Report Writing Guide
for Mining Engineering Students

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4. **STRUCTURE**

The structure of a report differs from other forms of writing such as an essay or novel. Whereas an essay is usually read from beginning to end, only certain parts of a report may ever be read by some people. For example, senior management generally are only interested in the report outcomes which are found in the Summary and Conclusion sections, whereas an engineer might be interested in the details of the analysis and assumptions made in the course of the investigation.

Depending upon its length and purpose, a technical report will generally include a number of sections. The more common sections are as follows.

**Title Page**

The title page presents routine information and hints at the contents of the report through an informative title. Design your title page to be simple yet functional and appropriate for the audience and the task.

Some of the more common elements found on the title page include:

- Institution/department (e.g. NSW, School of Mining Engineering, Green Minerals Pty Ltd)
- Course name and code
- Title of the report
- Author (student’s name and number)
- Person to whom the report will be submitted (e.g. your lecturer)
- Date of submission.

**Statement of Originality***

This is a formal statement by the author(s) declaring that the report is their own original work and that the author(s) has properly acknowledged all sources of information, data, illustrations and copyrighted material contained within the report. It is usually placed after the title page. An example of such a statement is:

“I hereby declare that this report is my/our own work and that it contains, to the best of my knowledge and belief, no material previously published or written by another person.

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* Sections marked with an asterisk (*) are generally found in theses or other scientific publications.
nor material which to a substantial extent has been submitted for another course, except where due acknowledgement is made in the report.”

Summary

The summary contains an overview of the most important aspects of a report. It is sometimes called a Synopsis, Executive Summary or Abstract. The latter term is used in a thesis or scientific publication while the other terms are sometimes used in reports.

Ideally the summary should be less than one page, varying between 50 and 250 words.

The summary should clearly and briefly state the objective, how the investigated was undertaken, what was found, and the major conclusions and recommendations. Example summaries together with critical comments are provided in Tables 1 and 2.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>A sample of a report summary</th>
</tr>
</thead>
</table>

**The structure is good because there are clear stages:**
- terms of reference;
- report aim;
- report solution; and
- report scope.

**Expression could be improved in two areas:**
- wordiness; and
- cohesion.

**The underlined words are unnecessary.**

**In the third sentence, it is unclear what is meant by ‘its evaluation’.”**

**The words in bold are implicitly referring to the two access alternatives. Refer directly to the two alternatives more often so it is clear what is being discussed.**

**Summary**

We have been assigned by the directors of Base Metals Australia to evaluate the primary access alternatives of sinking a shaft or developing a decline to access the Southern Cross ore body in the North Parkes region of NSW. **In each case** a secondary return ventilation shaft or decline would be required. Some of the conclusions of this report are undoubtedly applicable for its evaluation, however, this has not been considered. This report clearly identifies the advantages of utilising decline access for the purpose of employee access and ore recovery at this site.

**In reaching this conclusion** the various technical and economic aspects of the two alternatives have been thoroughly considered. In particular the report highlights:
- the economic advantage to decline access
- the reduced risk exposure associated with decline access, and
- the minimal environmental impact of a decline.

**In both cases**, development by drill and blast was considered the best alternative for mining through the country rock.
5. **Format**

**Layout and Formatting**

The layout and formatting is a matter of personal preference but there are norms that should be observed. In any case, the selected format should make the report easy to read and pleasing to the eye. Importantly, the format should be consistent throughout the report unless a special effect is required.

Some recommended settings for a report are shown in Table 6.

<table>
<thead>
<tr>
<th>Format Option</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Font – body of report</td>
<td>Times New Roman (serif font)</td>
</tr>
<tr>
<td>Report headings</td>
<td>Arial (or other sans serif font)</td>
</tr>
<tr>
<td>Font size</td>
<td>12 point</td>
</tr>
<tr>
<td>Paragraph spacing</td>
<td>6 or 12 pt</td>
</tr>
<tr>
<td>Line spacing</td>
<td>Single</td>
</tr>
<tr>
<td>Left Margin</td>
<td>25.4 mm (alternatively 30 mm)</td>
</tr>
<tr>
<td>Right margin</td>
<td>25.4 mm (alternatively 20 mm)</td>
</tr>
<tr>
<td>Top margin</td>
<td>25.4 mm (alternatively 20 mm)</td>
</tr>
<tr>
<td>Bottom margin</td>
<td>25.4 mm (alternatively 20 mm)</td>
</tr>
</tbody>
</table>

Bold and italics typefaces are used to give emphasis to particular words or phrases as they tend to attract the eye. A common mistake is to make *too much use* of either of these formatting options.

