COALFILE

By Candace E. Kenyon

INTRODUCTION

COALFILE is a computer-based data storage and retrieval system for coal exploration information. The system was implemented to provide a quick, efficient, and organized method for handling information contained in coal company assessment reports. COALFILE's main objectives are to aid in promoting coal exploration in the Province and to act as a resource management tool both at a provincial and federal level. It provides a resource base for the scientific community and acts as a safeguard to assure that a backup of exploration data exists.

HISTORY

Coal exploration greatly increased in 1978 when the moratorium on the issuance of coal licences was lifted. Due to increasing amounts of data, a decision was made in 1978 to computerize information from assessment reports and the British Columbia Ministry of Energy, Mines and Petroleum Resources entered into an agreement regarding data collection with the Institute of Sedimentary and Petroleum Geology in Calgary. British Columbia was to focus on computerizing coal quality data, while the federal government would collect geological data (*see* A. Matheson, this volume). Summus Resources, a consulting company from Alberta, initiated the COALFILE project and maintained it for three years. It then became an in-house project with a resident data base manager and support staff at the British Columbia Systems Corporation (BCSC).

COMPUTER TECHNOLOGY

Since the inception of COALFILE the data base has undergone three major system conversions. It presently resides on the mainframe at BCSC on the IBM 3081 Model K with an MVS operating system. Access to the mainframe is via an IBM 3270 remote terminal and small amounts of hard copy are done on a local IBM 3287 printer (Fig. 130); batch jobs are output on BCSC high speed printers.

The Master file is sequential; it consists of seven varying length record types with a common index to link them. Records are grouped and sorted according to year and index numbers. Files are on disc storage and the IBM 'Wylbur' operating system is used to run batch PLI programs to maintain COALFILE. The Wylbur command files or 'execs' provide access to basic utilities, such as moving files from tape to disc, file creation, backups, restoration, sorts, merges, and file deletions. They also
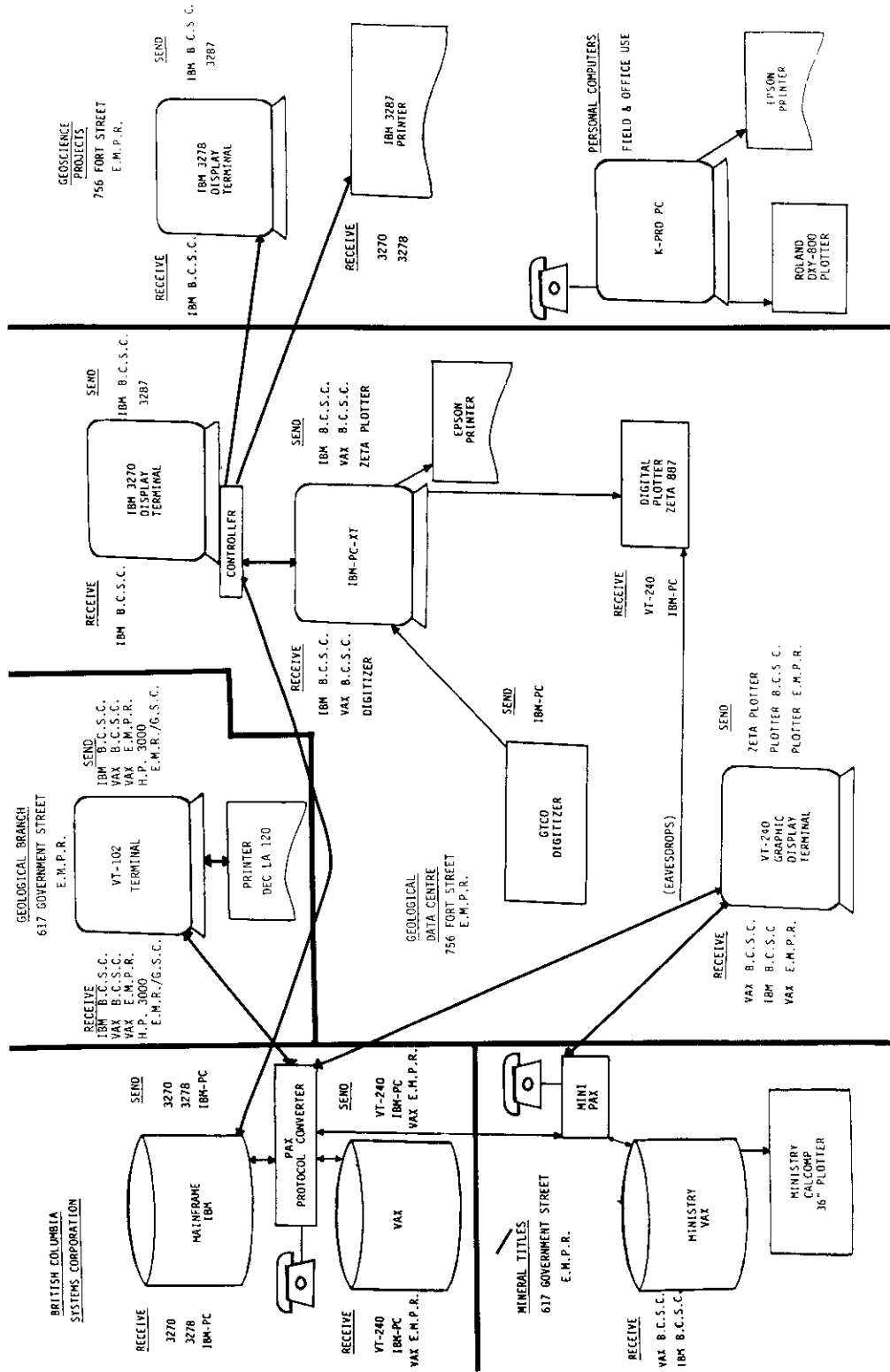
GEOSCIENCE
PROJECTS
756 FORT STREET
E.M.P.R.

