

MODS - MINERAL OCCURRENCE DATA SYSTEM

by H.S. Missan, J.G. McArthur and K. Andrews

The Mineral Occurrence Data System (MODS) comprises two parts; namely, (a) the manual Mineral Inventory File (Figure 1), and (b) the computerized Mineral Index (Figure 2).

The personnel involved in the MODS project are:

- (i) Kenneth Andrews, Mineral Inventory Geologist, responsible for summarizing data on the Province's mineral occurrences from assessment reports onto Mineral Inventory cards.
- (ii) Harjit Missan, Project Geologist, responsible for the computerized Mineral Index and supervision of the manual Mineral Inventory File.
- (iii) Gilbert McArthur, Senior Geologist, responsible for the overall supervision of the MODS project.

The Mineral Evaluation Section is building this mineral occurrence data system to serve four different user communities; namely, **a)** The exploration geologists and prospectors engaged in the search for mineral deposits in the Province; **b)** The geological staff of the Department of Mines and Energy engaged in mapping and evaluating the mineral potential of the province; **c)** The Department of Energy, Mines and Resources, which is building Canada-wide mineral occurrence files such as NMI-National Mineral Inventory, CANMINDEX and MINSYS; and **d)** Academic and research geologists and students of economic geology. When this data system is completed, it is planned to offer an efficient information service to the above user communities. This will be made possible by the use of remote computer terminals in the offices of the Department of Mines and Energy.

(A) The Manual Mineral Inventory File

The objective of this manual Mineral Inventory File is to summarize all the available information on the

known mineral occurrences (mines, past producers, showings, *etc.*) in the province. The initial compilation was carried out between 1972 and 1974, when it was discontinued. The project was revived in January, 1978 under the Canada-Newfoundland Subsidiary Agreement on Mineral Development. Norman Mercer was hired at that time as the Mineral Inventory Geologist. In August, 1978, however, he was promoted to Mineral Exploration Consultant in the Department and the present Mineral Inventory Geologist, Ken Andrews, was hired.

The location of all occurrences included in this file have been plotted on 1:50,000 or 1:250,000 scale topographic maps. When the project was discontinued in 1974, about 2,500 occurrences had been identified of which 1200 had been documented. Our present plans call for the updating of the existing 1200 mineral occurrences and the generation of new cards for the remaining occurrences. We have started by updating the existing occurrences and creating cards for the new occurrences in the Stephenville map area (NTS:12B).

The Mineral Inventory cards are typed for input into a text editing system in Ottawa (Alphatext). An example of the summarized data for a mineral occurrence is shown in Figure 1, the Alphatext printout of a mineral inventory card.

(B) The Computerized Mineral Index

The computerized index contains coded and free format data on mineral occurrences derived from the manual inventory cards. The purpose of the index is to efficiently organize important data on the occurrences so that a wide variety of retrievals can be made taking advantage of the powerful sorting capabilities offered by computerization. Every mineral occurrence will be

FIGURE 1 - Mineral Inventory Card - Output From Alphatext

File Accession Number 12B/10/GYP001
 PRODUCT Gypsum
 PROVINCE OR TERRITORY Newfoundland
 NAME OF PROPERTY Romaines Brook
 OBJECT LOCATED Main deposit
 UNCERTAINTY IN METRES 50 m
 LATITUDE 48°33'29"
 LONGITUDE 58°40'00"
 UTM ZONE 21
 EASTING 376950 NORTHING 53791:50
 ELEVATION 21 m
 GEOGRAPHIC SUBDIVISION Electoral District - Port au Port
 OWNER OR OPERATOR AND ADDRESS Mining Lease
 Flintkote Holdings Limited - 1977
 P.O. Box 38
 St. George's, Newfoundland
 AON 120

DESCRIPTION OF DEPOSIT

Beginning on the east side of Romaines Brook and extending some 610 m in an easterly direction, is an area comprising approximately 26 hectares pitted with sink holes and numerous exposures. The gypsum is exposed in a cliff extending 366 m along the brook near its mouth and rising 21 m above the river level. The gypsum occurs with anhydrite in a flat plunging synclinal structure as the basal evaporite zone of the Codroy Group (Mississippian). The main body of the deposit, as outlined by drilling, trends 080°, dips 10 to 30° South, and it is 610 m by 366 m by 85 m thick. Gangue minerals include anhydrite, calcium carbonate and magnesium carbonate. Hayes and Johnson (1938) on the basis of surface sampling, state that the deposit contains 93.89% gypsum, 1.58% anhydrite, 3.82% CaCO₃ and 0.08% MgCO₃. Another small area of sinks is present on the west side of Romaines Brook flood plain, probably along strike as an extension of the main deposit.

