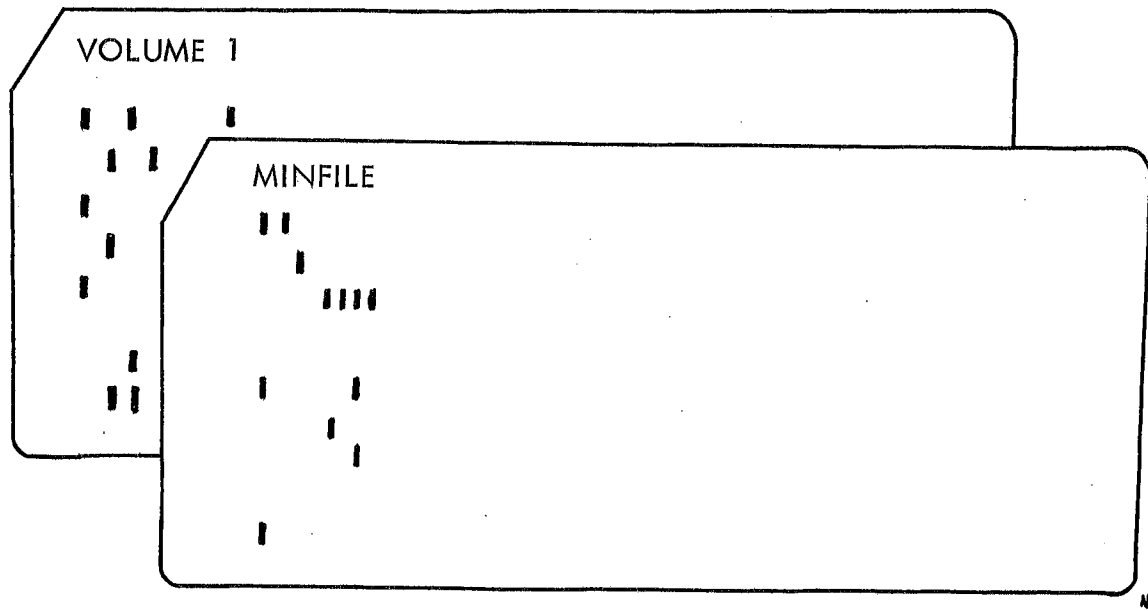




A COMPUTER PROCESSABLE
STORAGE AND RETRIEVAL PROGRAM
FOR
ALASKA MINERAL INFORMATION



MINERAL INDUSTRY RESEARCH LABORATORY

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FOR
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M.I.R.L. Report No. 24

Volume 1

MINFILE

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A COMPUTER PROCESSABLE STORAGE AND RETRIEVAL PROGRAM FOR ALASKA MINERAL INFORMATION

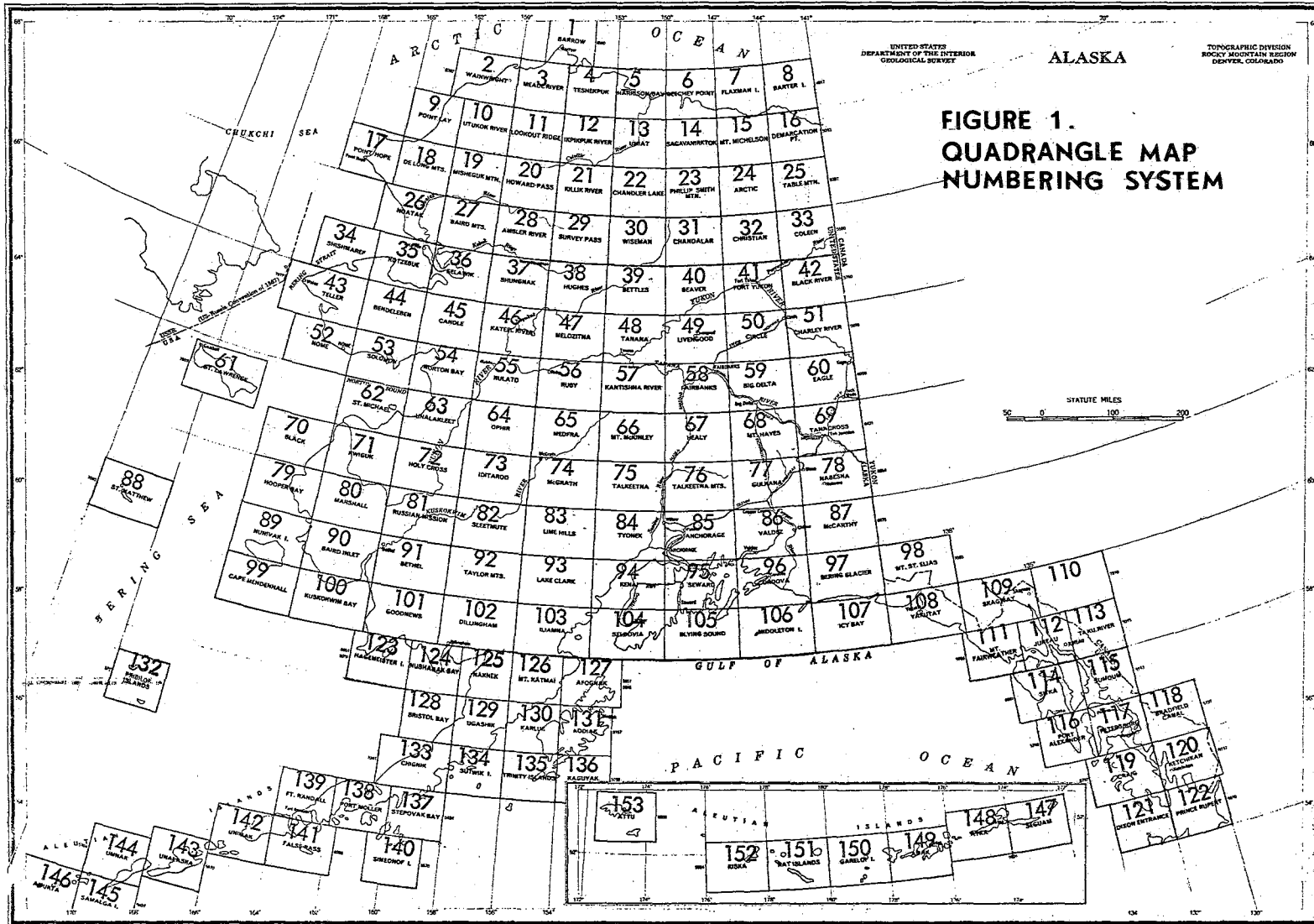
Introduction

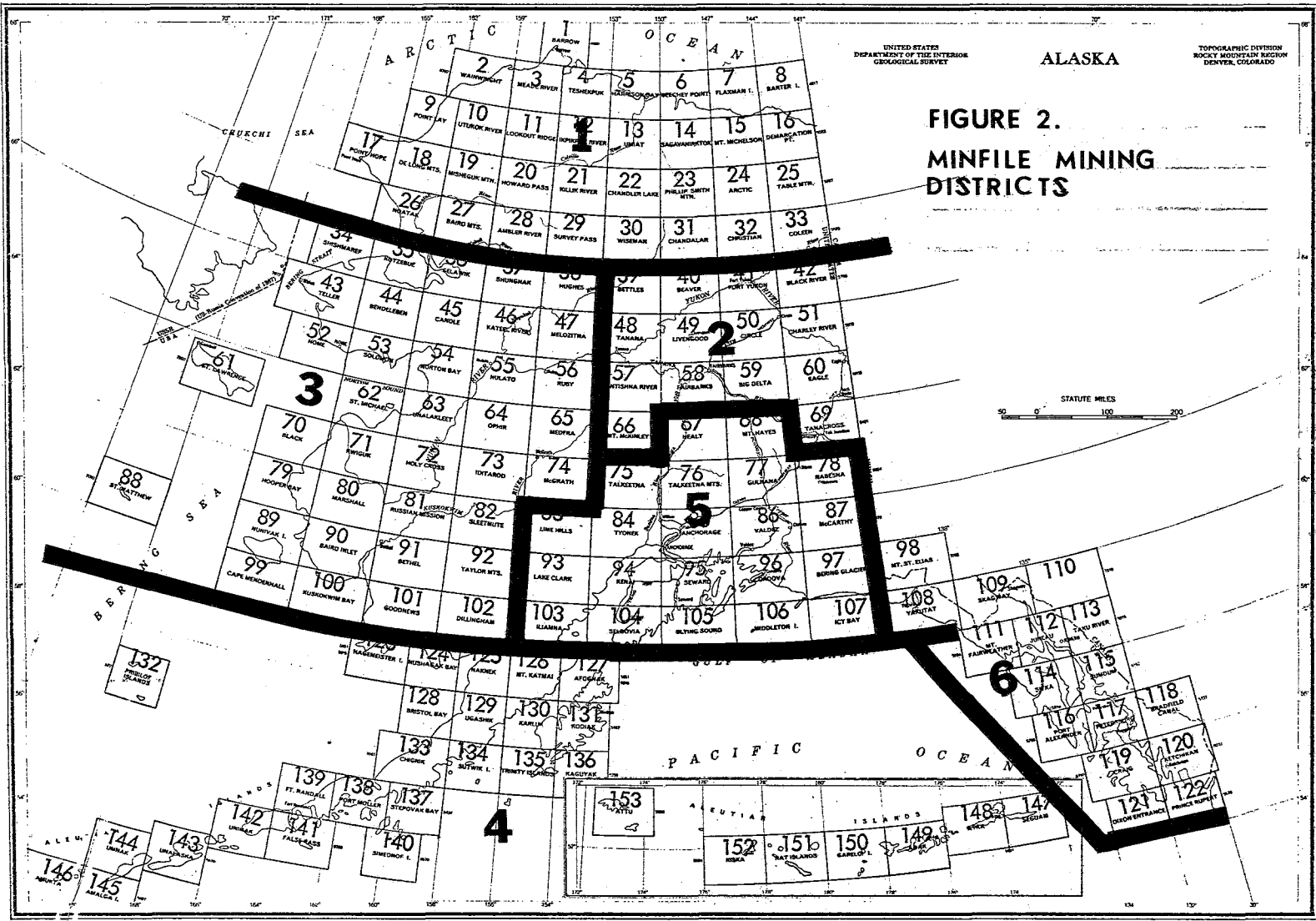
The Mineral Industry Research Laboratory has developed a storage and retrieval file for Alaska mineral information to facilitate resource studies. The basis for the computer-processable file is the Division of Geological Survey Mineral Kardex system which contains an entry for every mineral property in Alaska that has either been recorded in the literature or has been claimed under the mineral staking laws. Use of the file has greatly increased the research capability of the laboratory to compile resource-oriented reports such as M.I.R.L. Report No. 16, "Final Report - Mineral Resources of Northern Alaska," M.I.R.L. Report No. 18, "Known and Potential Ore Reserves, Seward Peninsula, Alaska", and M.I.R.L. Report No. 27, "Copper Mineral Occurrences in the Wrangell Mountain - Prince William Sound Area, Alaska" and S.E. Alaska Mineral Commodity Maps. The programs have been given the name MINFILE. MINFILE1 refers to a program that stores mineral information on magnetic tape. MINFILE2 is a Retrieval program, MINFILE3 is a program to correct and make additions to the file. MINFILE4 and MINFILE5 are utility programs used for maintenance of the system.

Figure one illustrates the State Division of Geological Survey Quadrangle numbering system for Alaska's 1-250,000 Map Series. These quadrangles are numbered starting with the Barrow quadrangle as number one and increasing in number as one would read a book. Each property within a quadrangle has a quadrangle number corresponding to the quadrangle number within which it is located. The first property in the Craig quadrangle would be serially numbered 1 (one) and would have a prefix of 119 or 119-1; the second property would have the number 119-2 etc. In addition to this system of quadrangle and serial numbers, each property is referenced to a Mining District. Figure two illustrates a proposed revision of the State of Alaska Mining Districts. These districts approximate the current districts but conform to quadrangle boundaries which enable more accurate record keeping. The MINFILE system utilizes the districts as shown on Figure two.

Some examples of general purpose user options might be: select all of the properties in Southeastern Alaska which contain antimony and which are currently not active (annual assessment documents not current). This run with the computer program, MINFILE2, would print a standard list containing information about each property selected. In the event that the user would like to have more information about any particular property in the list obtained, he can visit or correspond with the Division of Geological Survey.

As another example, suppose that a company were making a preliminary study of porphyry copper deposits. It might then be interest in all properties within a range of quadrangles or within a range of latitude and longitude boundaries which contain only copper and molybdenum; in other words, the property must have both copper and





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GPC 51411

molybdenum reported. This option would produce a standard list of only those properties which contain both copper and molybdenum.

Every time a selection is made which produces a printed output, the MINFILE2 program automatically accumulates the number of properties which have met the requirements that the user has specified. In addition, the number of claims represented by the properties are accumulated.

Since MINFILE2 accumulates not only the number of properties but also the number of claims for each selection, the user can obtain a printed listing of the mineral properties within a mining district and also the number of properties and the accumulated number of mineral claims represented by the properties in each district. The program will also output the number of claims in each mining district that are actively held. It also can be applied to statistical record keeping by quadrangle. It is possible not only to obtain the statistics for current and total mineral properties by quadrangle, but very easy to obtain this same type of information by elements, or by year.

Future Development of the MINFILE System

As time progresses the system should be expanded to provide much more of the information required by the mineral exploration industry and by State and Federal organizations in planning field programs and studies of areas for ore deposit potential. Other files suggest themselves immediately when thinking about research in any area of Alaska. If it were possible not only to obtain a list of the properties associated with any request, but also to have these properties keyed to a storage and retrieval file of published information, in other words, a computer stored bibliography, then the advantages of the file would be increased immensely. It would also be possible to develop a file for published topographic, geological, geophysical and geochemical maps. If this file were also keyed to the MINFILE system, information on the mineral properties in any area of Alaska could be provided by computer, along with listings of the maps and publications that consider the area. Other types of information which can and should be incorporated into the MINFILE system might be geological factors for each individual ore deposit: the type of the host rock, structure of the host rock, the classification of the deposit and many other variables.

MINFILE1 and MINFILE2

At present, the information recorded for each property includes:

1. The mining district within which it is located (see Fig. 2).
2. The quadrangle number (see Fig. 1).
3. A serial number.
4. Location on a 1:250,000 quadrangle map in inch X and Y coordinates.
5. The latitude and longitude of the property.
6. The year discovered or staked.
7. The property or claim names.
8. Lode or placer.
9. Active or inactive.

10. Patented or unpatented.
11. Number of claims within the property.
12. Whether or not there is published information about the property.
13. Land status code.
14. Development code.
15. Production code.
16. Reserves code.
17. An exploration activity code.
18. The elements that occur on the property.

Once this information is extracted from the Kardex File it is entered on Fortran coding forms (Figure 3), key punched and loaded with the MINFILE1 loading program. The loading program is also a check program in that it makes a series of tests to determine whether or not there are key punch errors or errors in coding. It also rearranges the elements that have been coded on the forms into an alphabetical sequence. Currently it is possible to record a maximum of 34 elements or commodities per property.

The retrieval program which is called MINFILE2, provides a system whereby questions can be asked of the computer, answered by information retrieved from the MINFILE and printed for the user. A system of programs to do this is written in Fortran IV for the IBM 360 Model 40 computer. At the present time, there are 16 questions and subquestions that can be asked of the computer, optionally, the first 7 being the most common requests. These options are listed in order:

1. To select properties that contain any of up to 12 elements as specified.
2. To select properties by elements as in 1, but from a particular quadrangle or group of quadrangles.
3. To select properties by elements as in 1 from claims that occur between specified latitudes and longitudes.
4. To select properties by elements as in 1 from within a specified quadrangle and lying between coordinates, in inches, within the quadrangle, i.e. X1 to X2, Y1 to Y2.
5. To select properties within a specified quadrangle or quadrangles which contain all of the elements specified. For example, if copper and molybdenum are specified, the property will not be picked unless it contains both copper and molybdenum. In the previous four options, if copper and molybdenum would have been specified, any property which contained either copper or molybdenum would have been selected by the computer.
6. To select only properties within a specified range of latitude-longitude boundaries as in option 3 but selecting all of the elements specified.
7. To select, as in option 4, properties within a single specified quadrangle lying between X1, X2, Y1 and Y2 boundaries but to select all of the elements specified.
8. This option has been written to facilitate automatic plotting of mineral claims data. It selects claims by quadrangles and elements as in 2 and produces a tape or set of cards, which are used with a University of Alaska plotting and

contouring program to develop a plot or contour map at any desired scale. Sometimes X1, X2, Y1, Y2 coordinate values are used by the U. S. Geological Survey to delineate the extent of a property such as a placer property which may occupy a mile or more on a stream; e.g., the lower extent is denoted by X1, Y1 and upper by X2, Y2. This program averages such coordinate values, and corrects them to true North-South coordinates.

9. To select properties lying between specified latitudes and longitudes as in 3, then average the XY coordinates as in 8 and produce either a short tape or cards for entering into the general plotting and contouring program.
10. To select claims by U.S. Geological Survey coordinates within a single quadrangle and element as in 4, average the X and Y coordinates as in 8 and produce a short tape or cards for entry into a standard plotting or contouring program.
11. To select claims by quadrangles and combined elements as in 5, then average the X and Y coordinates as in 8 to produce a tape or set of cards for plotting.
12. To select claims or mineral properties by latitude-longitude and combined elements as in 6, average the X and Y coordinates and produce a set of cards, or tape for plotting.
13. To select claims by U.S. Geological Survey coordinates within a quadrangle which contain all of the elements selected as in option 7, but to produce a short tape or set of cards which have averaged the X and Y coordinates for each mineral property.
14. Option 14 prepared a short Fortran tape for input into a sort program and for input into a general purpose contouring or plotting program. This tape, unlike others, contains information concerning the mining districts, the quadrangle, the serial number of the property, the latitude and longitude, the U.S. Geological Survey coordinates, the claim name and production code. Its general use has been to rearrange properties within a quadrangle in order of increasing X or Y U.S. Geological Survey coordinates in order to facilitate correlation with properties within the literature which are located in the same place but which have a different name.
15. The same as 14 except that selection is based upon latitude-longitude rather than coordinates with the quadrangle.
16. Prints a list of the claims from the short Fortran tape produced by options 14 and 15.

All of the above options except 16 permit selection on the following basis: mining district, activity code, patent status, production code, lode or placer, and merit code.

Input to the System (MINFILE1)

Data for the MINFILE systems are loaded with the program MINFILE1, and are entered on two cards per property according to the format shown on Figure 3. Column information contained on these two cards follows:

CARD NUMBER ONE:

- Col 1 Mining District designation.
- Col 2-4 Quadrangle Number, see Figure 1.
- Col 5-7 Property serial number within a quadrangle.
- Col 8-10 X1
- Col 11-13 X2 U.S. Geological Survey coordinate system as described
in U.S. Geological Survey Bull. 1139.
- Col 14-16 Y1
- Col 17-19 Y2
- Col 20-23 Latitude, XX Degrees, XX Minutes
- Col 24-28 Longitude, XXX Degrees, XX Minutes
- Col 30-31 Year, (the 19 is omitted)
- Col 32-58 Name of the property
- Col 59 Lode = 0 Placer = 1
- Col 60 Inactive = 0 Active = 1
- Col 61 Unpatented = 0 patented = 1
- Col 62-64 Number of claims, right justified
- Col 65 Published information = 1
- Col 66-68 Reference Index (Not currently being used)
- Col 69 Merit code:
0 = Not coded
1 = Producing or past production or of any primary interest
2 = Secondary interest
3 = Possible interest
4 = Not of current interest
- Col 70 Land status code:
0 =
1 =
2 = Removed from Kardex by
3 = State Division of Geological Survey
4 =
5 =
- Col 71 Development code:
0 = Unknown
1 = None or insignificant
2 = Preliminary
3 = Ore blocked out
4 = Extensive
5 = Unassigned at present

- Col 72 Production code:
 0 = Unknown
 1 = None or insignificant
 2 = Minor
 3 = Significant
 4 = Substantial
 5 = Unassigned at present
- Col 73 Reserves code (not currently being used)
- Col 74 Exploration code:
- | | |
|-----------------|-------------------|
| Agency (Col 74) | Activity (Col 75) |
| 1 = USBM | 1 = Geophysics |
| 2 = USGS | 2 = Drilling |
| 3 = Private | 3 = Exploration |
| 4 = DMG | 4 = Underground |
| | 5 = Geochemical |
| | 6 = Mill test |
- Col 80 Card Code = 1

CARD NUMBER TWO

- Col 1-7 Same as Card Number 1
- Col 42-79 Punch a 1 in appropriate column if the element (see Fig. 3) is present.

Use of the Data File (MINFILE2)

MINFILE2 is cataloged on the core image library at the University Computer Center. It is not necessary therefore, to physically possess either a source or object deck to run the program. One header card must be key punched for each file access. Figure 4 illustrates the format of this card. Columns 1 and 2 of the header specify the mode desired. Columns 3 through 26 allow spaces for element selection. For example, if all copper, lead zinc and molybdenum properties are to be printed from the file, columns 1 and 2 would contain "01" and columns 2 through 9 would contain "11163321". The rest of the card would be blank. Columns 29 through 79 allow spaces for information needed for other modes of the program (2 through 16) or mode qualifiers. (Latitudes, longitudes, quadrangles, U.S. Geological Survey coordinates, year, mining district, activity code, patent status, production code, lode or placer, and merit code.)

The following job setup will produce a list of all copper deposits from quadrangle numbers 108 through 122:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
// JOB ACTIVE, MTRLO2, HEIMER																																										T=15														
// EXEC MINFILE2																																																								
Ø211																																										108122														
~~~~~ blank card ~~~~~																																																								
/*																																																								
/k																																																								

Modes one through eight will produce a standard printout. Page one of the output will give the parameters of the retrieval desired and start to list the properties which satisfy the user's requirements.

The output is scaled to standard 8 1/2" x 11" format in order that it may be xeroxed or easily included in reports. All pages of the output will be numbered and will contain the date retrieved from the file. Space is allowed for the decoding and printing of 8 elements per property along with other pertinent data about the property.

#### Output Examples by Mode

- Ø1: The Ø1 mode requires that each entry be checked to see if it contains any one of the elements specified on the headers. If 99 was specified in the first element field, all entries which pass the mode qualifiers are selected and printed.
- Ø2: The Ø2 mode entries must fall within the quadrangle or quadrangles specified, and then must contain at least one of the elements specified.
- Ø3: The Ø3 mode requires that the entries must fall within the specified range of latitude-longitudes, high and low, and in addition must contain at least one of the specified elements.
- Ø4: Mode Ø4 requires that an acceptable entry must fall within the specified range of USGS coordinates, and must contain at least one of the specified elements.
- Ø5: Mode Ø5, requires that an entry must fall within the quadrangle or range of quadrangles specified, and in addition, must contain ALL of the elements specified, i.e., if three elements are named, all three must be present or the property will not be selected.
- Ø6: Mode Ø6 requires that an entry must fall within the specified range of latitude-longitudes, and in addition, must contain ALL of the specified elements.





- Ø7: Mode Ø7 requires that an entry must fall within the specified range of USGS coordinates, and in addition, must contain ALL of the specified elements.
- Ø8: Modes Ø8, Ø9 and 1Ø produce a different output from the preceding ones. After selection of a valid entry is made (based upon element(s) and qualifiers,) the X1, X2 and Y1, Y2 values are averaged. Then, if LTC (see Figure 5, Col 78) is "1" cards are punched; if it is a "2" a tape is written on 181. In both cases a list is printed on the printer, containing the same information as that punched or written on cards or tape, except that blank spaces are inserted between fields for readability. This information is, from left to right: X Coord., Y Coord., Mining District Number, Quadrangle Number, Serial Number, Spaces for 12 elements, latitude and longitude in decimals, latitude and longitude in degrees minutes and seconds, Merit Code, and Production Code.
- Ø9: Mode Ø9 requires that the entry meet the requirements of latitude-longitude as in mode Ø3. An abbreviated listing with X, Y averaged, and either cards or tape are produced.
- 1Ø: Mode 1Ø requires that the entry meet the same requirements for acceptability on the basis of USGS coordinates as in Mode Ø4. An abbreviated listing and either cards or tape are produced.
- 11: Modes 11, 12, and 13 are the same as Modes Ø8, Ø9 and 1Ø, except that
- 12: the selection on the basis of elements is dependent on the entry containing
- 13: ALL of the elements specified instead of any one of them. In other words, selection of properties are made as in Modes Ø5, Ø6, Ø7.
- 14: Mode 14 specifies that the entry must be within the quadrangle or quadrangles specified on the header. Certain information (see following example) is extracted and written on another tape. This tape is intended for input to the utility sort routines. This tape can be listed using Mode 16.
- 15: Mode 15 is the same as 14 except that selection of entries are made on the basis of latitude-longitude.
- 16: Mode 16 is used to list the tape which was made by options 14 or 15.

#### Use of MINFILE3

MINFILE3 is used to update the data file. Input cards to MINFILE3 are in the same format as input to MINFILE1. Action to be taken is specified by an appropriate code in Column 80.

Col	80 = 1	Card 1 of new entry
	= 2	Card 2 of new entry
	= 3	Corrections to an entry in the file, for information on Card 1, format
	= 4	Corrections to an entry in the file, information on Card 2, format
	= 5	Delete the entry.

All input cards must have mining district, quadrangles, and serial number in Columns 1 through 7.

Cards coded 1 and 2 in Column 80 should contain all information for a new entry.

"Update" or "correction" cards (Column 80 = 3 or 4) should contain only the information to be added or changed, all other columns left blank. To remove incorrect information where the correct data is not available, put a "Ø" in the first position in the field.

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## APPENDICES

APPENDIX 1

The  $\emptyset 1$  Mode

PROGRAM		PUNCHING INSTRUCTIONS	GRAPHIC									PAGE OF
PROGRAMMER		DATE	PUNCH									CARD ELECTRO NUMBER*

FORM	STATEMENT NUMBER	CONT.	FORTRAN STATEMENT	IDENTIFICATION SEQUENCE
	01		THE 01 MODE REQUIRES THAT EACH ENTRY BE CHECKED TO SEE IF IT CONTAINS ANY ONE OF THE ELEMENTS ON THE HEADER. IF 99 WAS SPECIFIED IN THE FIRST ELEMENT FIELD, ALL ENTRIES WHICH PASS THE MODE QUALIFIERS ARE SELECTED AND PRINTED. THE MASTER TAPE IS REQUIRED ON UNIT 100; SYS005.	
	// JOB			
	// EXEC MINFILEZ			
	0199		1969	4
			~~~~blank card here~~~~	
	/*			
	15			
			The above example produced the following listing. Columns 29-32 qualify the listing to select only 1969 recordings. Column 73 causes only entries from district 4 to be printed. 99 in col 314 cause all elements to be listed.	

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*A standard card form, IBM electro 888157, is available for punching statements from this form.

