



British Columbia Geological Survey
Geological Fieldwork 1987

Data Systems

NEW MINFILE — A MAINFRAME AND PERSONAL COMPUTER BASED MINERAL INVENTORY DATABASE*

By A. F. Wilcox

KEYWORDS: Mineral Inventory MINFILE, MINFILE/pc, computer database, user's guide, mineral deposits.

INTRODUCTION

MINFILE is the Geological Survey Branch computerized mineral inventory database; it contains information concerning in excess of 9300 mineral occurrences in British Columbia. The Canada/British Columbia Mineral Development Agreement of 1985-1990 has funded the research and updating of the occurrence descriptions. It is expected that this widely available database on the province's mineral resources will be a valuable research tool for prospectors and geologists.

BACKGROUND

MINFILE is a relational database containing information on metallic and industrial mineral and coal occurrences within the Province of British Columbia. An occurrence is defined as bedrock or placer mineralization and does not include float showings, or geochemical or geophysical anomalies.

The mineral occurrence data were first stored in a manual card file started in 1967. From 1973 to 1976, The University of British Columbia Department of Geological Sciences, in cooperation with industry and the Ministry of Energy, Mines and Petroleum Resources developed a computerized mineral inventory file known as MINDEP. In 1976 MINDEP was transferred to the Geological Survey Branch and renamed MINFILE. From 1984 to the present, MINFILE has been redesigned to operate interactively on a VAX computer and on personal computers. Extensive updates, rewrites and additions improved the geological content of the file.

OVERVIEW OF THE NEW SYSTEM

The new system runs on a DEC-VAX 8650 mainframe computer and uses the VMS operating system. The relational database utilizes ULTRA/MANTIS for database management and software development, and SPECTRA for custom searches.

Major expansions of data fields allow more geological data to be entered. For example, the minerals fields now provide for separate listing of significant, associated and alteration minerals. Deposit Character and Deposit Classification fields are expanded with an increased number of terms included.

Data fields have been expanded to permit inclusion of separate reserve estimates for multiple ore zones on the same

property and up to five reserve categories per year. Best assay information is now included in the database for occurrences where no reserves are reported.

Selected files in the database can be downloaded to personal computers for use with a new user-friendly program, MINFILE/pc, which has been developed in dBASE III+, allowing individual researchers to conduct their own searches.

REVIEW OF PROGRESS

Over 3500 occurrences have been recoded to date. This represents more than 40 per cent of the previously recorded data in MINFILE. Many previously unreported occurrences are now being coded and entered into the database. Data entry of the 3500 recoded occurrences is about 80 per cent complete. New report formats have been designed to make them easier to read; in previous versions of hard-copy reports it was necessary to have a separate manual to translate the codes used in the printouts. Codes have now expanded (*see* Figure 6-1-1).

New mineral inventory maps have also been designed. The old mineral inventory maps classified occurrences by accuracy of location; the new maps show the status of the property (producer, past producer, developed prospect, prospect, showing).

The data are also available on floppy diskettes. The first release of data was for the Seymour Arm (82M) and Whitesail Lake (93E) (Figure 6-1-2). Other map areas will follow after the data have been reviewed by staff geologists.

The Seymour Arm map area contains 244 recorded mineral occurrences. It covers parts of the Shuswap Highlands to the east and the Columbia Mountains to the west. The Goldstream mine is located in the northeastern quadrant of the map area. The western half of the map sheet covers the Adams Plateau and Barriere Lakes areas where a variety of occurrences are being actively explored, including the poly-metallic massive sulphide deposits of Rea Gold.

The Whitesail Lake map area contains 114 known mineral occurrences. It covers the contact of the Coast and Intermontane tectonic belts. At this latitude the Coast plutonic belt is mainly comprised of metamorphosed and deformed rocks of probable Paleozoic age, intruded by Cretaceous and Tertiary plutonic rocks. Immediately to the east, the Intermontane Belt is underlain by mildly deformed Lower Jurassic to Tertiary volcanic and sedimentary rocks.

