

Liability of Competent Person for JORC reports

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1. Introduction

Disclosing entities that are subject to the ASX Listing Rules must, when preparing information on exploration results, mineral resources or ore reserves for disclosure to investors, potential investors and their advisers, comply with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**).

This often arises in relation to listed mining companies' reporting requirements under ASX Listing Rule 5.6, but can also be relevant when preparing a report for a disclosure document (such as a prospectus for an IPO, rights issue etc), bidder or target statement, or scheme of arrangement.

The JORC Code requires that the documentation on which such a report is based must be prepared by, or under the direction of, and signed by, a Competent Person or Persons. [JORC Code, clause 9].

This article provides a brief overview of the potential liabilities faced by Competent Persons as a result of their professional role in preparing their report. This article does not intend to cover the additional duties that affect Competent Persons who are also directors of the disclosing entity, nor does it seek to address liabilities that may arise in the circumstances involving deliberate fraudulent intent of a Competent Person.

It should be noted that all references to reports in this article and in the JORC Code, are those reports that are released by the relevant company to the public. What this article focuses on is the documentation and material which has been prepared by the Competent Person and which is relied upon in any such report by

the company, usually a public report. It is more often that a Competent Person will be providing material to a company for disclosure in a report by the company and not have his own report disclosed. This is to be compared to the Canadian System which requires the Competent Person's report itself to be disclosed under NI 43-101.

2. Application of the JORC Code

2.1 Who is a Competent Person?

A Competent Person must be a member or fellow of a recognised professional organisation with appropriate experience. Clause 10 of the JORC Code provides that:

"A 'Competent Person' must have a minimum of five years experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which that person is undertaking."

This minimum hurdle of **required experience** is in accordance with the third of the three principles of the JORC Code, namely **competence**. The first two principles, **transparency** and **materiality** set the background for the obligations of the Competent Person in favour of the investors and their professional advisers. Any failure of the Competent Person in the performance of those obligations may give rise to liabilities.

2.2 Main changes between the 1999 JORC Code and the 2004 JORC Code

On 17 December 2004, the 2004 JORC Code was incorporated into the ASX Listing Rules as Appendix 5A, replacing the 1999 JORC Code. The two primary changes in the updated 2004 JORC Code are as follows:

- (a) ROPOs – members of Recognised Overseas Professional Organisations are now recognised as 'Competent Persons' under the JORC Code for the purpose of submitting results to ASX; and
- (b) Exploration Results – a Competent Person is now required to be involved in the preparation of a public report on 'Exploration Results'.

A third change that is worth noting is the recommendation to quantify risks. Under the 2004 JORC Code, Competent Persons are now encouraged to quantify the risk and uncertainty relating to any resource or reserve estimates. This is presently not a mandatory requirement, however it is recommended for Competent Persons, on the grounds that it is becoming an increasingly common practice within the industry. Despite not being mandatory, the fulfilment of such recommendations by a Competent Person may, it could be argued, assist to limit the scope of liability to which a Competent Person may be subject. It has been suggested, however, that by quantifying such risk and uncertainty, it could make it easier for an aggrieved party to take legal recourse.

The better view, in my opinion, is that providing a quantification of risk, depending on the particular circumstances, is unlikely to increase the likelihood of litigation. At best it would assist in determining damages suffered, but not liability.

It is therefore a risk management technique; it is not panacea. If you do your job in a less than careful and thorough manner, and without your methodology and verification clearly demonstrated, then any disclaimer or qualification of risk and uncertainty, will not help you.

3. Liability of a Competent Person

3.1 Sanctions and liability

Where a Competent Person fails to apply appropriate care and diligence in the preparation of documentation that is subsequently used as the basis for a public report or disclosure by a public company that Competent Person may be subject to liability. There are various statutory or common law liabilities that may be incurred by a Competent Person due to losses suffered by third parties as a result of any such misleading or deceptive reports.

While liability for a report may well initially rest with the company that discloses it, the Competent Person may also be liable for the material and documentation prepared to produce that report.

3.2 Administrative sanctions

- (a) Complaints to relevant professional organisations

On an administrative level, complaints made in respect of the professional work of a Competent Person will be dealt with under the disciplinary procedures of the professional organisation to which the Competent Person belongs, whether that organisation is an Australian professional body or an approved ROPO (as published on ASX or JORC websites from time to time) in the list promulgated by the ASX from time to time. The relevant rules of the two Australian professional organisations are as follows:

- (i) Australasian Institute of Mining and Metallurgy (**AusIMM**)

If a complaint is raised against a Competent Person who is an AusIMM member, the complaints process as set out in the AusIMM By-Laws will apply as follows:

The complaint is referred to the

Complaints Committee in the first instance.