ALASKA MINERAL PROPERTY REFERENCE FILE

DISTRIBUTED & UPDATED BY
STATE DIVISION OF MINES & GEOLOGY
REFERENCE-DMG KARDEX FILE

DEVELOPED BY THE MINERAL
INDUSTRY RESEARCH LAB-U/A
REFERENCE-MIRL REPT NO.24

MINEFIL 1969

MINING DISTRICT 4
QUAD (0=NO SELECTION) 0 0
LATITUDE - MIN 0 0 MAX 0 0
LONGITUDE- MIN 0 0 MAX 0 0
USGS COORDINATES (0=NO SELECTION)
X-MIN 0.0 X-MAX 0.0
Y-MIN 0.0 Y-MAX 0.0
ELEMENTS ALL

TYPE 1 LISTING 05/05/70
MODIFIERS
YEAR 1969
PRODUCTION CODES - ALL
MERIT CODES - ALL
ACTIVE AND INACTIVE
PATENTED AND UNPATENTED
LODE AND PLACER

DIST 4 QUAD 78 SERIAL 74 NAME JC GP, J. COTOWICK
USGS COORD 13.4 13.6 2.2 2.4 NO. CLAIMS 4 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 78 SERIAL 75 NAME ROSE MTN, D. RICE
USGS COORD 0.0 2.9 0.0 16.3 NO. CLAIMS 1 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 78 SERIAL 76 NAME FRASER GP, B. BRYANT
USGS COORD 0.0 17.3 0.0 1.6 NO. CLAIMS 11 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 78 SERIAL 77 NAME ARMCO GP, ALASKA RX&MN CO
USGS COORD 0.0 5.1 0.0 16.9 NO. CLAIMS 12 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 85 SERIAL 330 NAME HUSLIA MINE, BRUCE BEDARD
USGS COORD 0.0 3.1 0.0 0.1 NO. CLAIMS 4 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 85 SERIAL 332 NAME WILLOW BENCH, J. ALKESTAD
USGS COORD 4.7 5.0 13.7 13.9 NO. CLAIMS 2 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 85 SERIAL 333 NAME AGNES, E. MITCHELL & A. MAGBE
USGS COORD 0.0 20.0 0.0 14.5 NO. CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 85 SERIAL 334 NAME KING TUT ANDERSON MONTMORIL
USGS COORD 0.0 10.5 0.0 12.1 NO. CLAIMS 2 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY

TYPE 1 LISTING
ALL ELEMENTS

PAGE 2
05/05/70

DIST 4	QUAD 85	SERIAL 335	NAME SARA M.MIVE,R.WILLIAMS
USGS COORD 0.0 19.9 0.0 15.5			NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 85	SERIAL 336	NAME ALASKA LADY,L.DEASON&CUTLER
USGS COORD 0.0 13.5 0.0 11.2			NO.CLAIMS 1 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY
DIST 4	QUAD 85	SERIAL 337	NAME DAVEY,DAVID&NORINE MYERS
USGS COORD 0.0 5.2 0.0 13.5			NO.CLAIMS 1 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 86	SERIAL 165	NAME PROTECTION=1-7,COPPER R EXP
USGS COORD 0.0 24.5 0.0 12.8			NO.CLAIMS 7 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CU
DIST 4	QUAD 86	SERIAL 166	NAME KENNY LAKE&KIMBALL PASS,
USGS COORD 16.5 16.7 9.2 13.6			NO.CLAIMS 22 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 86	SERIAL 167	NAME PORCUPINE=1-3,F.BILLUM
USGS COORD 0.0 14.6 0.0 6.7			NO.CLAIMS 3 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY PB AG
DIST 4	QUAD 86	SERIAL 168	NAME P.J=1-16,FIN LAND INVEST
USGS COORD 0.0 16.8 0.0 8.9			NO.CLAIMS 16 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 87	SERIAL 140	NAME CALAMITY GP,D.MOREHOUSE
USGS COORD 0.0 12.5 0.0 4.3			NO.CLAIMS 4 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 87	SERIAL 141	NAME FRED'S FOLLY GP,KING RES.CO
USGS COORD 9.2 10.3 8.7 9.9			NO.CLAIMS 127 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CU AG
DIST 4	QUAD 87	SERIAL 142	NAME NICOLIE BUTT GP,J.WILSON
USGS COORD 0.0 13.3 0.0 6.7			NO.CLAIMS 20 YEAR 1969 LODE
LATITUDE 0 0 LONGITUDE 0 0			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CU

TYPE 1 LISTING
ALL ELEMENTS

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05/05/70

DIST 4	QUAD 87	SERIAL 144	NAME COASTAL MNG CO BY HANNA MNG
USGS COORD	9.2 10.3	8.7 9.9	NO.CLAIMS 119 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY CU AG
DIST 4	QUAD 87	SERIAL 145	NAME JOY GP, KING RESOURCES CO
USGS COORD	13.0 13.5	5.3 5.6	NO.CLAIMS 40 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 87	SERIAL 146	NAME QUEENIE GP & H. HUNT
USGS COORD	0.0 11.5	0.0 5.8	NO.CLAIMS 6 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 87	SERIAL 147	NAME NIKOLAI GP, P. HOLDSWORTH
USGS COORD	0.0 12.5	0.0 7.6	NO.CLAIMS 50 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY CU
DIST 4	QUAD 95	SERIAL 369	NAME WILDHORSE, E. P. HALLSTEAD
USGS COORD	0.0 3.1	0.0 15.5	NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 95	SERIAL 370	NAME BROKEN FOOT, STUART WARE
USGS COORD	0.0 6.5	0.0 13.2	NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 95	SERIAL 371	NAME HARD TIMES, SHELDON BIGGS
USGS COORD	0.0 3.0	13.9 14.2	NO.CLAIMS 2 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 95	SERIAL 372	NAME DIGGERS DELIGHT, G. BLAND
USGS COORD	0.0 3.3	0.0 15.0	NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 95	SERIAL 373	NAME LAZY C. MNG ASSOC, J. COFFMAN
USGS COORD	3.0 3.1	0.0 14.3	NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 95	SERIAL 374	NAME L. T. LAMMON & ASSOC.
USGS COORD	0.0 3.1	0.0 14.3	NO.CLAIMS 2 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU

TYPE 1 LISTING
ALL ELEMENTS

PAGE 4
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DIST 4 QUAD 95 SERIAL 375 NAME LILLIAN L,G.W.ZIMMER
USGS COORD 0.0 3.3 0.0 9.5 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 376 NAME GOLDSMITH,H.SMITH
USGS COORD 0.0 2.8 0.0 13.1 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 377 NAME HANNA,ALFRED T.HANNA
USGS COORD 0.0 3.0 0.0 13.1 NO.CLAIMS 3 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 378 NAME JOE,VENZY VECERA
USGS COORD 0.0 3.1 0.0 14.2 NO.CLAIMS 2 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 379 NAME AUGUST ACRES,A.AUGESTAD
USGS COORD 0.0 2.1 0.0 13.9 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 380 NAME LADY LODE,K.KILLINGSWORTH
USGS COORD 0.0 3.0 0.0 14.0 NO.CLAIMS 2 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 381 NAME MY SHIP CAME IN,OMER SHAW
USGS COORD 0.0 2.1 0.0 13.9 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY

DIST 4 QUAD 95 SERIAL 382 NAME HUSQ MINE,ROBERT DAVIDSON
USGS COORD 0.0 3.1 0.0 15.9 NO.CLAIMS 2 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 383 NAME L&M MINE, LEON GREENLUND
USGS COORD 0.0 3.2 0.0 14.9 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 95 SERIAL 384 NAME MOJO MINE,JOHN FERBIK
USGS COORD 0.0 3.2 0.0 14.9 NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES PATENTED NO COMMODITY AU

TYPE 1 LISTING
ALL ELEMENTS

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DIST 4	QUAD 95	SERIAL 385	NAME BBK,PAUL BRAKE&N.BUHARP
USGS COORD	0.0 3.5	0.0 17.3	NO.CLAIMS 4 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 96	SERIAL 106	NAME AG GP&WHALE CL,G.GAY&T.GILL
USGS COORD	21.0 21.3	3.5 3.8	NO.CLAIMS 6 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 96	SERIAL 107	NAME KAYAK&WIDA GPS,WINGHAM DEV.
USGS COORD	0.0 22.9	0.0 1.4	NO.CLAIMS 18 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU
DIST 4	QUAD 105	SERIAL 16	NAME KEITH=1-130,G.MOERLEIN
USGS COORD	17.4 18.0	17.0 18.0	NO.CLAIMS 130 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY CU AU ZN
DIST 4	QUAD 105	SERIAL 17	NAME FIKE,J.FIKE
USGS COORD	0.0 2.8	0.0 13.0	NO.CLAIMS 6 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY BA
DIST 4	QUAD 105	SERIAL 18	NAME MILTON=1-6,W.MILTON
USGS COORD	0.0 2.8	0.0 13.0	NO.CLAIMS 6 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY BA
DIST 4	QUAD 105	SERIAL 19	NAME STANTON=1-4,J.STANTON
USGS COORD	0.0 2.8	0.0 13.0	NO.CLAIMS 4 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY BA
DIST 4	QUAD 105	SERIAL 20	NAME BELLIN=1-6,J.BELLIN
USGS COORD	0.0 2.8	0.0 13.0	NO.CLAIMS 6 YEAR 1969 LODE
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY BA
DIST 4	QUAD 105	SERIAL 21	NAME OVERLAY,MILTON,STANTON&FIKE
USGS COORD	0.0 11.0	0.0 16.9	NO.CLAIMS 1 YEAR 1969 PLACER
LATITUDE	0 0	LONGITUDE 0 0	PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES		PATENTED NO	COMMODITY AU

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MINEFIL 1969

MINING DISTRICT 4
QUAD (0=NO SELECTION) 0 0
LATITUDE - MIN 0 0 MAX 0 0
LONGITUDE- MIN 0 0 MAX 0 0
USGS COORDINATES (0=NO SELECTION)
X-MIN 0.0 X-MAX 0.0
Y-MIN 0.0 Y-MAX 0.0
ELEMENTS ALL

TYPE 1 LISTING 05/05/70
MODIFIERS -
YEAR - 1969
PRODUCTION CODES - ALL
MERIT CODES - ALL
ACTIVE AND INACTIVE
PATENTED AND UNPATENTED
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES 47
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES 658

APPENDIX 2

The $\emptyset 2$ Mode

PROGRAM		PUNCHING INSTRUCTIONS	GRAPHIC							PAGE OF
PROGRAMMER		DATE	PUNCH							CARD ELECTRO NUMBER*

FORMAL	STATEMENT NUMBER	CONT.	FORTRAN STATEMENT																																																	IDENTIFICATION SEQUENCE																											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
						02:	THE 02 MODE ENTRIES MUST FALL WITHIN THE QUADRANGLE SPECIFIED.																																																																								
							AND THEN MUST CONTAIN AT LEAST ONE OF THE ELEMENTS SPECIFIED.																																																																								
							THIS MODE REQUIRES THE MASTER TAPE ON UNIT 180, SYS005.																																																																								
						// JOB																																																																									
						// EXEC MINFILE2																																																																									
						02011113162030040812202200																																												187108																													
						~~~~ blank Card ~~~~																																																																									
						1*																																																																									
						15																																																																									
						The above example and following output illustrate the 02 Mode.																																																																									
						This example illustrates a selection of properties from quads																																																																									
						107 thru 108 which contain any <u>one</u> or more of the																																																																									
						following elements:																																																																									
						ANTIMONY																																											BERYLLIUM																														
						COPPER																																											BISMUTH																														
						GOLD																																											GARNET																														
						LEAD																																											SULFUR																														
						RADIO-ACTIVES																																											NICKEL																														
						TIN																																											MERCURY																														

24

*A standard card form, IBM electro 888157, is available for punching statements from this form

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**MINEFIL 1969**

MINING DISTRICT 0  
QUAD (0=NO SELECTION) 107 108  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS SB CU AU PB RA SN BE BI  
GN S NI HG

TYPE 2 LISTING 05/08/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

DIST 6 QUAD 108 SERIAL 3 NAME KHANTAAN ISLAND  
USGS COORD 10.6 11.3 10.4 11.3 NO.CLAIMS 0 YEAR 1900 PLACER  
LATITUDE 59 35 LONGITUDE 139 45 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU

DIST 6 QUAD 108 SERIAL 6 NAME YAKUTAT BAY  
USGS COORD 10.0 12.0 10.0 14.0 NO.CLAIMS 0 YEAR 1900 PLACER  
LATITUDE 59 32 LONGITUDE 139 40 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU PT

DIST 6 QUAD 108 SERIAL 7 NAME LOGAN BEACH  
USGS COORD 12.2 12.6 13.7 14.9 NO.CLAIMS 0 YEAR 1900 PLACER  
LATITUDE 59 54 LONGITUDE 139 35 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU

DIST 6 QUAD 108 SERIAL 8 NAME RUSSELL FIORD  
USGS COORD 13.0 15.0 10.0 17.0 NO.CLAIMS 0 YEAR 1900 LODE  
LATITUDE 59 32 LONGITUDE 139 17 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY CU

DIST 6 QUAD 108 SERIAL 9 NAME BLACK SAND ISLAND  
USGS COORD 0.0 0.0 0.0 0.0 NO.CLAIMS 0 YEAR 1900 PLACER  
LATITUDE 59 30 LONGITUDE 139 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU

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**MINEFIL 1969**

MINING DISTRICT 0  
QUAD (0=NO SELECTION) 107 108  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS SB CU AU PB RA SN BE BI  
GN S NI HG

TYPE 2 LISTING 05/08/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	5
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	0

APPENDIX 3

The  $\emptyset 3$  Mode





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**MINEFIL 1969**

MINING DISTRICT 6  
QUAD (0=NO SELECTION) 0 0  
LATITUDE - MIN 57 0 MAX 59 0  
LONGITUDE- MIN 134 0 MAX 137 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS SB FE

TYPE 3 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
UNPATENTED CLAIMS  
LODE AND PLACER

DIST 6 QUAD 111 SERIAL 9 NAME IRON HAT 1 9  
USGS COORD 14.2 14.5 7.2 7.4 NO.CLAIMS 9 YEAR 1955 LODE  
LATITUDE 58 23 LONGITUDE 136 59 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY FE

DIST 6 QUAD 111 SERIAL 10 NAME SMITH PROSPECT  
USGS COORD 0.0 21.5 0.0 10.9 NO.CLAIMS 1 YEAR 1926 LODE  
LATITUDE 58 36 LONGITUDE 136 10 PROD 1 DEV 2 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY SB AU FE PB AG

DIST 6 QUAD 111 SERIAL 21 NAME NO CLAIM  
USGS COORD 10.0 22.0 0.0 10.7 NO.CLAIMS 0 YEAR 1900 PLACER  
LATITUDE 58 35 LONGITUDE 136 5 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY SB AU PB AG

DIST 6 QUAD 111 SERIAL 50 NAME AMBASSADOR=1 26  
USGS COORD 21.8 21.9 17.4 17.8 NO.CLAIMS 26 YEAR 1964 LODE  
LATITUDE 58 59 LONGITUDE 136 6 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY CU FE MO

DIST 6 QUAD 111 SERIAL 51 NAME AMBASSADOR 1 26  
USGS COORD 21.8 21.9 17.4 17.8 NO.CLAIMS 26 YEAR 1964 PLACER  
LATITUDE 58 59 LONGITUDE 136 6 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY FE

DIST 6 QUAD 111 SERIAL 53 NAME MARTIN  
USGS COORD 20.0 20.2 4.3 4.5 NO.CLAIMS 7 YEAR 1965 LODE  
LATITUDE 58 14 LONGITUDE 136 22 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE YES PATENTED NO COMMODITY FE

DIST 6 QUAD 112 SERIAL 22 NAME TACOMA GROUP  
USGS COORD 0.0 10.0 0.0 12.5 NO.CLAIMS 7 YEAR 1901 LODE  
LATITUDE 58 46 LONGITUDE 134 57 PROD 1 DEV 2 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU FE

DIST 6 QUAD 112 SERIAL 56 NAME IRON CHIEF MENDENHALL GROUP  
USGS COORD 12.9 0.0 0.0 7.6 NO.CLAIMS 7 YEAR 1912 LODE  
LATITUDE 58 22 LONGITUDE 134 38 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU FE

TYPE 3 LISTING  
ELEMENTS SB FE

PAGE 2  
05/05/70

DIST 6	QUAD 112	SERIAL 114	NAME NEKA BAY=1
USGS COORD 1.5 2.0 2.0 2.5			NO.CLAIMS 1 YEAR 1957 LODE
LATITUDE 58 8 LONGITUDE 135 50			PROD 0 DEV 0 MERIT 1 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE
DIST 6	QUAD 112	SERIAL 131	NAME OLSON
USGS COORD 0.0 18.3 0.0 1.7			NO.CLAIMS 3 YEAR 1964 LODE
LATITUDE 58 5 LONGITUDE 134 1			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE
DIST 6	QUAD 112	SERIAL 132	NAME BIG IRON =1
USGS COORD 4.4 4.5 0.6 0.7			NO.CLAIMS 1 YEAR 1964 LODE
LATITUDE 58 2 LONGITUDE 135 32			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE
DIST 6	QUAD 114	SERIAL 37	NAME AGNES COPPER =1 10
USGS COORD 0.0 6.1 0.0 16.0			NO.CLAIMS 30 YEAR 1955 PLACER
LATITUDE 57 57 LONGITUDE 136 20			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CU FE
DIST 6	QUAD 114	SERIAL 40	NAME EAGLE PT
USGS COORD 0.0 15.3 0.0 2.1			NO.CLAIMS 1 YEAR 1955 PLACER
LATITUDE 57 7 LONGITUDE 135 25			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY AU FE
DIST 6	QUAD 114	SERIAL 119	NAME SALOMA =1 4
USGS COORD 0.0 9.0 0.0 15.3			NO.CLAIMS 4 YEAR 1958 LODE
LATITUDE 57 53 LONGITUDE 136 2			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE
DIST 6	QUAD 114	SERIAL 120	NAME PHONOGRAPH
USGS COORD 0.0 8.6 0.0 16.1			NO.CLAIMS 3 YEAR 1958 LODE
LATITUDE 57 55 LONGITUDE 136 6			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE
DIST 6	QUAD 114	SERIAL 141	NAME NO CLAIM HOW SAD
USGS COORD 15.8 17.2 15.0 16.0			NO.CLAIMS 0 YEAR 1900 LODE
LATITUDE 57 52 LONGITUDE 136 15			PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY FE LM

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MINING DISTRICT 6  
QUAD (0=NO SELECTION) 0 0  
LATITUDE - MIN 57 0 MAX 59 0  
LONGITUDE- MIN 134 0 MAX 137 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS SB FE

TYPE 3 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
UNPATENTED CLAIMS  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	16
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	126

APPENDIX 4

The  $\emptyset 4$  Mode

PROGRAM		PUNCHING INSTRUCTIONS	GRAPHIC							PAGE OF
PROGRAMMER		DATE	PUNCH							CARD ELECTRO NUMBER*

COL	STATEMENT NUMBER	CONT	FORTRAN STATEMENT	IDENTIFICATION SEQUENCE
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
			04: MODE 04 REQUIRES THAT AN ACCEPTABLE ENTRY MUST FALL WITHIN THE SPECIFIED RANGE OF USGS COORDINATES, AND MUST CONTAIN AT LEAST ONE OF THE SPECIFIED ELEMENTS. REQUIRES MASTER TAPE ON UNIT 180; SYS005.	
			11 JOB	
			11 EXEC MINETLEZ	
			0499	089 15.121.388.012.04
			~ BLANK CARD ~	
			14	
			18	
			THE ABOVE EXAMPLE WILL PRODUCE THE FOLLOWING LISTING. NOTE THAT "99" IN COLUMNS 3 AND 4 REQUIRE ALL ELEMENTS FOR SELECTION. "089" IN COLUMNS 51-53 CAUSE ONLY QUAD # 89 TO BE SELECTED. IT WILL BE SEARCHED BETWEEN X1= 15.1, X2= 21.3, Y1= 8.0 & Y2= 12.0. MINING DISTRICT # 4 HAS BEEN NAMED FOR A QUALIFIER BY PUTTING A 4 IN COLUMN 73. SELECTION BY MINING DISTRICT IS NOT NECESSARY BUT FOR THIS MODE, SELECTION BY QUAD IS NECESSARY.	
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80

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MINING DISTRICT 4  
QUAD (0=NO SELECTION) 86 0  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 15.0 X-MAX 21.3  
Y-MIN 8.0 Y-MAX 12.0  
ELEMENTS ALL

TYPE 4 LISTING 04/29/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

DIST 4	QUAD 86	SERIAL 1	NAME CHITINA, J. BILLUM
USGS COORD 0.0 21.2 0.0 9.5			NO. CLAIMS 1 YEAR 1953 PLACER
LATITUDE 61 30	LONGITUDE 144 27		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY AU
DIST 4	QUAD 86	SERIAL 2	NAME UNICORN, R. GOWIN
USGS COORD 0.0 19.3 11.1 11.8			NO. CLAIMS 1 YEAR 1953 LODE
LATITUDE 61 38	LONGITUDE 144 40		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY AU
DIST 4	QUAD 86	SERIAL 27	NAME BERNARD CHROMITE, AK. YUK. MN.
USGS COORD 15.5 16.0 9.5 10.0			NO. CLAIMS 81 YEAR 1955 LODE
LATITUDE 61 34	LONGITUDE 145 10		PROD 0 DEV 0 MERIT 0 EXPL 3 1
ACTIVE YES	PATENTED NO		COMMODITY CR
DIST 4	QUAD 86	SERIAL 63	NAME LUCK ONE, I. WOODMAN
USGS COORD 0.0 16.5 0.0 9.3			NO. CLAIMS 1 YEAR 1956 LODE
LATITUDE 61 30	LONGITUDE 145 0		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY AU
DIST 4	QUAD 86	SERIAL 146	NAME AK YUKON CHROMITE, AK YK MIN
USGS COORD 16.5 17.0 10.0 10.5			NO. CLAIMS 104 YEAR 1956 LODE
LATITUDE 61 34	LONGITUDE 144 56		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CR
DIST 4	QUAD 86	SERIAL 147	NAME IRON, CORONADO COPPER & ZINC
USGS COORD 0.0 21.2 0.0 8.1			NO. CLAIMS 1 YEAR 1956 LODE
LATITUDE 61 27	LONGITUDE 144 30		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO		COMMODITY CU FE NI
DIST 4	QUAD 86	SERIAL 151	NAME LIBERTY, J. BILLUM
USGS COORD 0.0 20.3 0.0 11.2			NO. CLAIMS 2 YEAR 1958 LODE
LATITUDE 61 37	LONGITUDE 144 31		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY CB
DIST 4	QUAD 86	SERIAL 156	NAME MARKUP & OPAL, J. BRENNAN
USGS COORD 19.5 19.7 0.0 10.3			NO. CLAIMS 77 YEAR 1966 LODE
LATITUDE 61 32	LONGITUDE 144 33		PROD 0 DEV 0 MERIT 0 EXPL 0 0
ACTIVE YES	PATENTED NO		COMMODITY FE

TYPE 4 LISTING  
ALL ELEMENTS

PAGE 2  
04/29/70

DIST 4 QUAD 86 SERIAL 166 NAME KENNY LAKE&KIMBALL PASS,  
USGS COORD 16.5 16.7 9.2 13.6 NO. CLAIMS 22 YEAR 1969 LODE  
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE YES PATENTED NO COMMODITY AU

DIST 4 QUAD 86 SERIAL 168 NAME P.J=1-16, FIN LAND INVEST  
USGS COORD 0.0 16.8 0.0 8.9 NO. CLAIMS 16 YEAR 1969 LODE  
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE YES PATENTED NO COMMODITY AU



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**MINEFIL 1969**

MINING DISTRICT 4  
QUAD (0=NO SELECTION) 86 0  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 15.0 X-MAX 21.3  
Y-MIN 8.0 Y-MAX 12.0  
ELEMENTS ALL

TYPE 4 LISTING 04/29/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	10
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	306

APPENDIX 5

The  $\emptyset 5$  Mode



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**MINEFIL 1969**

MINING DISTRICT 4  
QUAD (0=NO SELECTION) 77 107  
LATITUDE - MIN C C MAX 0 0  
LONGITUDE- MIN C C MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS CU MO

TYPE 5 LISTING 05/08/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

DIST 4 QUAD 78 SERIAL 14 NAME MS 1414 A & B, AJV CORP.  
USGS COORD 9.3 9.8 3.2 3.6 NO. CLAIMS 18 YEAR 1923 PLACER  
LATITUDE 62 10 LONGITUDE 142 57 PROD 1 DEV 2 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED YES COMMODITY CU AU MO AG

DIST 4 QUAD 78 SERIAL 61 NAME AN, BN, CN, & DN GPS, AJV CORP.  
USGS COORD 9.3 9.8 3.2 3.6 NO. CLAIMS 38 YEAR 1962 LODE  
LATITUDE 62 10 LONGITUDE 142 57 PROD 0 DEV 0 MERIT 0 EXPL 3 2  
ACTIVE YES PATENTED NO COMMODITY CU AU MO AG

DIST 4 QUAD 85 SERIAL 233 NAME BRUNO AGOSTINO  
USGS COORD 6.0 7.5 0.0 0.8 NO. CLAIMS 0 YEAR 1900 LODE  
LATITUDE 61 4 LONGITUDE 149 3 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AS CU AU PB MO AG ZN

DIST 4 QUAD 85 SERIAL 253 NAME C.G.&M. & M. RICE  
USGS COORD 6.6 6.8 0.0 14.9 NO. CLAIMS 4 YEAR 1956 LODE  
LATITUDE 61 50 LONGITUDE 149 10 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE YES PATENTED NO COMMODITY CU AU MO

DIST 4 QUAD 85 SERIAL 308 NAME BAILEY RICE & LANES,  
USGS COORD 6.0 7.0 0.0 14.6 NO. CLAIMS 2 YEAR 1967 LODE  
LATITUDE 0 0 LONGITUDE 0 0 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY CU MO

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**MINEFIL 1969**

MINING DISTRICT 4  
QUAD (0=NO SELECTION) 77 107  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS CU MO

TYPE 5 LISTING 05/08/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES 5  
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES 62

APPENDIX 6

The Ø6 Mode

PROGRAM	PUNCHING INSTRUCTIONS	GRAPHIC	PAGE OF
PROGRAMMER	DATE	PUNCH	CARD ELECTRO NUMBER*

CONT.	STATEMENT NUMBER	FORTRAN STATEMENT	IDENTIFICATION SEQUENCE
	1		
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06: MODE 06 REQUIRES THAT AN ENTRY MUST FALL WITHIN THE SPECIFIED RANGE OF LATITUDE-LONGITUDES, AND IN ADDITION, MUST CONTAIN ALL OF THE SPECIFIED ELEMENTS REQUIRES MASTER TAPE ON UNIT 100; SYSQ05.

11 JOB

11 EXEC MINFILE2

06111633

565913300590013600

6

Blank Card

1*

15

THE EXAMPLE ABOVE WILL CAUSE A SEARCH BETWEEN LATITUDES 56° 00' - 59° 00' AND LONGITUDES 133° 00' - 136° 00' FOR PROPERTIES IN MINING DISTRICT 6 WHICH CONTAIN COPPER, LEAD AND ZINC.