HISTORY OF EXPLORATION AND DEVELOPMENT

Romaines Brook is situated on the north shore of St. George's Bay. Highway No. 460 connects it to Stephenville, a distance of approximately 8 km. Hayes and Johnson (1938) report that in 1926 Reid Newfoundland Company Limited of St. John's, drove two tunnels into the gypsum outcrop and sank seventeen test pits around that time. A grade tonnage of 11,700,000 metric tonnes of gypsum to a depth of 15.24 m below sea level was estimated by engineers of the Reid Newfoundland Company Limited. In 1955, the Newfoundland Department of Mines and Resources diamond drilled 15 holes totalling 606 m in this area. The results indicated a reserve of 2,025,000 metric tonnes of high-grade gypsum (90%). In 1960, Flintkote Company of Canada entered into a 12-year exploration agreement with the Provincial Government. At this time, they also received a mining lease in the Flat Bay area. In 1970, the Flintkote Company of Canada Limited carried out diamond drilling of 6 holes for a total of 207 m. This work was done to confirm the data provided by drilling in 1955.

FIGURE 1 - continued

In September, 1972, they acquired the mining rights to the Romaines Brook deposit.

HISTORY OF PRODUCTION AND/OR RESERVES

Estimated reserves indicated by the diamond drilling in 1955 (McKillop, 1959, Page 15).
 Tonnage available under 0 - 6 m overburden 765,000 metric tonnes.
 Tonnage available under 6 - 12 m overburden 1,035,000 metric tonnes.
 Tonnage available under 12 - 38 m overburden 225,000 metric tonnes.
 TOTAL 2,025,000 metric tonnes.
 Data from 21 drill holes. Grades between 80-90% gypsum.
 - No gypsum of any extent was found to extend more than 3.7 m below sea level.

STATUS Developed Prospect

TYPE OF DEPOSIT Evaporite (Sedimentary) Deposit

MINERALOGICAL COMPOSITION

Ore Minerals: Gypsum (white and pink)
 Gangue Minerals: Anhydrite, calcium carbonate, magnesium carbonate.

NATURE OF MINERALIZATION AND GENESIS

The CaSO_4 was originally deposited as anhydrite in Windsor (Mississippian) time in a restricted basin. This was a cyclic process because of the number of zones within the Lower Codroy Series. Downward percolation of groundwater altered the anhydrite to gypsum, during prolonged marine conditions, accompanied by a semi-arid climate. The gypsum occurs as massive bodies above the Ship Cove Limestone and as intercalated deposits with the clastics (McKillop, 1959).

AGE OF MINERALIZATION Mississippian

HOST ROCKS

Stratigraphic Unit: Basal evaporite zone of Lower Codroy Group.
 Rock Types: Gypsum, anhydrite, limestone, claystone, siltstone.
 Age: Mississippian
 Wall Rock Alteration: Percolating groundwater has altered the upper part to gypsum and possibly a considerable portion of it was dissolved away - Karst topography developed.

STRUCTURE OF DEPOSIT

ATTITUDE

Strike: 080° approximately
 Dip: 10° to 30° to the south
 Plunge: Flaw-lying

FIGURE 1 - continued

SIZE

Length: 610 m

Width: 366 m

Thickness: 85 m (the thickest section encountered in drilling in 1955 is 27 m with a grade slightly over 90%).

SHAPE

- Tabuloid shape (massive body)
- Synclinal structure
- Minor faulting in the area
- concordant

STRUCTURAL FEATURES AND TECTONIC SETTING

Appalachian Orogen, Western Platform (Lomond Zone). The deposit occurs at the northwestern end of the Bay St. George Carboniferous basin. It formed in an embayment of the basin between Ordovician carbonates of the Port au Port Peninsula and a Precambrian horst, the Indian Head Complex. The gypsum was deposited within a sequence of fine grained fluviatile sediments (Codroy Group) in which marine sediments, mostly limestones and evaporites, were periodically deposited. Coarse grained fluviatile clastics of the Barachois Group overlies the Codroy Group. The rocks of the Codroy Group are heavily sheared. This deformation is probably related to movement upon faults which existed during the deposition of the Carboniferous, i.e. Long Range Fault.