The Complaints Committee may:

- (A) recommend that the complaint be settled by alternative dispute procedures in the case of a commercial dispute [AusIMM By-Laws 26(d)(i)];
- (B) refer the complaint to judicial processes where a breach of the law may have been committed [AusIMM By-Laws 26(d)(ii)];
- (C) discuss a breach of the JORC Code with the relevant regulatory authority and jointly agree a process for its resolution [AusIMM By-Laws 26(d)(iii)];
- (D) deal with the complaint if deemed within the authority of the Complaints Committee. [AusIMM By-Laws 26(d)(iv)];
- (E) refer the complaint to the Ethics Committee if breaches of the AusIMM's Code of Ethics are alleged or suspected [AusIMM By-Law 26(d)(v)]; or
- (F) dismiss the complaint [AusIMM By-Laws 26(d)(iv)].

If the complaint is referred to the Ethics Committee, the Ethics Committee then has powers to warn or reprimand the member concerned, or resolve that the membership of the member concerned be suspended for a period not exceeding 12 months or that the member be expelled from the AusIMM. [AusIMM By-Law 26(g)]

- (ii) Australian Institute of Geoscientists (**AIG**)

Not dissimilar to the AusIMM procedure, the AIG Articles, AIG Code of Ethics and the guidelines for Ethics and Standards Complaints Management provide that the Ethics and Standards Committee may recommend to the Council of the Institute any one or more of the following:

- (A) expulsion of the member;
- (B) suspension of a member and/or demotion to a lower grade of membership; or

- (C) a range of more minor penalties; and
- (D) an apology, published, or written or verbal may from part of any penalty.

3.3 Statutory liability

- (a) Misleading and deceptive reports-the Corporations Act 2001 (Cth)

In addition to the disciplinary actions of the relevant professional organisations, which can impact on a Competent Person's ability to work within the profession, there are statutory provisions that also impose pecuniary and other liabilities on a Competent Person arising from his material that is used in reports that are misleading and deceptive, or indeed, the reports themselves if the Competent Person issues it himself.

- (i) Civil and criminal liability

The relevant liability provision relating to a Competent Person under the Corporations Act will depend upon the nature of the requested use for the report. The source of liability under the Corporations Act for misleading and deceptive conduct may apply in the following circumstances:

- (A) company takeovers, compulsory acquisitions and buy-outs are set out in sections 670A and 670B.
- (B) fundraising documents, such as a prospectus - sections 728 and 729.
- (C) section 1041H (dealing with financial products or financial services).
- (D) section 1041E(1) provides a general prohibition against the making of false or misleading statements. The components of the provision may be paraphrased as follows:

"A person must not make a statement if (a) the statement is false in a **material** particular or is **materially** misleading; and

(b) the statement is likely to induce another person; and (c) when the person makes the statement, the person does not care whether the statement or information is true or misleading or knows, or ought reasonably to have known, that the statement is false in a material particular or is materially misleading."

(E) Part 9.4 of the Corporations Act also provides specific prohibitions against the making of false and misleading statements. Of particular relevance are sections 1308(2) and 1308(4):

Section 1308(2) provides a prohibition against persons making false and misleading statement in documents which must be lodged or submitted to ASIC. It states:

"A person who, in a document which is required to be lodged or submitted to ASIC, makes or authorises the making of a statement that to the person's knowledge is false and misleading in a material particular, or omits to mention anything without which a document is, to the person's knowledge, misleading in a material respect, is guilty of an offence."

Section 1308 (4) provides that a person is guilty of an offence if, in a document required to be lodged with ASIC, that person makes or authorises in the document false and misleading statements without having taken reasonable steps to ensure that the statement was not false or misleading.

Importantly, an officer or employee of a corporation who makes available information to a director, member or various other entities including auditors and the ASX, may also be guilty of an offence if that information is false and misleading, and it was known to the officer or employee that the information was false and misleading (section 1309).

Generally, liability for a misleading statement may arise simply if the

Competent Person 'ought reasonably to have known' that the statement was materially misleading. The maximum penalty for contravention of s.1041E is 200 penalty units (\$22,000) or five years imprisonment, or both.

