

1981/46. A guide to the mineral deposit data sheet.

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### Abstract

The mineral deposit data sheet presents, in a standard tabular form, a comprehensive range of descriptive information and characteristics of individual mines and mineral deposits.

### INTRODUCTION

This report has been written to aid compilers and users of the mineral deposit data sheet which is designed to present, in a tabular form, a comprehensive range of information and characteristics of mineral deposits in Tasmania.

The data sheet (fig. 1) has been adapted from the mine data sheet and mineral deposit data sheet used by the N.S.W. Geological Survey since 1972. The philosophy and principles behind the design of the data sheet are similar to those of Stevens (1972), Bowman and Stevens (1976), and Bowman (1977). The design of the present data sheet has benefited from discussions with E. Williams, P. Williams, and D.J. Jennings of this Department, and with H.N. Bowman and S.J. Richardson of the New South Wales Geological Survey.

### MINERAL DEPOSIT DATA SHEET

The information recorded on the data sheet is collected for several purposes. One is to provide basic information for preparation of mineral deposit symbols on regional geological maps. Another is to summarise information for use in the interpretation of the metallogenesis of specific mineralized regions, or of specific commodities or types of deposits. Still another purpose is to list the mines, commodities, sources of information, and production and reserves details as an inventory of the State's mineral resources. Also, the data sheet can be used as a summary of information on a deposit when making a field inspection.

Generally, one data sheet is used for each mine or deposit. In cases where there are several mines on a long, continuous vein, a separate data sheet is completed for each mine, but if the vein is worked by a single producer then it is recorded on a single data sheet.

Information on the data sheet is grouped into named blocks, except for the information at the top of the sheet which might be termed the identification block. To ensure the information is correct, the recorder should undertake a field inspection of each deposit.

### IDENTIFICATION

This block contains information on the name of the deposit, its number, commodities, location, mineral lease(s), the person(s) responsible for filling in the sheet, and the date to which the information is complete.

The name of the deposit used on each sheet is either the most commonly used or latest name, and must conform with the register of mines. Other names are shown in brackets.

The deposit number is in two parts, separated by a dash. The first part is the 1:50 000 geological atlas sheet number and the second part is



a serial number for that sheet. The serial numbers generally are chosen arbitrarily, but on new regional map sheets they progress from west to east, commencing from the north-western corner of the sheet. As an example, the Chester mine, near Tullah, may be number 44-8; '44' for the Mackintosh sheet and '8' for deposit number 8 on that sheet.

Principal commodities are the commodities which enable a deposit to be worked profitably. They may be the commodities which were actually exploited or which would have been exploited today. Minor commodities are those commodities which increase profitability. They need not have been exploited. By-products of the refining of principal commodities should also be included.

The sheet reference, which is in two parts, consists of the 1:100 000 and the 1:50 000 sheet numbers, and in brackets the name of the 1:50 000 sheet. For example, the sheet reference for the Chester mine is 8014-I (Tullah).

An eight character grid reference is sufficient to uniquely define each deposit, and is made up of two letters defining the 100 km square of the Australian Map Grid, Zone 55, followed by six figures defining the location to the nearest 100 m (e.g. the Chester mine is CP785809). If the location of small deposits is more accurately known, then an eight figure number should be used.

The name of the geological atlas quadrangle in which the deposit is located should also correspond to the first part of the deposit number.

The mineral lease number is given if a lease is current at the time the sheet is completed. The name and numbers of the appropriate mineral chart, previous lease(s) or section(s), and mine plan(s) are recorded.

The nearest town describes either the town nearest to the deposit, or the town through which access is gained to the deposit.

The name of the recorder of the information and the date to which the data are correct, are also recorded.

*STATUS*

The status of the deposit readily identifies whether it is, or has been a producing mine; whether it is a prospect that is being or has been explored, or is unexplored; whether it is a mineralized area containing disseminated mineralization which, for example, may be related to an alteration zone; and whether it is an isolated mineral occurrence.

*METHOD OF WORKING*

This block is included primarily to assist in locating the deposit in the field. The still accessible box is completed if the workings were easily accessible when inspected by the recorder. This would require that any adits were open, and safe ladder ways in place in shafts. The number of open cuts, shafts, adits etc. should be recorded in the appropriate boxes.

*GEOLOGICAL ENVIRONMENT*

The age of the host rock, the host rock association and the actual host rock for the mineralization are described in this block. For example,

a sedimentary host rock may be described as 'sandstone, channel lens, shallow marine' or an intrusive host rock as 'dolerite, sill, intermediate depth'. The relative stratigraphic age defines minimum and maximum stratigraphic limits. For example, a host rock occurring as an intrusive in the Bell Shale would have a maximum stratigraphic age ('Pre-') described as 'Bell Shale, intrusive'. If known, the radiometric or palaeontologic age, and the stratigraphic name(s) of the host rock are recorded. Metamorphic grades are those defined by Winkler (1967).