42

*A standard card form, IBM electro 888157, is available for punching statements from this form

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**MINEFIL 1969**

MINING DISTRICT 6  
QUAD (0=NO SELECTION) 0 0  
LATITUDE - MIN 56 0 MAX 59 0  
LONGITUDE- MIN 133 0 MAX 136 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS CU PB ZN

TYPE 6 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

DIST 6	QUAD 112	SERIAL 31	NAME MANSFIELD GOLD MNG CO
USGS COORD 0.0 10.7	0.0 4.7	NO.CLAIMS 1	YEAR 1908 LODE
LATITUDE 58 15	LONGITUDE 134 52	PROD 0 DEV 0	MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO	COMMODITY	<u>CU PB ZN</u>
DIST 6	QUAD 114	SERIAL 45	NAME PRESIDENT PROSPECT
USGS COORD 0.0 21.6	0.0 14.2	NO.CLAIMS 4	YEAR 1900 PLACER
LATITUDE 57 48	LONGITUDE 134 43	PROD 0 DEV 0	MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO	COMMODITY	<u>CU PB ZN</u>
DIST 6	QUAD 115	SERIAL 12	NAME OCEANIC MNG CO
USGS COORD 3.5 3.6	0.0 12.4	NO.CLAIMS 4	YEAR 1906 LODE
LATITUDE 57 43	LONGITUDE 133 40	PROD 0 DEV 0	MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO	COMMODITY	<u>CU PB AG ZN</u>
DIST 6	QUAD 115	SERIAL 13	NAME OCEANIC MNG CO
USGS COORD 3.5 3.6	0.0 12.4	NO.CLAIMS 6	YEAR 1906 LODE
LATITUDE 57 43	LONGITUDE 133 40	PROD 0 DEV 0	MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO	COMMODITY	<u>CU PB AG ZN</u>
DIST 6	QUAD 117	SERIAL 46	NAME HATTIE
USGS COORD 0.0 9.2	0.0 9.5	NO.CLAIMS 1	YEAR 1900 LODE
LATITUDE 56 32	LONGITUDE 133 3	PROD 0 DEV 0	MERIT 0 EXPL 0 0
ACTIVE NO	PATENTED NO	COMMODITY	<u>CU AU PB AG ZN</u>



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**MINEFIL 1969**

MINING DISTRICT 6  
QUAD (0=NO SELECTION) 0 0  
LATITUDE - MIN 56 0 MAX 59 0  
LONGITUDE- MIN 133 0 MAX 136 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS CU PB ZN

TYPE 6 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	5
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	16

APPENDIX 7

The Ø7 Mode



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REFERENCE-MIRL REPT NO.24

**MINEFIL 1969**

MINING DISTRICT 4  
QUAD (0=NO SELECTION) 85 0  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)

X-MIN 15.0 X-MAX 18.0  
Y-MIN 0.0 Y-MAX 4.0

ELEMENTS AU PB

TYPE 7 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

DIST 4 QUAD 85 SERIAL 192 NAME J.E.MITCHELL&W.H.MYERS  
USGS COORD 0.0 15.5 0.0 0.6 NO.CLAIMS 0 YEAR 1913 LODE  
LATITUDE 61 1 LONGITUDE 148 13 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU PB

DIST 4 QUAD 85 SERIAL 194 NAME J.W.RIETER&M.J.OLSON  
USGS COORD 0.0 15.5 0.0 1.3 NO.CLAIMS 0 YEAR 1913 LODE  
LATITUDE 61 3 LONGITUDE 148 20 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY SB AU PB

DIST 4 QUAD 85 SERIAL 200 NAME ALASKA WONDER LEDGE,SIMONTO  
USGS COORD 0.0 16.2 0.0 1.0 NO.CLAIMS 1 YEAR 1913 LODE  
LATITUDE 61 4 LONGITUDE 148 3 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AU PB

DIST 4 QUAD 85 SERIAL 203 NAME A.WALTERS,J.BRASSLIN &  
USGS COORD 0.0 16.4 0.0 1.1 NO.CLAIMS 0 YEAR 1913 LODE  
LATITUDE 61 4 LONGITUDE 148 1 PROD 0 DEV 0 MERIT 0 EXPL 0 0  
ACTIVE NO PATENTED NO COMMODITY AS AU PB ZN

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REFERENCE-MIRL REPT NO.24

**MINEFIL 1969**

MINING DISTRICT 4  
QUAD (0=NO SELECTION) 85 0  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 15.0 X-MAX 18.0  
Y-MIN 0.0 Y-MAX 4.0  
ELEMENTS AU PB

TYPE 7 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES 4

TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES 1

APPENDIX 8

The  $\emptyset 8, \emptyset 9, 1\emptyset$  Modes







APPENDIX 9

The 09 Mode

Mode 09 requires that the entry meet the requirements of latitude-longitude as in Mode 03. An abbreviated listing with X, Y averaged, and either cards or tape are produced.





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**MINEFIL 1969**

MINING DISTRICT 0  
QUAD (0=NO SELECTION) 0 0  
LATITUDE - MIN 56 0 MAX 59 0  
LONGITUDE- MIN 133 0 MAX 136 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 0.0 X-MAX 0.0  
Y-MIN 0.0 Y-MAX 0.0  
ELEMENTS CU ZN

TYPE 9 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	73
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	723

## APPENDIX 10

## The 1Ø Mode

Mode 1Ø requires that the entry meet the same requirements for acceptability on the basis of USGS coordinates as in Mode Ø4. An abbreviated listing and either cards or tape are produced.



05/05/70

PAGE 2

9.0 11.2 6 114 148 1133 0 0 0 0 0 0 0 0 0 0 00 37

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REFERENCE-MIRL REPT NO.24

**MINEFIL 1969**

MINING DISTRICT 0  
QUAD (0=NO SELECTION) 108 114  
LATITUDE - MIN 0 0 MAX 0 0  
LONGITUDE- MIN 0 0 MAX 0 0  
USGS COORDINATES (0=NO SELECTION)  
X-MIN 5.0 X-MAX 17.0  
Y-MIN 6.0 Y-MAX 18.0  
ELEMENTS CU ZN

TYPE 10 LISTING 05/05/70  
MODIFIERS -  
YEAR - ALL  
PRODUCTION CODES - ALL  
MERIT CODES - ALL  
ACTIVE AND INACTIVE  
PATENTED AND UNPATENTED  
LODE AND PLACER

TOTAL NUMBER OF PROPERTIES	37
TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPERTIES	554



APPENDIX 11

Computer Printout of MINFILE1

```

C
C PROGRAM NAME - MINFILE1
C BY EVE PORTER FOR L.E.HEINER, M.I.R.L.
C
C PURPOSE -
C TO LOAD DIVISION OF MINES LOCATION AND CLAIMS DATA TO TAPE,
C MAKING CERTAIN CORRECTIONS, REARRANGING THE DATA, AND ELIMINATING
C ILLEGAL CODING
C
C
0001 COMMON MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(2),
      ICLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
0002 2IEXPL(2),IMD,JQUAD,JSER,ILEM(38),JCODE,MELEM(34),ICODE,IYEAR(4)
      DATA BLANK/' '/,IBLANK/' '/
C
C A HEADER CARD MUST BE THE FIRST CARD AFTER //EXEC
C THIS CARD HAS THE MINING DISTRICT WHICH IS TO BE USED
C FOR THIS FILE IN COLUMN 1
C
0003 READ(1,1111)MDIST
0004 1111 FORMAT(I1)
C
0005 1 READ(1,1000,END=99)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,
      1LONG2,({IYR(K),K=1,2}),{CLAIM(K),K=1,27},LP,IA,IPAT,NOCL,IPUB,
0006 2{IREF(K),K=1,3},MERIT,LS,LD,IPRO,IRES,({IEXPL(K),K=1,2}),ICODE
      1000 FORMAT(I1,2I3,4F3.1,2I2,I3,I2,1X,2I1,27A1,3I1,I3,11I1,4X,I1)
C
C CHECK FOR LAST CARD - IF MINING DISTRICT, QUAD, AND SERIAL -
C FIRST 7 POSITIONS ON CARD - ARE 9999999
C GO TO END OF JOB, CLOSE FILES, REWIND
C
C
0007 IF{IMD.NE.9} GO TO 2
0008 IF{IQUAD.NE.999} GO TO 2
0009 IF{ISER.NE.999} GO TO 2
0010 GO TO 99
C
C NOW READ SECOND CARD
C
0011 2 READ(1,1001,END=99)IMD,JQUAD,JSER,{ILEM(K),K=1,38},JCODE
0012 1001 FORMAT(I1,2I3,34X,38I1,I1)
C
C SET STONE AND GRAVEL TO ZERO
C PRINT OUT THE STONE AND GRAVEL CARDS
C
C
0013 IF{ILEM(31).EQ.1} GO TO 3
0014 IF{ILEM(36).EQ.1} GO TO 3
0015 GO TO 4
0016 3 WRITE(3,3000)
0017 3000 FORMAT('0',T10,'THIS CLAIM CONTAINS GRAVEL OR STONE (COLS 72 OR 77
      1) AND WILL NOT BE LOADED UNLESS OTHER ELEMENTS ARE PRESENT')

```

```

0018          WRITE(3,3002)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
              1(IYR(K),K=1,2),(CLAIM(K),K=1,27),LP,IA,IPAT,NOCL,IPUB,
              2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2),ICDDE
0019 3002 FORMAT(' ',I1,2I3,4F3.1,2I2,I3,I2,1X,2I1,27A1,3I1,I3,11I1,4X,I1)
0020          WRITE(3,3003)IMD,JQUAD,JSER,(ILEM(K),K=1,38),JCODE
0021 3003 FORMAT(' ',I1,2I3,34X,38I1,I1)
0022          ILEM(31)=0
0023          ILEM(36)=0
          C
          C      NOW CHECK TO SEE IF ANY ELEMENTS REMAIN
          C
0024          DO 77 N=1,38
0025          IF(ILEM(N).EQ.1) GO TO 4
0026 77 CONTINUE
0027          GO TO 1
          C
          C
          C      IF THERE WAS ONE OR MORE ELEMENTS REMAINING, CONTINUE PROCESSING
          C      IF NOT, ANOTHER CARD WAS READ
          C
          C      NOW CHECK CLAIM NAME FOR LEADING BLANKS, AND REMOVE THEM
          C
0028          4 K=1
0029          DO 5 N=1,27
0030          IF(CLAIM(N).EQ.BLANK) GO TO 5
0031          K1=N
0032          GO TO 6
0033          5 CONTINUE
0034          6 K2=K1-1
0035          IF(K2.NE.0) GO TO 7
0036          K2=1
0037          GO TO 8
          C
0038          7 L=27-K2
0039          DO 150 N=1,L
0040          CLAIM(N)=CLAIM(N+K2)
0041 150 CONTINUE
          C
0042          J=K2-1
0043          DO 151 N=1,J
0044          CLAIM(27-N)=BLANK
0045 151 CONTINUE
0046          CLAIM(27)=BLANK
          C
          C      CHECK LODD OR PLACER - IF GREATER THAN ONE, REPLACE INVALID CODE
          C      WITH ZERO
          C
0047          8 IF(LP.GT.1) LP=0
          C
          C      CHECK THE YEAR AND ADD EITHER 18 OR 19 BEFORE THE TWO DIGITS
          C      TO MAKE COMPLETE FOUR-DIGIT YEAR
          C
0048          IYEAR(3)=IYR(1)
0049          IYEAR(4)=IYR(2)

```

```

0050          IF(IYEAR(3).LT.8) IYEAR(2)=9
0051          IF(IYEAR(3).GE.8) IYEAR(2)=8
0052          IYEAR(1)=1
C
C          CHECK ACTIVE-INACTIVE, IF GREATER THAN ONE REPLACE WITH ZERO
C
0053          IF(IA.GT.1) IA=0
C
C          CHECK PATENT STATUS, IF GREATER THAN ONE REPLACE WITH ZERO
C
0054          IF(IPAT.GT.1) IPAT=0
C
C          CHECK PUBLICATION CODE, IF EQUAL TO 9, REPLACE WITH ZERO
C
0055          IF(IPUB.EQ.9) IPUB=0
C
C          BLANK OUT REFERENCE INDEX
C
0056          DO 9 N=1,3
0057          IREF(N)=IBLANK
0058          9 CONTINUE
C
C          CHANGE MERIT CODING SO THAT
C
C          OLD      NEW
C          0        0
C          1        1
C          2        1
C          3        2
C          4        3
C          5        4
C          6        1
C
0059          IF(MERIT.EQ.2) GO TO 10
0060          IF(MERIT.EQ.6) GO TO 10
0061          GO TO 11
0062          10 MERIT=1
0063          GO TO 12
0064          11 IF(MERIT.EQ.3) MERIT=2
0065          IF(MERIT.EQ.4) MERIT=3
0066          IF(MERIT.EQ.5) MERIT=4
C
C          CHECK LAND STATUS, IF GREATER THAN 5, MAKE IT ZERO
C
0067          12 IF(LS.GT.5) LS=0
C
C          CHECK DEVELOPMENT, IF GREATER THAN 5, MAKE IT ZERO
C
0068          IF(LD.GT.5) LD=0
C
C          CHECK PRODUCTION, IF GREATER THAN 5, MAKE IT ZERO
C
0069          IF(IPRO.GT.5) IPRO=0
C
C          MAKE RESERVES ZERO

```

```

0070      C      IRES=0
          C      EDIT EXPLORATION FOR VALID CODES
          C      FIRST POSITION - AGENCY ONLY 1 THRU 4
          C      SECOND POSITION TYPE ONLY 1 THRU 6
          C
0071      IF(IEXPL(1).GT.4) IEXPL(1)=0
0072      IF(IEXPL(2).GT.6) IEXPL(2)=0
          C
          C      NOW REARRANGE ELEMENTS INTO ALPHABETICAL SEQUENCE,
          C      AND ELIMINATE THE DUPLICATION ON THE INPUT
          C
          C      ELEMENT                SUBSCRIPTS
          C                        TAPE      CARD
          C
          C      ANTIMONY                1        12
          C      ARSENIC                 2        33
          C      BARIUM                   3        21
          C      BERYLLIUM                4        14
          C      BISMUTH                   5        19
          C      CALCIUM                   6        35
          C      CHROMIUM                  7         8
          C      COAL OR LIGNITE           8        34
          C      COBALT                    9         9
          C      COLUMBIUM                10       25
          C      COPPER                    11         3
          C      GARNET                    12       38
          C      GOLD                      13         1
          C      GYPSUM                    14       29
          C      IRON                      15       15
          C      LEAD                      16         4
          C      LIMESTONE                 17       23
          C      MANGANESE                 18       27
          C      MARBLE                    19       28
          C      MERCURY                   20       10
          C      MOLYBDENUM                21       20
          C      NICKEL                    22         7
          C      PALLADIUM                 23       16
          C      PLATINUM                  24         6
          C      RADIO-ACTIVE              25       22
          C      SILICON                   26       37
          C      SILVER                     27         2
          C      SULPHUR                   28       30
          C      THORIUM                   29       18
          C      TIN                       30       13
          C      TUNGSTEN                  31       11,32
          C      URANIUM                   32       17
          C      ZINC                      33         5
          C      ZIRCONIUM                 34       24,26
          C
0073      38 MELEM(1)=ILEM(12)
0074      MELEM(2)=ILEM(33)
0075      MELEM(3)=ILEM(21)

```

```

0076      MELEM(4)=ILEM(14)
0077      MELEM(5)=ILEM(19)
0078      MELEM(6)=ILEM(35)
0079      MELEM(7)=ILEM(8)
0080      MELEM(8)=ILEM(34)
0081      MELEM(9)=ILEM(9)
0082      MELEM(10)=ILEM(25)
0083      MELEM(11)=ILEM(3)
0084      MELEM(12)=ILEM(38)
0085      MELEM(13)=ILEM(1)
0086      MELEM(14)=ILEM(29)
0087      MELEM(15)=ILEM(15)
0088      MELEM(16)=ILEM(4)
0089      MELEM(17)=ILEM(23)
0090      MELEM(18)=ILEM(27)
0091      MELEM(19)=ILEM(28)
0092      MELEM(20)=ILEM(10)
0093      MELEM(21)=ILEM(20)
0094      MELEM(22)=ILEM(7)
0095      MELEM(23)=ILEM(16)
0096      MELEM(24)=ILEM(6)
0097      MELEM(25)=ILEM(22)
0098      MELEM(26)=ILEM(37)
0099      MELEM(27)=ILEM(2)
0100      MELEM(28)=ILEM(30)
0101      MELEM(29)=ILEM(18)
0102      MELEM(30)=ILEM(13)
0103      MELEM(32)=ILEM(17)
0104      MELEM(33)=ILEM(5)
0105      MELEM(31)=0
0106      IF(ILEM(11).EQ.1) MELEM(31)=1
0107      IF(ILEM(32).EQ.1) MELEM(31)=1
0108      MELEM(34)=0
0109      IF(ILEM(24).EQ.1) MELEM(34)=1
0110      IF(ILEM(26).EQ.1) MELEM(34)=1

C
C
0111      MD=MDIST

C
C
C      NOW READY TO WRITE NEW RECORD ON TAPE, UNFORMATTED
C
0112      WRITE(8)MD,IQUAD,ISER,{CORD(K),K=1,4},LAT1,LAT2,LONG1,LONG2,
1{IYEAR(K),K=1,4},{CLAIM(K),K=1,27},LP,IA,IPAT,NOCL,IPUB,
2{IREF(K),K=1,3},MERIT,LS,LD,IPRO,IRES,{IEXPL(K),K=1,2},
3{MELEM(K),K=1,34}

C
0113      WRITE(3,3001)MD,IQUAD,ISER,{CLAIM(K),K=1,27},{IYEAR(K),K=1,4}
0114      3001 FORMAT(' ',T10,I1,2I3,27A1,T60,4I1)

C
C
0115      GO TO 1
C

```

DOS FORTRAN IV 360N-FO-479 3-1

MINFILE1

DATE 09/25/71

TIME

03.13.02

PAGE 0006

C

0116 99 CALL EXIT  
0117 REMIND 8  
0118 END

APPENDIX 12

Computer Printout of MINFILE2



```

C
C PROGRAM NAME - MINFILE2
C BY EVE PORTER FOR L. E. HEINER JANUARY 1970
C
C PURPOSE -
C
C THE MINERAL CLAIMS DATA FILE SYSTEM WAS DEVELOPED AT THE MINERAL
C INDUSTRIES RESEARCH LAB, UNIVERSITY OF ALASKA, BY EVE PORTER UNDER THE
C DIRECTION OF LAWRENCE E. HEINER. THE PURPOSE OF THE SYSTEM IS TO PROVIDE A
C GENERALIZED, DETAILED SYSTEM FOR COMPUTER HANDLING OF MINERAL RESOURCE DATA.
C
C THE SYSTEM OF PROGRAMS IS WRITTEN ENTIRELY IN FORTRAN IV FOR THE
C IBM 360 MODEL 40, OPERATING UNDER DOS.
C
C MINERAL CLAIMS DATA IS KEYPUNCHED INTO CARDS
C THESE CARDS ARE LOADED TO MAGNETIC TAPE. THE RESULTING TAPE IS
C UNFORMATTED FORTRAN. LOADING IS ACCOMPLISHED BY PROGRAM MINFILE1 (SEE
C SOURCE LISTING). A CONSIDERABLE AMOUNT OF EDITING IS DONE WHEN THE CARDS
C ARE LOADED TO TAPE, TO HELP GUARD AGAINST ANY CODING OR KEYPUNCHING ERRORS
C WHICH MAY HAVE OCCURRED.
C
C THE DATA FILE, ONCE RESIDENT ON MAGNETIC TAPE, IS READ WITH THE
C FOLLOWING FORTRAN READ STATEMENT. NOTE THAT NO FORMAT STATEMENT IS USED,
C AS THE TAPE IS UNFORMATTED.
C
C READ(8)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
C 1(IYR(K),K=1,4),(CLAIM(K),K=1,27),LP,IA,IPAT,NOCL,IPUB,
C 2(IREF(K),K=1,2),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2),
C 3(MELEM(K),K=1,34)
C
C THE VARIABLE NAMES ARE DESCRIBED AS FOLLOWS
C MD I1 NUMBER OF THE MINING DISTRICT IN WHICH THE CLAIM IS LOCATED
C IQUAD I3 NUMBER OF THE MAP QUADRANGLE
C ISER I3 SERIAL NUMBER OF THE PROPERTY WITHIN THE QUAD
C CORD F3.1 FOUR ARE USED. THESE ARE THE X-Y COORDINATES ON THE USGS
C SYSTEM. THEY APPEAR IN SEQUENCE X1,X2,Y1,Y2.
C LAT1 I2 THE DEGREES PORTION OF THE LATITUDE
C LAT2 I2 THE MINUTES PORTION OF THE LATITUDE
C LONG1 I3 THE DEGREES PORTION OF THE LONGITUDE
C LONG2 I2 THE MINUTES PORTION OF THE LONGITUDE
C IYR 4I1 THE YEAR IN WHICH THE ENTRY WAS FILED ON THE CLAIM
C CLAIM 27I1 THE NAME GIVEN TO THE PROPERTY BY THE OWNER
C LP I1 DESIGNATES THE TYPE OF MINE. '0' = LODE, '1' = PLACER
C IA I1 ACTIVITY CODE. '0' = INACTIVE, '1' = ACTIVE
C IPAT I1 PATENT STATUS. '0' = UNPATENTED, '1' = PATENTED
C NOCL I3 NUMBER OF SEPARATE CLAIMS INCLUDED IN THIS PROPERTY
C IPUB I1 PUBLICATION CODE
C IREF 3I1 REFERENCE CODE
C MERIT I1 MERIT CODE. THIS RANGES FROM 0 THRU 4
C LS I1 CLAIM STATUS CODE. THIS RANGES FROM 3 THRU 5
C IPRO I1 PRODUCTION CODE. THIS RANGES FROM 0 THRU 5
C IRES I1 RESERVES CODE.
C IEXPL 2I1 EXPLORATION CODE. 1ST DIGIT IS AGENCY CODE, RANGE 1 THRU 4
C 2ND DIGIT IS TYPE CODE, RANGE 1 THRU 6
  
```

```

C MELEM 3411 THESE ARE THE MINERAL ELEMENT CODES
C           0 = MINERAL NOT IN THIS ENTRY
C           1 = MINERAL PRESENT IN THIS ENTRY
C NOTE -
C
C LATITUDE-LONGITUDE WILL BE ENTERED AS XXDEGXXMIN (XXXX) LATITUDE
C           XXXDEGXXMIN (XXXXXX)LONGITUDE
C USGS COORDINATES WILL BE ENTERED AS FOUR FIELDS XX.X.
C ALL FIELDS RIGHT-JUSTIFIED
C
C THE FOLLOWING IS A SEQUENTIAL LIST OF THE ELEMENTS WHICH MAY BE
C CARRIED FOR EACH CLAIM ENTRY IN THE FILE. THE ELEMENTS, THEIR
C ABBREVIATIONS AND SUBSCRIPTS ARE
C
C     ANTIMONY           SB      (1)
C     ARSENIC            AS      (2)
C     BARIUM              BA      (3)
C     BERYLLIUM           BE      (4)
C     BISMUTH             BE      (5)
C     CALCIUM             CA      (6)
C     CHROMIUM            CR      (7)
C     COAL OR LIGNITE     CL      (8)
C     COBALT              CO      (9)
C     COLUMBIUM           CB      (10)
C     COPPER              CU      (11)
C     GARNET              GN      (12)
C     GOLD                AU      (13)
C     GYPSUM              GY      (14)
C     IRON                FE      (15)
C     LEAD                PB      (16)
C     LIMESTONE           LM      (17)
C     MANGANESE           MN      (18)
C     MARBLE              MB      (19)
C     MERCURY             HG      (20)
C     MOLYBDENUM          MO      (21)
C     NICKEL              NI      (22)
C     PALLADIUM           PD      (23)
C     PLATINUM            PT      (24)
C     RADIO-ACTIVE        RA      (25)
C     SILICON             SI      (26)
C     SILVER              AG      (27)
C     SULPHUR             S       (28)
C     THORIUM             TH      (29)
C     TIN                 SN      (30)
C     TUNGSTEN            W       (31)
C     URANIUM             U       (32)
C     ZINC                 ZN      (33)
C     ZIRCONIUM           ZR      (34)
C
C LISTINGS FROM THE MRL DATA FILE MAY BE OBTAINED BY USING PROGRAM
C MINFILE2. (SEE SOURCE LISTINGS). MINFILE2 WITH ITS ASSOCIATED SUBROUTINES
C WILL GENERATE ANY OF THE LISTINGS AND OUTPUTS DESCRIBED BELOW, BY
C APPROPRIATE CODING OF A HEADER CARD.
C

```

```

C                                     HEADER CARD FORMAT
C
C      CARD COLUMNS      INFORMATION
C
C      1-2                MODE SELECTION CODE - 01 THRU 16
C      3-26               ELEMENT CODES - 12 FIELDS, 2 DIGITS EACH
C      27-28              BLANK
C      29-32              YEAR TO BE SELECTED
C      33-36              LATITUDE-DEGREES{XX} MINUTES{XX} LOW END OF RANGE
C      37-41              LONGITUDE-DEGREES{XXX} MIN{XX} LOW END OF RANGE
C      42-45              LATITUDE - HIGH END OF RANGE
C      46-50              LONGITUDE- HIGH END OF RANGE
C      51-53              QUAD-1 LOW END OF RANGE OR IF ONLY ONE QUAD WANTED
C      54-56              QUAD-2 HIGH END OF RANGE
C      57-60              USGS COORDINATES -X1- LOW END OF RANGE {XX.X}
C      61-64              USGS COORDINATES -X2- HIGH END OF RANGE {XX.X}
C      65-68              USGS COORDINATES -Y1- LOW END OF RANGE {XX.X}
C      69-72              USGS COORDINATES -Y2- HIGH END OF RANGE {XX.X}
C      73                 MINING DISTRICT {0 OR BLANK - NO SELECTION}
C      74                 ACTIVITY CODE - 1=ACTIVE 2=INACTIVE
C      76                 PRODUCTION CODE - SEE 4 BELOW
C      75                 PATENT STATUS - 1=PATENTED 2=UNPATENTED
C      77                 LODE/PLACER - 1=PLACER 2=LODE
C      78                 OUTPUT DEVICE FOR X-Y AVERAGE 1=CARDS 2=TAPE
C      79                 MERIT CODE SEE 6 BELOW
C      80                 BLANK
C
C      NOTE      USE ONLY THE CODES REQUIRED TO DEFINE THE
C                SELECTIONS YOU WISH TO MAKE WITH THE SPECIFIED OPTION.
C                ALL OTHER FIELDS MAY BE BLANK.
C
C      OPTION CODE IS PUT IN COLS 1 AND 2 OF THE HEADER CARD.
C      ALL MODES EXCEPT 16 PERMIT SELECTION ON THE FOLLOWING CODES
C
C      1.  MINING DISTRICT (COL.73) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED
C
C      2.  ACTIVITY CODE (COL.74) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED
C          IF 1 ONLY ACTIVE CLAIMS ARE ACCEPTED
C          IF 2 ONLY INACTIVE CLAIMS ARE ACCEPTED
C
C      3.  PATENT STATUS (COL.75) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED
C          IF 1 ONLY PATENTED CLAIMS ARE ACCEPTED
C          IF 2 ONLY UNPATENTED CLAIMS ARE ACCEPTED
C
C      4.  PRODUCTION CODE(COL.76) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED
C          IF 1 PRODUCTION CODE 1 IS ACCEPTED
C          IF 2 PRODUCTION CODE 2 IS ACCEPTED
C          IF 3 PRODUCTION CODE 3 IS ACCEPTED
C          IF 4 PRODUCTION CODE 4 IS ACCEPTED
C          IF 5 PRODUCTION CODE 5 IS ACCEPTED
C          IF 6 PRODUCTION CODES 1 TO 5 ARE ACCEPTED
C          IF 7 PRODUCTION CODES 3, 4, AND 5 ARE ACCEPTED
C          IF 8 PRODUCTION CODES 4 AND 5 ARE ACCEPTED
C          IF 9 PROD CODE 0 (UNCODED) IS ACCEPTED