METAL/MINERAL CONTENT

According to Hayes and Johnson (1938, Page 29), the deposit contains 93.89% gypsum, 1.58% anhydrite, 3.82% calcium carbonate and 0.08% magnesium carbonate. These results are fairly accurate, but for more detail, refer to McKillop's diamond drill sections done in 1955. Estimated reserves from his work are indicated at 2,025,000 metric tonnes with grades in the order of 80% to 90% gypsum.

CaSO₄ - 2H₂O - 93.89%
 CaSO₄ - 1.58%
 CaCO₃ - 3.82%
 MgCO₃ - 0.08%

GEOPHYSICAL EXPRESSION

A northeast trending aeromagnetic anomaly reflects the Grenville basement which was thought to be a topographic high during late Devonian - early Carboniferous time. Conglomerates, limestone, (gypsum) evaporites and clastic sediments were deposited upon the Precambrian basement.

GEOCHEMICAL EXPRESSION No Data

PHYSIOGRAPHIC SETTING Karst topography developed in a coastal river valley region.

REMARKS

It seems probable that some gypsum is present on the western extension of the strike on the side of Romaines Brook opposite the gypsum cliffs. A small area of sinks is present

on the west side of the flood plain. The elevation, however, is such that it is likely that the overburden extends everywhere to some point below sea level.

Forty-five kilometres to the south of Romaines Brook by road, Flintkote Company Limited operates a gypsum mine at Flat Bay, St. George's Bay, where there are extensive reserves. Flintkote operates gypsum loading facilities at tidewater.

MAP REFERENCES

- Map 1117A - Stephenville, (Geol.) Scale 1 inch
- 4 miles.
Map 12B/10 - Stephenville (Topo.); Scale 1:50,000.
Map 268G - Stephenville (Aeromagnetic); Scale 1 inch - 1 mile

REFERENCES

- Baird, D. M., 1951
Gypsum Deposits of Southwestern Newfoundland; Can. Inst. Min. Met. Bull., Volume 54, Page 85-94, Newfoundland Mineral Development Division, File - NFLD 154.
- Hayes, A. O. and Johnson, H., 1937
Preliminary Report on Gypsum deposits of Bay St. George, Southwestern Newfoundland; Department of Natural Resources, Newfoundland, Information Circular No. 3, Pages 4, 5, Newfoundland Mineral Development Division, File 12B (13).
- McArthur, J. G. and Knight, I., 1974
Geology and Industrial Minerals of the Newfoundland Carboniferous; GAC - MAC 74 Fieldtrip Manual B-10, Newfoundland Mineral Development Division, File - NFLD 742.
- McKillop, J. H., 1955
Romaines Brook Gypsum Report based on field survey and diamond drilling results; Unpublished Report of Geological Survey of Newfoundland, Newfoundland Mineral Development Division, File 12B (66).
- McKillop, J. H., 1959
Gypsum in Newfoundland; Department of Mines and Resources, Newfoundland; Mineral Resources Report No. 1, Pages 14, 15, Newfoundland Mineral Development Division, File - NFLD 141.
1971
Annual Report of Newfoundland Department of Mines, Agriculture and Resources, 1971, Page 15, Newfoundland Mineral Development Division, Open File
- Riley, G. C., 1962
Stephenville Map Area, Newfoundland; Geological Survey of Canada, Department of Mines and Technical Surveys, Memoir 323, Newfoundland Mineral Development Division, File 12B/78.
Map revised by S. P. Collman Sadd, 1977.

FIGURE 2

<p>MODS Mineral Occurrence Data System April, 1978</p>	<p>Mineral Development Division Newfoundland Department of Mines & Energy</p>	<p>PRIMARY SOURCE <u>NFLD 154</u> CODER <u>Norman Mercer</u> DATE <u>18/04/78</u> CHECKED BY <u>H. Missan</u> DATE <u>26 April</u> ORIGINAL (X) UPDATE ()</p>
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RECORD ID
(000043)

CARD #	CIGD.NO.	CANINDEX NO.	NMI ACCESSION	DEPOSIT NAME	ALTERNATE NAME
01	402401		012B/10/GYPD01	ROMAINES BROOK	
02	FLINTKOTE MS L				
03	GYP OCCURRENCE-GSC MAP 1117A		030	GYP SUM	
04				MASSIVE GYPSUM ZONE INTERBEDDED WITH CLASTIC AND C	
05				ARBONATE ROCKS DEPOSITED ON A P-C BASEMENT HIGH/ UNMETAMORPHOSED/ ALTERATION-HYDRATION/ SH	
06				APPE-TABULOID FOLDED FAULTED CONCORDANT MINERALIZATION-MISSISSIPPIAN	
07	ARPIA (W) L			MISS	
08					GYPSUM OCCURS IN A PLUNGING SYNCLINAL STRUCTURE
09					RES (ESTIMATED) AT OVER 2 MILLION TONNES WITH GRADES ESTIMATE
10					DAT BETWEEN 80-90%

