

1983/52. MIRLOCH - a mineral resources location and characterisation system.

P.L.F. Collins

Abstract

MIRLOCH is a computerised data base of mineral deposits in Tasmania, and may be searched by a single option or combination of options such as deposit name, commodity, location (map sheet, AMG co-ordinates), host rock, age of mineralisation, form of deposit, and exploration methods.

INTRODUCTION

The data file MIRLOCH is a computerised data base of mineral deposits in Tasmania. It is not a complete listing of all information on each deposit, but lists that information which is most useful in searching the data file and seeking out further information.

MIRLOCH contains details of commodity(s), location by AMG co-ordinates and 1:50 000 map sheet, current operational status, size of the deposit, genetic discriminants (host rock, age of mineralisation and form of deposit) and whether surface exploration has been undertaken. Each deposit has a unique reference number which may be used to access further information that is contained on a mineral deposit data sheet (Collins, 1981). Some generalisation of data is necessary, particularly in listing genetic discriminants. The *host rock*, for example, is listed according to ten economically significant time/stratigraphic units defining the Tasmanian geological record, and the age of mineralisation may be selected from nine age brackets which include the main periods of mineralisation in Tasmania; these are compatible with the host rock units.

New data are added to the data file as information on deposits is compiled, and the existing file is updated as new information becomes available.

OPERATION OF MIRLOCH

A suite of FORTRAN programs (Richardson, 1983) is used for adding entries to the data base, for sorting the data file, and for searching it.

Entries are added to MIRLOCH in a standard format, using an input data sheet (Appendix 1). Input is commenced by typing MIRADD, and then typing the relevant data in response to prompts, and continues until END is typed in response to the "reference no." prompt. The new data are saved temporarily in MIRTEMP.TMP for checking of and corrections to the input data (using standard editing facilities), and *must* then be added to the end of the existing file by typing MIRMERGE.

To maintain MIRLOCH in order of deposit reference number, it is sorted periodically using the MIRSORT command. The MIREEDIT command allows editing of the main data file, but this should only be used to update existing entries. It should not be used for correcting new data.

MIRLOCH may be searched by typing MIRSrch and inspecting the relevant search options as explained in Richardson (1983).

An example of output data from a search of MIRLOCH is given in Appendix 2. Each printout resulting from a search of the data file is also accompanied by a sheet listing the abbreviations used in the last six columns (Appendix 3).

INPUT DATA SHEET

Data for each deposit is put into a standard format (Appendix 1) before entry into MIRLOCH. The various listings are explained below. The numbers in parentheses () following each listing indicate the maximum number of characters.

Reference No.

A unique number for each mine/deposit/occurrence. The first two characters refer to the geological atlas quadrangle number, followed by a three digit serial number. e.g. 37017 = deposit number 17 within quadrangle 37 (Sheffield).

Mine/deposit name

The name of the mine/deposit where known. Mine or prospect generally is omitted from the name, but terms such as "reward", "extended", etc. are used if they form part of the name or assist in distinguishing deposits with the same name. The following abbreviations should be used: RWD = reward, PA = prospecting association, WKGS = workings, EXTD = extended, SYN = syndicate, PSYN = prospecting syndicate, ALLUV = placer/residual, O/B = ore body.

Commodity(s)

The main exploitable commodities listed in order of importance. Chemical symbols are used for metallic resources.

A.M.G. Coords

Full AMG co-ordinates to the nearest 10 m (i.e. 5 figures for mE, 6 figures for mN). Most deposits are listed to the nearest 100 m.

Map sheet

The 1:50 000 National map index sheet number.

Status

Either the present status of a mine (and whether it has known (measured) reserves), or whether the deposit is a prospect, mineral occurrence, or mineralised area. A mine is here defined as a mineral deposit from which there is recorded (or obvious) production.

Size

The estimated total *in situ* size of the deposit (in tonnes) using categories listed on the data input sheet. For placer and residual deposits the size categories are in m³.

Host rock

The relevant time/stratigraphic unit(s) hosting the deposit. Two

host rocks may be defined to cater for discordant deposits that traverse time/stratigraphic boundaries.