A coding manual, version 2.2, which is a guide to the codes used by the Geological Survey Branch, has also been produced and released. All other outstanding coding manuals, with or without a version number, are obsolete and

* This project is a contribution to the Canada/British Columbia Mineral Development Agreement. British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1987, Paper 1988-1.

RUN DATE: 87/09/15
RUN TIME: 00:00:19

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
MINERAL RESOURCES DIVISION - GEOLOGICAL SURVEY BRANCH
MINFILE - REPORT

PAGE: 127

MINFILE NO.: 082M 065

NAME(S): ENERGITE, ENARGITE, NORTH STAR (SOUTH SHOWING)

STATUS: Past Producer
082M05W Underground MINING DIVISION: Kamloops

N.T.S.: 51 21 00 UTM ZONE: 11

LATITUDE: 119 59 30 UTM NORTHING: 5692778

LONGITUDE: 1540 Metres UTM EASTING: 291673

ELEVATION: Symbol (Map 53)

COMMENTS: Within 500 M

LOCATION ACCURACY: Lead Silver Zinc Gold

COMMODITIES: Galena Sphalerite Copper Chalcopyrite

SIGNIFICANT MINERALS: Quartz Ankerite

ASSOCIATED MINERALS: Silicification

ALTERATION MINERALS: Unknown

ALTERATION TYPE(S): Vein

AGE OF MINERALIZATION: Epigenetic

DEPOSIT CHARACTER: Irregular

SHAPE: Sheared

MODIFIER: 180 120 (METRES) STRIKE/DIP: 165 50W

DIMENSIONS: Area of mineralized quartz veins; attitude of host rocks.

COMMENTS: Metasedimentary

DOMINANT HOST ROCK: Phyllite

LITHOLOGY: Chert

Siltstone

Slate

Sandstone

Limestone

STRATIGRAPHIC NAME

FORMATION: Eagle Bay

Fennell

STRATIGRAPHIC AGE

Mississippian 360

Paleozoic 360 Ma

Dating by Preto, et. al., 1980

Fennell fm rocks also occur in the area

ISOTOPIIC AGE

DATING METHOD

Fossil (Conodont)

MATERIAL DATED

CONDDONT IN LIMESTONE

TECTONIC BELT: Omineca

TERRANE: Kootenay

PHYSIOGRAPHIC REGION: Shuswap Highland

METAMORPHIC TYPE: Regional

GRADE: Greenschist

PRODUCTION: ** ALL METRIC VALUES ARE IN KILOGRAMS EXCEPT PRECIOUS METALS WHICH ARE IN GRAMS **

** ALL IMPERIAL VALUES ARE IN POUNDS EXCEPT PRECIOUS METALS WHICH ARE IN OUNCES **

MINFILE NO.: 082M 065

CONTINUED...

B
C
S
Y
S
T
E
M
S

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
 MINERAL RESOURCES DIVISION - GEOLOGICAL SURVEY BRANCH
 MINFILE - REPORT

RUN DATE: 87/09/15
 RUN TIME: 00:00:19

YEAR	Tonnes Mined	Tonnes Milled	Silver	Lead	Zinc	Copper
1972	5	0	3,452	1,341	651	1,581
1954	31	0	280			
METRIC TOTAL:						
	36	0	3,732	1,341	651	1,581
IMPERIAL TOTAL: Tons						
	39	0	119	2,956	1,435	3,485

GEOLOGY:
 The property is underlain by Devonian to Permian age Fennell Formation rocks consisting of cherts and phyllites in the west and Mississippian age Eagle Bay Formation rocks consisting of phyllites, siltstones and sandstones in the east. A fault striking 150 degrees and dipping steeply fault, separating the two formations, has sheared and silicified the metasediments. The rocks generally strike 160 to 170 degrees and dip 50 to 90 degrees to the west, and in places, display rusty carbonate alteration. To the east is a Mississippian limestone unit.
 Mineralization consisting of galena and pyrite and lesser sphalerite and chalcopyrite, occurs within several quartz veins within a northerly trending zone measuring about 200 by 120 metres. Individual veins and lenses vary from a few centimetres to several metres wide and vary in orientation, although northerly strikes and moderate (40 to 50 degrees) easterly dips predominate.