```

C  
 C 5. LODE OR PLACER (COL.77) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED  
 C IF 1 ONLY PLACER CLAIMS ARE ACCEPTED  
 C IF 2 ONLY LODE CLAIMS ARE ACCEPTED  
 C  
 C 6. MERIT CODE (COL.79) IF 0 OR BLANK ALL CLAIMS ARE ACCEPTED  
 C IF 1 MERIT CODE 1 IS ACCEPTED  
 C IF 2 MERIT CODE 2 IS ACCEPTED  
 C IF 3 MERIT CODE 3 IS ACCEPTED  
 C IF 4 MERIT CODE 4 IS ACCEPTED  
 C IF 5 MERIT CODES 1 TO 4 ARE ACCEPTED  
 C IF 6 MERIT CODES 2, 3, AND 4 ARE ACCEPTED  
 C IF 7 MERIT CODES 3 AND 4 ARE ACCEPTED  
 C IF 9 MERIT CODE 0 (UNCODED) ARE ACCEPTED  
 C  
 C 7. YEAR (COLS.29-32) IF A YEAR IS SPECIFIED ONLY THE  
 C CLAIMS WITH THAT DATE WILL BE ACCEPTED  
 C  
 C THE OPTION CODES SPECIFY THE PROGRAM MODE SELECTOR  
 C COLUMNS 1 AND 2 MUST SPECIFY A MODE FROM 01 TO 16  
 C AN INVALID CODE (GREATER THAN 16) WILL CAUSE END OF JOB.  
 C 00 OR BLANK IN COLUMNS 1 AND 2 WILL CAUSE END OF JOB.  
 C  
 C 01 TO SELECT CLAIMS WHICH HAVE ANY ONE OR COMBINATION OF UP TO 12  
 C ELEMENTS AS SPECIFIED. SEE HEADER CARD FORMAT  
 C  
 C 02 SELECT ELEMENTS AS IN 01 FROM ANY SINGLE QUAD (COLS 51-53) OR  
 C RANGE OF QUADS (LOW - COLS 51-53 TO HIGH - COLS 54-56)  
 C  
 C 03 SELECT ELEMENTS AS IN 01 FROM CLAIMS WITHIN THE RANGE OF  
 C LATITUDE-LONGITUDE (COLS 33-41)(LOW END OF RANGE) TO  
 C LATITUDE-LONGITUDE (COLS 42-50)(HIGH END OF RANGE)  
 C  
 C 04 SELECT ELEMENTS AS IN 01, FROM CLAIMS WITHIN A SPECIFIED  
 C RANGE OF USGS COORDINATES (X1-COLS 57-60)(X2-COLS 61-64)  
 C (Y1-COLS 65-68)(Y2-COLS 69-72) WITHIN A SPECIFIED QUAD AS IN 02  
 C  
 C 05 SELECT ONLY CLAIMS WITHIN SPECIFIED QUAD OR RANGE OF QUADS  
 C WHICH CONTAIN A L L OF THE ELEMENTS SPECIFIED.  
 C  
 C 06 SELECT ONLY CLAIMS WITHIN SPECIFIED RANGE OF LATITUDE-LONGITUDE  
 C (SEE 03) WHICH CONTAIN A L L OF THE ELEMENTS SPECIFIED  
 C  
 C 07 SELECT ONLY CLAIMS WITHIN SPECIFIED USGS COORDINATES WHICH  
 C CONTAIN A L L OF THE ELEMENTS SPECIFIED  
 C  
 C 08 SELECT CLAIMS BY QUAD AND ELEMENTS AS IN 02  
 C THEN AVERAGE THE X1,X2, AND Y1,Y2 COORDINATE VALUES AND  
 C PRODUCE A PRINTED LIST AND EITHER TAPE OR CARDS  
 C IF LTC (COL 78) = 1 CARDS AND LIST WILL BE PRODUCED  
 C IF LTC (COL 78) = 2 TAPE AND LIST WILL BE PRODUCED  
 C NOTE - LTC MAY NOT BE 0 OR BLANK FOR THIS OPTION.  
 C



```
      C   NECESSARY.
      C
0008      C   EOF=0
      C   SET TOTAL FIELDS TO ZERO.
      C
0009      C   ITOTAL=0
0010      C   JTOTAL=0
      C
      C   SET NUMXY = 0. NUMXY IS THE SEQUENTIAL NUMBER OUTPUT BY
      C   XYLIST ON CARDS, TAPE AND LIST
      C
0011      C   NUMXY=0
      C
      C   NOW CALL PAGE1 TO PRINT THE TITLES ON THE FIRST PAGE
      C
0012      C   CALL PAGE1
      C
0013      C   200 CALL READT
0014      C         IF(EOF.EQ.1) GO TO 900
0015      C         CALL SELECT
0016      C         IF(LISTIT.NE.1) GO TO 200
0017      C         IF(MODE.EQ.14) GO TO 200
0018      C         IF(MODE.EQ.15) GO TO 200
0019      C         IF(LTC.GE.1) GO TO 300
0020      C         CALL RITER
0021      C         GO TO 200
0022      C   300 CALL XYLIST
0023      C         GO TO 200
0024      C   400 CALL LISTER
0025      C         GO TO 999
      C
      C   END OF FILE HAS BEEN READ ON THE TAPE
      C
      C   NOW PRINT OUT TOTALS
      C
0026      C   900 CALL PRTOT
0027      C         IF(MODE.LT.08) GO TO 901
0028      C         IF(MODE.GT.13) GO TO 901
0029      C         CALL WTM
0030      C   901 GO TO 100
0031      C   999 CALL EXIT
0032      C         END
```

```

0001      SUBROUTINE ACTIV
          C
          C
          C      WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
          C      THIS SUBROUTINE CHECKS THE ACTIVITY CODE IN THE CURRENT ENTRY OF
          C      THE MIRL DATA FILE AGAINST THE CODE IN THE HEADER CARD AND SETS
          C      LISTIT = 1 IF THE ENTRY IS ACCEPTABLE FOR PROCESSING.
          C      IF HEADER CODE = 0 NO CHECK IS MADE
          C      IF HEADER CODE = 1 ACTIVE CLAIMS ARE SELECTED
          C      IF HEADER CODE = 2 INACTIVE CLAIMS ARE SELECTED
          C
          C
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPOG,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPOD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
          C
0004      IF(IACODE.EQ.0) GO TO 20
0005      IAC=IACODE
0006      IF(IAC.EQ.2) IAC=0
0007      IF(IAC.NE.IA) GO TO 30
          C
          C      THIS ENTRY IS ACCEPTABLE ON BASIS OF ACTIVITY CODE.
          C
0008      20 LISTIT=1
0009      30 RETURN
0010      END

```

```
0001      SUBROUTINE COMBO
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970
          C      FOR USE IN THE MIRL DATA FILE SYSTEM
          C
          C      THIS SUBROUTINE IS USED TO SEARCH FOR ENTRIES IN WHICH CERTAIN
          C      COMBINATIONS OF ELEMENTS HAVE BEEN LOCATED
          C      THAT IS, IF THE HEADER SPECIFIES COPPER AND GOLD, ONLY THOSE
          C      ENTRIES SPECIFYING BOTH COPPER AND GOLD WILL BE ACCEPTED.
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,ICODE,IPOD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      NUMB=0
0005      DO 10 N=1,12
0006      IF(ILEM(N).EQ.0) GO TO 20
0007      NUMB=NUMB+1
0008      10 CONTINUE
          C
          C      NUMB IS THE NUMBER OF ELEMENTS WHICH MUST ALL BE IN A GIVEN ENTRY.
          C
0009      20 IF(NUMB.LT.2) GO TO 99
0010      J=0
0011      DO 30 N=1,NUMB
0012      IF(MELEM(ILEM(N)).NE.1) GO TO 99
0013      J=J+1
0014      30 CONTINUE
          C
          C
0015      IF(J.NE.NUMB) GO TO 99
0016      LISTIT=1
0017      99 RETURN
0018      END
```



```
0001      SUBROUTINE ELEM
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER 1.20.70
          C      PURPOSE OF THIS SUBROUTINE IS TO SEARCH THE M.I.R.L. DATA FILE
          C      FOR ELEMENTS SPECIFIED BY SUBSCRIPT ON A HEADER CARD
          C      ON THE FIRST DETECTION OF A SPECIFIED ELEMENT, A CODE (LISTIT=1)
          C      IS PASSED BACK TO THE MAINLINE
          C      IF THE FIRST SUBSCRIPT = 99, ALL ELEMENTS ARE ACCEPTABLE AND NO
          C      CHECK IS MADE.
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0004      IF(ILEM(1).EQ.99) GO TO 12
0005      DO 10 N=1,12
0006      IF(ILEM(N).EQ.0) GO TO 15
0007      IF(MELEM(ILEM(N)).EQ.1) GO TO 12
0008      10 CONTINUE
0009      GO TO 15
0010      12 LISTIT=1
0011      15 RETURN
0012      END
```

```
0001      SUBROUTINE EXTRAC
C
C
C      BY EVE PORTER FOR L.E.HEINER, M.I.R.L.  JANUARY 1970
C      THIS PROGRAM WRITTEN TO EXTRACT USGS COORDINATES, LATITUDE, LONGITUDE
C      QUAD, SERIAL NO. AND CLAIM NAME FOR SOUTHEASTERN DATA ON MIRL DATA FILE
C      FOR INPUT TO A STANDARD UTILITY SORT PROGRAM.
C      INPUT TAPE UNFORMATTED FORTRAN, MIRL DATA FILE FORMAT
C      OUTPUT TAPE FORMATTED SHORT FORTRAN RECORDS FOR INPUT TO UTILITY
C      SORT ROUTINES ON IBM 360/40  AND TO FORTRAN PROGRAM LISTSORT WHICH
C      LISTS THE SHORT RECORDS ON THE PRINTER.
C      INPUT TAPE ON 8 - 180,  OUTPUT ON 9 - 181
C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
5MER,X,Y,IYEAR(4),NUMXY
C
0004      WRITE(9,900)CORD(2),CORD(4),MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,
1LAT2,LONG1,LONG2,(CLAIM(K),K=1,27)
0005      900 FORMAT(2A4,I1,2I3,4F7.1,2I2,I3,I2,27A1)
C
0006      CALL TOTAL
C
0007      RETURN
0008      END
```

```

0001          SUBROUTINE HEADER
C
C
C          WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
C          THIS SUBROUTINE IS USED IN THE MIRL DATA FILE SYSTEM TO READ
C          A HEADER CARD FOR CONTROL AND SELECTION OF SPECIFIC ENTRIES
C          FROM THE FILE
C
C          A BLANK CARD, OR A CARD WITH
C          00 IN COLS 1 AND 2 (MODE) INDICATE NO MORE HEADERS FOLLOW AND JOB
C          IS DONE.  AN ILLEGAL CODE IN MODE ALSO TERMINATES THE JOB.
C
0002          DOUBLE PRECISION TODAY
0003          COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
5MER,X,Y,IYEAR(4),NUMXY
C
0004          READ(1,1000)MODE,({ILEM(K),K=1,12},{IYEAR(K),K=1,4},LAT1A,LAT2A,
1LONG1A,LONG2A,LAT1B,LAT2B,LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,
2IMD,IACODE,IPCODE,IPROD,LODE,LTC,MER
0005          1000 FORMAT(I2,12I2,2X,4I1,2I2,I3,3I2,I3,I2,2I3,4F4.1,7I1,1X)
C
C          CHECK FOR 0 IN MODE AND ILLEGAL CODES
C
0006          IF(MODE.GT.16) MODE=0
C
C
0007          RETURN
0008          END

```

```

0001      SUBROUTINE LATLON
          C
          C      WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
          C      THIS SUBROUTINE IS CALLED BY MODES 03, 06, 09, 12, AND 15 OF
          C      SUBROUTINE SELECT FOR THE MIRL DATA FILE SYSTEM.
          C      IT CHECKS THE LATITUDE AND LONGITUDE IN THE CURRENT ENTRY AGAINST
          C      THE UPPER AND LOWER LAT-LONG LIMITS IN THE HEADER CARD
          C      IF THE LAT-LONG IN THE ENTRY FALLS WITHIN THE RANGE IN THE HEADER
          C      CARD, THE ENTRY IS ACCEPTABLE AND LISTIT IS SET TO 1
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      IF(LAT1.LT.LAT1A) GO TO 99
0005      IF(LAT1.GT.LAT1B) GO TO 99
0006      IF(LONG1.LT.LONG1A) GO TO 99
0007      IF(LONG1.GT.LONG1B) GO TO 99
0008      IF(LAT1.NE.LAT1A) GO TO 10
0009      IF(LAT2.LT.LAT2A) GO TO 99
0010      10 IF(LAT1.NE.LAT1B) GO TO 11
0011      IF(LAT2.GT.LAT2B) GO TO 99
0012      11 IF(LONG1.NE.LONG1A) GO TO 12
0013      IF(LONG2.LT.LONG2A) GO TO 99
0014      12 IF(LONG1.NE.LONG1B) GO TO 90
0015      IF(LONG2.GT.LONG2B) GO TO 99
0016      90 LISTIT=1
0017      99 RETURN
0018      END

```

```

0001      SUBROUTINE LISTER
          C
          C      BY EVE PORTER FOR L.E.HEINER,M.I.R.L.
          C      THIS PROGRAM TO PROVIDE SINGLE-SPACED LISTING OF SHORT RECORDS
          C      INPUT TAPE ON 181
          C
          C
          C      MODIFIED BY J DRYDEN
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      REWIND 9
0005      LINE=50
0006      NPAGE=1
0007      1 READ(9,9000,END=99) DATA,DATAS,MD,IQUAD,ISER,(CORD(K),K=1,4),
          X LAT1,LAT2,LONG1,LONG2,(CLAIM(K),K=1,27)
0008      9000 FORMAT(2A4,I1,2I3,4F7.1,2I2,I3,I2,27A1)
          C
0009      IF(LINE.GE.50) GO TO 10
          C
          C      WRITE A LINE ON THE PRINTER
          C
0010      2 WRITE(3,3333) MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,
          X LONG2,(CLAIM(K),K=1,27)
0011      3333 FORMAT(' ',DIST ',I1,' QUAD ',I3,' SERIAL ',I3,' USGS COORD ',
          X 4(F7.1,' '),LAT ',I2,' ',I2,' LONG ',I3,' ',I2,' NAME ',27A1)
          C
0012      LINE=LINE+1
          C      LINE IS WRITTEN.
          C
0013      GO TO 1
          C
          C      PAGE-NUMBERING ROUTINE.
          C
0014      10 LINE=0
0015      WRITE(3,3033)
0016      3033 FORMAT('1')
0017      WRITE(3,3000)TODAY,NPAGE
0018      3000 FORMAT(' ',T1,A8,T95,'PAGE ',T100,I4,////)
0019      NPAGE=NPAGE+1
0020      GO TO 2
          C
          C
0021      99 RETURN
0022      END

```

```
0014          IF(MER.EQ.MERIT) GO TO 90
0015          GO TO 99
              C
              C   LOOK FOR HEADER CODE 5.  IF ITS 5, ENTRIES WITH MERIT CODES 1 TO 4
              C   ARE ACCEPTED
              C
0016          12 IF(MER.NE.5) GO TO 13
0017          IF(MERIT.GE.1) GO TO 99
0018          GO TO 99
              C
              C   HEADER CODE 6 SELECTS CODES 2,3, AND 4.
              C
0019          13 IF(MER.NE.6) GO TO 14
0020          IF(MERIT.GE.2) GO TO 90
0021          GO TO 99
              C
              C   HEADER CODE 7 SELECTS CODES 3 AND 4.
              C
0022          14 IF(MERIT.GE.7) GO TO 90
0023          GO TO 99
              C
              C   IF THE MERIT CODE IN THE ENTRY WAS ACCEPTABLE, SET LISTIT = 1
              C   IF NOT, THEN EXIT.
              C
0024          90 LISTIT=1
              C
0025          99 RETURN
0026          END
```

```

0001          SUBROUTINE MERITS
C
C          WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970
C          FOR USE IN THE MIRL DATA FILE SYSTEM
C          REVISED FOR MORE DETAILED SELECTION APRIL 1970
C          THIS SUBROUTINE DETERMINES IF THE CURRENT ENTRY IS ACCEPTABLE FOR
C          FURTHER PROCESSING ON THE BASIS OF MERIT CODE AS SPECIFIED BY THE
C          HEADER CARD
C          IF HEADER CODE = 0 NO CHECK IS MADE
C          IF HEADER CODE = 1 ONLY MERIT CODE 1 IS ACCEPTED
C          IF HEADER CODE = 2 ONLY MERIT CODE 2 IS ACCEPTED
C          IF HEADER CODE = 3 ONLY MERIT CODE 3 IS ACCEPTED
C          IF HEADER CODE = 4 ONLY MERIT CODE 4 IS ACCEPTED
C          IF HEADER CODE = 5 MERIT CODES 1 TO 4 ARE ACCEPTED
C          IF HEADER CODE = 6 MERIT CODES 2, 3, 4 ARE ACCEPTED
C          IF HEADER CODE = 7 MERIT CODES 3 AND 4 ARE ACCEPTED
C          IF HEADER CODE = 9 ONLY MERIT CODE 0 (UNCODED) IS ACCEPTED
C
0002          DOUBLE PRECISION TODAY
0003          COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
C
C          HEADER CODE 0 OR BLANK.  ALL ENTRIES ARE ACCEPTED.
0004          IF(MER.EQ.0) GO TO 90
C
C          CHECK FOR HEADER CODE 9.  IF PRESENT ACCEPT ENTRIES WITH 0 MERIT.
0005          IF(MER.LT.9) GO TO 10
0006          IF(MERIT.EQ.0) GO TO 90
0007          GO TO 99
C
C          NOW CHECK FOR CODE 8 IN THE HEADER.  THIS IS INVALID.  WRITE MESSAGE
C          AND END JOB
0008          10 IF(MER.LE.7) GO TO 11
0009          WRITE(3,3000)MER
0010          3000 FORMAT('0',T10,'MERIT CODE IN HEADER (COL. 79) IS ',I1,'.',I1,' THIS
          1 IS INVALID.  THE JOB IS CANCELLED.')
```

```

C          SET EOF=1 TO CAUSE LEGAL BLOW OFF
C
```

```

0011          EOF=1
0012          GO TO 99
C
```

```

C          NOW LOOK TO SEE IF HEADER CODE IS 1 TO 4.  THESE CALL FOR A DIRECT
C          MATCH WITH THE CODE IN THE ENTRY.
C
```

```

0013          11 IF(MER.GT.4) GO TO 12
```

```
0001      SUBROUTINE MINDIS
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970
          C      FOR USE IN THE MIRL DATA SYSTEM.
          C      SUBROUTINE MINDIS COMPARES THE MINING DISTRICT CODE IN THE HEADER
          C      CARD WITH THE ONE IN THE CURRENT ENTRY.  IF THEY MATCH, THE
          C      ENTRY IS ACCEPTABLE.
          C      IF MINING DISTRICT IN THE HEADER IS 0 NO CHECK IS MADE, AND
          C      ALL DISTRICTS ARE CONSIDERED TO BE ACCEPATBLE.
          C
          C
          C
          C
          C      DOUBLE PRECISION TODAY
          C      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
0002      1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
0003      2IEXPL(2),MELEM(34),EDF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          C      3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          C      4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          C      5MER,X,Y,IYEAR(4),NUMXY
          C
          C
          C      IF(IMD.EQ.0) GO TO 90
0004
          C
          C      IF(IMD.NE.MD) GO TO 99
0005      90 LISTIT=1
0006      99 RETURN
0007      END
0008
```



```

0001          SUBROUTINE PAGE1
              C
              C
              C      WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
              C      THIS SUBROUTINE IS USED IN THE MRL DATA FILE SYSTEM TO TITLE
              C      THE FIRST PAGE OF EACH LISTING, USING HEADER DATA TO IDENTIFY
              C      WHAT THE LISTING CONTAINS
              C
              C
0002          DOUBLE PRECISION TODAY
0003          DIMENSION ALABEL(34),ALLOUT(25)
0004          COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0005          DATA ALABEL/' SB',' AS',' BA',' BE',' BI',' CA',' CR',' CL',' CO',
          1' CB',' CU',' GN',' AU',' GY',' FE',' PB',' LM',' MN',' MB',' HG',
          2' MO',' NI',' PD',' PT',' RA',' SI',' AG',' S',' TH',' SN',' W',
          4' U',' ZN',' ZR'//,BLANK/' '//,ALL/'ALL'/
              C
              C
              C
0006          NPAGE=1
              C
              C      WRITE THE CREDIT LINES AT THE TOP
              C
              C
0007          WRITE(3,3000)
0008          3000 FORMAT('1',T25,'ALASKA MINERAL PROPERTY REFERENCE FILE')
0009          WRITE(3,3001)
0010          3001 FORMAT('0',T10,'DISTRIBUTED & UPDATED BY',T54,'DEVELOPED BY THE MI
          1NERAL')
0011          WRITE(3,3002)
0012          3002 FORMAT(' ',T10,'STATE DIVISION OF MINES & GEOLOGY',T54,'INDUSTRY R
          1ESEARCH LAB-U/A')
0013          WRITE(3,3003)
0014          3003 FORMAT(' ',T10,'REFERENCE-DMG KARDEX FILE',T54,'REFERENCE-MIRL REP
          1T NO.24')
0015          WRITE(3,3004)
0016          3004 FORMAT(' ',T36,'**MINEFIL 1969**')
              C
              C      PICK UP MINING DISTRICT, MODE AND TODAY'S DATE AND WRITE THEM
              C
0017          WRITE(3,3005)IMD,MODE,TODAY
0018          3005 FORMAT('0',T10,'MINING DISTRICT ',I1,T54,'TYPE ',I2,' LISTING',T71
          1,A8)
              C
              C      PUT IN QUADS FROM HEADER
              C
0019          WRITE(3,3006)IQUAD1,IQUAD2
0020          3006 FORMAT(' ',T10,'QUAD (0=NO SELECTION) ',I3,T40,I3,T54,'MODIFIERS
          1- ')

```

```

C
C   PICK UP LATITUDE MIN-MAX AND WRITE THEM
C
0021   WRITE(3,3007)LAT1A,LAT2A,LAT1B,LAT2B
0022   3007 FORMAT(' ',T10,'LATITUDE - MIN ',I2,' ',I2,' MAX ',I2,' ',I2)
C
C   CHECK HEADER FOR YEAR. IF GIVEN, USE IT ELSE PUT IN 'ALL'
C
0023   IF(IYEAR(2).EQ.0) GO TO 10
0024   WRITE(3,3008)(IYEAR(K),K=1,4)
0025   3008 FORMAT('+',T57,'YEAR - ',4I1)
0026   GO TO 11
0027   10 WRITE(3,3009)
0028   3009 FORMAT('+',T57,'YEAR - ALL')
C
C   PICK UP LONGITUDE MIN-MAX AND WRITE THEM
C
0029   11 WRITE(3,3010)LONG1A, LONG2A, LONG1B, LONG2B
0030   3010 FORMAT(' ',T10,'LONGITUDE- MIN ',I3,' ',I2,' MAX ',I3,' ',I2)
C
C   CHECK PRODUCTION CODE AND WRITE IN THE INFO
C
0031   IF(IPROD.EQ.1) GO TO 12
0032   IF(IPROD.EQ.0) GO TO 13
0033   IF(IPROD.LE.5) GO TO 110
0034   IF(IPROD.EQ.9) GO TO 111
0035   IF(IPROD.EQ.6) GO TO 12
0036   IF(IPROD.EQ.7) GO TO 112
0037   IF(IPROD.EQ.8) GO TO 113
C
C
0038   111 WRITE(3,3011)
0039   3011 FORMAT('+',T57,'PRODUCTION CODE-UNCODED')
0040   GO TO 14
0041   12 WRITE(3,3012)
0042   3012 FORMAT('+',T57,'PRODUCTION CODES 1 TO 5')
0043   GO TO 14
0044   110 WRITE(3,3110)IPROD
0045   3110 FORMAT('+',T57,'PRODUCTION CODE ',I1)
0046   GO TO 14
0047   112 WRITE(3,3112)
0048   3112 FORMAT('+',T57,'PRODUCTION CODES 3, 4, AND 5')
0049   GO TO 14
0050   113 WRITE(3,3113)
0051   3113 FORMAT('+',T57,'PRODUCTION CODES 4 AND 5')
0052   GO TO 14
0053   13 WRITE(3,3013)
0054   3013 FORMAT('+',T57,'PRODUCTION CODES - ALL')
C
C   NEXT IS THE USGS COORDINATES AND MERIT LINE. FIRST USGS TITLE
C
0055   14 WRITE(3,3014)
0056   3014 FORMAT(' ',T10,'USGS COORDINATES (0-NO SELECTION)')
C

```

```

      C      CHECK THE HEADER FOR MERIT CODE AND WRITE THE APPROPRIATE LINE
      C
      C
0057      IF(MER.EQ.1) GO TO 15
0058      IF(MER.EQ.0) GO TO 16
0059      IF(MER.EQ.9) GO TO 114
0060      IF(MER.LE.4) GO TO 115
0061      IF(MER.EQ.5) GO TO 15
0062      IF(MER.EQ.6) GO TO 116
0063      IF(MER.EQ.7) GO TO 117
0064      GO TO 17

      C
      C
0065      114 WRITE(3,3015)
0066      3015 FORMAT('+',T57,'MERIT CODE - UNCODED')
0067      GO TO 17
0068      15 WRITE(3,3016)
0069      3016 FORMAT('+',T57,'MERIT CODES 1 TO 4')
0070      GO TO 17
0071      115 WRITE(3,3115)MER
0072      3115 FORMAT('+',T57,'MERIT CODE ',I1)
0073      GO TO 17
0074      116 WRITE(3,3116)
0075      3116 FORMAT('+',T57,'MERIT CODES 2, 3, AND 4')
0076      GO TO 17
0077      117 WRITE(3,3117)
0078      3117 FORMAT('+',T57,'MERIT CODES 3 AND 4')
0079      16 WRITE(3,3017)
0080      3017 FORMAT('+',T57,'MERIT CODES - ALL')

      C
      C      READ THE X-MIN X-MAX FROM HEADER AND WRITE THEM
      C
0081      17 WRITE(3,3018)X1,X2
0082      3018 FORMAT(' ',T21,'X-MIN ',F4.1,' X-MAX ',F4.1)

      C
      C      CHECK HEADER FOR ACTIVITY SELECTION AND WRITE THE APPROPRIATE LINE
      C
0083      IF(IACODE.EQ.1) GO TO 18
0084      IF(IACODE.EQ.2) GO TO 19

      C
      C      NOT 1 OR 2 SO WE WANT ALL. WRITE THE LINE
      C
0085      WRITE(3,3019)
0086      3019 FORMAT('+',T57,'ACTIVE AND INACTIVE')
0087      GO TO 20
0088      18 WRITE(3,3020)
0089      3020 FORMAT('+',T57,'ACTIVE CLAIMS')
0090      GO TO 20
0091      19 WRITE(3,3021)
0092      3021 FORMAT('+',T57,'INACTIVE CLAIMS')

      C
      C      PICK UP Y-MIN AND Y-MAX AND WRITE THEM
      C
0093      20 WRITE(3,3022)Y1,Y2

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```

0094      3022 FORMAT(' ',T21,'Y-MIN ',F4.1,' Y-MAX ',F4.1)
C
C      CHECK HEADER FOR PATENT STATUS AND WRITE THE APPROPRIATE LINE
C
0095      IF(IPCODE.EQ.1) GO TO 21
0096      IF(IPCODE.EQ.2) GO TO 22
C
C      NOT 1 OR 2 SO NO SELECTION. WRITE THE LINE
C
0097      WRITE(3,3023)
0098      3023 FORMAT('+',T57,'PATENTED AND UNPATENTED')
0099      GO TO 23
0100      21 WRITE(3,3024)
0101      3024 FORMAT('+',T57,'PATENTED CLAIMS')
0102      GO TO 23
0103      22 WRITE(3,3025)
0104      3025 FORMAT('+',T57,'UNPATENTED CLAIMS')
C
C      CHECK THE LODE/PLACER CODE ON THE HEADER AND WRITE THE LINE
C
0105      23 IF(LODE.EQ.1) GO TO 24
0106      IF(LODE.EQ.2) GO TO 25
C
C      IT IS 0 SO WRITE IT
C
0107      WRITE(3,3026)
0108      3026 FORMAT(' ',T57,'LODE AND PLACER')
0109      GO TO 26
0110      24 WRITE(3,3027)
0111      3027 FORMAT(' ',T57,'PLACER ONLY')
0112      GO TO 26
0113      25 WRITE(3,3028)
0114      3028 FORMAT(' ',T57,'LODE ONLY')
C
C      DECODE THE ELEMENTS AND WRITE THEM USING THE COMMON ABBREVIATIONS
C
0115      26 DO 27 N=1,12
0116      ALLOUT(N)=BLANK
0117      27 CONTINUE
C
C      THE PRINT AREA IS CLEARED IF 1ST ELEMENT POSITION ON HEADER IS 99
C      PUT THE WORD 'ALL' IN OUTPUT AREA AND WRITE
C
0118      IF(ILEM(1).NE.99) GO TO 28
0119      ALLOUT(1)=ALL
0120      GO TO 30
C
C      NOT 99 SO PROCEED TO DECODE
C
0121      28 DO 29 N=1,12
0122      IF(ILEM(N).EQ.0) GO TO 30
0123      ALLOUT(N)=ALABEL(ILEM(N))
0124      29 CONTINUE
C