Any documentation prepared by a Competent Person that is disclosed (usually via a report by the company) to shareholders or potential investors of a company could also give rise to civil liability for damage suffered as a result of a misleading or deceptive statement being made or information being given. For example, section 1041I sets out the civil liability for offence under s.1041E to s.1041H and provides that a person who suffers loss by the contravening conduct of another person may recover the amount of the loss or damage by action against the other person.

(ii) Scope of liability

Courts have been prepared to acknowledge some practical limitations on liability of experts for misleading material, such as that provided in documentation submitted to offerees under takeover bids. There still however remains scope for liability arising from misleading reports of a similar kind as that which was the subject of the Carr Boyd case (*Carr Boyd Minerals Ltd v Queen Margaret Gold Mines NL*).

In that case an expert's report accompanying a bidder's statement was found to be misleading. Certain assumptions and calculations made in the report were not linked nor did they explain any change in the value at the particular mine.

Wallace J found that an expert's report accompanying the bid statement contained a number of matters or items of information that were misleading in the form and context in which they appeared. In this case the plaintiff focused on the misleading or

inadequacies of comments in support of a difference between a valuation of the gold mine at \$80 million and the valuation of that same gold mine at \$60 million by the same expert, three months earlier. There were two reports on valuation. In the second report certain factors (including changes in gold tax regime, moving forward of start up dates for production etc.) were referred to but it was not apparent from the assumptions and calculation used in that report how they were linked to help to explain the increase in value of the mine.

Even if a clearly false or misleading statement is clarified in a separate part of a report, the expert may still be liable, notwithstanding the clarification is specifically referred to (see *Tonvill Pty Ltd v Stokes (Australasia) Ltd*). This case highlights the fact that if a false statement or assertion is contained in one part of a report or document, it is not simply cured if in some other place in that report the statement contradicts the false comment even if that false statement is contained in a passage which directs attention to the other passage.

Be aware of the potential impact subsequent events may have on an expert's report. While not directly relevant to a report or material provided under the JORC Code, the *Solution 6 Holdings* case (*ASIC v Solutions 6 Holdings Limited*) is instructive in that if found that where an expert opinion is expressed or recommendation made in relation to a decision to be made at a known time in the future and the expert subsequently becomes aware of a matter which could materially affect that opinion, it may be misleading to fail to take steps to supplement or vary the report or recommendation.

The above cases concern discrete reports in public reports. Whilst a Competent Person may provide a stand alone report, or in the role of a director or an officer issue a report to the public, it is more likely that the Competent Person will provide material that will form the basis of a report to the public. This underlines the need for a Competent Person to check the form and context in which the Company is providing its reports.

(b) Materiality

The question of whether a statement which is made or information which is given in a report is misleading or deceptive may turn on the issue as to whether the statement or information was materially misleading or not.

There is no hard and fast rule regarding the threshold for materiality. Therefore, the Competent Person will need to be aware of the relevant materiality guidelines or threshold amounts of the disclosing company that will apply to a given report, as well as considering his or her own potential thresholds. Materiality maybe a difficult concept (especially if there is not a formal process determining materiality such as in a due diligence committee for a prospectus) depending on the report.

The JORC Code aims for transparency in reporting such that readers are provided sufficient information in a clear and unambiguous manner. Therefore, some degree of balance must be applied in order to provide enough information to cover the principle of materiality, while at the same time not detailing excessive information so as to make the report confusing – and potentially

misleading – for the audience. The JORC Code sets out guidelines for the distinction between Exploration Results, Mineral Resources and Ore Reserves that the Competent Person must apply so to establish an appropriate degree of materiality. Furthermore, the inclusion in the 2004 JORC Code of the recommendation for Competent Persons to include details quantifying the risks associated with the subject of the report should provide additional guidance for the preparation of JORC-compliant reports.

There are two levels of materiality. A company must determine whether any particular results, for example, analysed under JORC Code, are such that they need to be disclosed. Listing rule 3.1, subject to certain carve outs, provides that test¹.

This is to be distinguished from 'materiality' as set out in s4 of the JORC Code². If a Competent Person provides, for example, a report to a joint venture regarding a particular mine, the context of that report needs to be borne in mind when both joint venturers are disclosing. The disclosure may take a different form and context if the joint venturers comprise a large multi-national on the one hand and a junior explorer on the other. Materiality, form and context may well differ. The touch stone is that the Competent Person must sign off the form and context in which his or her report is being provided, separately, to both entities in this case.