BIBLIOGRAPHY

CARD #	MAP REFERENCE	IN REFERENCE	UPDATE	REMARKS
(111)	G.S.C. MAP 1117A (REVISED)	MEM 323	(Y)	
89	11		41	
REFERENCE #1 AUTHOR, INITIALS, YEAR, TITLE				
(112)	BAIRD, D. M., 1951, GYPSIUM DEPOSITS OF SOUTHWESTERN NEWFOUNDLAND, CAN. INST. MIN. MET.			90
89	11			
(113)	BULL, V. O., 1954, N.F.L.D. MDD-N.F.L.D./154			90
89	11			
(114)				90
89	11			
REFERENCE #2 AUTHOR, INITIALS, YEAR, TITLE				
(115)	HAYES, A. O. AND JOHNSON, H., 1937, PRELIMINARY REPORT ON GYPSIUM DEPOSITS OF BAY ST.			90
89	11			
(116)	GEORGE, SOUTHWESTERN NEWFOUNDLAND, DEPT. OF NATURAL RESOURCES, NEWFOUNDLAND, (N.F.)			90
89	11			
(117)	O. C. I. R. NO. 13, N.F.L.D. MDD-12B/13			90
89	11			
REFERENCE #3 AUTHOR, INITIALS, YEAR, TITLE				
(118)	MICARTHUR, J. G. AND KNIGHT, I., 1974, GEOLOGY AND INDUSTRIAL MINERALS OF THE NEWFOU			90
89	11			
(119)	N.D.L.A.N.D. CARBONIFEROUS, G.A.C./M.A.C.-74 FIELD TRIP MANUAL B-10, N.F.L.D. MDD-N.F.L.D./742			90
89	11			
(120)				90
89	11			
REFERENCE #4 AUTHOR, INITIALS, YEAR, TITLE				
(121)	MCKILLOP, J. H., 1955, ROMAINE'S BROOK GYPSIUM REPORT BASED ON FIELD SURVEY AND DIAM			90
89	11			
(122)	OND. DRILLING RESULTS, UNPUB. REPT. OF GEOL. SURV. N.F.L.D. MDD-12B/166			90
89	11			
(123)				90
89	11			
REFERENCE #5 AUTHOR, INITIALS, YEAR, TITLE				
(124)	MCKILLOP, J. H., 1959, GYPSIUM IN NEWFOUNDLAND, DEPT. OF MINES AND RESOURCES, NEWFOU			90
89	11			
(125)	N.D.L.A.N.D., MINERAL RESOURCES REPORT NO. 1, N.F.L.D. MDD-N.F.L.D./141			90
89	11			
(126)				90
89	11			
CODED DATE UPDATED UPDATE				
	BY	yr mo	BY	yr mo
(127)	N.L.M.	(78)04		
89	11	14	18	21 25

MORE REFERENCES

(Y)
91

computerized, though not all the information on the card will be entered into the computer file. The data in Figure 1 are used as a basis for coding the MODS coding form shown in Figure 2.

The general categories of information that are considered appropriate for computerization are:

- 1) IDENTIFICATION AND CROSS REFERENCES
- 2) NAME AND OWNERSHIP
- 3) LOCATION
- 4) DESCRIPTION OF DEPOSIT
- 5) GEOLOGICAL SETTING
- 6) EXPLORATION AND DEVELOPMENT
- 7) BIBLIOGRAPHY

Some of the item names (as they appear on the MODS form) need some explanation:

Deposit type - A 3 digit code is used to classify a deposit. For detailed classification of deposit types, see Appendix A.

Commodity name - This is the primary mineral commodity.

Status - Indicates whether the deposit is a producing mine, a past producer with reserves, a past producer with no reserves, developed prospect, etc.

To manage the computer file and to make retrievals easily, a computer program called GRASP (Geological Retrieval And Synopsis Program) has been installed on an IBM 370 computer at Newfoundland and Labrador Computer Services Limited. GRASP was developed at the United States Geological Survey by R. Bowen and J. Botbol specifically as a geological data storage and retrieval system, to be used primarily by geologists. It is a very easy system to use and highly interactive.