BIBLIOGRAPHY:
 EMPR ASS RPT 5039, 5363, 9963, 12774, 13766
 EMPR AR 1927-188, 190, 191; *1935-D7-8; *1936-D36-39; 1939-93; 1954-A48
 EMPR GEM 1972-22; 1974-97
 EMPR EXPL 1975-57; 1976-63; 1978-E108; 1980-140; 1985-C105
 GCNL #2, 1983; #191, 1984
 GSC OF 637
 EMPR FIELDWORK 1978, pp. 31-37; 1979, pp. 28-36; 1984, pp. 67-76
 *Dickie, G. J., Preto, V.A. and Schiarizza, P. (in preparation 1986): Mineral Deposits of the Adams Plateau-Clearwater Area
 Preto, V.A. and Schiarizza, P. (1985): Geology and Mineral Deposits of the Adams Plateau-Clearwater Region in GSA Cordilleran Section Meeting May 1985, pp. 16-1 to 16-11
 EMPR MAP #53, 56

DATE CODED: 850724
 DATE REVISED: 870730
 CODED BY: AFW
 REVISED BY: LDJ
 FIELD CHECK: NO
 FIELD CHECK: NO

MINFILE NO.: 082M 065

B
C
S
Y
S
T
E
M
S

Figure 6.1. Sample print out.