(c) Consent of the Competent Person

As discussed, when a company issues its report containing material from the Competent Person, the company must obtain consent

from the Competent Person as to the form and context which the information appears.

It is important to note clause 8 of the JORC Code. In particular, in the introduction to that paragraph, it states that:

"The report [*that is, a public report issued by a company, not the documentation prepared by the Competent Person*] shall be issued with the written consent of the Competent Persons as to the form and context in which it appears."

If a disclosing company issues a public report or disclosure document without having obtained the written consent from the Competent Person, and such report is potentially misleading and deceptive, the company may find itself in an action for damages by a disaffected investor. The Competent Person must do everything to ensure that what is disclosed by the company in reliance on the Competent Person's documentation is accurate both as to form and in context. If the company does so without the consent or alters the document or information from that which the Competent Person disclosed, the Competent Person may be able to rely upon that as a defence. An indemnity in any engagement or employment agreement between the Competent Person and the company would assist.

(d) Defence to civil liability

A defence is available under s.1317S, which enables a court to relieve a person either wholly or partly from a civil liability, such as s.1041I, provided the person acted honestly and the person ought fairly to be excused from the

1 Listing rule 3.1 states:

"Once and entity is or becomes aware of any information concerning it that a reasonable person would expect to have a material effect on the price or value of the entity's securities, the entity must immediately tell ASX that information."

2 As follows:

"For the purposes of a JORC Code, "Materiality requires that a Public Report contains all the relevant information which investors and their professional advisers would reasonably require, and reasonably expect to find in the report, for the purpose of making a reasoned and balanced judgment regarding the Exploration Results, Mineral Resources or Ore Reserves being reported."

contravention. It must be noted however, that this defence is only available for a contravention of civil penalty provisions, such as when the claimant is seeking damages for the economic loss suffered.

It is important for the Competent Person to ensure that appropriate internal procedures are followed for the preparation and release of the Competent Person's documentation to the company internally. For the benefit of the Competent Person, he or she should obtain a sign off agreeing to the form and context in which the analysis will appear.

(e) Trade Practices Act and state equivalent Fair Trading Acts

The application of s.52 of the Trade Practices Act (TPA) and state equivalent Fair Trading Acts (FTA) require that:

- (i) the information or advice was likely to mislead or deceive;
- (ii) the information or advice was given by a corporation in trade or commerce (which can include dealing with customers or communicating with shareholders); and
- (iii) the plaintiff suffered loss by reason of the information or advice.

An essential aspect is that s.52 TPA does not require a duty of care to be established and so it would seem to have a broader application than, for example, an action in tort for negligence. However, there are a number of exclusions which restrict the scope, such as: s.52 does not apply to the supply, or possible supply, of financial services [s.51AF]; and s.52 applies to corporations only, and not to individuals.

Nonetheless there is exposure to potential secondary liability under s.82 TPA which provides that a person who suffers loss or damage by conduct of

another person that was done in contravention of, among others, s.52 may recover the amount of the loss or damage by action against that other person or against any person involved in the contravention.

It is important to note that, despite the restrictions on the application of s.52 TPA, each of the state based Fair Trading Acts have equivalent provisions to s.52 TPA but without the restrictions on their application – with the exception of takeover or fundraising documentation under s.670A and s.728 respectively.

When is conduct 'misleading or deceptive', or 'likely to mislead or deceive' for the purposes of s52? The following may assist.

- There has to be a real prospect that the conduct will mislead, not a mere possibility the word used is 'likely'.
- Failing to disclose information is potentially as misleading as disclosing false information.
- To 'mislead' someone is to lead that person, on a reasonable basis to reach a false or erroneous conclusion.

(f) Tort – negligent mis-statement

Negligent mis-statement involves proof of:

- (i) the existence of a duty of care;
- (ii) breach of the duty; and
- (iii) causation, based on proximity and reliance, of actual damage.

The test of whether there has been negligent misstatement is whether the advice or information was consistent with that of a reasonably competent professional in the relevant field.

