
a guideline for ...

REPORTING OF DIAMOND EXPLORATION RESULTS, IDENTIFIED MINERAL RESOURCES AND ORE RESERVES

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NAPEGG

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INTRODUCTION

This guideline is derived from the Australian Code for Reporting of Identified Mineral Resources and Ore Reserves published in 1993 by the Joint Ore Reserves Committee composed of major diamond mining and exploration companies operating in Australia. It has been drafted by an adhoc committee of The Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories (NAPEGG). The committee was made up of some of those registrants of NAPEGG who were designated by diamond exploration companies who are also registered permit holders of NAPEGG. A list of committee members and their companies accompanies this guideline as Appendix A.

The guideline is intended to improve the quality and accuracy of public reporting of diamond exploration results, Identified Mineral Resources and Ore Reserves. It is warranted due to the following characteristic specific to the exploration and mining of bedrock diamond deposits:

- The diamond content of most primary (bedrock) diamond deposits is extremely low, usually in the range 0.05-2.0 carats per tonne (equivalent to 0.01 - 0.4ppm). The highest grade significant primary diamond producer in the world is Argyle of Australia which has a grade of 6 carats per tonne (1.2ppm).
- Of equal or greater importance to grade is diamond value which depends on the colour, size, and quality of the diamonds in the deposit. This value can range from a few cents to thousands of dollars per carat.
- Diamond valuation is a highly specialized process and can only be reliably estimated on large parcels (at least 2,000 carats) of diamonds from a single deposit. The reliability of valuations of parcels smaller than 2000 carats decreases as the size of the parcels decrease to the point where valuations placed on a small number of diamonds from exploration samples are likely to be misleading.

- The low diamond content of ore reserves and mineral resources and the fact that the mineral is of a particulate nature complicates the sampling, assaying and valuation techniques used by the industry and in turn complicates the assessment and interpretation of results. The presence of a few good quality, large diamonds can have a much larger effect on the value of diamond deposits than does the presence of a few coarse gold particles on the evaluation of gold deposits.

COMPETENCE AND RESPONSIBILITY

The requirements for and definition of Competence and Responsibility as required by the Examination Board of NAPEGG apply fully to reports dealing with diamond valuations with the addition that, if a valuation of a parcel of diamonds is reported, the person(s) or organization(s) valuing the parcel must be named in the report and their professional valuation experience, competency and independence stated. If not independent this must be clearly stated (e.g. in-house).

REPORTING OF EXPLORATION RESULTS AND PRE-RESOURCE MINERALIZATION

The reporting of preliminary exploration sampling or geophysical results must not be constructed so as to unreasonably imply that potentially economic mineralization has been discovered. Companies and promoters should accurately describe their preliminary results.

Pre-Resource Mineralization is defined as in situ mineralization of significance. The occurrence of individual diamonds or microdiamonds in surficial deposits or from inadequate samples (too small to be statistically valid) from a primary or secondary rock source would not typically qualify as Pre-Resource Mineralization.

The requirements for reporting of Pre-Resource Mineralization as described in the Guidelines for Reporting on Mineral Properties as given in Appendix 2 apply fully to public reports dealing with diamond with the following additions:

- Reports of diamonds recovered from sampling programs must specify the number and total weight (in carats) of diamonds recovered. Details of the type and size of samples which produced the diamonds must also be specified including lower cut-off size in millimeters used in the recovery.¹ The laboratory that carried out the diamond recovery should be identified.
- The weight of diamonds recovered may only be omitted from the report when the diamonds are less than 0.5mm in size (i.e. when the diamonds recovered are microdiamonds)
- Any release of information in a report containing a company's diamond Pre-Resource Mineralization should state the pertinent data and assumptions on which the report is based and contain a qualification drawing attention to any assessment criteria from Table 1 in this Guideline for which inadequate data are available.

REPORTING OF IDENTIFIED MINERAL RESOURCES

The requirements for reporting of Identified Mineral Resources as described in the Guidelines for Reporting on Mineral Properties (Appendix B) apply fully when reporting Identified Diamond Mineral Resources with the following additions:

- Any release of information in a report containing a company's Identified Mineral Resources should state the pertinent data and assumptions on which the report is based and contain a qualification drawing attention to any assessment criteria from Table 1 in this Guideline for which inadequate data are available.

