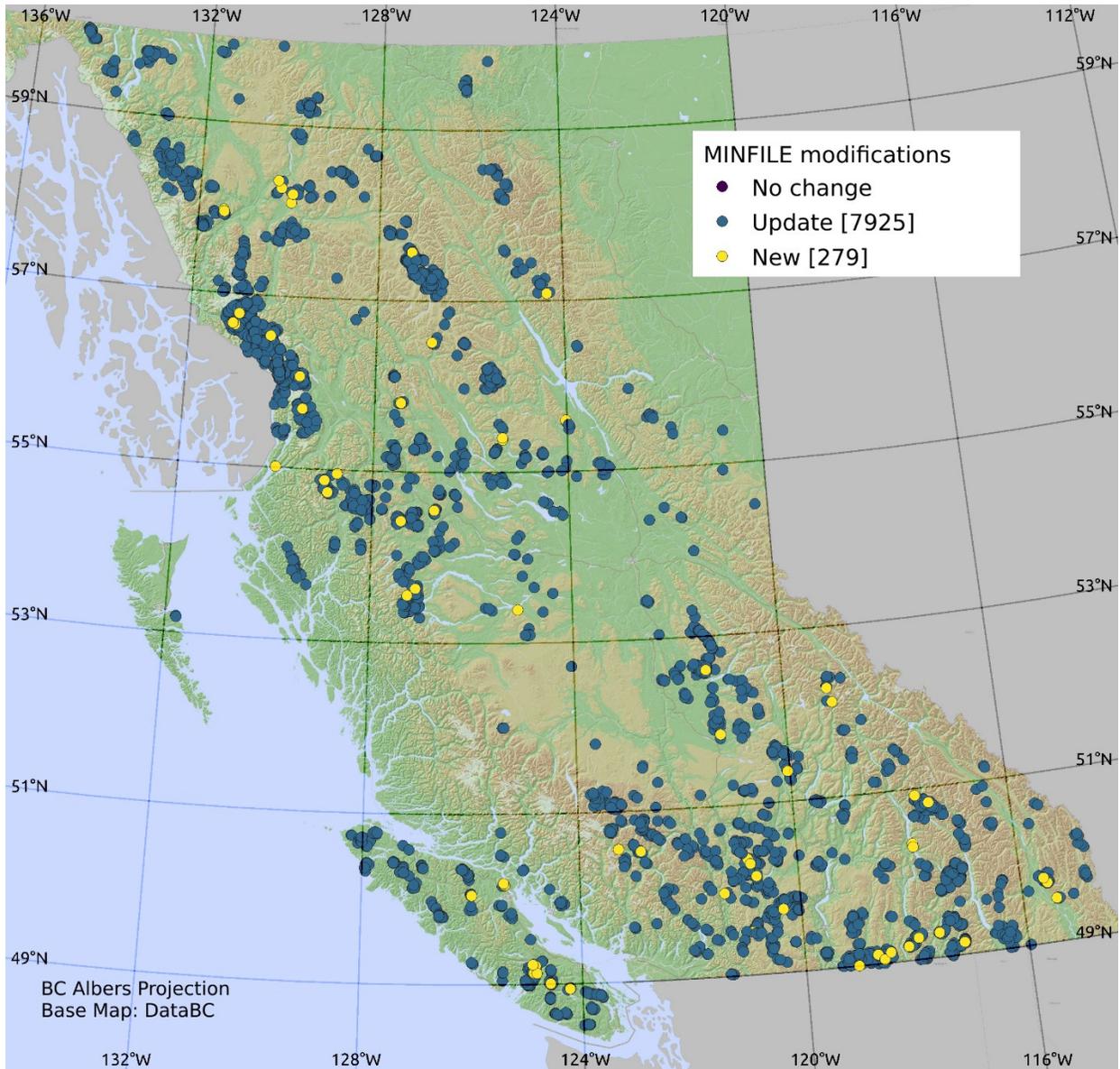


Figure 3. Geographic distribution of MINFILE occurrences correlated with National Instrument 43-101 reports, classified by the extent of changes made to the MINFILE occurrence. This image represents the total contribution of all Geoscience BC improvements to MINFILE based on NI 43-101 reports.