Age of mineralisation

The age of the mineralisation as specified by the age brackets listed on the data input sheet. If a deposit has been remobilised by a later deformation event, the original age is specified. In many cases the age is determined by inference.

Form of deposit

The overall form of the deposit and/or nature of the mineralisation.

Exploration of deposit

Exploration which has been undertaken to improve definition of a deposit. Up to five exploration methods may be defined. Prospecting includes the use of pits, trenches, adits and shafts.

Geological mapping refers to detailed surface and/or underground mapping. Geochemical surveys refer to detailed soil geochemical surveys as well as *systematic* chip sampling of host rocks and mineralisation. If ground geophysical techniques have been used then these too are indicated.

SEARCHING OF MIRLOCH

The data base may be searched for a single search option or combination of search options using the MIRSCH command (Richardson, 1983). The search options are geological atlas quadrangle, mine/deposit name, commodity(s), specific area defined by AMG co-ordinates (e.g. boundaries of an exploration licence), 1:50 000 map sheet, status, size, host rock, age, form, and exploration. The last six options require the appropriate number(s) to be entered. An example of a printout resulting from a search of MIRLOCH for deposits in the Sheffield Quadrangle (i.e. quadrangle number 37) is given in Appendix 2. The abbreviations used to describe status, size, host, age, form, and exploration are listed in Appendix 3.

Searching for specific types of deposits may be undertaken by using combinations of search options. For example, a search for Cambrian volcanogenic deposits may be undertaken by typing 3 in response to the "host rock" prompt and 3 in response to the "age" prompt. Stanniferous skarns could be searched by typing SN in response to the "commodity" prompt and 1 in response to the "form" prompt.

It is also possible to obtain a printout of all mineral deposits listed.

REFERENCES

COLLINS, P.L.F. 1981. A guide to the mineral deposit data sheet. *Unpubl. Rep.Dep.Mines Tasm.* 1981/46.
RICHARDSON, R.G. 1983. FORTRAN programs for the implementation of MIRLOCH. *Unpubl.Rep.Dep.Mines Tasm.* 1983/48.

[5 October 1983]

A/q

APPENDIX 1
Input data sheet

MINERAL RESOURCES LOCATION AND CHARACTERISATION SYSTEM

(Data File : MIRLOCH)

Reference No. _____ (5) [First two numbers refer to geological atlas quadrangle]

Mine/deposit name _____ (30)

Commodity(s) _____ (15) [List chemical symbols for metallic resources]

A.M.G. Coords _____ (11) [m E (5 figures) m N (6 figures)]

Map sheet _____ (5) [1:50 000 National Map index sheet numbers]

Status (1)

- | | | |
|--|--|--|
| <input type="checkbox"/> 0 Operating mine | <input type="checkbox"/> 3 Abandoned mine - reserves known | <input type="checkbox"/> 6 Prospect - explored |
| <input type="checkbox"/> 1 Non-operating mine - reserves known | <input type="checkbox"/> 4 Abandoned mine - reserves unknown | <input type="checkbox"/> 7 Prospect - unexplored |
| <input type="checkbox"/> 2 Non-operating mine - reserves unknown | <input type="checkbox"/> 5 Abandoned - mined out | <input type="checkbox"/> 8 Mineralized area |
| | | <input type="checkbox"/> 9 Mineral occurrence |

Size of deposit (1) [tonnes or m³]

- | | | |
|---|---|--|
| <input type="checkbox"/> 0 Not determined | <input type="checkbox"/> 2 Small (10 ² - 10 ⁴ t) | <input type="checkbox"/> 4 Large (10 ⁶ - 10 ⁷ t) |
| <input type="checkbox"/> 1 Very small (< 10 ² t) | <input type="checkbox"/> 3 Medium (10 ⁴ - 10 ⁶ t) | <input type="checkbox"/> 5 Very large (> 10 ⁷ t) |

Host rock (2)