SEND
IBM B.C.S.C.
3287

IBM 3278
DISPLAY
TERMINAL

RECEIVE
IBM B.C.S.C.

IBM 3287
PRINTER

RECEIVE
3270
3278

PERSONAL COMPUTERS
FIELD & OFFICE USE

K-PRO PC

EPSON
PRINTER

ROLAND
DXY-800
PLOTTER

SEND
IBM B.C.S.C.
3287

IBM 3270
DISPLAY
TERMINAL

RECEIVE
IBM B.C.S.C.

CONTROLLER

RECEIVE
IBM B.C.S.C.
VAX B.C.S.C.
DIGITIZER

SEND
IBM B.C.S.C.
VAX B.C.S.C.
ZETA PLOTTER

IBM-PC-XT

EPSON
PRINTER

DIGITAL
PLOTTER
ZETA 887

RECEIVE
VT-240
IBM-PC

GEOLOGICAL BRANCH
617 GOVERNMENT STREET
E.M.P.R.

SEND
IBM B.C.S.C.
VAX B.C.S.C.
VAX E.M.P.R.
H.P. 3000
E.M.R./G.S.C.

VT-102
TERMINAL

PRINTER
DEC LA 120

RECEIVE
IBM B.C.S.C.
VAX B.C.S.C.
VAX E.M.P.R.
H.P. 3000
E.M.R./G.S.C.

SEND
IBM-PC

GEOLOGICAL
DATA CENTRE
756 FORT STREET
E.M.P.R.

GTCO
DIGITIZER

SEND
ZETA PLOTTER
PLOTTER B.C.S.C.
PLOTTER E.M.P.R.

(EAVESDROPS)

VT-240
GRAPHIC
DISPLAY
TERMINAL

RECEIVE
VAX B.C.S.C.
IBM B.C.S.C.
VAX E.M.P.R.

BRITISH COLUMBIA
SYSTEMS CORPORATION

SEND
3270
3278
IBM-PC

MAINFRAME
IBM

RECEIVE
3270
3278
IBM-PC

PAX
PROTOCOL CONVERTER

SEND
VT-240
IBM-PC
VAX E.M.P.R.