As shown in Figure 3, 8204 ‘links’ between NI 43-101 reports and new or existing MINFILE occurrences were identified, where a ‘link’ means a connection between a MINFILE occurrence and a NI 43-101 report. Some MINFILE occurrences refer to multiple NI 43-101 reports, and vice versa, so the number of ‘links’ is greater than the number of occurrences modified. Figure 4 shows a visualization of these links at the scale of mineral exploration project, demonstrating how the data can be used in a GIS.

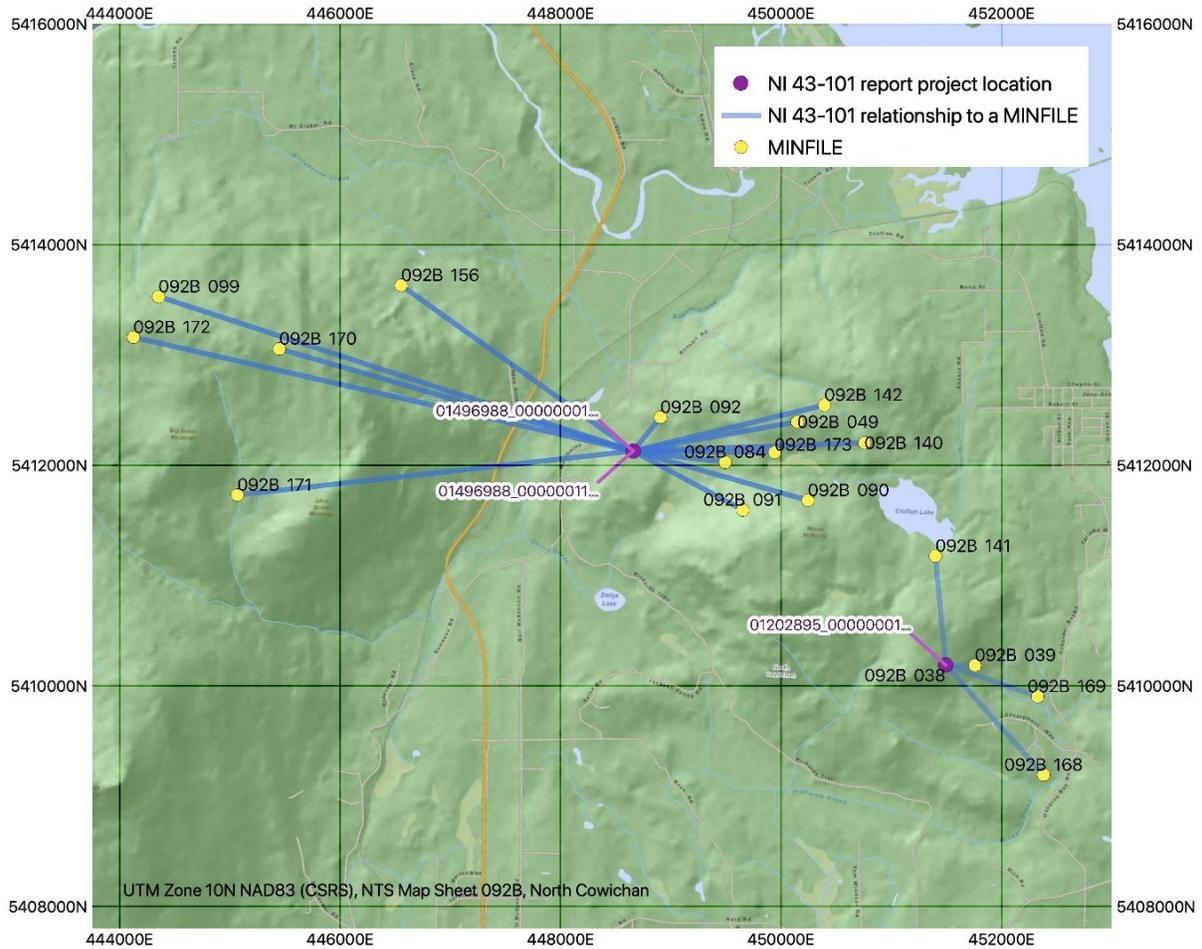


Figure 4. Example of connections between the locations of MINFILE occurrences and the associated NI 43-101 reports in an area near North Cowichan, Vancouver Island. Highlighted text labels are the names of NI 43-101 reports from SEDAR, truncated for this presentation, with purple callout lines. Purple dots are the central location given in the NI 43-101 reports; here, the two reports in the centre with the prefix 01496988 have the same location, one being an updated version of the other, and the third report beginning with prefix 01202895 coincides with MINFILE 092B 038. Blue lines indicate related nearby MINFILE occurrences, whose locations are marked with yellow circles. (Figure from Geoscience BC Report 2020-13; base map imagery from DataBC.)