- | | | |
|---|--|--|
| <input type="checkbox"/> 0 Precambrian sequences | <input type="checkbox"/> 4 Owen Cong/Moina Sst and correl. | <input type="checkbox"/> 7 Devonian granite |
| <input type="checkbox"/> 1 Cambrian sedimentary sequences | <input type="checkbox"/> 5 Gordon Lst/Eldon Gp and correl. | <input type="checkbox"/> 8 Parmeener Super Gp |
| <input type="checkbox"/> 2 Cambrian igneous sequences | <input type="checkbox"/> 6 Mathinna Beds | <input type="checkbox"/> 9 Jur.-Cen. sequences |
| <input type="checkbox"/> 3 Mount Read Volcanics and correl. | | |

Age of mineralisation (1)

- | | | |
|--|--|---|
| <input type="checkbox"/> 0 Not determined | <input type="checkbox"/> 4 Ordov.-E. Devonian | <input type="checkbox"/> 7 Jurassic-Cretac. |
| <input type="checkbox"/> 1 Precambrian | <input type="checkbox"/> 5 L. Devonian (granite) | <input type="checkbox"/> 8 Tertiary |
| <input type="checkbox"/> 2 Eo.-E. Cambrian | <input type="checkbox"/> 6 Permo-Triassic | <input type="checkbox"/> 9 Quaternary |
| <input type="checkbox"/> 3 M.-L. Cambrian | | |

Form of deposit (2)

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> 0 Not determined | <input type="checkbox"/> 4 Disseminated | <input type="checkbox"/> 7 Placer |
| <input type="checkbox"/> 1 Stratabound-stratiform | <input type="checkbox"/> 5 Massive | <input type="checkbox"/> 8 Residual |
| <input type="checkbox"/> 2 Vein (single, sheet, saddle) | <input type="checkbox"/> 6 Pipe/Lens | <input type="checkbox"/> 9 Other |
| <input type="checkbox"/> 3 Stockwork | | |

Exploration of deposit (5)

- | | | |
|--|--|--|
| <input type="checkbox"/> 0 Nil | <input type="checkbox"/> 2 Geological mapping | <input type="checkbox"/> 4 Geophysical surveys |
| <input type="checkbox"/> 1 Prospecting | <input type="checkbox"/> 3 Geochemical surveys | <input type="checkbox"/> 5 Drilling |

6/9

APPENDIX 2

An example of a printout from MIRLOCH.