VAX

RECEIVE
VT-240
IBM-PC
VAX E.M.P.R.

MINERAL TITLES
617 GOVERNMENT STREET
E.M.P.R.

MINI
PAX

MINISTRY
VAX

RECEIVE
VAX B.C.S.C.
IBM B.C.S.C.

MINISTRY
CALCOMP
36" PLOTTER

Figure 130. Geological Branch computing network.

provide a means of loading data, doing corrections, retrieving specific data, producing files for plots and statistical uses, printing forms, defining program function (PF) keys, and providing an aid to deal with problems encountered through a 'HELP' facility.

The software packages, SPSS, APL, SASS, and Culprit, interpret and display the data in report of graphical format, such as pie charts, bar graphs, and histograms. A plotting program designed for the Ministry in Virtual System (VS) Fortran which operates in Time Sharing Option (TSO) foreground enables us to produce x, y coordinate plots of exploration data at any scale. Tectronics software allows preview capabilities on the VT 240 (Fig. 130). Hard copy is presently done at BCSC.

The system is RACF (Resource Access Control Facility) protected with multiple security levels.

TYPE OF DATA

Information is extracted from assessment reports submitted each year and coded on data entry forms. The data is keypunched to tape, verified, and appended to the Master file. Data remains confidential for a three-year period from the date a company submits the report. Each report has as many as seven records associated with it, dependent upon the type of work done that year.

(1) Explore Record - Contains general information such as property ownership, location, type of work done, and licence area. Each coal property in the Province has a unique identifier in the file.

(2) Comment Record - This is reserved for text concerning the report (for example, whether report is complete).

(3) Map Record - Indicates the type of maps, including scale and area, that were submitted with the assessment report.

(4) Trench Record - Provides location, type of exposure, sample types, and other features but does not include analytical data for trench samples.

(5) Adit Analysis Record - Contains location information as well as depth, orientation, and comprehensive coal quality data determined from underground bulk samples.

(6) Borehole Record - Provides location information, number of coal intersections, type and depth of hole, number of samples taken, contractor, types of geophysical logs run, and other data.

(7) Borehole Analysis Record - This record contains detailed coal quality data for each sampled interval in a borehole.

Once the 1984 data has been appended, data from 602 assessment reports will reside in the Master file.

A computer printout is available listing all non-confidential assessment reports on file with the Ministry. Specific retrievals can be done upon request and detailed descriptions of the data fields for each record can be obtained.

SUMMARY OF RECORDS STORED IN COALFILE

Record Type	Total Records as of Oct. 1983	1984 Work to be Appended	Total No. of Records
Explore	582	20	602
Comments	496	65	561
Maps	485	25	510
Trench	2 582	217	2 799
Adit Analysis	578	33	611
Borehole	6 019	129	6 148
Borehole Analysis	13 601	845	14 446

PLANS FOR COALFILE

An IBM-PC XT resides in the Geological Data Centre. It uses the MSDOS operating system and has a 640K memory capacity. An IRMA board (which allows the PC to act as a 3270 terminal) in this machine enables downloading from the mainframe at BCSC (Fig. 1) to the personal computer. One of the software packages purchased for the PC is FOCUS, a fourth generation language. The records in COALFILE are presently being defined to FOCUS, which contains user freindly, menu-driven programs to produce reports, statistical results, and graphs. Tests will be run to see if it is feasible to produce hard copy from the IBM PC on the Epson printer and the Zeta 887 digital plotter (eight pens).

We plan to attempt to develop data entry screens on the PC which can be uploaded to the mainframe, where the Master file will continue to reside because of the volumes of data. Data coding and updates will then be made on the personal computer which will eliminate the need to code on data entry forms and the keypunching step; both introduce errors. Software also is being installed which will enable plots to be printed on the Ministry Calcomp plotter to lessen our dependence on BCSC.

To obtain further information about COALFILE please contact Candace Kenyon at (604) 387-1301.