**Bold** is used to give emphasis to usually one or two words. It is also often used in major headings.

**Italics**, being slightly less striking to the eye, is used to give emphasis to phrases, entire sentences or when including a direct quotation or title of a publication.

Since the development of desktop printing and the word processor *underlining is rarely used* as it has been replaced by bold and italic fonts. It is reserved for those occasions when you want to scream at the reader. Underlining is also particularly effective whenever part of a word needs to be emphasised, for example *unrepresentative*. Do not mix the underlining of words that have been set in bold or italic typeface.

Emphasis can also be given to words by the use of CAPITALS but like underlining, this should be rarely used. A common use is in
circumstances where the reader might otherwise misread the meaning of a sentence such as “water from outlets in this laboratory is not potable and MUST NOT be consumed.” It can also be difficult to read words set in capitals and can cause mistakes in comprehension.

An example of a set of format settings that can be used in a report is shown in Table 7.

<table>
<thead>
<tr>
<th>Table 7</th>
<th>Report layout and formatting.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Heading Level 1</strong></td>
<td>18 pt Arial bold font, small caps, start new page, align left</td>
</tr>
<tr>
<td>1.1 <strong>Heading Level 2</strong></td>
<td>14pt Arial bold font, all caps, align left, 18 pt line space before</td>
</tr>
<tr>
<td>1.1.1 <strong>Heading level 3</strong></td>
<td>12 pt Times italic bold font, align left, 12 pt line space before</td>
</tr>
<tr>
<td>Text in report</td>
<td>12 pt Times font, justify left and right margins, sentence case</td>
</tr>
<tr>
<td>Table/Figure Captions</td>
<td>10 pt Times font</td>
</tr>
<tr>
<td>Header</td>
<td>10 pt Times italics font, thin line below the text</td>
</tr>
<tr>
<td>Footer</td>
<td>10 pt Times italics font, thin line above the text</td>
</tr>
<tr>
<td>Reference List</td>
<td>12 pt Times font, align left, indent second &amp; consecutive entry lines</td>
</tr>
</tbody>
</table>

Many word processing software packages now include style sheets. Once configured, these simplify the task of formatting the different elements of a report such as font type, size and line spacing. Style sheets also help to ensure consistency throughout the report.

**Section/chapter numbering system**

Numbering of chapter/section headings and subheadings is more often the norm in reports. Numbering of sections generally begins with the Introduction section being numbered 1 and ends with the Conclusions. Sometimes the Reference section is also included in the numbering system. A hierarchy of headings and subheadings can be used to good effect especially in larger reports. Three levels of headings is generally the accepted limit (e.g. 8.4.3 Errors in data acquisition) as too many levels can become confusing and cumbersome.

If there are several appendices then they too can be numbered but a different system is used and renumbering restarts with the first appendix, for example Appendix A, B, C etc.
• The table is centred on the page.
• The caption is succinct and conveys the meaning of the information. Captions are usually a descriptive or informative statement to help focus the reader’s attention on a particular issue that is evident in the table.

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Formula</th>
<th>Hardness (Mohr scale)</th>
<th>Density (t/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentite</td>
<td>Ag₂S</td>
<td>2 - 2.5</td>
<td>7.3</td>
</tr>
<tr>
<td>Galena</td>
<td>PbS</td>
<td>2.5</td>
<td>7.4 - 7.6</td>
</tr>
<tr>
<td>Sphalerite</td>
<td>ZnS</td>
<td>3.5 – 4</td>
<td>3.9 - 4.1</td>
</tr>
</tbody>
</table>

(Source: AusIMM, 1989, pp 21-34)

Figures

The quality of an illustration is very important. If the image is poor and difficult for the reader to clearly understand the point trying to be made then, except in exceptional circumstances, the figure should not be included in the report as it will detract from the quality of the report – remember to strive for graphical excellence!

Colour is a formatting option that can help to differentiate and highlight in figures. It should be used judiciously, however, as overuse can distract when it is not intended.

Figure 1 illustrates the following points for data graphs.
• The graph is framed and centred on the page.
• The independent variable is shown on the X-axis of the graph and the dependent variable shown on the Y-axis.
• Both axes are clearly labelled with units indicated. A bold sans serif font has been used to give added emphasis to each of the
Generally, technical drawings of equipment or their components should also include the angle of projection, the date drawn/last modified and who drafted the drawing.

Large illustrations can be printed in landscape format on the page. In this case they should be placed so that the top of the illustration is aligned closest to the binding. Even larger illustration such as spreadsheet and mine plans can be printed on large format paper (e.g. A3 size) and folded and placed in the appendix.