*STRUCTURES AND BEDDING*

Structures of a size comparable to the deposit and affecting the deposit are shown in this section. The section showing the time relationship between the structure and the deposit is completed only if there is no doubt that the structure was related to the origin of the deposit or to a redistribution of the ore minerals. Descriptions of the structure should include structural data. Bedding records the strike and dip of the actual host lithology.

*PERIODS OF PRODUCTION*

The name of each producer and the productive period is recorded in this block.

*PRODUCTION, RESERVES, AND GRADE*

In this block are recorded the total previous recorded production (or estimated production for some mines with incomplete production figures) and the annual production of mines operating at the time the sheet is completed. The status of ore reserves must be specified, and the source of this information given.

The deposit classification is based on the total tonnage of the ore produced and of the remaining reserves. For some deposits, with incomplete production or reserves figures, the size of the deposit should be estimated by the recorder. Deposits are classified in terms of five arbitrarily defined ranges of the total tonnage of the deposit. The ranges are: very small (less than 100 t), small (100-10 000 t), medium (10 000-1 000 000 t), large (1 000 000-10 000 000 t), and very large (more than 10 000 000 t). Mineralized areas are not included in this classification. Mineral occurrences may be classified as very small deposits.

In determining the total tonnage, for some deposits the host rock is necessarily included as part of the deposit (e.g. disseminations, stockwork veins), but for others, such as single veins or lodes, the host rock may be either excluded or included, in which case the mining width should be indicated.

*EXPLORATION OF DEPOSIT*

This block is intended to be a guide to exploration techniques which have been applied to a deposit. Users requiring more detailed information should consult the references.

*SIZE OF ORE BODIES*

The extent and orientation of the deposit is described in this section. For some deposits there may be several ore bodies, each requiring description.

MINERALIZATION

All known minerals are listed and classified as major or minor according to their relative volumetric abundance, irrespective of economic implications. The estimated percentage is given in brackets, if known. Major minerals are those forming more than one per cent of the total metallic or non-metallic minerals.

Metallic minerals include all native metals, metallic oxides, sulphides, sulphosalts, tellurides, arsenides, tungstates, molybdates, chromates, and antimonides and their secondary alteration products. Non-metallic minerals include silicates, carbonates, phosphates, sulphates, halides, and other minerals generally considered as gangue minerals.

ORE TEXTURES

Textures of the ore minerals in hand specimen are indicated by an 'x' in the appropriate box. Microscopic textures are described in detail, either from previous literature or from unpublished mineralogy and mineralograpy by the recorder.

AGE OF MINERALIZATION

If known, the age of the mineralization is indicated by L, M, E, or X (undifferentiated) in the appropriate box, and the method and source of the determination given.

FORM OF DEPOSIT

The principal criteria used to determine the form of a deposit are the relation of its enveloping surface to its host rock, and the internal characteristics of the deposit. These criteria have been chosen because they may be determined objectively. Two genetic classes, placer and residual, which are not determined by the relationships are also included.

All concordant deposits might be considered stratabound. However, those stratabound deposits which are themselves stratified are considered stratiform.

Tabular discordant deposits are veins. Multiple veins (sheeted veins) are deposits consisting of several similarly striking or parallel veins. Closely spaced veins of different orientations constitute stockwork deposits.

Elongate, uni-dimensional discordant deposits are pipes. Breccia-fill includes discordant deposits developed in cavities in non-fault formed breccias. Lenticular massive and irregular massive are further categories of discordant ore bodies.

Disseminated deposits include discordant deposits in which ore occurs as films on joint planes, as gash fillings, and as micro-veinlets, as well as those in which the ore occurs as discrete grains in the host rock.

Placer deposits are concentrations of minerals (usually gold, cassiterite, and platinoids) in unconsolidated alluvial or glacial sediments. Placer deposits are always concordant, hence it is not necessary to indicate either stratabound or stratiform on the sheet. Residual deposits are concentrations of minerals resulting from the removal of the host material during decomposition of rocks.

ORE GRAIN SIZE

The size of individual crystals and mineral particles is shown here.

WEATHERING EFFECTS

If weathering effects have affected significantly the viability of a deposit, either adversely or favourably, then this is indicated, together with the type of weathering effect and the depth to which it has penetrated.

WALLROCK ALTERATION

Mineral assemblages either pre-ore, or resulting from alteration associated with the mineralization (i.e. syn-ore) are described here. The position of the alteration in either the hanging wall or the footwall of the ore body is indicated.

ORE GENESIS

Ideas on the genesis of the deposit either from previous literature, or developed by the recorder are described in this block.

REMARKS

Any additional comments by the recorder relevant to the deposit.

REFERENCES

The data sheet should be compiled after an exhaustive search of all available literature and the list of references should be comprehensive for all but the largest mines. For large mines the main references, and references from which other sources of information can be derived, should be listed. References should be listed alphabetically by author. Published sources include scientific journals and books, but mainly publications of the Department of Mines. Most unpublished references are those held by the Department of Mines, and are mainly unpublished reports of mineral exploration activity and Department of Mines Unpublished Reports. Other sources include University theses, lease plans and mineral charts. When the data sheet includes original data from field inspections, this is indicated by showing the year in which the field work was done (e.g. Field work, 1981).

REFERENCES

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