```

```
C      NOW WRITE IT ALL OUT
C
0125      30 WRITE(3,3029){ALLOUT(K),K=1,8}
0126      3029 FORMAT('+',T10,'ELEMENTS ',8A3)
0127      WRITE(3,3030){ALLOUT(K),K=9,12}
0128      3030 FORMAT(' ',T20,4A3,/)
C
C      HEADER CARD IS DECODED AND FIRST OR LAST PAGE HEADING DONE
C      SET THE LINE COUNTER DEPENDING ON WHICH LISTING PROGRAM WILL
C      BE USED
C
0129      31 IF(MODE.GE.8) TAG=20
0130      IF(MODE.LT.8) TAG=2
C
0131      RETURN
0132      END
```

```

0001      SUBROUTINE PAGING
          C
          C      WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
          C      THIS SUBROUTINE IS USED BY THE MINFILE2 PROGRAM IN THE MIRL DATA
          C      FILE SYSTEM TO START EVERY NEW PAGE
          C
          C
          C
0002      DOUBLE PRECISION TODAY
0003      DIMENSION ALABEL(34), ANAME(15)
0004      COMMON TODAY, MD, IQUAD, ISER, CORD(4), LAT1, LAT2, LONG1, LONG2, IYR(4),
          1CLAIM(27), LP, IA, IPAT, NOCL, IPUB, IREF(3), MERIT, LS, LD, IPRO, IRES,
          2IEXPL(2), MELEM(34), EOF, OUTLAB(7), TAG, NPAGE, LISTIT, ITOTAL,
          3JTOTAL, IACODE, MODE, ILEM(17), LAT1A, LAT2A, LONG1A, LONG2A, LAT1B, LAT2B,
          4LONG1B, LONG2B, IQUAD1, IQUAD2, X1, X2, Y1, Y2, IPCODE, IPRD, IMD, LODE, LTC,
          5MER, X, Y, IYEAR(4), NUMXY
0005      DATA ALABEL/' SB', ' AS', ' BA', ' BE', ' BI', ' CA', ' CR', ' CL', ' CO',
          1' CB', ' CU', ' GN', ' AU', ' GY', ' FE', ' PB', ' LM', ' MN', ' MB', ' HG',
          2' MD', ' NI', ' PD', ' PT', ' RA', ' SI', ' AG', ' S', ' TH', ' SN', ' W',
          4' U', ' ZN', ' ZR' /, BLANK/'  ' /
          C
0006      TAG=0
0007      NPAGE=NPAGE+1
0008      WRITE(3,3000)MODE, NPAGE
0009      3000 FORMAT('1', T10, 'TYPE ', I2, ' LISTING', T70, 'PAGE ', I4)
0010      IF(ILEM(1).NE.99) GO TO 10
0011      WRITE(3,3001)TODAY
0012      3001 FORMAT(' ', T10, 'ALL ELEMENTS', T70, A8)
0013      GO TO 30
0014      10 DO 11 N=1,15
0015          ANAME(N)=BLANK
0016      11 CONTINUE
0017          DO 20 N=1,15
0018              IF(ILEM(N).EQ.0) GO TO 21
0019              ANAME(N)=ALABEL(ILEM(N))
0020      20 CONTINUE
0021      21 WRITE(3,3002)(ANAME(K), K=1,15), TODAY
0022      3002 FORMAT(' ', T10, 'ELEMENTS ', I5A3, T70, A8)
0023      30 RETURN
0024      END

```

```
0001      SUBROUTINE PATENT
          C
          C      THIS SUBROUTINE CHECKS THE PATENT STATUS IN THE CURRENT ENTRY
          C      OF THE MIRL DATA FILE AGAINST THE CODE IN THE HEADER CARD AND
          C      SETS LISTIT=1 IF THE ENTRY IS ACCEPTABLE FOR PROCESSING.
          C
          C      IF HEADER CODE = 0 NO CHECK IS MADE
          C      IF HEADER CODE = 1 PATENTED CLAIMS ARE SELECTED
          C      IF HEADER CODE = 2 UNPATENTED CLAIMS ARE SELECTED
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0004      IF(IPCODE.EQ.0) GO TO 20
0005      IP=IPCODE
0006      IF(IP.EQ.2) IP=0
0007      IF(IP.NE.IPAT) GO TO 30
0008      20 LISTIT=1
0009      30 RETURN
0010      END
```

```
      C
      C   HEADER CODE 8 SELECTS ENTRIES WITH PRODUCTION CODES 4 AND 5
      C
0017      23 IF(IPROD.NE.8) GO TO 99
0018      IF(IPRO.GE.4) GO TO 90
0019      GO TO 99
      C
      C   IF THE ENTRY IS ACCEPTED, SET LISTIT = 1
      C
0020      90 LISTIT=1
0021      99 RETURN
0022      END
```



```

0001      SUBROUTINE PROD
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970
          C      REVISED TO PERMIT MORE DETAILED SELECTION APRIL 1970
          C
          C      THIS SUBROUTINE COMPARES THE PRODUCTION CODE IN THE HEADER WITH
          C      THE CODE IN THE RECORD, SELECTION AS FOLLOWS
          C      PRODUCTION CODE IS IN COL 76 OF THE HEADER
          C      HEADER CODE      SELECTION
          C      0 OR BLANK      NO CHECK IS MADE - ALL CODES ARE ACCEPTED
          C      1                PROD. CODE 1
          C      2                PROD. CODE 2
          C      3                PROD. CODE 3
          C      4                PROD. CODE 4
          C      5                PROD. CODE 5
          C      6                PROD. CODES 1 AND 2
          C      7                PROD. CODES 3, 4, AND 5
          C      8                PROD. CODES 4 AND 5
          C      9                PROD. CODE 0 - UNCODED
          C
          C
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          ICLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          ZIEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
          C
          C
0004      IF(IPROD.EQ.0) GO TO 90
0005      IF(IPROD.GT.5) GO TO 20
0006      IF(IPROD.EQ.IPRO) GO TO 90
0007      GO TO 99
          C
          C      IF THE HEADER CODE WAS 0 TO 5 THE TEST AND SELECTION HAVE BEEN MADE
          C      NOW TEST FOR UNCODED - 9 IN HEADER
          C
0008      20 IF(IPROD.LT.9) GO TO 21
0009      IF(IPRO.EQ.0) GO TO 90
0010      GO TO 99
          C
          C      IF HEADER CODE 6 SELECT ENTRIES WITH PRODUCTION CODES 1,2,3,4,OR 5
          C
0011      21 IF(IPROD.NE.6) GO TO 22
0012      IF(IPRO.GE.1) GO TO 90
0013      GO TO 99
          C
          C      HEADER CODE 7 SELECTS ENTRIES WITH PRODUCTION CODE OF 3, 4, OR 5
          C
0014      22 IF(IPROD.NE.7) GO TO 23
0015      IF(IPRO.GE.3) GO TO 90
0016      GO TO 99

```

```
0001      SUBROUTINE PRTOT
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970 FOR THE MIRL
          C      DATA FILE SYSTEM.
          C      THIS SUBROUTINE IS USED AT THE END OF MINFILE2 TO PRINT OUT THE
          C      TOTAL NUMBER OF CLAIMS AND ENTRIES ACCUMULATED BY SUBROUTINE TOTAL
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
          C      GO TO A NEW PAGE
0004      CALL PAGE 1
          C
          C      NOW WRITE THE NUMBER OF ENTRIES IN THIS LISTING
          C
0005      WRITE(3,3001)JTOTAL
0006      3001 FORMAT('0',T10,'TOTAL NUMBER OF PROPERTIES',T70,I6)
          C
          C      NOW WRITE THE NUMBER OF CLAIMS
          C
0007      WRITE(3,3002)ITOTAL
0008      3002 FORMAT('0',T10,'TOTAL NUMBER OF CLAIMS REPRESENTED BY THESE PROPER
          ITIES',T70,I6)
0009      RFTURN
0010      END
```

```

0001      SUBROUTINE QUAD
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER FOR THE MIRL DATA FILE SYSTEM
          C      JANUARY 1970
          C      THIS SUBROUTINE IS CALLED ONLY BY SUBROUTINE SELECT, IN MODES 02,
          C      04, 05, 07, 08, 10, 11, 13 14.
          C      IT CHECKS THE CURRENT ENTRY IN THE MIRL DATA FILE AS FOLLOWS
          C      1.  IF QUAD-2 IN THE HEADER IS BLANK, ONLY ENTRIES WHICH ARE THE
          C          SAME AS QUAD-1 ARE ACCEPTABLE.
          C      2.  IF QUAD-1 AND QUAD-2 ARE BOTH PRESENT, ALL ENTRIES IN THE
          C          RANGE OF QUAD-1 TO QUAD-2 (INCLUSIVE) ARE ACCEPTABLE.
          C      FOR AN ACCEPTABLE ENTRY SET LISTIT=1
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          IF(IQUAD2.NE.0) GO TO 10
          IF(IQUAD1.EQ.IQUAD) GO TO 90
          GO TO 99
          C
          C      ONLY ONE QUAD IS SPECIFIED.  LISTIT IS SET TO 1 AND RETURN
          C      OTHERWISE CHECK RANGE.
          C
0007      10 IF(IQUAD.LT.IQUAD1) GO TO 99
0008      IF(IQUAD.GT.IQUAD2) GO TO 99
          C
0009      90 LISTIT=1
0010      99 RETURN
0011      END

```

```

0001      SUBROUTINE READT
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970 FOR THE MRL
          C      MINERAL RESOURCES DATA SYSTEM.
          C      THIS SUBROUTINE IS USED BY MINFILE2 TO READ ONE CLAIM ENTRY FROM
          C      THE UNFORMATTED DATA TAPE AND MAKE IT AVAILABLE FOR PROCESSING
          C      AND OUTPUT
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
          C
0004      READ(8,END=1)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
          1(IYR(K),K=1,4),(CLAIM(K),K=1,27),LP,IA,IPAT,NOCL,IPUB,
          2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2),
          3(MELEM(K),K=1,34)
0005      GO TO 2
          C
          C
          C      END OF THE FILE HAS BEEN DETECTED.  SET EOF KEY AND RETURN.
          C
0006      1 EOF=1
          C
          C
0007      2 RETURN
0008      END

```

```

0001      SUBROUTINE RITER
          C
          C      THIS SUBROUTINE TAKES A RECORD SELECTED BY THE MAINLINE
          C      AND WRITES IT OUT, MAKING ALL INTERPRETATIONS, CONVERTING
          C      ELEMENTS FROM SUBSCRIPTS TO ALPHA ABBREVIATIONS, AND SO FORTH
          C
0002      DOUBLE PRECISION TODAY
0003      DIMENSION ALABEL(34)
0004      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0005      DATA ALABEL/' SB',' AS',' BA',' BE',' BI',' CA',' CR',' CL',' CO',
          1' CB',' CU',' GN',' AU',' GY',' FE',' PB',' LM',' MN',' MB',' HG',
          2' MO',' NI',' PD',' PT',' RA',' SI',' AG',' S',' TH',' SN',' W',
          4' U',' ZN',' ZR'//,APLACE/' PLAC'//,ALODE/' LODE'//,APOS/' YES'//,
          5AND/' NO'//,BLANK/' ' //,APLC/' ER'//,ALD/' ' /
          C
          C      START A NEW PAGE
          C
0006      IF(TAG.NE.10) GO TO 20
0007      CALL PAGING
          C      NEW PAGE IS STARTED
          C
0008      20 WRITE(3,3001)MD,IQUAD,ISER,(CLAIM(K),K=1,27)
0009      3001 FORMAT('0',T10,'DIST ',I1,' QUAD ',I3,' SERIAL ',I3,' NAME '
          1,27A1)
          C
          C      FIRST LINE HAS BEEN WRITTEN
          C
          C
          C      DECODE THE LODE OR PLACER CODE
          C
0010      42 IF(LP)2,3,2
0011      2 ATYPE=APLACE
0012      ATY1=APLC
0013      GO TO 4
0014      3 ATYPE=ALODE
0015      ATY1=ALD
          C
          C      THE WORD 'LODE' OR 'PLACER' WILL NOW PRINT OUT AS PART OF LINE 2
          C
0016      4 WRITE(3,3002) CORD(1),CORD(2),CORD(3),CORD(4),NOCL,(IYR(K),K=1,4),
          1ATYPE,ATY1
0017      3002 FORMAT(' ',T10,'USGS COORD ',F4.1,' ',F4.1,' ',F4.1,' ',F4.1,' ',
          1 NO.CLAIMS ',I3,' YEAR ',4I1,' ',A4,A2)
          C
          C      SECOND LINE HAS BEEN WRITTEN
          C
0018      WRITE(3,3003)LAT1,LAT2,LONG1,LONG2,IPRO,LD,MERIT,(IEXPL(K),K=1,2)
0019      3003 FORMAT(' ',T10,'LATITUDE ',I2,' ',I2,' LONGITUDE ',I3,' ',I2,' PR

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      10D ',I1,' DEV ',I1,' MERIT ',I1,' EXPL ',I1,' ',I1)
C
C      THIRD LINE HAS BEEN WRITTEN
C
0020      IF(IA)5,6,5
0021      5 ACT=APOS
0022      GO TO 7
0023      6 ACT=AND
C      ACTIVE CODE HAS BEEN TRANSLATED TO YES OR NO
C
0024      7 IF(IPAT)8,9,8
0025      8 APAT=APOS
0026      GO TO 10
0027      9 APAT=AND
C
C      PATENT STATUS CODE HAS BEEN BEEN TRANSLATED TO YES OR NO
C
C
C      SET OUTPUT AREAS FOR ABBREVIATIONS TO BLANK
0028      10 DO 22 N=1,7
0029      OUTLAB(N)=BLANK
0030      22 CONTINUE
C
C
C      DECODE THE ELEMENTS FROM SUBSCRIPTED '1'S TO ALPH ABBREVIATIONS
C
0031      K=0
0032      DO 32 N=1,34
0033      IF(MELEM(N)-1)32,31,32
0034      31 K=K+1
0035      OUTLAB(K)=ALABEL(N)
0036      IF(K-7)32,35,35
0037      32 CONTINUE
C
C      ELEMENT ABBREVIATIONS ARE NOW AVAILABLE - WRITE THE FOURTH LINE
C
C
0038      35 WRITE(3,3004)ACT,APAT,(OUTLAB(K),K=1,7)
0039      3004 FORMAT(' ',T10,'ACTIVE ',A3,'          PATENTED ',A3,' COMMODITY
      1 ',7A3)
C
C      FOURTH LINE IS WRITTEN
C
C      CALL TOTAL TO ACCUMULATE NUMBER OF CLAIMS AND ENTRIES
C
0040      CALL TOTAL
C
C      SET TAG FOR NO. OF ENTRIES PER PAGE
0041      TAG=TAG+1
C
0042      RETURN
0043      END

```



```

C     CHECKS TO SEE IF THE CURRENT FILE ENTRY IS ACCEPTABLE FOR
C     PROCESSING.
C
0026  GO TO (100,200,300,400,500,600,700,800,900,1000,1100,1200,1300,
      11400,1500,1600),MODE
C
C     THE MODE WAS 01. THIS REQUIRES THAT EACH ENTRY BE CHECKED TO SEE
C     IF IT CONTAINS ANY ONE OF THE ELEMENTS SPECIFIED ON THE HEADER.
C     IF 99 WAS SPECIFIED IN THE FIRST ELEMENT FIELD, ALL ENTRIES WHICH
C     PASSED THE FIRST TESTS ARE NOW ACCEPTABLE.
C
0027  100 CALL ELEM
0028  GO TO 9900
C
C     02 WAS SPECIFIED. ENTRIES MUST FALL WITHIN THE QUAD OR QUADS
C     SPECIFIED, AND THEN MUST CONTAIN AT LEAST ONE OF THE SPECIFIED
C     ELEMENTS.
C
0029  200 CALL QUAD
0030  IF(LISTIT.NE.1) GO TO 9900
0031  LISTIT=0
0032  CALL ELEM
0033  GO TO 9900
C
C     03 IS SPECIFIED. TO MEET THESE REQUIREMENTS, THE ENTRIES MUST FALL
C     WITHIN THE SPECIFIED RANGE OF LATITUDE-LONGITUDES -HIGH AND LOW-
C     AND IN ADDITION MUST CONTAIN AT LEAST ONE OF THE SPECIFIED ELEMENTS
C
0034  300 CALL LATLON
0035  IF(LISTIT.NE.1) GO TO 9900
0036  LISTIT=0
0037  CALL ELEM
0038  GO TO 9900
C
C     04 IS SPECIFIED. MODE 4 REQUIRES THAT AN ACCEPTABLE ENTRY MUST
C     FIRST BE WITHIN THE QUAD SPECIFIED IN COLS 51-53 OF THE HEADER,
C     THEN FALL WITHIN THE RANGE OF USGS COORDINATES AND IN ADDITION,
C     CONTAIN AT LEAST ONE OF THE SPECIFIED ELEMENTS.
C
0039  400 CALL QUAD
0040  IF(LISTIT.NE.1) GO TO 9900
0041  LISTIT=0
0042  CALL USGSXY
0043  IF(LISTIT.NE.1) GO TO 9900
0044  LISTIT=0
0045  CALL ELEM
0046  GO TO 9900
C
C     05 REQUIRES THAT AN ENTRY MUST FALL WITHIN THE QUAD OR RANGE OF
C     QUADS SPECIFIED, AND IN ADDITION, MUST CONTAIN ALL OF THE ELEMENTS
C     SPECIFIED. IF THREE ELEMENTS ARE NAMED, ALL THREE MUST BE PRESENT.
C     NOTE THAT THERE MUST BE MORE THAN ONE ELEMENTS SPECIFIED
C
0047  500 CALL QUAD

```



```
0048      IF(LISTIT.NE.1) GO TO 9900
0049      LISTIT=0
0050      CALL COMBO
0051      GO TO 9900
```

C

C

C

C

C

C

```
0052      600 CALL LATLON
0053      IF(LISTIT.NE.1) GO TO 9900
0054      LISTIT=0
0055      CALL COMBO
0056      GO TO 9900
```

C

C

C

C

C

```
0057      700 CALL QUAD
0058      IF(LISTIT.NE.1) GO TO 9900
0059      LISTIT=0
0060      CALL USGSXY
0061      IF(LISTIT.NE.1) GO TO 9900
0062      LISTIT=0
0063      CALL COMBO
0064      GO TO 9900
```

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C

```
0065      800 CALL QUAD
0066      IF(LISTIT.NE.1) GO TO 9900
0067      LISTIT=0
0068      CALL ELEM
0069      IF(LISTIT.NE.1) GO TO 9900
0070      LISTIT=0
0071      CALL XYAVER
0072      CALL XYLIST
```

```

0073          GO TO 9900
              C
              C 09 REQUIRES THAT THE ENTRY MEET THE REQUIREMENTS OF LATITUDE-
              C LONGITUDE AND ELEMENTS AS IN MODE 03.
              C
0074          900 CALL LATLON
0075             IF(LISTIT.NE.1) GO TO 9900
0076             LISTIT=0
0077             CALL ELEM
0078             IF(LISTIT.NE.1) GO TO 9900
0079             LISTIT=0
0080             CALL XYAVER
0081             CALL XYLIST
0082             GO TO 9900
              C
              C 10 IS SPECIFIED. THIS REQUIRES THAT THE ENTRY MEET THE SAME
              C REQUIREMENTS FOR ACCEPTABILITY ON THE BASIS OF USGS COORDINATES AND
              C ELEMENTS AS IN 04.
              C
0083          1000 CALL QUAD
0084             IF(LISTIT.NE.1) GO TO 9900
0085             LISTIT=0
0086             CALL USGSXY
0087             IF(LISTIT.NE.1) GO TO 9900
0088             LISTIT=0
0089             CALL ELEM
0090             IF(LISTIT.NE.1) GO TO 9900
0091             LISTIT=0
0092             CALL XYAVER
0093             CALL XYLIST
0094             GO TO 9900
              C
              C
              C          MODES 11, 12, AND 13 ARE THE SAME AS
              C          MODES 08, 09, AND 10, EXCEPT THAT THE
              C          SELECTION ON THE BASIS OF ELEMENTS IS
              C          DEPENDENT ON THE ENTRY CONTAINING ALL OF THE
              C          ELEMENTS SPECIFIED, INSTEAD OF ANY ONE -
              C          THAT IS, SELECTION IS MADE IN THE SAME
              C          WAY AS IN MODES 05, 06, AND 07.
              C          NOTE THAT MORE THAN ONE ELEMENT MUST BE SPECIFIED.
              C
              C
              C 11 IS SPECIFIED. THE ENTRY MUST MEET THE REQUIREMENTS OF QUAD
              C AS SPECIFIED, AND MUST HAVE ALL OF THE SPECIFIED ELEMENTS.
              C
0095          1100 CALL QUAD
0096             IF(LISTIT.NE.1) GO TO 9900
0097             LISTIT=0
0098             CALL COMBO
0099             IF(LISTIT.NE.1) GO TO 9900
0100             LISTIT=0
0101             CALL XYAVER

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0102          CALL XYLIST
0103          GO TO 9900
C
C      12 IS REQUIRED.  THE ENTRY MUST FALL IN THE RANGE OF SPECIFIED
C      LATITUDES-LONGITUDES, AND MUST HAVE ALL OF THE SPECIFIED ELEMENTS.
C
0104      1200 CALL LATLON
0105          IF(LISTIT.NE.1) GO TO 9900
0106          LISTIT=0
0107          CALL COMBO
0108          IF(LISTIT.NE.1) GO TO 9900
0109          LISTIT=0
0110          CALL XYAVER
0111          CALL XYLIST
0112          GO TO 9900
C
C      13 IS REQUIRED.  THE ENTRY MUST FALL IN THE SPECIFIED RANGE OF
C      USGS COORDINATES, AND MUST HAVE ALL OF THE SPECIFIED ELEMENTS.
C
0113      1300 CALL QUAD
0114          IF(LISTIT.NE.1) GO TO 9900
0115          LISTIT=0
0116          CALL USGSXY
0117          IF(LISTIT.NE.1) GO TO 9900
0118          LISTIT=0
0119          CALL COMBO
0120          IF(LISTIT.NE.1) GO TO 9900
0121          LISTIT=0
0122          CALL XYAVER
0123          CALL XYLIST
0124          GO TO 9900
C
C      14 IS SPECIFIED.  THE ENTRY MUST BE WITHIN THE QUAD OR QUADS
C      SPECIFIED.  CERTAIN INFORMATION IS EXTRACTED (SUBROUTINE EXTRAC)
C      AND WRITTEN ON ANOTHER TAPE.  THIS TAPE IS INTENDED FOR INPUT TO
C      THE UTILITY SORT ROUTINES.  THIS TAPE CAN BE LISTED USING
C      THE SUBROUTINE LISTER.
C
0125      1400 CALL QUAD
0126          IF(LISTIT.NE.1) GO TO 9900
0127          CALL EXTRAC
0128          GO TO 9900
C
C      15 IS SPECIFIED.  THIS IS THE SAME AS 14 EXCEPT THAT SELECTION OF
C      ENTRIES IS MADE ON THE BASIS OF LATITUDE-LONGITUDE
C
0129      1500 CALL LATLON
0130          IF(LISTIT.NE.1) GO TO 9900
0131          CALL EXTRAC
0132          GO TO 9900
C      16 IS USED ONLY TO LIST THE TAPE WHICH WAS MADE BY OPTIONS 14 OR 15.
C
0133      1600 CALL LISTER
0134          GO TO 9900