There are twelve basic commands. Of these, three are needed to retrieve records according to the request. These three commands are:

- COND(ition)
- LOGI(c)
- SEAR(ch)

Once the records have been selected, the user needs to use

only two commands to review them. If the user is interested only in viewing certain items of the record, for example, DEPOSIT NAME, OWNER, LATITUDE, LONGITUDE, etc., then the LIST command is used. However, if the user is interested in obtaining the whole record, the DUMP command is issued, resulting in the entire record being printed. There is also a HELP command, which is used to assist the user. (See Figure 3 for the use of "Grasp Commands").

Retrievals

By the use of computers the retrieval capability from the data bank is optimized and complex retrievals can be made which would be virtually impossible if a manual inventory system was used. Some examples of the types of retrievals that will be of interest to explorationists are:

(i) Listing all the mineral occurrences or all (or specific) mineral commodities in a geographical or N.T.S. location, for example, all occurrences in N.T.S. area 2E/7 or all gypsum occurrences in N.T.S. area 12B.

(ii) Listing a combination of commodities occurring in a certain environment, a particular geological province, or a tectonic belt, for example, Pb-Zn occurrences in the carbonate belt of western Newfoundland.

(iii) Listing factors such as the stage of exploration, production status, etc., for example, for all gypsum occurrences with reserves or for all past producers of copper in N.T.S. area 2E.

(iv) Listing references pertaining to a particular occurrence or a combination of occurrences within a certain defined area. This enables the geologist to do research on the areas he is interested in.

(v) Identification of mineral deposits with certain characteristics of mineralogy or lithology. This type of retrieval is useful to geologists who are investigating and studying particular types of deposits, for example, Mississippi Valley type deposits.

(Beginning below is an example of a session using the GRASP system (Figure 3)).

In the example below, the response of the computer - system 'GRASP' is in "CAPITAL LETTERS"; and the user input is in "small letters".

WELCOME TO THE USGS GRASP RETRIEVAL SYSTEM.
AT THE CURRENT TIME THE FOLLOWING DATA BASES ARE AVAILABLE:

MODS- MINERAL OCCURRENCE DATA SYSTEM OF NFLD

GYPSUM

MODS HAS BEEN SELECTED BY DEFAULT

The user is interested in finding out the no. of producing operations in NTS-12B

ENTER COMMAND: cond → The "cond(ition)" command allows the user to specify a set of retrieval conditions.
 A. nts cs 12b → The user is interested in all of 12B.
 B. COMNAME @G GYPSUM → COMMODITY NAME
 C. status @G 1 → 1 stands for a producing mine.
 D. EQUAL

ENTER COMMAND: logic → The "logic" command is used to specify which retrieval conditions are to be used.
 ENTER LOGIC:
 a.and.b.and.c → In the above case, the conditions (a,b,c) have to be satisfied simultaneously.

ENTER COMMAND: sear → The "sear(ch)" command tells the system to begin its search based on the above request.
 sear
 ENTER INPUT FILE NAME: → This is the name of the file to be searched.
 mods
 ENTER OUTPUT FILE NAME: → This is the name of the file where records are to be stored (temporarily)
 syp
 ALL 101 RECORDS OF MODS SEARCHED.
 1 RECORDS FOUND WHICH SATISFY THE REQUEST.
 THEY HAVE BEEN STORED IN GYP

ENTER COMMAND: list → This tells the system that the user is interested in looking at the records.
 list
 ENTER NAME OF FILE: → This is the file where the records are stored in which the user is interested.
 syp
 ENTER NUMBER OF LINES/PAGE:

ENTER C FOR COLUMN OR R FOR ROW PRINTING:

r
 AT EACH PAUSE PRESS CR KEY TO CONTINUE. TO ABORT ENTER A.

ENTER THE LIST OF ITEM NAMES. → The system asks the user to indicate the names of the items that the user is interested in looking at.
 1. depname → name of the deposit.
 2. ownname → name of the owner.
 3. depchar → deposit character.
 4. tectbelt → tectonic belt (eg. Western Platform, Central Mobile Belt, etc)
 5. strunit → stratigraphic unit in which the deposit occurs.
 6. geolase → Age of the stratigraphic unit
 7. rocks → Host rocks
 8. workind → This indicates whether the operation is open pit, underground, etc
 9. protres → production and reserves figures.