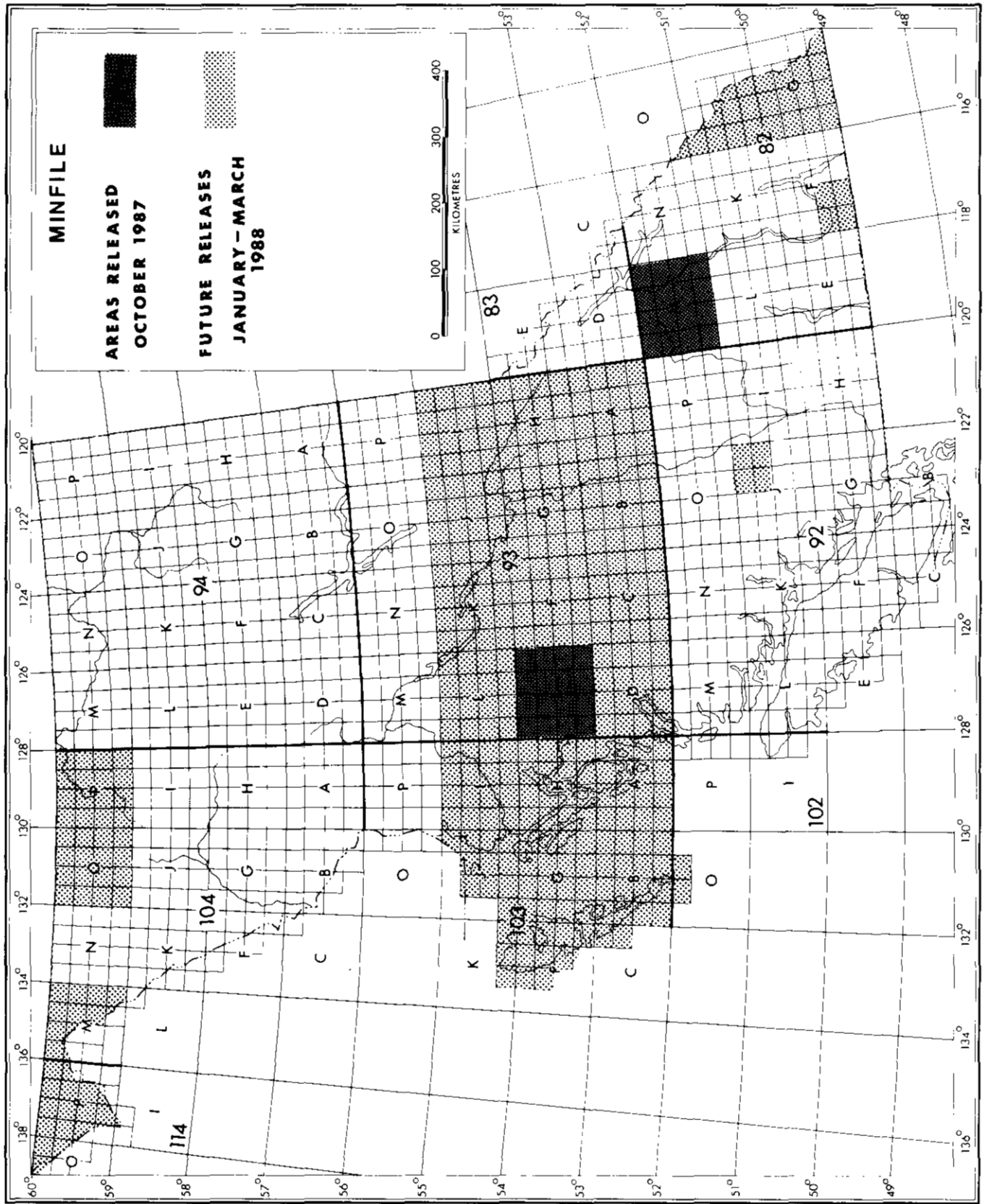


Figure 6-1-2. Map showing present and future releases of MINFILE.

should be discarded. This manual is used by all Geological Survey Branch staff in the write-up and coding for all properties. It explains the codes and sources of information used and the rationale applied to the description of mineral occurrences.

MINFILE/pc¹ is written in dBASE III+ and compiled in FOXBASE Plus. MINFILE/pc requires a 10-megabyte hard-disk drive to work effectively, a minimum of 612 kilobytes RAM (preferably 640 kilobytes and DOS 3.1 or higher) and can be used in conjunction with our data diskettes.

MINFILE/pc

The strength of the MINFILE system is its ability to search, sort and manipulate data entered in various information fields.

MINFILE/pc was designed specifically for searching aspects of the database which were considered of prime importance. The program utilizes 20 relationships used in the main database.

SEARCH DATABASE (MENU1000)

When users search the database, they are presented with twelve search options as follows:

- | | |
|----------------------------|-------------------------------|
| 1. Location. | 7. Deposit character. |
| 2. Commodity. | 8. Deposit classification. |
| 3. Status. | 9. Lithology. |
| 4. Deposit name. | 10. Formal/informal host. |
| 5. Mineralogy. | 11. Deposits with production. |
| 6. Host rock, mineral age. | 12. Deposits with reserves. |

Each of these will now be discussed in more detail.

LOCATION (SRCH1010)

It is recommended that location searches be carried out initially to reduce the number of deposits to a more manageable level. The location search is divided into three sections and you may search any one of them at one time. The first part of the location search that you may choose is by latitude/longitude. Valid latitudes and longitudes for British Columbia are from 48 to 60 degrees north latitude, and 114 to 140 degrees west longitude. The second option is to search the database using UTM coordinates. The valid coordinates for British Columbia are: UTM Zones 07 to 11; Northings from 5370000 to 6652000; and Eastings from 290000 to 710000. The third section of the screen that can be searched contains the NTS map sheet (you may enter any valid British Columbia designations ranging in scale from 1:1 000 000 to 1:250 000, that is, you may enter any or all of the following **082 M 05 E**. You may enter up to four map sheets for any given search. You may also search on two mining divisions, tectonic belts, physiographic regions or terranes.

COMMODITY (SRCH1020)

The commodity search screen is divided into two parts. The first part deals with "primary commodities" or commodities that are listed first in MINFILE printouts or on MINFILE maps. You may choose up to five primary com-

modities per search. The second part deals with the AND, OR, NOT conditions; you may also enter five commodities in each part of the search.

STATUS (SRCH1030)

The five valid STATUS types used in the MINFILE database are used for searching: showing, prospect, developed prospect, producer and past producer. You may choose up to three status types.

DEPOSIT NAME (SRCH1040)

You may enter from one to thirty characters of a deposit name at the prompt. For example, if you entered **blu** you would receive a listing of all deposits in the database that started with the first three letters "BLU" such as BLUE-BIRD, BLUEBELL, etc.