```

```
      C  
      C  
0135     9900 RETURN  
      C  
0136     END
```

```
0001          SUBROUTINE TOTAL
C
C          THIS SUBROUTINE IS CALLED BY SUBROUTINE RITER TO ACCUMULATE THE
C          NUMBER OF ENTRIES WHICH ARE PRINTED AND THE TOTAL NUMBER OF
C          CLAIMS IN THE ENTRIES
C          AT THE END OF THE JOB THESE TOTALS ARE USED IN SUBROUTINE PRTOT
C          WHICH PRINTS THEM ON A SEPARATE PAGE AT THE END OF THE LISTING
C
0002          DOUBLE PRECISION TODAY
0003          COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
5MER,X,Y,IYEAR(4),NUMXY
C
C          ADD NUMBER OF CLAIMS IN THE CURRENT ENTRY TO ACCUMULATED TOTAL
C
0004          ITOTAL=ITOTAL+NOCL
C
C          ADD 1 TO THE ACCUMULATED NUMBER OF ENTRIES
C
0005          JTOTAL=JTOTAL+1
C
0006          RETURN
0007          END
```

```
0001      SUBROUTINE TYPELP
          C
          C      WRITTEN BY EVE PORTER FOR L. E. HEINER JANUARY 1970
          C      THIS SUBROUTINE IS PART OF THE MIRL DATA FILE SYSTEM.
          C      THE PURPOSE OF TYPELP IS TO CHECK THE LODE CODE ON THE HEADER
          C      CARD AND DETERMINE IF THE CURRENT ENTRY IS ACCEPTABLE FOR
          C      PROCESSING
          C      IF HEADER CODE = 0 NO SELECTION
          C      IF HEADER CODE = 1 ONLY PLACER MINES ARE SELECTED
          C      IF HEADER CODE = 2 ONLY LODE MINES ARE SELECTED
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPO,IRES,
          2IFXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPOD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      IF(LODE.EQ.0) GO TO 90
0005      LLODE=LODE
0006      IF(LLODE.EQ.2) LLODE=0
0007      IF(LLODE.NE.LP) GO TO 99
0008      90 LISTIT=1
0009      99 RETURN
0010      END
```

```
0001      SUBROUTINE USGSXY
          C
          C      THIS SUBROUTINE IS CALLED BY MODES 04, 07, 10, AND 13 OF SUBROUTINE
          C      SELECT IN THE MIRL DATA FILE SYSTEM.
          C      IT CHECKS THE USGS COORDINATES IN THE CURRENT ENTRY OF THE DATA
          C      FILE AGAINST UPPER AND LOWER LIMITS DEFINED IN THE HEADER CARD.
          C      IF THE COORDINATES IN THE ENTRY FALL WITHIN THE RANGE IN THE
          C      HEADER CARD, THE ENTRY IS ACCEPTABLE AND LISTIT IS SET TO 1.
          C
          C
          C
          C
          C      DOUBLE PRECISION TODAY
0002      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
0003      1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPOD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      IF(CORD(1).EQ.0) GO TO 10
0005      IF(CORD(1).LT.X1) GO TO 10
0006      IF(CORD(1).LE.X2) GO TO 11
0007      10 IF(CORD(2).LT.X1) GO TO 99
0008      IF(CORD(2).GT.X2) GO TO 99
0009      IF(CORD(3).EQ.0) GO TO 12
0010      11 IF(CORD(3).LT.Y1) GO TO 12
0011      IF(CORD(3).LE.Y2) GO TO 90
0012      12 IF(CORD(4).LT.Y1) GO TO 99
0013      IF(CORD(4).GT.Y2) GO TO 99
0014      90 LISTIT=1
0015      99 RETURN
0016      END
```

```
0001      SUBROUTINE WTM
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER APRIL 1970
          C      THIS SUBROUTINE WRITES A *79X AT THE END OF THE X-Y AVERAGE TAPE
          C      AND CARD FILES TO GIVE THE STAMPEDE SYSTEM A PROPER END-OF-FILE
          C      INDICATOR.
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
          C
0004      IF(LTC.EQ.1) GO TO 10
0005      WRITE(9,900)
0006      900 FORMAT(*79X*)
0007      GO TO 99
0008      10 WRITE(2,900)
0009      99 RETURN
0010      END
```



```
0001          SUBROUTINE YEAR
              C
              C   WRITTEN BY EVE PORTER FOR L.E.HEINER APRIL 1970
              C   THIS SUBROUTINE USED BY THE MIRL DATA FILE SYSTEM TO SELECT
              C   CLAIMS FROM THE FILE ON THE BASIS OF A YEAR SPECIFIED IN THE
              C   HEADER CARD.
              C
0002          DOUBLE PRECISION TODAY
0003          COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
              1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
              2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
              3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
              4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
              5MER,X,Y,IYEAR(4),NUMXY
              C
0004          IF(IYEAR(2).EQ.0) GO TO 90
              C
0005          IF(IYEAR(2).NE.IYR(2)) GO TO 99
0006          IF(IYEAR(3).NE.IYR(3)) GO TO 99
0007          IF(IYEAR(4).NE.IYR(4)) GO TO 99
              C
              C
0008          90 LISTIT=1
0009          99 RETURN
0010          END
```

```

0001      SUBROUTINE XYLIST
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER JANUARY 1970
          C      THIS SUBROUTINE WRITE OUT THE AVERAGED X AND Y VALUES
          C      COMPUTED BY SUBROUTINE XYAVER ON THE MIRL DATA FILE SYSTEM
          C      IF LTC (COL 78) IN HEADER = 1, CARDS ARE PUNCHED
          C      IF LTC = 2 A TAPE IS WRITTEN ON DATA SET 9 (SYS181)
          C      IN BOTH CASES A LINE IS WRITTEN ON THE PRINTER
          C
0002      DOUBLE PRECISION TODAY
0003      DIMENSION LEM(15)
0004      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EDF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0005      COMMON /ZLL/ ZLAT,ZLON,LAD,LAM,LAS,LOD,LOM,LOS,XROT,YROT
          C
0006      NUMXY=NUMXY+1
          C
0007      WRITE(3,3000)XROT,YROT,MD,IQUAD,ISER, (ILEM(K),K=1,12),ZLAT,ZLON,
          X      LAD,LAM,LAS,LOD,LOM,LOS,MERIT,IPRO,NUMXY
0008      3000 FORMAT(' ',T10,F7.1,4X,F7.1,4X,I1,I1,I3,I3,2X,12I2,F8.3,F9.3,
          1  2(2X,3I3),5X,2I1,5X,I4)
0009      CALL TOTAL
0010      IF(LTC.EQ.2) GO TO 20
0011      WRITE(2,1000)XROT,YROT,MD,IQUAD,ISER, (ILEM(K),K=1,12),ZLAT,ZLON,
          X      LAD,LAM,LAS,LOD,LOM,LOS,MERIT,IPRO,NUMXY
0012      1000 FORMAT(2F7.1,I1,2I3,12I2,F6.3,F7.3,3I2,I3,2I2,3X,2I1,I4)
0013      GO TO 30
0014      20 WRITE(9,1000)XROT,YROT,MD,IQUAD,ISER, (ILEM(K),K=1,12),ZLAT,ZLON,
          X      LAD,LAM,LAS,LOD,LOM,LOS,MERIT,IPRO,NUMXY
0015      30 TAG=TAG+1
0016      IF(TAG.LT.56) GO TO 40
0017      NPAGE=NPAGE+1
0018      WRITE(3,3001)TODAY,NPAGE
0019      3001 FORMAT('1',T10,A8,T70,'PAGE ',I4,////)
0020      TAG=0
0021      40 RETURN
0022      END

```

```

0001      SUBROUTINE XYAVER
          C
          C THIS SUBROUTINE WAS MODIFIED FOR THE IBM 360 BY EVE PORTER FROM
          C A SUBROUTINE CALLED GRAVE BY L.E.HEINER, M.I.R.L.
          C IT IS USED WITH THE MIRL DATA FILE TO AVERAGE THE X1, X2, AND
          C Y1, Y2 VALUES OF THE USGS COORDINATES TO PROVIDE DATA FOR INPUT
          C TO VARIOUS STANDARD AND SPECIAL PLOTTING SYSTEMS, SUCH AS
          C CALCOMP, STAMPEDE, AND U/A-AUTHORED SYSTEMS.
          C
0002      DOUBLE PRECISION TODAY
0003      COMMON TODAY,MD,IQUAD,ISER,CORD(4),LAT1,LAT2,LONG1,LONG2,IYR(4),
          1CLAIM(27),LP,IA,IPAT,NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IRES,
          2IEXPL(2),MELEM(34),EOF,OUTLAB(7),TAG,NPAGE,LISTIT,ITOTAL,
          3JTOTAL,IACODE,MODE,ILEM(17),LAT1A,LAT2A,LONG1A,LONG2A,LAT1B,LAT2B,
          4LONG1B,LONG2B,IQUAD1,IQUAD2,X1,X2,Y1,Y2,IPCODE,IPROD,IMD,LODE,LTC,
          5MER,X,Y,IYEAR(4),NUMXY
0004      COMMON /ZLL/ ZLAT,ZLON,LAD,LAM,LAS,LOD,L0M,LOS,XROT,YROT
          C
          C IF X1 IS 0, X=X2
          C
0005      IF(CORD(1))6,7,6
0006      7 X=CORD(2)
0007      GO TO 10
          C
          C BOTH X1 AND X2 ARE PRESENT. AVERAGE THEM.
          C
0008      6 X=(CORD(1)+CORD(2))/2.
0009      10 CONTINUE
          C
          C IF Y1 IS 0, Y=Y2
          C
0010      IF(CORD(3))8,9,8
0011      9 Y=CORD(4)
0012      GO TO 12
          C
          C BOTH Y1 AND Y2 ARE PRESENT. AVERAGE THEM.
          C
0013      8 Y=(CORD(3)+CORD(4))/2.
          C
          C CONVERT USGS TO LAT & LONG
0014      12 CONTINUE
0015      IF(X.EQ.0.0.AND.Y.EQ.0.0) GO TO 20
0016      CALL USGSLI(IQUAD,X,Y,ZLAT,ZLON,XROT,YROT)
0017      GO TO 30
          C
          C HANDLE MISSING COORDINATES
0018      20 ZLAT=0.0
0019      ZLON=0.0
0020      XROT=0.0
0021      YROT=0.0
          C
          C CONVERT LATITUDE TO DEG, MIN, SEC
0022      30 LAD=ZLAT
0023      F=LAD

```

```
0024          F=(ZLAT-F)*60.0
0025          LAM=F
0026          F2=LAM
0027          F=(F-F2)*60.0 +0.5
0028          LAS=F

          C
          C CONVERT LONGITUDE TO DEG, MIN, SEC
0029          LOD=ZLON
0030          F=LOD
0031          F=(ZLON-F)*60.0
0032          LOM=F
0033          F2=LOM
0034          F=(F-F2)*60.0 +0.5
0035          LOS=F
0036          RETURN
0037          END
```

0001

SUBROUTINE USGSLL(IQUAD,XR,YR,ZLAT,ZLONP,XROT,YROT)

C  
 C THIS SUBROUTINE WILL CALCULATE THE LATITUDE AND LONGITUDE OF A  
 C POSITION SPECIFIED IN USGS COORDINATES. IQUAD IS THE QUADRANT NUMBER  
 C FROM THE 1/250,000 SCALE MAP USED TO LOCATE THE POSITION. XR AND YR  
 C ARE THE X AND Y COORDINATES OF THE POSITION IN INCHES ON THE MAP.  
 C THE Y AXIS COINCIDES WITH THE LEFT HAND BORDER OF THE MAP.  
 C THE X AXIS IS DEFINED AS PERPENDICULAR TO THE Y AXIS AND  
 C INTERSECTING THE Y AXIS AT THE LOWER LEFT CORNER OF THE MAP.  
 C PSF IS A  
 C PAPER SHRINKAGE FACTOR AND CAN EASILY BE CHANGED. IT REPRESENTS THE  
 C RATIO OF THE PRESENT SIZE OVER THE ORIGINAL. ZLAT AND ZLONP ARE IN  
 C DEGREES NORTH AND WEST AND ARE RETURNED TO THE CALLER.

C  
 C THIS PROGRAM WAS WRITTEN BY WM. MENDENHALL AND INCORPORATED IN THE  
 C MINFILE SYSTEM BY JAMES DRYDEN, MAY 1971.

C  
 C THE ARGUMENTS XROT AND YROT ARE THE ROTATED X AND Y COORDINATES  
 C RETURNED TO THE CALLER. THE ORIGINAL X AND Y COORDINATES ARE MEASURED  
 C WITH Y COINCIDENT TO THE EXTREME WEST LONGITUDE LINE ON THE MAP. THE  
 C ROTATED COORDINATE SYSTEM USES AN X AXIS WHICH INTERSECTS THE EXTREME  
 C SOUTHERN LATITUDE AT BOTH EDGES OF THE MAP AND THE Y AXIS IS PERPEN-  
 C DICULAR TO X, INTERSECTING AT THE WESTERN EDGE.

0002

DIMENSION ZLA(153), ZLO(153), DLL(153)

C  
 C ZLA(N) AND ZLO(N) ARE THE LATITUDE AND LONGITUDE OF THE LOWER LEFT  
 C HAND CORNER OF QUADRANT N. DLL(N) IS THE DIFFERENCE IN LONGITUDE  
 C BETWEEN THE LOWER RIGHT AND LEFT HAND CORNERS OF THE QUADRANT.

C  
 0003 DATA ZLA(001)/ 71.00/, ZLO(001)/ 157.50/, DLL(001)/ 3.0/  
 0004 DATA ZLA(002)/ 70.00/, ZLO(002)/ 163.00/, DLL(002)/ 4.0/  
 0005 DATA ZLA(003)/ 70.00/, ZLO(003)/ 159.00/, DLL(003)/ 3.0/  
 0006 DATA ZLA(004)/ 70.00/, ZLO(004)/ 156.00/, DLL(004)/ 3.0/  
 0007 DATA ZLA(005)/ 70.00/, ZLO(005)/ 153.00/, DLL(005)/ 3.0/  
 0008 DATA ZLA(006)/ 70.00/, ZLO(006)/ 150.00/, DLL(006)/ 3.0/  
 0009 DATA ZLA(007)/ 70.00/, ZLO(007)/ 147.00/, DLL(007)/ 3.0/  
 0010 DATA ZLA(008)/ 70.00/, ZLO(008)/ 144.00/, DLL(008)/ 3.0/  
 0011 DATA ZLA(009)/ 69.00/, ZLO(009)/ 165.00/, DLL(009)/ 3.0/  
 0012 DATA ZLA(010)/ 69.00/, ZLO(010)/ 162.00/, DLL(010)/ 3.0/  
 0013 DATA ZLA(011)/ 69.00/, ZLO(011)/ 159.00/, DLL(011)/ 3.0/  
 0014 DATA ZLA(012)/ 69.00/, ZLO(012)/ 156.00/, DLL(012)/ 3.0/  
 0015 DATA ZLA(013)/ 69.00/, ZLO(013)/ 153.00/, DLL(013)/ 3.0/  
 0016 DATA ZLA(014)/ 69.00/, ZLO(014)/ 150.00/, DLL(014)/ 3.0/  
 0017 DATA ZLA(015)/ 69.00/, ZLO(015)/ 147.00/, DLL(015)/ 3.0/  
 0018 DATA ZLA(016)/ 69.00/, ZLO(016)/ 144.00/, DLL(016)/ 3.0/  
 0019 DATA ZLA(017)/ 68.00/, ZLO(017)/ 168.00/, DLL(017)/ 3.0/  
 0020 DATA ZLA(018)/ 68.00/, ZLO(018)/ 165.00/, DLL(018)/ 3.0/  
 0021 DATA ZLA(019)/ 68.00/, ZLO(019)/ 162.00/, DLL(019)/ 3.0/  
 0022 DATA ZLA(020)/ 68.00/, ZLO(020)/ 159.00/, DLL(020)/ 3.0/  
 0023 DATA ZLA(021)/ 68.00/, ZLO(021)/ 156.00/, DLL(021)/ 3.0/  
 0024 DATA ZLA(022)/ 68.00/, ZLO(022)/ 153.00/, DLL(022)/ 3.0/

0025	DATA	ZLA(023)/	68.00/,	ZLO(023)/	150.00/,	DLL(023)/	3.0/
0026	DATA	ZLA(024)/	68.00/,	ZLO(024)/	147.00/,	DLL(024)/	3.0/
0027	DATA	ZLA(025)/	68.00/,	ZLO(025)/	144.00/,	DLL(025)/	3.0/
0028	DATA	ZLA(026)/	67.00/,	ZLO(026)/	165.50/,	DLL(026)/	3.5/
0029	DATA	ZLA(027)/	67.00/,	ZLO(027)/	162.00/,	DLL(027)/	3.0/
0030	DATA	ZLA(028)/	67.00/,	ZLO(028)/	159.00/,	DLL(028)/	3.0/
0031	DATA	ZLA(029)/	67.00/,	ZLO(029)/	156.00/,	DLL(029)/	3.0/
0032	DATA	ZLA(030)/	67.00/,	ZLO(030)/	153.00/,	DLL(030)/	3.0/
0033	DATA	ZLA(031)/	67.00/,	ZLO(031)/	150.00/,	DLL(031)/	3.0/
0034	DATA	ZLA(032)/	67.00/,	ZLO(032)/	147.00/,	DLL(032)/	3.0/
0035	DATA	ZLA(033)/	67.00/,	ZLO(033)/	144.00/,	DLL(033)/	3.0/
0036	DATA	ZLA(034)/	66.00/,	ZLO(034)/	168.00/,	DLL(034)/	3.0/
0037	DATA	ZLA(035)/	66.00/,	ZLO(035)/	165.00/,	DLL(035)/	3.0/
0038	DATA	ZLA(036)/	66.00/,	ZLO(036)/	162.00/,	DLL(036)/	3.0/
0039	DATA	ZLA(037)/	66.00/,	ZLO(037)/	159.00/,	DLL(037)/	3.0/
0040	DATA	ZLA(038)/	66.00/,	ZLO(038)/	156.00/,	DLL(038)/	3.0/
0041	DATA	ZLA(039)/	66.00/,	ZLO(039)/	153.00/,	DLL(039)/	3.0/
0042	DATA	ZLA(040)/	66.00/,	ZLO(040)/	150.00/,	DLL(040)/	3.0/
0043	DATA	ZLA(041)/	66.00/,	ZLO(041)/	147.00/,	DLL(041)/	3.0/
0044	DATA	ZLA(042)/	66.00/,	ZLO(042)/	144.00/,	DLL(042)/	3.0/
0045	DATA	ZLA(043)/	65.00/,	ZLO(043)/	169.00/,	DLL(043)/	4.0/
0046	DATA	ZLA(044)/	65.00/,	ZLO(044)/	165.00/,	DLL(044)/	3.0/
0047	DATA	ZLA(045)/	65.00/,	ZLO(045)/	162.00/,	DLL(045)/	3.0/
0048	DATA	ZLA(046)/	65.00/,	ZLO(046)/	159.00/,	DLL(046)/	3.0/
0049	DATA	ZLA(047)/	65.00/,	ZLO(047)/	156.00/,	DLL(047)/	3.0/
0050	DATA	ZLA(048)/	65.00/,	ZLO(048)/	153.00/,	DLL(048)/	3.0/
0051	DATA	ZLA(049)/	65.00/,	ZLO(049)/	150.00/,	DLL(049)/	3.0/
0052	DATA	ZLA(050)/	65.00/,	ZLO(050)/	147.00/,	DLL(050)/	3.0/
0053	DATA	ZLA(051)/	65.00/,	ZLO(051)/	144.00/,	DLL(051)/	3.0/
0054	DATA	ZLA(052)/	64.00/,	ZLO(052)/	168.00/,	DLL(052)/	3.0/
0055	DATA	ZLA(053)/	64.00/,	ZLO(053)/	165.00/,	DLL(053)/	3.0/
0056	DATA	ZLA(054)/	64.00/,	ZLO(054)/	162.00/,	DLL(054)/	3.0/
0057	DATA	ZLA(055)/	64.00/,	ZLO(055)/	159.00/,	DLL(055)/	3.0/
0058	DATA	ZLA(056)/	64.00/,	ZLO(056)/	156.00/,	DLL(056)/	3.0/
0059	DATA	ZLA(057)/	64.00/,	ZLO(057)/	153.00/,	DLL(057)/	3.0/
0060	DATA	ZLA(058)/	64.00/,	ZLO(058)/	150.00/,	DLL(058)/	3.0/
0061	DATA	ZLA(059)/	64.00/,	ZLO(059)/	147.00/,	DLL(059)/	3.0/
0062	DATA	ZLA(060)/	64.00/,	ZLO(060)/	144.00/,	DLL(060)/	3.0/
0063	DATA	ZLA(061)/	62.867/,	ZLO(061)/	172.00/,	DLL(061)/	3.5/
0064	DATA	ZLA(062)/	63.00/,	ZLO(062)/	165.00/,	DLL(062)/	3.0/
0065	DATA	ZLA(063)/	63.00/,	ZLO(063)/	162.00/,	DLL(063)/	3.0/
0066	DATA	ZLA(064)/	63.00/,	ZLO(064)/	159.00/,	DLL(064)/	3.0/
0067	DATA	ZLA(065)/	63.00/,	ZLO(065)/	156.00/,	DLL(065)/	3.0/
0068	DATA	ZLA(066)/	63.00/,	ZLO(066)/	153.00/,	DLL(066)/	3.0/
0069	DATA	ZLA(067)/	63.00/,	ZLO(067)/	150.00/,	DLL(067)/	3.0/
0070	DATA	ZLA(068)/	63.00/,	ZLO(068)/	147.00/,	DLL(068)/	3.0/
0071	DATA	ZLA(069)/	63.00/,	ZLO(069)/	144.00/,	DLL(069)/	3.0/
0072	DATA	ZLA(070)/	62.00/,	ZLO(070)/	168.00/,	DLL(070)/	3.0/
0073	DATA	ZLA(071)/	62.00/,	ZLO(071)/	165.00/,	DLL(071)/	3.0/
0074	DATA	ZLA(072)/	62.00/,	ZLO(072)/	162.00/,	DLL(072)/	3.0/
0075	DATA	ZLA(073)/	62.00/,	ZLO(073)/	159.00/,	DLL(073)/	3.0/
0076	DATA	ZLA(074)/	62.00/,	ZLO(074)/	156.00/,	DLL(074)/	3.0/
0077	DATA	ZLA(075)/	62.00/,	ZLO(075)/	153.00/,	DLL(075)/	3.0/
0078	DATA	ZLA(076)/	62.00/,	ZLO(076)/	150.00/,	DLL(076)/	3.0/

0079	DATA	ZLA(077)/	62.00/,	ZLO(077)/	147.00/,	DLL(077)/	3.0/
0080	DATA	ZLA(078)/	62.00/,	ZLO(078)/	144.00/,	DLL(078)/	3.0/
0081	DATA	ZLA(079)/	61.00/,	ZLO(079)/	168.00/,	DLL(079)/	3.0/
0082	DATA	ZLA(080)/	61.00/,	ZLO(080)/	165.00/,	DLL(080)/	3.0/
0083	DATA	ZLA(081)/	61.00/,	ZLO(081)/	162.00/,	DLL(081)/	3.0/
0084	DATA	ZLA(082)/	61.00/,	ZLO(082)/	159.00/,	DLL(082)/	3.0/
0085	DATA	ZLA(083)/	61.00/,	ZLO(083)/	156.00/,	DLL(083)/	3.0/
0086	DATA	ZLA(084)/	61.00/,	ZLO(084)/	153.00/,	DLL(084)/	3.0/
0087	DATA	ZLA(085)/	61.00/,	ZLO(085)/	150.00/,	DLL(085)/	3.0/
0088	DATA	ZLA(086)/	61.00/,	ZLO(086)/	147.00/,	DLL(086)/	3.0/
0089	DATA	ZLA(087)/	61.00/,	ZLO(087)/	144.00/,	DLL(087)/	3.0/
0090	DATA	ZLA(088)/	60.00/,	ZLO(088)/	174.00/,	DLL(088)/	3.0/
0091	DATA	ZLA(089)/	60.00/,	ZLO(089)/	168.00/,	DLL(089)/	3.0/
0092	DATA	ZLA(090)/	60.00/,	ZLO(090)/	165.00/,	DLL(090)/	3.0/
0093	DATA	ZLA(091)/	60.00/,	ZLO(091)/	162.00/,	DLL(091)/	3.0/
0094	DATA	ZLA(092)/	60.00/,	ZLO(092)/	159.00/,	DLL(092)/	3.0/
0095	DATA	ZLA(093)/	60.00/,	ZLO(093)/	156.00/,	DLL(093)/	3.0/
0096	DATA	ZLA(094)/	60.00/,	ZLO(094)/	153.00/,	DLL(094)/	3.0/
0097	DATA	ZLA(095)/	60.00/,	ZLO(095)/	150.00/,	DLL(095)/	3.0/
0098	DATA	ZLA(096)/	60.00/,	ZLO(096)/	147.00/,	DLL(096)/	3.0/
0099	DATA	ZLA(097)/	60.00/,	ZLO(097)/	144.00/,	DLL(097)/	3.0/
0100	DATA	ZLA(098)/	60.00/,	ZLO(098)/	141.00/,	DLL(098)/	3.0/
0101	DATA	ZLA(099)/	59.00/,	ZLO(099)/	168.00/,	DLL(099)/	3.0/
0102	DATA	ZLA(100)/	59.00/,	ZLO(100)/	165.00/,	DLL(100)/	3.0/
0103	DATA	ZLA(101)/	59.00/,	ZLO(101)/	162.00/,	DLL(101)/	3.0/
0104	DATA	ZLA(102)/	59.00/,	ZLO(102)/	159.00/,	DLL(102)/	3.0/
0105	DATA	ZLA(103)/	59.00/,	ZLO(103)/	156.00/,	DLL(103)/	3.0/
0106	DATA	ZLA(104)/	59.00/,	ZLO(104)/	153.00/,	DLL(104)/	3.0/
0107	DATA	ZLA(105)/	59.00/,	ZLO(105)/	150.00/,	DLL(105)/	3.0/
0108	DATA	ZLA(106)/	59.00/,	ZLO(106)/	147.00/,	DLL(106)/	3.0/
0109	DATA	ZLA(107)/	59.00/,	ZLO(107)/	144.00/,	DLL(107)/	3.0/
0110	DATA	ZLA(108)/	59.00/,	ZLO(108)/	141.00/,	DLL(108)/	3.0/
0111	DATA	ZLA(109)/	59.00/,	ZLO(109)/	138.00/,	DLL(109)/	3.0/
0112	DATA	ZLA(110)/	59.00/,	ZLO(110)/	135.00/,	DLL(110)/	3.0/
0113	DATA	ZLA(111)/	58.00/,	ZLO(111)/	138.50/,	DLL(111)/	2.5/
0114	DATA	ZLA(112)/	58.00/,	ZLO(112)/	136.00/,	DLL(112)/	2.0/
0115	DATA	ZLA(113)/	58.00/,	ZLO(113)/	134.00/,	DLL(113)/	2.0/
0116	DATA	ZLA(114)/	57.00/,	ZLO(114)/	137.00/,	DLL(114)/	3.0/
0117	DATA	ZLA(115)/	57.00/,	ZLO(115)/	134.00/,	DLL(115)/	2.0/
0118	DATA	ZLA(116)/	56.00/,	ZLO(116)/	136.00/,	DLL(116)/	2.0/
0119	DATA	ZLA(117)/	56.00/,	ZLO(117)/	134.00/,	DLL(117)/	2.0/
0120	DATA	ZLA(118)/	56.00/,	ZLO(118)/	132.00/,	DLL(118)/	2.0/
0121	DATA	ZLA(119)/	55.00/,	ZLO(119)/	134.50/,	DLL(119)/	2.5/
0122	DATA	ZLA(120)/	55.00/,	ZLO(120)/	132.00/,	DLL(120)/	2.0/
0123	DATA	ZLA(121)/	54.00/,	ZLO(121)/	134.00/,	DLL(121)/	2.0/
0124	DATA	ZLA(122)/	54.00/,	ZLO(122)/	132.00/,	DLL(122)/	2.0/
0125	DATA	ZLA(123)/	58.00/,	ZLO(123)/	162.50/,	DLL(123)/	2.5/
0126	DATA	ZLA(124)/	58.00/,	ZLO(124)/	160.00/,	DLL(124)/	2.0/
0127	DATA	ZLA(125)/	58.00/,	ZLO(125)/	158.00/,	DLL(125)/	2.0/
0128	DATA	ZLA(126)/	58.00/,	ZLO(126)/	156.00/,	DLL(126)/	2.0/
0129	DATA	ZLA(127)/	58.00/,	ZLO(127)/	154.00/,	DLL(127)/	2.5/
0130	DATA	ZLA(128)/	57.00/,	ZLO(128)/	160.00/,	DLL(128)/	2.0/
0131	DATA	ZLA(129)/	57.00/,	ZLO(129)/	158.00/,	DLL(129)/	2.0/
0132	DATA	ZLA(130)/	57.00/,	ZLO(130)/	156.00/,	DLL(130)/	2.0/