The systems prints out the user's request.

```

DEPNAME =FLAT BAY MINE
OWPNAME =FLINTKOTE MS L
DEPCHAR =MASSIVE GYPSUM ZONE INTERBEDDED WITH CLASTIC AND CARBONATE R
        OCKS/ UNMETAMORPHOSED/ ALTERATION-HYDRATION/ SHAPE-TABULOID
        HORIZONTAL FOLDED CONCORDANT/ MINERALIZATION-MISSISSIPPIAN/
        GYPSUM ZONE ON THE NOSE OF MAJOR ANTICLINE
TECBELT =WE → western Platform
STRUNIT =L CODROY GP
GEOLOGE =MISS
ROCKS   =GYPSUM, ANHYDRITE, LIMESTONE, CONGLOMERATE, SANDSTONE, SHALES AND
        SILTSTONE
WORKING =0 → open Pit
PRO+RES =PROD-2700 TONNES (PER DAY) OF 90% (AVER) GYPSUM, RES-(ESTIMATED
        ) AT UP TO 200 MILLION TONNES
***** → end of record.

```

Now the user is interested in finding out the number of gypsum deposits that are

```

ENTER COMMAND:
cond
A.
nts cs 12b
B.
comname eq gypsum
C.
status eq 2 → stands for 'Developed Prospects'
D.

```

"DEVELOPED PROSPECTS" i.e. Reserves of the commodity are reported or can be calculated but the commodity has not yet been produced

```

ENTER COMMAND:
logic
ENTER LOGIC:
a.and.b.and.c

```

same as before.

```

ENTER COMMAND:
sear
ENTER INPUT FILE NAME:
mods
ENTER OUTPUT FILE NAME:
dev
ALL 101 RECORDS OF MODS SEARCHED.
      4 RECORDS FOUND WHICH SATISFY THE REQUEST.
THEY HAVE BEEN STORED IN DEV

```

```

ENTER COMMAND:
list
ENTER NAME OF FILE:
dev
ENTER NUMBER OF LINES/PAGE:

```

```

ENTER C FOR COLUMN OR R FOR ROW PRINTING:
r
AT EACH PAUSE PRESS CR KEY TO CONTINUE. TO ABORT ENTER A.
DO YOU WISH TO ENTER A NEW LIST OF NAMES? (Y OR N):
y

```

ENTER THE LIST OF ITEM NAMES.

1. depname
2. owpname
3. tenure → This indicates the status of the ground (eg. CROWN LAND, CLAIMS etc)
4. ddd → Number of diamond drill holes drilled on the property.
5. pro+res
- 6.

Here the system prints out the user's requests.

```

DEPNAME =PLASTER POND
OWPNAME =FLINTKOTE MS L
TENURE =ML → mining lease.
DDH = 7
PRO+RES =RESERVES-ESTIMATED AT 472500 TONNES
*****
DEPNAME =FISCHELLS BROOK (LOWER)
OWPNAME =FLINTKOTE MS L
TENURE =ML
DDH = 40
PRO+RES =RESERVES ESTIMATED AT 9 MILLION TONNES
*****
DEPNAME =COAL BROOK
OWPNAME =FLINTKOTE MS L
TENURE =ML
DDH = 6
PRO+RES =RES-(ESTIMATED)AT APPROXIMATELY 1.8 MILLION TONNES
*****
DEPNAME =ROMAINES BROOK
OWPNAME =FLINTKOTE MS L
TENURE =ML
DDH = 21
PRO+RES =RES(ESTIMATED)AT OVER 2 MILLION TONNES WITH GRADES ESTIMATED
AT BETWEEN 80-90%
*****

```

Now the user is interested in all gypsum deposits that are:

```

ENTER COMMAND:
cond
A.
nts cs 12b
B.
comname ea gypsum
C.
status ea 3
D.
status ea 4
DICTIONARY TYPE VARIABLE DOES NOT ASSUME VALUE:
4
RE-TYPE CONDITION
D.
status ea 5
E.
status ea 6
F.
status ea 7
G.

```

- (i) past producers with reserves (3)
- (ii) past producers with no reserves (4)
- (iii) prospects - 2 dimension data + grade (5)
- (iv) stowing - 1 " " " " (6)
- (v) Indication - commodity reported.

```

ENTER COMMAND:
logic
ENTER LOGIC:
a.and.b.and.(c.or.d.or.e.or.f)

```

```

ENTER COMMAND:
sear
ENTER INPUT FILE NAME:
mods
ENTER OUTPUT FILE NAME:
stat
ALL 101 RECORDS OF MODS SEARCHED.
19 RECORDS FOUND WHICH SATISFY THE REQUEST.
THEY HAVE BEEN STORED IN STAT

```

Here the system tells the user there are no records where the status is 4

} same as before.