MINERALOGY (SRCH1050)

The mineralogy search gives you the option of searching significant, associated or alteration minerals. As in the commodity search, the Boolean algebra expression has been expanded into sentence structure to better explain the AND, OR, NOT logic. Up to five minerals may be entered in any section of the Boolean expression.

AGE SEARCH (SRCH1060)

The age search allows the user to search on either the age of the host rocks or the age of mineralization. A range of ages or a specific age may be entered.

DEPOSIT CHARACTER (SRCH1070)

The deposit character search menu allows the user to enter up to five deposit character codes in either the AND or OR Boolean expression. The new valid deposit characters are:

- | | |
|--------------------|-------------------|
| 1. Vein. | 8. Stratabound. |
| 2. Stockwork. | 9. Stratiform. |
| 3. Breccia. | 10. Concordant. |
| 4. Pipe. | 11. Discordant. |
| 5. Unconsolidated. | 12. Massive. |
| 6. Podiform. | 13. Disseminated. |
| 7. Layered. | **Unknown |

DEPOSIT CLASSIFICATION (SRCH1080)

The valid new deposit classification codes are listed below. Five valid codes in either section of the Boolean algebra expression may be chosen.

- | | |
|----------------------|------------------|
| 1. Replacement. | 11. Skarn. |
| 2. Magmatic. | 12. Pegmatite. |
| 3. Volcanogenic. | 13. Placer. |
| 4. Sedimentary. | 14. Precipitate. |
| 5. Syngenetic. | 15. Exhalative. |
| 6. Epigenetic. | 16. Diatreme. |
| 7. Hydrothermal. | 17. Epithermal. |
| 8. Residual. | 18. Mesothermal. |
| 9. Porphyry. | 19. Fossil fuel. |
| 10. Igneous contact. | **Unknown. |

¹ This software is not supported by the Geological Survey Branch. Source code may be obtained by writing the Chief Geologist.

LITHOLOGY (SRCH1090)

The user may enter up to five rock types. The rock modifiers are optional. If for example you wished to search "biotite granites" you would enter the appropriate code for granite in rock type and the appropriate code for biotite as a modifier. If you wished to search all granites you would just enter the code for granite in the rock type field.

HOST ROCK (SRCH1100)

The user may enter either two groups, formations or igneous metamorphic/other host rock names. For a complete list of host rocks included in the system the reader is referred to the coding manual.

PRODUCTION (SRCH1110)

The production search is different from the previous ten in that the entry of a year is required to activate this search. The year can be either a specific year or a range of years during which production occurred. This range of years can then be combined with a range of ore mined or ore milled. When using the production search, a commodity must be present in the Boolean algebra expression.

RESERVES (SRCH1120)

The ore reserve search, like the production search, requires that a specific year or a range of years be entered in order to begin searching the database. Once the range of

years has been selected the user may then specify a tonnage range. The default is the whole database. This criterion is then combined with the reserve categories. At least one reserve category must be chosen. The final section of this screen allows the user to choose an appropriate commodity and grade or range of grades. At least one commodity and grade must be selected. Three commodities and grades per search may be chosen. An example of the type of question that can be answered is as follows: list all the deposits that have gold reserves in excess of 10 000 tonnes grading greater than 5 grams per tonne, calculated no earlier than 1985.

ACKNOWLEDGMENTS

The author would like to acknowledge and thank the present coding team consisting of Laura Lee Coughlan, Larry Jones and Lori Walters under the direction of Brian Grant and all Geological Survey Branch staff who have contributed to this project. I would also like to thank Gordon Lowe of SHL Systemhouse Ltd. for his contributions to the MINFILE project.

REFERENCES

- B.C. Ministry of Energy, Mines and Petroleum* (1987): MINFILE Coding Manual, Version 2.2, B.C. Geological Survey Branch.
- Wilcox, A.F. and Borsholm, C.B. (1987): MINFILE Redesign and Progress Report, *B.C. Ministry of Energy, Mines and Petroleum Resources Geological Fieldwork*, 1986, Paper 1987-1, pages 433-439.