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0133      DATA ZLA(131)/ 57.00/, ZLO(131)/ 154.00/, DLL(131)/ 2.0/
0134      DATA ZLA(132)/ 56.40/, ZLO(132)/ 171.00/, DLL(132)/ 2.0/
0135      DATA ZLA(133)/ 56.00/, ZLO(133)/ 160.50/, DLL(133)/ 2.5/
0136      DATA ZLA(134)/ 56.00/, ZLO(134)/ 158.00/, DLL(134)/ 2.0/
0137      DATA ZLA(135)/ 56.00/, ZLO(135)/ 156.00/, DLL(135)/ 2.0/
0138      DATA ZLA(136)/ 56.00/, ZLO(136)/ 154.00/, DLL(136)/ 2.0/
0139      DATA ZLA(137)/ 55.00/, ZLO(137)/ 160.00/, DLL(137)/ 2.0/
0140      DATA ZLA(138)/ 55.00/, ZLO(138)/ 162.00/, DLL(138)/ 2.0/
0141      DATA ZLA(139)/ 55.00/, ZLO(139)/ 164.00/, DLL(139)/ 2.0/
0142      DATA ZLA(140)/ 54.00/, ZLO(140)/ 161.50/, DLL(140)/ 2.5/
0143      DATA ZLA(141)/ 54.00/, ZLO(141)/ 164.00/, DLL(141)/ 2.5/
0144      DATA ZLA(142)/ 54.00/, ZLO(142)/ 166.00/, DLL(142)/ 2.0/
0145      DATA ZLA(143)/ 53.25/, ZLO(143)/ 168.00/, DLL(143)/ 2.0/
0146      DATA ZLA(144)/ 53.00/, ZLO(144)/ 170.00/, DLL(144)/ 2.0/
0147      DATA ZLA(145)/ 52.00/, ZLO(145)/ 170.00/, DLL(145)/ 2.0/
0148      DATA ZLA(146)/ 52.00/, ZLO(146)/ 172.00/, DLL(146)/ 2.0/
0149      DATA ZLA(147)/ 51.50/, ZLO(147)/ 174.00/, DLL(147)/ 2.0/
0150      DATA ZLA(148)/ 51.50/, ZLO(148)/ 176.00/, DLL(148)/ 2.0/
0151      DATA ZLA(149)/ 51.25/, ZLO(149)/ 178.00/, DLL(149)/ 2.0/
0152      DATA ZLA(150)/ 51.25/, ZLO(150)/ 180.00/, DLL(150)/ 2.0/
0153      DATA ZLA(151)/ 51.25/, ZLO(151)/ 182.00/, DLL(151)/ 2.0/
0154      DATA ZLA(152)/ 51.25/, ZLO(152)/ 184.00/, DLL(152)/ 2.0/
0155      DATA ZLA(153)/ 52.25/, ZLO(153)/ 188.00/, DLL(153)/ 2.5/

C
C GET INITIAL TIMER COUNT
0156      CALL REALTM(ITIMA)
C CHECK THAT QUAD IS VALID AND PREVENT BLOWUP
0157      IF(IQUAD.GT.0.AND.IQUAD.LT.154) GO TO 4
0158      ZLAT=0.0
0159      ZLONP=0.0
0160      GO TO 999

C DETERMINATION OF LAT AND LONG FROM INCH COORDS ON 1/250,000 MAP
C INITIALIZE THE CONSTANTS
0161      4 A=20925832.1619
0162      ESQ=.00676865799
0163      AE=20784192.36
0164      RAD=57.2957795131
0165      PSF=1.0
0166      SFAC=0.
0167      INDEX=1
0168      ZLATC=ZLA(IQUAD)
0169      ZLONC=ZLO(IQUAD)
0170      DELLC=DLL(IQUAD)
0171      ZLAT=ZLATC
0172      DELTL=DELLC/2.
0173      50 PHI=ZLAT/RAD
0174      Q= SIN(DELT/L/RAD)*COS(PHI)
0175      QQ=SQRT(1.-Q**2)
0176      SOVN= ATAN(Q/QQ)
0177      ZN=A/SQRT(1.-ESQ*(SIN(PHI))**2)
0178      S=SOVN*ZN
0179      RM=AE/(1.-ESQ*(SIN(PHI))**2)**1.5
0180      ZK=S**2/(2.*ZN*RM)
0181      DPHI=(SIN(PHI)/COS(PHI))*(ZK-ZK**2/6.)

```



```

0182      RM=AE/(1.-ESQ*(SIN(PHI+DPHI/2.))**2)**1.5
          C      GET NEW VALUE OF ZK AND DPHI
0183      ZK=S**2/(2.*ZN*RM),
0184      DPHI=(SIN(PHI+DPHI)/COS(PHI+DPHI/2.))*(ZK-ZK**2/6.)
0185      PHIP=PHI+DPHI
          C      COMPUTE XPRIME DISTANCES
0186      IF(SFAC) 55,54,55
0187      54 SFAC=(1.-ZK/2.)*PSF
0188      55 XPR=SFAC*(S+S**3/(6.*ZN*RM))
          C      COMPUTE MERIDIAN DISTANCES
0189      F1=1.0051089*(PHIP-ZLATC/RAD)
0190      F2=-.002559883*(SIN(2.*PHIP)-SIN(2.*ZLATC/RAD))
0191      F4=.0000027166*(SIN(4.*PHIP)-SIN(4.*ZLATC/RAD))
0192      Y=SFAC*20784192.*(F1+F2+F4)
0193      GO TO (70,1050),INDEX
0194      70 CONST=XPR
0195      YBASE=Y
0196      1012 X=XR/PSF
0197      YY=YR/PSF
          C
          C COORDINATE TRANSFORM
0198      ROT=DETLT/RAD*SIN(PHI)
0199      XXX=X*COS(ROT)+YY*SIN(ROT)
0200      YY=YY*COS(ROT)-X*SIN(ROT)
0201      X=XXX
          C
          C RETURN ROTATED COORDINATES TO CALLER
0202      XROT=X
0203      YROT=YY
0204      1020 XDIFF=(X/12.)*250000.-CONST
0205      YY=YY/12.*250000.+YBASE
0206      XP= ABS(XDIFF)
0207      ZLAT=YY/365490.+ZLATC
0208      DELTL=XP/(366120.*COS(ZLAT/RAD))
0209      ZLAT=ZLAT-.65E-13*XP**2*SIN(ZLAT/RAD)/COS(ZLAT/RAD)
0210      INDEX=2
0211      GO TO 50
0212      1050 DLAT=((YY-Y)-DETLT/RAD*SIN(PHIP))*((XP-XPR))/365490.
0213      DLONG=((XP-XPR)-DETLT/RAD*SIN(PHIP))*((YY-Y))/(366120.*COS(PHIP))
0214      ZLAT=ZLAT+DLAT
0215      DELTL=DETLT+DLONG
          C
          C CHECK TO SEE IF ITERATION HAS EXCEEDED TEN SECONDS
0216      CALL REALTM(ITIMB)
0217      IF((ITIMB-ITIMA).GT.3000) GO TO 1100
          C      TEST TO SEE IF POSITION IS CLOSE ENOUGH
0218      IF( ABS(DLAT)+ ABS(DLONG) -.00003)1100,1100,50
0219      1100 ZLONP=ZLONC-DELLC/2.-XDIFF/ABS(XDIFF)*DETLT
0220      999 RETURN
0221      END

```

APPENDIX 13  
Computer Printout of MINFILE3

C  
C PROGRAM NAME - MINFILE3  
C BY EVE PORTER FOR L.E.HEINER, M.I.R.L.  
C APRIL, 1970  
C

C PURPOSE - TO PROVIDE THE ABILITY TO CHANGE INFORMATION IN THE  
C MINEFIL SYSTEM -  
C

- C 1. BY CHANGING ANY INFORMATION WITHIN A SPECIFIED  
C RECORD (EXCEPT MINING DISTRICT, QUAD AND SERIAL  
C NUMBER)  
C  
C 2. BY DELETING ANY RECORD SPECIFIED BY MINING  
C DISTRICT, QUAD AND SERIAL NUMBER.  
C  
C 3. BY ADDING ANY RECORD IN THE PROPER SEQUENCE  
C

- C METHOD -  
C ACTION TO BE TAKEN IS GOVERNED BY TWO FIELDS -  
C 1. KEYFIELDS - MINING DISTRICT, QUAD AND SERIAL  
C (COLS 1 TO 7 IN EACH INPUT CARD) SPECIFY THE  
C RECORD WHICH IS TO BE PROCESSED.  
C 2. CARD CODE - INDICATES WHAT ACTION IS TO BE  
C TAKEN. THIS CODE MUST APPEAR IN COL. 80.  
C

C THE UPDATE IS FROM TAPE TO TAPE. THAT IS, THE 'OLD' TAPE  
C IS READ, CARDS ARE READ SEQUENTIALLY AND ACTION IS TAKEN  
C AS NECESSARY, AND THE RESULTING DATA IS WRITTEN ON A NEW  
C TAPE.  
C

- C INPUT CARDS ARE CODED IN COL 80 AS FOLLOWS  
C 1 - CARD 1 OF 2 FOR A NEW ENTRY TO THE FILE  
C 2 - CARD 2 OF 2 FOR A NEW ENTRY TO THE FILE  
C 3 - CONTAINS UPDATE INFORMATION FOR AN ENTRY ALREADY  
C IN THE FILE, IN THE SAME FORMAT AS CARD TYPE 1  
C 4 - CONTAINS UPDATE INFORMATION FOR AN ENTRY ALREADY  
C IN THE FILE, IN THE SAME FORMAT AS CARD TYPE 2  
C 5 - DELETE THE ENTRY WHICH HAS THE SAME MINING DISTRICT,  
C QUAD, AND SERIAL AS APPEAR IN COLS 1 TO 7 OF CARD  
C

C *****  
C

C NOTE  
C

- C 1. TO ADD AN ENTRY TO THE FILE THERE MUST BE BOTH  
C CARD 1 AND CARD 2.  
C  
C 2. TO CORRECT AN ENTRY BY CHANGING OR ADDING INFORMATION  
C USE ONLY THE CARD 3 OR CARD 4, AS NECESSARY.  
C MINING DISTRICT, QUAD, AND SERIAL MUST BE ENTERED ON  
C EACH CARD, THEN ONLY THE NEW OR CHANGED INFORMATION.  
C LEAVE ALL UNUSED COLUMNS BLANK  
C

```

C
C
0001      DOUBLE PRECISION TODAY
C
0002      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
1AYR(2),ANAME(27),ALP,A1,AP,ANG,APB,AREF(3),AM,ALS,ALD,APR,ARES,
2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
3LLONG1,LLONG2,IIYR(2),CCLAIM(27),LLØDE,IIA,IIPAT,NNOCL,IIPUB,
4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXPL(2),ALEM(20),IILEM(28),
5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
C
C      SET END OF FILE INDICATORS TO 0
C
0003      EOF=0
0004      ENDCD=0
0005      CALL CK('MIN3',3.0)
C
C
0006      NPAGE=1
C
C      GET THE SYSTEM DATE AND HEAD THE FIRST PAGE OF OUTPUT
C
0007      CALL GETDAT(TODAY)
C
0008      WRITE(3,3010)
0009      3010 FORMAT('1',T60,'**MINEFIL69**')
0010      WRITE(3,3011)TODAY,NPAGE
0011      3011 FORMAT('0',T26,'FILE MODIFICATIONS MADE BY PROGRAM MINEFIL3 DURING
1 UPDATE RUN ON ',A8,T120,I4)
C
C      SET LINE COUNT TO 10
C
0012      LINE=10
C
C      READ ONE TAPE ENTRY
C
0013      CALL TAPEIN
0014      CALL CK('MIN3',4.0)
C
C      NOW READ A CARD AND TAKE APPROPRIATE ACTION
C
0015      1 CALL READER
0016      2 IF(ENDCD.EQ.1) GO TO 90
0017      CALL CK('MIN3',1.0)
C
0018      IF(ICODE.NE.1) GO TO 10
0019      CALL NEWONE
0020      IF(ENDCD.EQ.1) GO TO 90
0021      IF(EOF.EQ.1) GO TO 91
0022      GO TO 1
C
0023      10 IF(ICODE.NE.2) GO TO 11

```

```

0024      WRITE(3,3000)ND,NQUAD,NSER
0025      3000 FORMAT('0',T10,'THIS IS THE SECOND CARD FOR A NEW ENTRY. IT IS OUT
          10F SEQUENCE. ',I1,I1X,I3,I1X,I3)
0026      LINE=LINE+1
0027      IF(LINE.EQ.26) CALL PAGER
0028      GO TO 1

C
0029      11 IF(ICODE.NE.3) GO TO 12
0030      CALL CK('MIN3',2.0)
0031      CALL FIX
0032      CALL CK('MIN3',2.1)
0033      IF(ENDCD.EQ.1) GO TO 90
0034      IF(EOF.EQ.1) GO TO 91
0035      IF(TAG.NE.1) GO TO 2
0036      CALL CK('MIN3',2.2)
0037      GO TO 1

C
0038      12 IF(ICODE.NE.4) GO TO 13
0039      CALL FIX
0040      IF(EOF.EQ.1) GO TO 91
0041      IF(ENDCD.EQ.1) GO TO 90
0042      GO TO 1

C
0043      13 IF(ICODE.NE.5) GO TO 14
0044      CALL DELETE
0045      CALL CK('MIN3',2.4)
0046      IF(EOF.EQ.1) GO TO 91
0047      GO TO 1

C
C      THERE IS AN ILLEGAL CODE IN C0L.80. GET RID OF IT.
C

0048      14 CALL ERROR
0049      CALL CK('MIN3',2.3)
0050      GO TO 1

C
C      END OF FILE HAS BEEN DETECTED FOR CARDS. FINISH THE JOB.
C

0051      90 CALL TAPEIN
0052      IF(EOF.EQ.1) GO TO 99
0053      CALL TAPOUT
0054      GO TO 90

C
C      END OF FILE HAS BEEN DETECTED FOR TAPE. FINISH THE JOB.
C      IF THERE ARE ADDITIONS TO BE MADE, MAKE THEM. OTHERWISE
C      DISPLAY THE CARDS
C

0055      91 CALL READER
0056      IF(ENDCD.EQ.1) GO TO 99
0057      IF(ICODE.NE.1) GO TO 92
          CALL NEWONE
0058      IF(ENDCD.EQ.1) GO TO 99
0059      GO TO 91

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```
0060      C      92 CALL ERROR
0061      C      GO TO 91
      C      BOTH TAPE AND CARDS ARE DONE.
0062      C      99 CALL EXIT
0063      C      END
```

```

0001      SUBROUTINE DELETE
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER M.I.R.L.
          C      APRIL 1970
          C
          C      SUBROUTINE DELETE REMOVES AN UNWANTED ENTRY FROM THE FILE
          C      AN UPDATE CARD WITH MINING DISTRICT, QUAD AND SERIAL IN COLS.1 - 7
          C      AND A 5 IN COL. 80 SPECIFY THE ENTRY TO BE DELETED
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,AND,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXP(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
0004      10 CALL MATCH
0005      CALL CK('DELE',1.0)
          C
0006      IF(TAG.EQ.1) GO TO 12
0007      IF(TAG.EQ.2) GO TO 11
          C
          C      NOT A MATCH. TRY AGAIN.
0008      CALL TAPOUT
0009      CALL TAPEIN
0010      IF(EOF.EQ.1) GO TO 999
0011      GO TO 10
          C
          C      TAPE NO. HIGHER THAN CARD. MATCH IS NOT POSSIBLE. WRITE ERROR
          C      MESSAGE, RETURN TO MAINLINE.
          C
0012      11 CALL ERROR
0013      GO TO 999
          C
          C      THE KEYFIELDS MATCH. READ IN A NEW ENTRY FROM TAPE AND RETURN
          C      TO MAINLINE
          C
          C
          C      FIRST WRITE MESSAGE ON PRINTER FOR DELETED RECORD
          C
0014      12 WRITE(3,3000)MD,IQUAD,ISER
0015      3000 FORMAT('0',T10,'THE ENTRY FOR MINING DISTRICT ',I1,' QUAD ',I3,' S
          SERIAL ',I3,' HAS BEEN DELETED.')
0016      LINE=LINE+1
0017      IF(LINE.EQ.26) CALL PAGER
          C
0018      CALL TAPEIN
          C
0019      999 RETURN
0020      END

```

```

0001      SUBROUTINE ERROR
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER,MIRL
          C      MAY 1970
          C
          C      SUBROUTINE ERROR IS USED BY MINFILE3 - THE UPDATE SYSTEM -
          C      TO DISPLAY CARDS FOR WHICH NO MATCHING TAPE ENTRY WAS FOUND
          C      THE 'NO-MATCH' SITUATION WILL HAVE TWO PROBABLE CAUSES.
          C      1. THE INPUT CARD WAS OUT OF SEQUENCE
          C      2. THERE ACTUALLY IS NO MATCHING TAPE ENTRY
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXP(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NNOCL,IIPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
0004      CALL CK('ERRE',1.0)
0005      WRITE(3,3000)MD,IQUAD,ISER,ICODE
0006      3000 FORMAT('0',T10,I1,1X,I3,1X,I3,' NO CLAIM WITH THIS NUMBER HAS BEEN
          1 LOCATED ON THE TAPE, OR COL.80 IS INCORRECTLY CODED. COL.80=',I1)
          LINE=LINE+1
0007      IF(LINE.EQ.26) CALL PAGER
0008
          C
          C
0009      RETURN
0010      END

```



```

0001          SUBROUTINE FIX
              C
              C      WRITTEN BY EVE PORTER FOR L.E.HEINER, M.I.R.L.
              C      APRIL 1970
              C
              C      SUBROUTINE FIX UPDATES ENTRIES IN THE DATA FILE
              C
0002          DOUBLE PRECISION TODAY
              C
0003          COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
              1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
              2AEXP(2),ICODE,AMINI(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
              3LLONG1,LLONG2,IIYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
              4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXPL(2),ALEMI(20),IILEM(28),
              5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
              6NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IEXPL(2),MELEM(34),IYR(2),ND,
              7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
0004          DATA ABLNK1/' '/,ABLNK2/' '/,ABLNK3/' '/
              C
              C      FIRST MATCH RECORDS AND FIND THE TAPE ENTRY TO MATCH THE CARD.
              C
0005          10 CALL MATCH
0006          CALL CK('FIXE',1.0)
              C
0007          IF(TAG.EQ.1) GO TO 12
0008          IF(TAG.EQ.2) GO TO 11
              C
              C      THE KEYFIELDS DO NOT MATCH.  THE CARD KEY IS GREATER THAN THE
              C      TAPEKEY.  WRITE OUT THE CURRENT ENTRY, GET ANOTHER ONE, AND TRY
              C      FOR A MATCH.
              C
0009          90 CALL TAPOUT
0010          CALL CK('FIXE',2.0)
0011          CALL TAPEIN
0012          IF(EOF.EQ.1) GO TO 99
0013          GO TO 10
              C
              C      THERE IS NO MATCH.  WRITE ERROR MESSAGE, RETURN TO CALLER.
              C
0014          11 CALL ERROR
0015          GO TO 99
              C
              C      THE KEYFIELDS MATCH.  NOW UPDATE.
              C
0016          12 IF(ICODE.EQ.3) GO TO 300
0017          IF(ICODE.EQ.4) GO TO 400
              C
              C      IT IS A CARD TYPE 3.  DO THE UPDATE.
              C
0018          300 IF(A1.NE.ABLNK3) CORD(1)=XX1
0019          CALL CK('FIXE',3.0)
0020          IF(A2.NE.ABLNK1) CORD(2)=XX2

```

```

0021      IF(B1.NE.ABLNK3) CORD(3)=YY1
0022      IF(B2.NE.ABLNK3) CORD(4)=YY2
0023      IF(ALAT1.NE.ABLNK2) LAT1=LLAT1
0024      IF(ALAT2.NE.ABLNK2) LAT2=LLAT2
0025      IF(ALONG1.NE.ABLNK3) LONG1=LLONG1
0026      IF(ALONG2.NE.ABLNK2) LONG2=LLONG2
0027      IF(AYR(1).EQ.ABLNK1) GO TO 301
0028      IYEAR(3)=IIYR(1)
0029      IYEAR(4)=IIYR(2)
0030      IF(IYEAR(3).LE.7) IYEAR(2)=9
0031      IF(IYEAR(3).GT.7) IYEAR(2)=8
0032      IYEAR(1)=1
      C
      C      THE UPDATES,IF ANY, HAVE BEEN DONE FOR X-Y COORDINATES, LATITUDE,
      C      LONGITUDE, AND YEAR.  NOW DO THE NAME, EDITING OUT LEADING BLANKS.
      C
0033      301 J=0
0034          DO 302 N=1,27
0035          IF(ANAME(N).EQ.ABLNK1) GO TO 302
0036          J=J+1
0037      302 CONTINUE
      C
      C      SEE IF THERE WAS ANYTHING IN THE UPDATE CARD FOR NAME.  IF NOT,BYPASS.
      C
0038      IF(J.EQ.0) GO TO 309
      C
      C
      C
0039      K=1
0040      DO 303 N=1,27
0041      IF(CCLAIM(N).EQ.ABLNK1) GO TO 303
0042      K1=N
0043      GO TO 304
0044      303 CONTINUE
0045      304 K2=K1-1
0046      IF(K2.NE.0) GO TO 305
0047      K2=1
0048      GO TO 399
      C
      C
0049      305 L=27-K2
0050      DO 306 N=1,L
0051      CCLAIM(N)=CCLAIM(N+K2)
0052      306 CONTINUE
      C
0053      J=K2-1
0054      DO 307 N=1,J
0055      CCLAIM(27-N)=ABLNK1
0056      307 CONTINUE
0057      CCLAIM(27)=ABLNK1
      C
0058      399 DO 308 N=1,27
0059      CLAIM(N)=CCLAIM(N)
0060      308 CONTINUE

```

```
C
C   NOW LOOK AT LODE/PLACER,ACTIVITY,PATENT,NO.OF CLAIMS,PUBLICATION,
C   REFERENCE,MERIT,LAND STATUS,DEVELOPMENT,PRODUCTION,RESERVES,
C   EXPLORATION AND TYPE/EXPL. CODES, IN THAT ORDER, AND UPDATE AS
C   NECESSARY
C
0061   309 IF(ALP.EQ.ABLNK1) GO TO 310
0062     LODE=LLODE
C
0063   310 IF(AI.EQ.ABLNK1) GO TO 311
0064     IA=IIA
C
0065   311 IF(AP.EQ.ABLNK1) GO TO 312
0066     IPAT=IIPAT
C
0067   312 IF(ANO.EQ.ABLNK3) GO TO 313
0068     NOCL=NNOCL
C
0069   313 IF(APB.EQ.ABLNK1) GO TO 314
0070     IPUB=IIPUB
C
0071   314 IF(AREF(1).EQ.ABLNK1) GO TO 315
0072     IREF(1)=IIREF(1)
0073     IREF(2)=IIREF(2)
0074     IREF(3)=IIREF(3)
C
0075   315 IF(AM.EQ.ABLNK1) GO TO 316
0076     IF(MMERIT.EQ.2) GO TO 322
0077     IF(MMERIT.EQ.6) GO TO 322
0078     GO TO 323
0079   322 MMERIT=1
0080     GO TO 324
0081   323 IF(MMERIT.EQ.3) MMERIT=2
0082     IF(MMERIT.EQ.4) MMERIT=3
0083     IF(MMERIT.EQ.5) MMERIT=4
0084   324 MERIT=MMERIT
C
0085   316 IF(ALS.EQ.ABLNK1) GO TO 317
0086     IF(LLS.GT.5) LLS=0
0087     LS=LLS
C
0088   317 IF(ALD.EQ.ABLNK1) GO TO 318
0089     IF(LLD.GT.5) LLD=0
0090     LD=LLD
C
0091   318 IF(APR.EQ.ABLNK1) GO TO 319
0092     IF(IIPRO.GT.5) IIPRO=0
0093     IPRO=IIPRO
C
0094   319 IF(ARES.EQ.ABLNK1) GO TO 320
0095     IRES=IIRES
C
0096   320 IF(AEXP(1).EQ.ABLNK1) GO TO 321
0097     IF(IIEXPL(1).GT.4) IIEXPL(1)=0
```

```

0098          IEXPL(1)=IIEXPL(1)
C
0099          321 IF(AEXP(2).EQ.ABLNK1) GO TO 325
0100          IF(IIEXPL(2).GT.6) IIEXPL(2)=0
0101          IEXPL(2)=IIEXPL(2)
C
C          ALL UPDATES FROM THIS CARD HAVE BEEN MADE.  NOW SEE IF THERE IS
C          ANOTHER CARD FOR THIS ENTRY
C
0102          325 CALL READER
0103          CALL CK('FIXE',4.0)
0104          IF(ENDCD.EQ.1) GO TO 500
C
0105          CALL MATCH
C
0106          IF(TAG.EQ.1) GO TO 12
C
C          THE NEXT CARD DOES NOT MATCH THIS ENTRY.  WRITE OUT THE CURRENT
C          ENTRY AND RETURN TO CALLER.
C
0107          GO TO 500
C
C          THE UPDATE CARD IS CODED 4 IN COL. 80.  UPDATE THE ELEMENTS
C
0108          400 IF(AMIN1(1).NE.ABLNK1) MELEM(13)=1
0109          IF(AMIN1(2).NE.ABLNK1) MELEM(27)=1
0110          IF(AMIN1(3).NE.ABLNK1) MELEM(11)=1
0111          IF(AMIN1(4).NE.ABLNK1) MELEM(16)=1
0112          IF(AMIN1(5).NE.ABLNK1) MELEM(33)=1
0113          IF(AMIN1(6).NE.ABLNK1) MELEM(24)=1
0114          IF(AMIN1(7).NE.ABLNK1) MELEM(22)=1
0115          IF(AMIN1(8).NE.ABLNK1) MELEM(7)=1
0116          IF(AMIN1(9).NE.ABLNK1) MELEM(9)=1
0117          IF(AMIN1(10).NE.ABLNK1) MELEM(20)=1
0118          IF(AMIN1(11).NE.ABLNK1) MELEM(31)=1
0119          IF(AMIN1(12).NE.ABLNK1) MELEM(1)=1
0120          IF(AMIN1(13).NE.ABLNK1) MELEM(30)=1
0121          IF(AMIN1(14).NE.ABLNK1) MELEM(4)=1
0122          IF(AMIN1(15).NE.ABLNK1) MELEM(15)=1
0123          IF(AMIN1(16).NE.ABLNK1) MELEM(23)=1
0124          IF(AMIN1(17).NE.ABLNK1) MELEM(32)=1
0125          IF(AMIN2(1).NE.ABLNK1) MELEM(29)=IILEM(1)
0126          IF(AMIN2(2).NE.ABLNK1) MELEM(5)=IILEM(2)
0127          IF(AMIN2(3).NE.ABLNK1) MELEM(21)=IILEM(3)
0128          IF(AMIN2(4).NE.ABLNK1) MELEM(3)=IILEM(4)
0129          IF(AMIN2(5).NE.ABLNK1) MELEM(25)=IILEM(5)
0130          IF(AMIN2(6).NE.ABLNK1) MELEM(17)=IILEM(6)
0131          IF(AMIN2(7).NE.ABLNK1) MELEM(34)=IILEM(7)
0132          IF(AMIN2(8).NE.ABLNK1) MELEM(10)=IILEM(8)
0133          IF(AMIN2(9).NE.ABLNK1) MELEM(34)=IILEM(9)
0134          IF(AMIN2(10).NE.ABLNK1) MELEM(24)=IILEM(10)
0135          IF(AMIN2(11).NE.ABLNK1) MELEM(19)=IILEM(11)
0136          IF(AMIN2(12).NE.ABLNK1) MELEM(14)=IILEM(12)
0137          IF(AMIN2(13).NE.ABLNK1) MELEM(28)=IILEM(13)