ENTER COMMAND:

list

ENTER NAME OF FILE:

stat

ENTER NUMBER OF LINES/PAGE:

ENTER C FOR COLUMN OR R FOR ROW PRINTING:

c

AT EACH PAUSE PRESS CR KEY TO CONTINUE. TO ABORT ENTER A.

WOULD YOU LIKE OUTPUT TO BE TO DISK? (Y OR N):

n

DO YOU WISH TO ENTER A NEW LIST OF NAMES? (Y OR N):

y

ENTER THE LIST OF ITEM NAMES.

1. recid → Record Identification

2. nts

3. lat → latitude

4. lon → longitude

5. tenure

6. status

7. seolwk (Y) indicates whether any geological work has been done.

8. ddh

9.

RECID	NTS	LAT	LONG	TENURE	STATUS	GEO LWK	DDH
6	12B/02	480800	585800	CL	6	: Y	
9	12B/02	480700	584730	RL	6	: Y	
13	12B/02	481240	585130	CL	7		
14	12B/02	481025	584625	FS	7		
15	12B/02	480935	584520	CL	7		
16	12B/02	480725	584250	RL	7		
17	12B/02	480654	584215	RL	7		
18	12B/02	481420	584145	FS	7		
19	12B/02	481435	584050	FS	7		
20	12B/02	480830	585240	CL	7		
21	12B/02	480815	585550	CL	7		
23	12B/02	480120	585155	RL	7		
25	12B/02	480010	585825	RL	7		
29	12B/07	481705	584530	CN	6		
32	12B/02	481350	584635	CL	6		
33	12B/02	481258	584358	CL	7		
35	12B/07	481800	583755	CN	7		
40	12B/08	482340	582515	ML	5	: Y	
93	12B/10	483342	585033	CN	5	: Y	7

crowd land

Fee Simple

Reid Lots

concessions

ENTER COMMAND:

quit

→ The user tells the system that he/she is finished with the requests.

THE FOLLOWING FILES HAVE BEEN CREATED DURING THIS SESSION:

- 1 GYP
- 2 DEV
- 3 STAT

} Here the system tells the user the number of searches done and the files created.

DO YOU WISH TO SAVE ANY OF THEM? (ENTER YES OR NO):

no

} The system asks the user whether the user wants to save these files for future references.

ISSUE .DEL COMMANDS FOR THE FOLLOWING FILES:

- GYP DEV STAT

APPENDIX "A"

CLASSIFICATION OF MINERAL DEPOSITS

1. Placer deposits. **CODE 010**

2. Laterite and other residual deposits (e.g. gossan, regolith). **CODE 020**

3. Evaporites. Example: Flat Bay - gypsum. **CODE 030**

4. Volcanogenic deposits (deposits associated with volcanic processes), including discordant mineralization associated with conformable mineralization; subdivisions based on associated host rocks. **CODE 200**
 - (a) Mafic host - includes deposits associated with volcanic rocks. Includes deposits of simple and polymetallic mineral content. Includes discordant mineralization (alteration pipes and stockwork) associated with conformable mineralization. Cyprus (ophiolitic) type fall in this category. Tilt Cove, Betts Cove, Whalesback and Little Bay are Cyprus type. Skidder prospect is nonophiolitic but associated with mafic host. **CODE 210**
 - (b) Felsic and intermediate host - includes deposits associated with intermediate to felsic volcanic rocks. Includes deposits of simple and polymetallic mineral content. Examples - Buchans, Ming, Gull Pond, Flint Leamington, Bull Road, Tulks, Victoria Prospect. Includes discordant (alteration pipes, stockwork, vent breccias) mineralization associated with conformable mineralization. Examples - Engine House Orebody, Henderson Showing. Another example - U-Michelin. **CODE 220**
 - (c) Exhalative - includes exhalative deposits with no associated volcanic rocks and/or no significant base metal sulphide content. Includes iron, jasperite, manganiferous sediments, barite etc. Examples - barite associated with Buchans ores, jasperite associated with Gullbridge. **CODE 230**
 - (d) Unclassified and other - includes deposits associated with volcanic rocks but are unclassified and/or are presently unable to be further classified. Examples - Lake Bond (lack of data and conflicting interpretation), Great Burnt Lake? **CODE 240**