The information or advice need not to have been given to the recipient, being the person or

company alleging they suffered damage (be it the company the report is completed for, or a third party relying upon it) as long as the relationship is sufficiently proximate, the information or advice was incompetent, was relied upon by the recipient and the loss was foreseeable

(g) ASIC Practice Note 55

It is also important for Competent Persons to be aware of ASIC draft PN 55 which provides that a Competent Person assumes responsibility for historical results and statements that are used, unless consent from the author of the historical results or statement is received and disclosed. This is of relevance whether a Competent Person is preparing an original report in compliance with the JORC Code, because it may be used again for another purpose at a later date, or if a Competent Persons is using a previous report in a new report for another purpose, because they will need to either obtain the consent of the prior Competent Person or adopt the responsibility for the report themselves.

4. Examples

An example of the different liability provisions being applied is the case of *Charben Haulage Pty Ltd* (Charben) v *Environmental & Earth Sciences Pty Ltd* (EES). EES compiled various reports for Caltex, who then passed the reports onto Charben in order to market the sale of the property to Charben. Charben suffered loss and commenced actions against both Caltex and EES to recover such losses.

(a) Claims against Caltex

It was held that Carben did not have an action against Caltex under either s.52 TPA or a negligent misstatement claim because the statements were made by EES, not Caltex. However, the case suggests that there may have been a basis

for a claim under TPA or negligent misstatement if Caltex had known that the report was misleading.

Also, the claim of negligence against Caltex failed, as there was no evidence that Caltex knew that the work proposed by EES would be insufficient to enable EES to properly complete the report.

(b) Claims against EES

Claim under s.52 TPA was upheld on the grounds that it was part of the business of EES to prepare such reports and that the publication of false or unjustified representations will ordinarily be regarded as conduct that is misleading or, at least, likely to mislead.

The negligent misstatement claim was rejected in this case due to lack of proximity. Although it was acknowledged that the general facts were based on a person producing a report on a technical matter for a client, knowing the report would be likely to be passed onto someone else, who might rely on the report in making a decision, this alone was not deemed sufficient. [see also *San Sebastien Pty Ltd v The Minister and Esanda Finance Corp v Peat Marwick Hungerfords*]

In relation to a report prepared by a Competent Person in accordance with the JORC Code, the link of proximity and reliance would seem hard to unseat because the Competent Person expressly assumes responsibility for the statement and such consent must be included in the public report. These outcomes are indicative of similar actions against a disclosing entity positioned between an expert providing a report and a third party investor relying on the contents of that report. Accordingly, it is not sufficient for a Competent Person to seek to rely on the company commissioning the report to act as a buffer for any resultant liabilities – the report must be prepared with reasonable care and diligence so as not be misleading or deceptive for any third party.

So do not take at face value information presented in another report or by the company. Alternatively, mention it – that you have not tested it, or assume it is accurate (if it is reasonable for you to do so, get an indemnity from your client for the information it provides).

Circumstances in which the company may be found liable centre around situations when the company ought reasonably to have known that the statements were misleading. These circumstances have included examples such as:

- the sample size used for the data was too small;
- the exploration program was in too early a phase relative to the confidence level reported; or
- report prepared by a person who is not a Competent Person under JORC Code. [ASC V MacLeod]

5. Summary

The issue for a Competent Person is one of risk management.

The potential liabilities for Competent Persons range from administrative orders, such as reprimand, suspension or expulsion of membership from the professional organisation, on the one hand, to statutory and civil liabilities, such as damages for economic loss and incarceration on the other hand. Accordingly, a number of measures must be undertaken to ensure that the liabilities are adequately minimised, including:

- clear terms and purpose of engagement by the company of the Competent Person for the preparation of the report or the documentation of analysis enabling the preparation of the report;
- thorough and professional fulfilment of the service by the Competent Person in preparing the documentation or report in accordance with the JORC Code, including express disclosure of any shortcomings or disagreements held by the Competent Person in

relation to the use of the report by the company;

- in preparing an independent expert report, do not take at face value the information supplied. Satisfy yourself that it is reasonable to do so or carve it out in your report;
- use disclaimers, albeit they are of limited use. Be specific as to what the report is for and who can rely upon it and for what purpose. Link the report directly to the comment. Do not just put the usual boilerplate (such as a disclaimer clause) at the end of your report. They don't always work;
- retainer letters – attempt to limit your liability (but question the competitive advantage to get the business and your tolerance to risk – commercial issues). Limit your retainer in scope and quantum. Also consider an indemnity from the company if they reproduce information from you without your sign off as to the form and context in which your report may appear in any public disclosure by the company;
- while there is no need to be 'independent' in the JORC Code, nevertheless there is a need for a Competent Person to fulfil his or her professional obligations separate from the company, whether he or she is an independent contractor to the company, or an employee or officer of the company. To the extent of their professional obligations as a Competent Person, they are independent. The JORC Code requires you, if you are full time employee of the company to state that fact in any compliance statements. Refer clause 8 of the JORC Code. You should disclose your relationship, whatever it is, be it employee, independent contractor or officer/director of the company;
- be careful to consider reasoning and technique employed to come to a decision. There may be alternatives. Ensure it is clear what process was adopted in coming to your view;
- make sure there is a clear summary of major assumptions, methodologies, dates, etc. Ensure