Search option = Quadrangle 37/

52-7

REFNO	MINE/DEPOSIT NAME	COMMODITY(S)	AMG COORDS	SHEET	STATUS	SIZE	HOST	AGE	FORM	EXPLORATION
37001	COPPER CREEK	CU AU AG	41950543200	81153	PEX	ND	CSS, OMS	ND	VEIN,	PS, , ,
37002	RADFORDS REEF	CU	42190543160	81153	MOC	ND	CSS,	ND	DISS,	NO, , ,
37003	BROWNS BLOW	CU FE	42200543150	81153	MOC	ND	CSS,	ND	DISS,	NO, , ,
37004	COLBOURNS SHOW	FE	42230543170	81153	MOC	ND	CSS,	ND	ND,	NO, , ,
37005	DEVONPORT	AU	41690540730	81153	PEX	ND	OMS,	ND	VEIN,	PS, , ,
37006	WILMOT OR WASHINGTON	AG PB CU AU	42330540930	81153	AMX	ND	OMS,	LD	VEIN, DISS	PS, , ,
37007	BELL MOUNT ALLUV	AU	42330540840	81153	AMX	ND	JCS,	QT	PLAC,	NO, , ,
37008	STORMONT	BI AU AG	41880540590	81153	AMX	ND	GLE,	LD	STAT,	PS, , ,
37009	FLETCHERS ADIT	BI W AG AU	41940540630	81153	PEX	ND	OMS, GLE	LD	VEIN,	PS, , ,
37010	FLETCHERS	BI AU	41940540630	81153	PEX	ND	GLE,	LD	STAT,	PS, , ,
37011	TI-TREE CREEK	FE SN W	42060540600	81153	PEX	ND	GLE,	LD	STAT,	GM, DR, , ,
37012	SHEPHERD & MURPHY	SN W BI MO	42320540650	81153	AMR	ND	OMS, GLE	LD	VEIN,	PS, GM, DR, ,
37013	SHEPHERD & MURPHY ALLUV	SN W BI	42290540620	81153	AMX	ND	JCS,	TT	PLAC,	NO, , ,
37014	MOINA	SN W F FE BI MO	42330540630	81153	PEX	VL	GLE,	LD	STAT,	GM, GC, GP, DR,
37015	IRIS OR KEMPS OR RED ROBIN	SN W MO	42410540550	81153	AMX	ND	JCS,	TT	PLAC, RESD	PS, , ,
37016	LAWKEMLAW OR BURFORD & BILSON	W	42430540580	81153	NOX	ND	MRV,	LD	VEIN,	PS, GM, , ,
37017	ALL NATIONS OR LADY BARRON	W BI MO	42430540610	81153	NOR	ME	MRV, OMS	LD	VEIN, STWK	PS, GM, GC, DR,
37018	ALL NATIONS ALLUV	W SN BI	42433540612	81153	AMX	SM	JCS,	QT	PLAC,	NO, , ,
37019	QUARTZ BLOW	W	42445540582	81153	MOC	ND	OMS,	LD	VEIN,	PS, , ,
37020	POCHINS ADIT	W	42467540605	81153	PEX	ND	OMS,	LD	VEIN,	PS, GM, , ,
37021	PIG & WHISTLE / LAWSON & RILEY	W SN BI	42470540570	81153	AMX	ND	MRV,	LD	VEIN,	PS, , ,
37022	HIGGS OR SUNRISE	AU	42530540670	81153	AMX	ND	OMS,	LD	VEIN,	PS, GM, GC, GP, DR
37023	NARRAWA RWD	AU AG	42610540690	81153	PEX	ND	OMS,	ND	DISS,	PS, GM, , ,
37024	SQUIB OR GURRS	W MO BI	42560540680	81153	AMX	ND	DGN,	LD	VEIN,	PS, , ,
37025	POVEY & JOHNSON OR SULLIVANS	W MO	42660540690	81153	PEX	ND	OMS,	LD	VEIN,	PS, , ,
37026	PACKETTS	W SN MO AU	42655540695	81153	PEX	ND	OMS,	LD	VEIN,	PS, , ,
37027	SAYERS	W BI SN MO F BE	42690540660	81153	PEX	ND	DGN,	LD	VEIN,	PS, GM, , ,
37028	PRINCESS OR URQUHARTS	W BI F	42720540660	81153	PEX	ND	DGN,	LD	VEIN, DISS	PS, , ,
37029	DOLCOATH OR AULDANA	W SN	42620540620	81153	PEX	ND	DGN,	LD	VEIN,	PS, GM, , ,
37030	YORKS	SN W	42720540590	81153	AMX	ND	JCS,	TT	PLAC,	NO, , ,
37031	HIDDEN TREASURE	W MO BI	42770540620	81153	PEX	ND	DGN,	LD	VEIN, DISS	PS, , ,
37032	PREMIER	W MO BI	42770540590	81153	PEX	ND	DGN,	LD	VEIN, DISS	PS, , ,
37033	ASHWORTHS	SN	42800540640	81153	PEX	ND	OMS, JCS	LD	DISS, RESD	PS, , ,
37034	GOREYS TUNNEL	SN	42810540630	81153	PEX	ND	OMS, JCS	LD	DISS, RESD	PS, , ,
37035	DUFFS SHAFT	SN	42810540630	81153	PEX	ND	OMS, JCS	LD	DISS, RESD	PS, , ,
37036	FALLS	SN	42860540590	81153	AMX	ND	OMS, JCS	LD	DISS, RESD	PS, , ,
37037	ROUND HILL OR WEST MT CLAUDE	AG PB AU	42910540710	81153	AMX	ND	OMS,	LD	VEIN,	PS, GM, , ,
37038	ROUND HILL WESTERN	AG PB AU	42900540700	81153	AMX	ND	OMS,	LD	VEIN,	PS, GM, , ,
37039	ROUND HILL CENTRAL	AG PB AU	42930540680	81153	AMX	ND	OMS,	LD	VEIN,	PS, GM, , ,
37040	ROUND HILL MAIN OR EASTERN	AG PB AU	42950540980	81153	AMX	ND	OMS,	LD	VEIN,	PS, GM, , ,
37041	ROUND HILL EXTD	AG PB AU ZN	42980540600	81153	AMX	ND	OMS,	LD	STAT, VEIN	PS, GM, , ,
37042	COOPER-SMITHS	AU	43770543180	81152	MOC	ND	JCS,	TT	PLAC,	NO, , ,
37043	BARRINGTON OR ALMA	CU BA	43620542790	81153	AMX	ND	CSS,	MC	VEIN, MASS	PS, GM, GC, ,
37044	LUCAS & PERRY	AG	43500542860	81153	PEX	ND	CSS,	ND	MASS,	PS, , ,
37045	CRAWFORDS	AU	43650543000	81153	MOC	ND	CSS,	ND	VEIN, DISS	NO, , ,
37046	STAR OF THE WEST	AU	44520540910	81152	PEX	ND	MRV,	ND	VEIN, DISS	PS, , ,
37048	GILBERTS OR MT VAN DYKE	AG PB AU CU	43430540690	81153	PEX	ND	MRV,	ND	VEIN, DISS	PS, , ,
37050	PRESTONS	AG PB	42280542580	81153	PUN	ND	CSS,	ND	VEIN,	PS, , ,