5. Deposits in Sediments **CODES 300, 400, 500**
 - I Clastic sediments (excluding modern and ancient placer deposits, fracture, vein and fault deposits not associated with stratiform mineralization). **CODE 300**
 - (a) Stratiform deposits associated with sandstones and/or conglomerates. **CODE 310**
 - i. in alluvial fan and fining upward, green and/or red fluvial cycles such as U, Cu, V, Fe, Pb; e.g. U/Cu in North Branch Formation.
 - ii. in deposits associated with unconformities; e.g. U/Cu Stormy Lake, Labrador.
 - iii. in stratigraphic traps including Pb, Zn, Ba, Sr; e.g. Zn in Anguille sandstone beneath Ship Cove Formation near North Branch River, Codroy. **CODE 313**
 - (b) Stratiform deposits associated with shales; e.g. Cu in Adeline Lake Formation, Seal Lake - or mudstones (frequently carbonaceous); e.g. U in Overfalls Formation, Grand Codroy River. **CODE 320**
 - II Associated with carbonate rocks: Stratiform mineralization associated with limestone and/or dolomites, can include replacement of hosts to exclude vein, fractures, faults where not associated with stratabound deposits. **CODE 400**

Mineralization can be associated with:

- (a) Collapse breccias or other breccias; e.g. Pb-Zn-Fe in Upper Cambrian dolomite at Watts Point, St. Barbe. **CODE 410**
- (b) Reefs (can include stromatolites), e.g. Pb-Zn, Upper Cambrian dolomite, Eddies Cove East. **CODE 420**
- (c) Stratabound dolomitized limestone; e.g. Daniel's Harbour Zn. **CODE 430**
- (d) Unconformity/disconformity; above or below; e.g. Ronans Sr-Ba, Lead Cove Pb. **CODE 440**
- (e) Primary void filling - Cu, Pb, Zn, Ba, Fe in Ship Cove Formation. **CODE 450**

III Chemico-precipitates: Primary sedimentary precipitates forming distinct beds or units (within sedimentary sequences). Can include penecontemporaneously reworked deposits (to exclude later alterations or enrichments; e.g. laterites, metamorphism, exhalate, or obvious volcanogenic associations). **CODE 500**

- (a) Siliceous - chert; e.g. Ramah chert (siliceous iron formation, e.g. Archean-Saglek). **CODE 510**
- (b) Iron formation. **CODE 520**
 - oxide types; e.g. hematite-Bell Island magnetite - Howells River. **CODE 521**
 - sulphide type; e.g. Ramah pyrite (may be replacement, e.g. pyritiferous oolite - Bell Island). **CODE 522**
 - carbonate type. **CODE 523**
- (c) Others - e.g. phosphates, e.g. Deer Lake group, manganese, e.g. stromatolites of Cambrian, Avalon. **CODE 530**

6. Deposits in veins, faults, shears, either crosscutting or conformable, believed to have been the primary channelways for mineralization including replacement (other than skarn) and younger than and irrespective of host rocks. Include most conventional gold deposits. Discretion is required in evaluating the validity of shear zone and replacement designations in older government reports and outside sources (excluding pegmatites). Examples - pyrophyllite - Manuels, FI - St. Lawrence, B, U - Moran. **CODE 060**

7. Porphyry type deposits, including stockworks, disseminations, vein swarms, breccia pipes and volcanic alteration pipes (if conformable sulphides are absent or subordinate). Gold deposits occurring as stockworks or vein swarms are excluded (except for a few large porphyrylike deposits) and should be coded as 6. Example - Mo - Rencontre East. **CODE 070**

8. Skarn deposits. **CODE 080**

9. Greisen deposits, mainly of tin, tungsten and beryllium. **CODE 090**

10. Pegmatite deposits; e.g. Wesleyville - Be. **CODE 100**

11. More or less concordant deposits in intrusive rocks; i.e. concordant with the internal layering and/or basal contacts. Examples - Cr - Lewis Hills; Fe/Ti - Anorthosite. **CODE 110**

12. Deposits in carbonatites/highly alkalic intrusive complexes; not to include porphyry deposits. Examples - REE deposits. **CODE 120**

13. Other deposits in igneous rocks; excludes superimposed types 6 and 7. **CODE 130**

14. Deposits in metamorphic rocks (other than skarns and greisens), where the premetamorphic host rock is not known; excludes types 6 and 7. Examples - U - possibly Kitts. CODE 140

15. Other. CODE 150

16. Insufficient data to classify. CODE 160

17. Fossil fuels: peat, coal, gas and oil (oil shales). CODE 170