your working papers are capable of "verifying" your statements and methodologies. Ensure you are aware of how your documentation will be dealt with and disclosed by the company in any Public Report;

- try and avoid misleading or deceptive statements or omissions (refer above to the Carr Boyd case); and
- Insurance – consider your insurance position and ensure your broker confirms the cover in light of your position, especially if you are an employee or officer of the disclosing company.

Competent Persons need to recognise that their engagement by disclosing entities to provide the professional reporting service, although for the benefit of reporting in accordance with the JORC Code, is in some ways also a means by the disclosing entities of shifting a degree of the liability for reports over to the Competent Person.

As a result, it is important for Competent Persons to ensure that the extent of their engagement is clear, whether as an employee or an external consultant, and that the purpose for which the report is being prepared is correctly specified

from the outset. This will assist in enabling the Competent Person some degree of confidence regarding the reasonableness of the report and in minimising the scope of the liabilities that the Competent Person may be subject to.

A Competent Person must be particularly mindful of his position if he is also a director of the company. The Competent Person must consider the role he plays as a Competent Person as well as being mindful of his legal duties and obligations as a director. The Competent Person when preparing material should ensure full disclosure of his position as a director of the company and clearly express that his role and professional obligation when preparing the such material is independent from his position with the company.

Finally, it is essential in the limiting of the liability of the Competent Person that the distinction is clear between that portion of a disclosure document that is by the company as opposed to that portion of the disclosure document that has the consent of the Competent Person to the inclusion of the report in the form and context in which it appears only.

The position of the Competent Person differs from other experts on whose advice a company may rely. In most disclosing reports by a company, a valuer or other independent experts will often have his own report separate and discrete. The Competent Person's position is less clear. He often provides material to the company and the company issues it with possible changes in context. Nevertheless, the liability regime can still extend to a Competent Person and he must ensure that what is written and disclosed by the company is correct in the form and context in which he agrees.

6. References

1. McDonald; Moodie; Ramsay and Webster 'Experts' Reports in Corporate Transactions' The Federation Press 2003.
2. Has Section 52 of TPA Rendered Negligent Misstatement Irrelevant to Australian Professional Indemnity Insurance for 'Advice' Professionals (2001) 12(2) ILJ 121.
3. *Charben Haulage Pty Ltd v Environmental & Earth Sciences Pty Ltd* [2004] FCA 403.
4. *ASC v MacLeod* (2000) 22 WAR 255. ■

Development of the MINEFILL series of international symposia

by Dr EG (Ed) Thomas, FAusIMM

1973 Mount Isa, Australia
 1978 Sudbury, Canada
 1983 Lulea, Sweden
 1989 Montreal, Canada
 1993 Johannesburg, South Africa
 1998 Brisbane, Australia
 2001 Seattle, USA
 2004 Beijing, PRC
 2007 Montreal, Canada

In the late 1950s I worked as a student at the EZ Zinc Works in Hobart, Tasmania. On a weekend excursion to the west coast of Tasmania I saw

serious mining pollution for the first time, in the King River in Queenstown, in the form of acid mine drainage. I concluded instantly that **this was simply not acceptable.**

In early January 1963 I found myself in the office of Professor FTM White, then Head of the Department of Mining and Metallurgical Engineering at the University of Queensland in Brisbane. Frank White later moved to Canada and headed up the equivalent Department within McGill.

The purpose of our meeting that day was to decide on my PhD topic. He handed me a single sheet of paper with two topics briefly outlined. Neither prompted initial enthusiasm. With closer consideration, I noticed that one mentioned disposal of mining waste underground. The experience in Queenstown several years earlier suddenly loomed large in my mind - the topic was chosen and that choice has driven every aspect of my life ever since. I began working on mine fill technology.