7/9

8/9

APPENDIX 3

Abbreviations used in a printout of MIRLOCH data

STATUS

- OPM OPERATING MINE
- NOR NON-OPERATING MINE - RESERVES KNOWN
- NOX NON-OPERATING MINE - RESERVES UNKNOWN
- AMR ABANDONED MINE - RESERVES KNOWN
- AMX ABANDONED MINE - RESERVES UNKNOWN
- AMO ABANDONED - MINED OUT
- PEX PROSPECT - EXPLORED
- PUN PROSPECT - UNEXPLORED
- MAR MINERALIZED AREA
- MOC MINERAL OCCURRENCE

SIZE OF DEPOSIT

- ND NOT DETERMINED
- VS VERY SMALL: < 100 TONNES (OR CUBIC METRES)
- SM SMALL: 100 T - 10 000 T
- ME MEDIUM: 10 000 T - 1 000 000 T
- LA LARGE: 1 000 000 T - 10 000 000 T
- VL VERY LARGE: > 10 000 000 T

HOST ROCK

- PCS PRECAMBRIAN SEQUENCES
- CSS CAMBRIAN SEDIMENTARY SEQUENCES
- CIG CAMBRIAN IGNEOUS SEQUENCES
- MRV MOUNT READ VOLCANICS AND CORRELATES
- OMS OWEN CONGLOMERATE/MOINA SANDSTONE AND CORRELATES
- GLE GORDON LIMESTONE/ELDON GROUP AND CORRELATES
- MAT MATHINNA BEDS
- DGN DEVONIAN GRANITOID
- PSG PARMEENER SUPER GROUP
- JCS JURASSIC-CENOZOIC SEQUENCES

AGE OF MINERALIZATION

- ND NOT DETERMINED
- PC PRECAMBRIAN
- EC EOCAMBRIAN-EARLY CAMBRIAN
- MC MIDDLE-LATE CAMBRIAN
- OD ORDOVICIAN-EARLY DEVONIAN
- LD LATE DEVONIAN (GRANITE ASSOCIATED)
- PT PERMO-TRIASSIC
- JC JURASSIC-CRETACEOUS
- TT TERTIARY
- QT QUATERNARY

FORM OF DEPOSIT

- ND NOT DETERMINED
- STAT STRATABOUND/STRATIFORM
- VEIN VEIN(SINGLE, SHEET, SADDLE)
- STWK STOCKWORK
- DISS DISSEMINATED
- MASS MASSIVE
- PIPE PIPE/LENSE
- PLAC PLACER
- RESD RESIDUAL
- OTHR OTHER

EXPLORATION OF DEPOSIT

- NO NIL OR NO KNOWN EXPLORATION
- PS PROSPECTING
- GM GEOLOGICAL MAPPING
- GC GEOCHEMICAL SURVEYS
- GP GEOPHYSICAL SURVEYS
- DR DRILLING