Highlights

The NI 43-101 reports were used to update the work history and exploration results on 4376 MINFILE occurrences (extending across the province, providing information on historical and new exploration programs, including prospecting, geochemical (rock, silt, soil, stream sediment and vegetation) sampling, ground and airborne geophysical surveys, surface and underground development and drilling (diamond, reverse-circulation and percussion) programs. These exploration programs generally targeted base and precious metals and to a lesser degree coal resources, rare-earth elements (REEs), fluorite, barite, clay/zeolite and aggregate/dimension stone.

Numerous occurrences were updated or rewritten to provide in-depth exploration histories and included significant sampling (rock, chip, channel and drill hole) results along with geophysical and geochemical anomalies, new or revised zones of mineralization, physical workings including

underground development and new or updated mineral resources and/or reserves.

Many NI 43-101 reports describe a large number of MINFILE occurrences and thus can be useful for regional studies (Figure 4). For example, a report from June 2021, entitled “Thorn Property NI 43-101 Report” describes 222 claims in the area. The report contained information affecting 89 MINFILE occurrences.

Other improvements to the dataset

This project provided us the opportunity to review, make corrections and improvements to the data released in Geoscience BC Report 2020-13. Most notably, URLs were included for all identified BC technical reports so that it is easier obtain the original report from SEDAR.com. The URLs link directly to each report, but one must still pass a “CAPTCHA” test to access it. Previously, it was not possible to create a URL that SEDAR.com would accept, meaning one had to search for the report.

The naming convention for the “sedar_id” database columns or the encoded report name were updated, matching changes in the SEDAR.com internal database. Users of the previous Geopackage database will find the old names in “old_sedar_id” column. This change may be notable to certain GIS users.

It was also found that some SEDAR reports in the 2005–2019 dataset that were not previously recognized as being relevant to BC, a few duplicate reports were eliminated and location information for several reports was improved.

Information about the report type has also been included. In some cases, a technical report has been amended or superceded. Each instance creates a record in the SEDAR database. Users should always prefer the most recent version of a report.

Using the data from this project

There are now several methods to access information about NI 43-101 reports that relate to BC MINFILE occurrences:

- Through Geoscience BC’s website, data, including spatial data showing the locations and metadata of the NI 43-101 reports can be obtained. The URLs are now available in the metadata.
- After the data from this project is integrated, one will be able to view the locations and metadata of the NI 43-101 reports through the Geoscience BC Earth Science Viewer.
- After the data from this project is integrated, one will be able to view the locations and metadata of the NI 43-101 reports Through the British Columbia Geological Survey’s MapPlace 2.
- Through MINFILE, one can view the additions to the occurrence report and see the related NI 43-101 report(s) listed in the bibliography once those occurrences are approved by the BC Geological Survey.

To obtain NI 43-101 reports themselves, use the URLs provided in the Geopackage and metadata spreadsheets associated with this report. Should these links stop working, one can also retrieve the reports through SEDAR.com using the metadata from this project.

Conclusions

A total of 1262 NI 43-101 reports pertaining to BC were identified, mapped, and the information in them was used to generate updates for 4376 MINFILE occurrences. Geospatial datasets that make it possible to find NI 43-101 reports related to a particular region have also been generated.

This project demonstrated that NI 43-101 reports contain important information but are not well tracked with more commonly used and available public geoscience datasets. Through this project many MINFILE occurrences were captured and updated, and spatial information was made readily accessible for NI 43-101 reports, making them quicker to find and more useful for mineral exploration.

Despite the overlap between information contained within NI 43-101 reports and assessment reports, this project shows that there is still a significant amount of data from NI 43-101 reports that needs integration with public geoscience datasets. The NI 43-101 reports also fill in some information on exploration history and older sampling results that provide a more robust understanding of the MINFILE occurrence in question.

Future Work

Given that NI 43-101 reports are not incorporated into commonly used public geoscience datasets and contain useful data and exploration histories for mineral exploration projects, an annual update is recommended to maintain the existing dataset and add newly released reports.

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