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0138      IF(AMIN2(15).NE.ABLNK1) MELEM(31)=IILEM(15)
0139      IF(AMIN2(16).NE.ABLNK1) MELEM(2)=IILEM(16)
0140      IF(AMIN2(17).NE.ABLNK1) MELEM(8)=IILEM(17)
0141      IF(AMIN2(18).NE.ABLNK1) MELEM(6)=IILEM(18)
0142      IF(AMIN2(20).NE.ABLNK1) MELEM(26)=IILEM(20)
0143      IF(AMIN2(21).NE.ABLNK1) MELEM(12)=IILEM(21)
      C
      C
      C      ALL UPDATING IS DONE. WRITE IT OUT.
      C
0144      500 CALL TAPOUT
      C
0145      WRITE(3,3000)MD,IQUAD,ISER
0146      3000 FORMAT('0',T10,'THE ENTRY FOR MINING DISTRICT ',I1,' QUAD ',I3,' S
      SERIAL ',I3,' HAS BEEN UPDATED.')
0147      LINE=LINE+1
0148      IF(LINE.EQ.26) CALL PAGER
      C
0149      CALL TAPEIN
      C
0150      99 RETURN
0151      END
```

```

0001      SUBROUTINE MATCH
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER, M.I.R.L.
          C      APRIL 1970
          C      SUBROUTINE MATCH CHECKS TO SEE IF AN UPDATE CARD AND A TAPE
          C      ENTRY ARE FOR THE SAME CLAIM AND SETS A TAG ACCORDINGLY.
          C
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEPL(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
0004      CALL CK('MATCH',1.0)
0005      IF(ND.LT.MD) GO TO 14
0006      IF(ND.EQ.MD) GO TO 10
0007      IF(ND.GT.MD) GO TO 12
          C
          C
0008      10 IF(NQUAD.LT.IQUAD) GO TO 14
0009      IF(NQUAD.EQ.IQUAD) GO TO 11
0010      IF(NQUAD.GT.IQUAD) GO TO 12
          C
          C
0011      11 IF(NSER.LT.ISER) GO TO 14
0012      IF(NSER.EQ.ISER) GO TO 13
0013      IF(NSER.GT.ISER) GO TO 12
          C
          C      SET THE VARIABLE 'TAG' AS FOLLOWS
          C      NO MATCH - CARD NUMBER HIGHER THAN TAPE          TAG = 0
          C      MATCH- KEYFIELDS ARE THE SAME                    TAG = 1
          C      NO MATCH - CARD LOWER THAN TAPE                  TAG = 2
          C
0014      12 TAG=0
0015      GO TO 99
0016      13 TAG=1
0017      GO TO 99
0018      14 TAG=2
          C
0019      99 RETURN
0020      END
    
```

```

0001      SUBROUTINE PAGER
          C
          C      BY EVE PORTER FOR L. E. HEINER, M.I.R.L. MAY 2670
          C
          C      THIS SUBROUTINE IS USED BY THE MINEFIL3 SYSTEM OF PROGRAMS FOR
          C      GETTING TO A NEW PAGE AND PUTTING ON THE DATE AND PAGE NUMBER
          C
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,A1,AP,AND,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXPL(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
0004      NPAGE=NPAGE+1
0005      WRITE(3,3000)NPAGE
0006      3000 FORMAT('1',T120,'PAGE ',I4)
0007      WRITE(3,3001)TODAY
0008      3001 FORMAT(' ',T120,A8)
0009      LINE=0
0010      RETURN
0011      END

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```

0001      SUBROUTINE READER
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER, M.I.R.L.
          C      APRIL 1970
          C
          C      THIS SUBROUTINE IS USED BY MINEFIL3 TO READ ALL 5 FORMATS OF
          C      THE UPDATE CARD.
          C
          C
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IIYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXP(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
          C
0004      READ(1,1000,END=90)ND,NQUAD,NSER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,
          1ALONG2,{AYR(K),K=1,2},{ANAME(K),K=1,27},ALP,AI,AP,ANO,APB,
          2{AREF(K),K=1,3},AM,ALS,ALD,APR,ARES,{AEXP(K),K=1,2},ICODE,
          3{AMIN1(K),K=1,17},{AMIN2(K),K=1,21},XX1,XX2,YY1,YY2,LLAT1,
          4LLAT2,LLONG1,LLONG2,{IIYR(K),K=1,2},{CCLAIM(K),K=1,27},LLODE,IIA,
          5IIPAT,NNOCL,IPUB,{IIREF(K),K=1,3},MMERIT,LLS,LLD,IIPRO,IIRES,
          6{IIEXP(K),K=1,2},{ALEM(K),K=1,17},{IILEM(K),K=1,21}
          C
0005      1000 FORMAT(I1,2I3,4A3,2A2,A3,A2,1X,2A1,27A1,3A1,A3,11A1,4X,I1,
          1T42,17A1,21A1,T8,4F3.1,2I2,I3,I2,1X,2I1,27A1,3I1,I3,11I1,
          3T42,17A1,21I1)
0006      CALL CK('READ',1.0)
0007      GO TO 99
          C
          C      IF END-OF-FILE IS DETECTED, SET ENDCD= 1
          C
0008      90 ENDCD=1
          C
0009      99 RETURN
0010      END

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0001      SUBROUTINE TAPEIN
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER APRIL 1970 FOR THE MIRL
          C      MINERAL RESOURCES DATA SYSTEM UPDATE PROGRAM
          C      THIS SUBROUTINE IS USED BY MINEFILE3 TO READ ONE CLAIM ENTRY FROM
          C      THE UNFORMATTED DATA TAPE AND MAKE IT AVAILABLE FOR PROCESSING
          C      AND OUTPUT
          C
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IIEXPL(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQUAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
          C
          C
0004      READ(8,END=1)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
          1(IYEAR(K),K=1,4),(CLAIM(K),K=1,27),LODE,IA,IPAT,NOCL,IPUB,
          2(IREF(K),K=1,3),MERIT,LS,LD,IIPRO,IRES,(IEXPL(K),K=1,2),
          3(MELEM(K),K=1,34)
0005      CALL CK('TPIN',1.0)
0006      GO TO 2
          C
          C
          C      END OF THE FILE HAS BEEN DETECTED.  SET EOF KEY AND RETURN.
          C
0007      1 EOF=1
0008      CALL CK('TPIN',2.0)
          C
          C
0009      2 RETURN
0010      END

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0001      SUBROUTINE TAPOUT
          C
          C      WRITTEN BY EVE PORTER FOR L.E.HEINER
          C      APRIL 1970
          C
          C      THIS SUBROUTINE IS USED BY VARIOUS MINEFIL ROUTINES TO WRITE
          C      A NEW, UNFORMATTED RECORD ON 181 - SYS009
0002      DOUBLE PRECISION TODAY
          C
0003      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,ANO,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IREF(3),MMERIT,LLS,LLD,IIPRO,IRES,IEXPL(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQAD,NSER,EDF,ENOCOD,TAG,LINE,NPAGE,CORD(4),IRES
          C
0004      WRITE(9)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
          1(IYEAR(K),K=1,4),(CLAIM(K),K=1,27),LODE,IA,IPAT,NOCL,IPUB,
          2(IREF(K),K=1,3),MERIT,LS,LD,IIPRO,IRES,(IEXPL(K),K=1,2),
          3(MELEM(K),K=1,34)
0005      CALL CK('TOUT',1.0)
          C
0006      RETURN
0007      END

```

```

0001      SUBROUTINE NEWONE
          C
          C      WRITTEN BY EVE PORTER FOR L.E. HEINER,M.I.R.L.
          C      APRIL,1970
          C
          C      SUBROUTINE NEWONE IS USED BY THE MINFILE3 SYSTEM OF PROGRAMS TO
          C      UPDATE THE MIRL DATA FILE. IT IS USED TO INSERT NEW ENTRIES TO
          C      THE FILE IN SEQUENTIAL ORDER, AS DICTATED BY MINING DISTRICT,
          C      QUAD, AND SERIAL NUMBERS.
          C
0002      DOUBLE PRECISION TODAY
          C
0003      DIMENSION ILEM(40)
          C
0004      COMMON TODAY,MD,IQUAD,ISER,A1,A2,B1,B2,ALAT1,ALAT2,ALONG1,ALONG2,
          1AYR(2),ANAME(27),ALP,AI,AP,AND,APB,AREF(3),AM,ALS,ALD,APR,ARES,
          2AEXP(2),ICODE,AMIN1(20),AMIN2(28),XX1,XX2,YY1,YY2,LLAT1,LLAT2,
          3LLONG1,LLONG2,IYR(2),CCLAIM(27),LLODE,IIA,IIPAT,NNOCL,IIPUB,
          4IIREF(3),MMERIT,LLS,LLD,IIPRO,IIRES,IEXPL(2),ALEM(20),IILEM(28),
          5X1,X2,Y1,Y2,LAT1,LAT2,LONG1,LONG2,IYEAR(4),CLAIM(27),LODE,IA,IPAT,
          6NOCL,IPUB,IREF(3),MERIT,LS,LD,IIPRO,IEXPL(2),MELEM(34),IYR(2),ND,
          7NQAD,NSER,EOF,ENDCD,TAG,LINE,NPAGE,CORD(4),IRES
0005      DATA BLANK/'  '/
          C
          C      FIRST, FIND THE CORRECT SPOT TO INSERT THE NEW ENTRY
          C
0006      1 CALL MATCH
0007      CALL CK('NEW0',1.0)
          C
          C      IF CARD AND TAPE ID FIELDS ARE EQUAL, THIS WOULD BE A DUPLICATE
          C      ENTRY. THEREFORE, DON'T MAKE THE ADDITION. WRITE OUT SOME
          C      MESSAGES AND RETURN
          C
0008      IF(TAG.EQ.1) GO TO 2
          C
          C      IF THE TAPE ID IS LOWER THAN CARD ID (TAG.EQ.0) WE AREN'T
          C      NECESSARILY THERE. IF TAPE ID IS HIGHER (TAG.EQ.2) WE SHOULD
          C      MAKE THE INSERTION.
          C
0009      IF(TAG.EQ.2) GO TO 4
          C
          C      THE CARD ID IS STILL HIGHER THAN THE TAPE. GO BACK AND LOOK AGAIN.
          C
0010      CALL TAPOUT
0011      CALL TAPEIN
0012      GO TO 1
          C
          C
          C
0013      2 WRITE(3,3000)
0014      3000 FORMAT('0',T10,'THIS WOULD BE A DUPLICATE ENTRY ON THE FILE AND TH
          IEREFOR IS NOT BEING LOADED.')
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          C      LINE=LINE+1
          C      IF(LINE.EQ.26) CALL PAGER
```

```

0017      WRITE(3,3001)ND,NQUAD,NSER,XX1,XX2,YY1,YY2,LLAT1,LLAT2,LLONG1,
          1LLONG2,{IYR(K),K=1,2},{CCLAIM(K),K=1,27},LLODE,IIA,IIPAT,NNOCL,
          2IIPUB,{IIREF(K),K=1,3},MMERIT,LLS,LLD,IIPRO,IIRES,
          3{IIEXPL(K),K=1,2}
0018      LINE=LINE+1
0019      IF(LINE.EQ.26) CALL PAGER

C
0020      CALL READER
0021      IF(ICODE.NE.2) GO TO 3

C
C
0022      WRITE OUT CARD 2 OF THE DUPLICATE ENTRY
          WRITE(3,3003)ND,NQUAD,NSER,{ALEM(K),K=1,10},{IILEM(K),K=1,28},
          1ICODE

C
C
0023      CALL TAPEIN
0024      GO TO 99

C
C
C      THE SECOND CARD FOR THIS NEW ENTRY IS NOT CODED 2.
C      NOW SEE WHAT IT IS AND GO FROM THERE.
C

0025      3 WRITE(3,3004)ND,NQUAD,NSER,ICODE
0026      3004 FORMAT('0',T10,'THERE IS NO MATCHING 2 CARD. THE ID FIELDS FOR TH
          1E CARD FOUND ARE ',I1,1X,I3,1X,I3,' COL 80=',I1)
0027      LINE=LINE+1
0028      IF(LINE.EQ.26) CALL PAGER

C
C
0029      IF(ICODE.EQ.1) GO TO 1

C
0030      CALL TAPEIN
0031      GO TO 99

C
C
C      THE IDENTIFICATION FIELDS ON THE CURRENT TAPE ENTRY ARE HIGHER
C      THAN THE ID FIELDS OF THE ENTRY TO BE INSERTED.
C      NOW BACKSPACE THE INPUT TAPE TO SAVE THE CURRENT ENTRY AND
C      EDIT THE INSERT
C
0032      4 BACKSPACE 8

C
C
0033      CALL CK('NEW0',2.0)
0034      MD=ND
0035      IQUAD=NQUAD
0036      ISER=NSER
0037      LAT1=LLAT1
0038      LAT2=LLAT2
0039      LONG1=LLONG1
0040      LONG2=LLONG2
0041      CORD(1)=XX1
0042      CORD(2)=XX2
0043      CORD(3)=YY1
0044      CORD(4)=YY2

```

```

C
C   NOW PUT IN FIRST TWO DIGITS OF YEAR
C
0045   IYEAR(3)=IIYR(1)
0046   IYEAR(4)=IIYR(2)
0047   IF(IYEAR(3).LT.8) IYEAR(2)=9
0048   IF(IYEAR(3).GE.8) IYEAR(2)=8
0049   IYEAR(1)=1

C
C   CHECK ACTIVITY CODE. IF GREATER THAN 1 MAKE IT 0
C
0050   IF(IIA.GT.1) IIA=0
0051   IA=IIA

C
C   CHECK LODE/PLACER CODE. IF GREATER THAN 1 MAKE IT 0.
C
0052   IF(LLODE.GT.1) LLODE=0
0053   LODE=LLODE

C
C   CHECK PATENT STATUS. IF GREATER THAN 1 MAKE IT 0.
C
0054   IF(IIPAT.GT.1) IIPAT=0

C
0055   NOCL=NNOCL
0056   IPUB=IIPUB
0057   IREF(1)=IIREF(1)
0058   IREF(2)=IIREF(2)
0059   IREF(3)=IIREF(3)

C
C   CHANGE MERIT CODING SO THAT
C
C           OLD      NEW
C           0        0
C           1        1
C           2        1
C           3        2
C           4        3
C           5        4
C           6        1
C
0060   IF(MMERIT.EQ.2) GO TO 5
0061   IF(MMERIT.EQ.6) GO TO 5
0062   GO TO 6
0063   5 MMERIT=1
0064   GO TO 7
0065   6 IF(MMERIT.EQ.3) MMERIT=2
0066   IF(MMERIT.EQ.4) MMERIT=3
0067   IF(MMERIT.EQ.5) MMERIT=4
0068   7 MERIT=MMERIT

C
C   CHECK LAND STATUS. IF GREATER THAN 5 MAKE IT = 0
C
0069   IF(LLS.GT.5) LLS=0
0070   LS=LLS

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C
C   CHECK DEVELOPMENT. IF GREATER THAN 5, MAKE IT = 0.
C
0071   IF(LLD.GT.5) LLD=0
0072   LD=LLD
C
C   CHECK PRODUCTION. IF GREATER THAN 5, MAKE IT 0.
C
0073   IF(IIPRO.GT.5) IIPRO=0
0074   IPRO=IIPRO
C
C   MAKE RESERVES =0
C
0075   IRES=0
C
C   CHECK EXPLORATION FOR VALID CODES.
C   FIRST POSITION   - AGENCY   ONLY 0 THRU 4
C   SECOND POSITION  - TYPE     ONLY 0 THRU 6
C
0076   IF(IIEXPL(1).GT.4) IIEXPL(1)=0
0077   IF(IIEXPL(2).GT.6) IIEXPL(2)=0
0078   IEXPL(1)=IIEXPL(1)
0079   IEXPL(2)=IIEXPL(2)
C
C   NOW CHECK NAME FOR LEADING BLANKS AND REMOVE THEM
C
0080   K=1
0081   DO 8 N=1,27
0082   CLAIM(N)=CCLAIM(N)
0083   8 CONTINUE
C
0084   DO 9 N=1,27
0085   IF(CLAIM(N).EQ.BLANK) GO TO 9
0086   K1=N
0087   GO TO 10
0088   9 CONTINUE
0089   10 K2=K1-1
0090   IF(K2.NE.0) GO TO 11
0091   K2=1
0092   GO TO 14
C
0093   11 L=27-K2
0094   DO 12 N=1,L
0095   CLAIM(N)=CLAIM(N+K2)
0096   12 CONTINUE
C
0097   J=K2-1
0098   DO 13 N=1,J
0099   CLAIM(27-N)=BLANK
0100   13 CONTINUE
0101   CLAIM(27)=BLANK
C
C   THE FIRST CARD OF A NEW ENTRY TO THE FILE HAS BEEN EDITED.
C   NOW LOOK FOR THE SECOND CARD

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C
0102      14 CALL READER
0103      IF(ICODE.EQ.2) GO TO 16
C
C      IT IS NOT THE SECOND CARD FOR THIS ENTRY. WRITE OUT THE
C      ERROR MESSAGE FOR THIS CARD. WRITE OUT THE FIRST CARD, AND RETURN
C
0104      15 WRITE(3,3001)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
          1(IYEAR(K),K=3,4),(CLAIM(K),K=1,27),LODE,IA,IPAT,NOCL,IPUB,
          2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2)
0105      3001 FORMAT('0',T10,I1,2I3,4F4.1,2I2,I3,I2,2I1,27A1,3I1,I3,11I1,' THERE
          1 IS NO SECOND CARD FOR THIS ADDITION')
0106      LINE=LINE+1
0107      IF(LINE.EQ.26) CALL PAGER
C
0108      CALL ERROR
C
0109      CALL TAPEIN
C
0110      GO TO 99
C
C      THE SECOND CARD FOR THIS ENTRY IS AVAILABLE
C      CHECK FOR CLAIMS THAT CONTAIN ONLY STONE OR GRAVEL.
C      IF ONLY STONE AND GRAVEL, DO NOT ADD TO THE FILE.
C
C
0111      16 IF(IILEM(14).EQ.1) GO TO 17
0112      IF(IILEM(19).EQ.1) GO TO 17
0113      GO TO 190
0114      17 WRITE(3,3002)
0115      3002 FORMAT('0',T10,'THIS CLAIM CONTAINS GRAVEL OR STONE (COLS.72 OR 77
          1) AND WILL NOT BE LOADED UNLESS OTHER ELEMENTS ARE PRESENT')
0116      WRITE(3,3001)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
          1(IYEAR(K),K=3,4),(CLAIM(K),K=1,27),LODE,IA,IPAT,NOCL,IPUB,
          2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2)
0117      LINE=LINE+1
0118      IF(LINE.EQ.26) CALL PAGER
0119      WRITE(3,3003)ND,NQUAD,NSER,(ALEM(K),K=1,10),(IILEM(K),K=1,28),
          IICODE
0120      3003 FORMAT(' ',T10,I1,2I3,24X,10A1,28I1,I1)
0121      LINE=LINE+1
0122      IF(LINE.EQ.26) CALL PAGER
0123      IILEM(14)=0
C
0124      IILEM(19)=0
C
0125      190 DO 19 N=1,38
0126      ILEM(N)=0
0127      IF(N.GT.17) GO TO 18
0128      IF(ALEM(N).NE.BLANK) ILEM(N)=1
0129      GO TO 19
0130      18 IF(IILEM(N-17).NE.0) ILEM(N)=1
0131      19 CONTINUE

```

```

C
C
C   LOAD THE ELEMENTS. CONVERTING TO THE ALPHABETICAL SEQUENCE
C   WHICH IS USED ON THE DATA FILE, AND COMBINING THE DUPLICATE
C   ENTRIES WHICH MAY OCCUR ON THE CARD.
C
0132      22 CALL CK('NEW0',3.0)
C
0133      MELEM(1)=ILEM(12)
0134      MELEM(2)=ILEM(33)
0135      MELEM(3)=ILEM(21)
0136      MELEM(4)=ILEM(14)
0137      MELEM(5)=ILEM(19)
0138      MELEM(6)=ILEM(35)
0139      MELEM(7)=ILEM(8)
0140      MELEM(8)=ILEM(24)
0141      MELEM(9)=ILEM(9)
0142      MELEM(10)=ILEM(25)
0143      MELEM(11)=ILEM(3)
0144      MELEM(12)=ILEM(38)
0145      MELEM(13)=ILEM(1)
0146      MELEM(14)=ILEM(29)
0147      MELEM(15)=ILEM(15)
0148      MELEM(16)=ILEM(4)
0149      MELEM(17)=ILEM(23)
0150      MELEM(18)=ILEM(27)
0151      MELEM(19)=ILEM(28)
0152      MELEM(20)=ILEM(10)
0153      MELEM(21)=ILEM(20)
0154      MELEM(22)=ILEM(7)
0155      MELEM(23)=ILEM(16)
0156      MELEM(24)=ILEM(6)
0157      MELEM(25)=ILEM(22)
0158      MELEM(26)=ILEM(37)
0159      MELEM(27)=ILEM(2)
0160      MELEM(28)=ILEM(30)
0161      MELEM(29)=ILEM(18)
0162      MELEM(30)=ILEM(13)
0163      MELEM(32)=ILEM(17)
0164      MELEM(33)=ILEM(5)
0165      MELEM(31)=0
0166      IF(ILEM(32).EQ.1) MELEM(31)=1
0167      IF(ILEM(11).EQ.1) MELEM(31)=1
0168      MELEM(34)=0
0169      IF(ILEM(24).EQ.1) MELEM(34)=1
0170      IF(ILEM(26).EQ.1) MELEM(34)=1
C
C   NOW WRITE OUT THE NEW RECORD ON TAPE
C
0171      CALL TAPOUT
C
0172      WRITE(3,3005)MD,IQUAD,ISER
0173      3005 FORMAT('0',T10,'THE ENTRY FOR MINING DISTRICT ',I1,' QUAD ',I3,' S
        SERIAL ',I3,' HAS BEEN ADDED TO THE FILE.')
```



0174

LINE=LINE+1

C  
C  
C

DONE WITH THIS INSERT. RETURN TO MAINLINE

0175

99 RETURN

0176

END

APPENDIX 14

Computer Printout of MINFILE4

## APPENDIX 14

DOS FORTRAN IV 360N-FO-479 3-1

MINFILE4

DATE 09/25/71

TIME

03.28.47

PAGE 0001

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C
C   PROGRAM NAME - MINFILE4
C   BY EVE PORTER FOR L.E.HEINER
C   APRIL 1970
C
C   PURPOSE - TO ASSIGN MINING DISTRICT NUMBERS TO FILE ENTRIES
C             DEPENDING ON THE QUAD IN WHICH THE ENTRY IS LOCATED
C   IF MINING DISTRICT IS TO BE CHANGED FOR A RANGE OF QUADS,
C   I.E. FROM QUAD 100 TO 105, PUT IN THE QUAD NUMBERS - 100105
C
C   IF MINING DISTRICT IS TO BE CHANGED FOR ONLY ONE QUAD, PUT
C   THAT QUAD NUMBER IN BOTH FIELDS. I.E. - TO CHANGE 100 ONLY
C   PUT IN 100100
C
0001      EOF=0
C
C   READ THE HEADER CARD WHICH CONTAINS THE MINING DISTRICT AND QUAD
C   NUMBERS
0002      READ(1,1000)IMD,IQUAD1,IQUAD2
0003      1000 FORMAT(I1,2I3)
C
C   READ THE INPUT TAPE
C
0004      1 CALL READT
0005      IF(EOF.EQ.1) GO TO 99
C   SEE IF THIS ENTRY IS WITHIN THE SPECIFIED RANGE OF QUADS
0006      IF(IQUAD.LT.IQUAD1) GO TO 10
0007      IF(IQUAD.GT.IQUAD2) GO TO 10
C
C   IT IS WITHIN THE RANGE SPECIFIED. PUT IN THE NEW MINING DISTRICT
C   CODE.
0008      MD=IMD
C
C   NOW WRITE IT OUT.
C
0009      10 CALL TAPOUT
C
0010      GO TO 1
C
0011      99 CALL EXIT
0012      END

```

APPENDIX 15  
Computer Printout of MINFILE5

```

C
C   PROGRAM NAME - MINFILE5
C
C   BY EVE PORTER FOR L. E. HEINER, M.I.R.L.
C   MAY 1970
C
C   MINFILE5 IS USED TO MERGE 2 OR MORE MIRL DATA FILE TAPES INTO
C   ONE TAPE.
C
C   PROCEDURE -
C
C       1. MOUNT A BLANK TAPE LARGE ENOUGH TO HOLD THE MERGED
C          FILE, ON 181
C
C       2. MOUNT THE FIRST INPUT TAPE ON 180
C
C       3. START THE JOB
C
C       4. AT THE PAUSE MESSAGE, 180 WILL REWIND.
C          AFTER REWIND, MOUNT THE NEXT TAPE.
C
C       5. THE PROGRAM WILL EXPECT TO FIND THE NUMBER OF INPUT
C          TAPES WHICH HAVE BEEN SPECIFIED IN COLUMN 1 OF THE
C          HEADER CARD.
C
0001   DIMENSION CORD(4),IYEAR(4),CLAIM(27),IREF(3),IEXPL(2),MELEM(34)
C
0002   READ(1,1000)NUM
0003   1000 FORMAT(I1)
C
C   NUM IS THE NUMBER OF TAPES TO BE MERGED
C
0004   1 READ(8,END=10)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
      1(IYEAR(K),K=1,4),(CLAIM(K),K=1,27),LP,IA,IPAT,NOCL,IPUB,
      2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2),
      3(MELEM(K),K=1,34)
C
C   NOW WRITE IT ON 181
C
0005   WRITE(9)MD,IQUAD,ISER,(CORD(K),K=1,4),LAT1,LAT2,LONG1,LONG2,
      1(IYEAR(K),K=1,4),(CLAIM(K),K=1,27),LP,IA,IPAT,NOCL,IPUB,
      2(IREF(K),K=1,3),MERIT,LS,LD,IPRO,IRES,(IEXPL(K),K=1,2),
      3(MELEM(K),K=1,34)
C
0006   GO TO 1
C
0007   10 REWIND 8
C
C   REWIND THE INPUT. NOW SEE IF WE ARE DONE.
C
0008   NUM=NUM-1
0009   IF(NUM.EQ.0) GO TO 99

```

```
0010      C      PAUSE
          C
          C      THIS PAUSE PERMITS THE OPERATOR TO MOUNT AND READY A NEW
          C      TAPE ON 180. WHEN THE MACHINE IS RESTARTED WITH 'EOB' ENTERED
          C      ON THE TYPEWRITER, THE JOB RESUMES.
          C
0011      C      GO TO 1
          C
          C      IF NUM=0, END THE JOB.
          C
0012      99 CALL EXIT
0013      END
```