Where Resource grade figures are based on the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and outlining the correlation factors used.

REPORTING OF ORE RESERVES

The requirements for reporting of Ore Reserves as described in the Guidelines for Reporting on Mineral Properties (Appendix 2) apply fully when reporting diamond Ore Reserves with the following additions:

- Any release of information in a report containing a company's Ore Reserves should state the pertinent data and assumptions on which the report is based and contain a qualification drawing attention to any assessment criteria and Table 1 of this Guideline for which inadequate data are available.
- Where Reserve grade figures have been estimated in part on the basis of the correlation of macrodiamond grade with the grade of microdiamonds, this must be stated and its reliability explained.
- If a valuation of a parcel of diamonds is reported, the weight in carats and size range of the contained diamonds must be stated and the value of the diamonds must be given in US dollars per carat. If the parcel is not complete (i.e. "run of mine"), the reason for omitted stones must be given. The credentials of the valuer should be reiterated.
- Reserve statement should be signed by the Mine Manager of the property.
- Reserves should be stated in terms of mineable dry tonnes and carats per metric tonne.
- A statement should indicated the date for which the estimate was determined.
- A statement should indicate the gem quality.

¹With regards to cut-off sieve sizes, diamond sieves traditionally have circular openings, while other sieves have square or rectangular openings. Furthermore, mesh sizes should be avoided, and the aperture for square openings should be given in mm or microns to avoid the confusion between Tyler, US and other mesh sizes with the same mesh number but different apertures.

TABLE 1

DEFINITIONS AND ASSESSMENT CRITERIA

Primary Rock Source	Primary sources of diamonds in nature are variable and complex. Accordingly, information relating to primary sources should contain details of the nature of the rock type together with its form, shape and size
Secondary Rock Source	Secondary sources of diamonds in nature are variable and complex. Accordingly, information relating to secondary sources should contain details of the nature of the rock type, together with its form, shape and size.
Sampling Parameters	Reported recoveries of diamonds or Indicator Minerals from all samples must be accompanied by details of the sampling parameters used. Type of sample (stream sediment, soil, bulk, rock, etc.) as well as sample size, sample frequency, and screen parameters are required.
Microdiamonds	Current practice defines microdiamonds as diamonds which will pass through a screen with 0.5mm square apertures, i.e. diamonds weighing less than 0.001 carats. Reports of microdiamond recoveries should specify both the number of stones recovered and the top and bottom screen or crushing sizes used in the recovery process. It is not possible to evaluate diamond quality for microdiamonds.
Macrodiamonds	Macrodiamonds are defined as diamonds larger than 0.5mm in size. Reports of Macrodiamond recoveries should specify both the number of stones and the total carat weight recovered above a specified screen size.
Indicator Minerals	Conventional Indicator Minerals include garnet, pyrope, ilmenite, chrome spinel and chrome diopsides having the requisite chemical and physical attributes that distinguish them from otherwise similar minerals found in non-diamond associated rock types. Reports of Indicator Minerals should be prepared by a suitably qualified person.
Diamond Value	Diamond valuation is a highly specialized process and is only possible on parcels containing appropriate numbers of Macrodiamonds. It is not possible to evaluate diamond quality from Microdiamonds. Classification of diamonds as, for example, gem, or near gem and industrial, should be made by recognized experts, who should be identified in the valuation report and their independence stated. The number of stones, the total carat weight and size range for the parcel valued should be stated.
Previous Work	Referrals to previous work by other parties should be adequately cited in the normal fashion. Distinguish between re-stated results and new results.
Cut-off Grades	Assumptions regarding cut-off grades should specify minimum screen size.
Carat	One fifth of a gram.
Grades	Internationally diamond grades for primary deposits are stated both in carats per tonne (cpt) and carats per 100 tonnes (cpht). The Committee recommends the use of carats per tonne. In the case of alluvial deposits industry practice is to quote grades in either carats per tonne or carats per cubic metre in situ.

APPENDIX A

Ad Hoc Committee Members and Companies

Jon A. Carlson, P.Geol.
J. A. Fowler, P.Geol., Ph.D.
John M. Hamilton, P.Eng.
Percy Pacor, P.Geol.
Jaap Zwaan, P.Eng.

Dia Met Minerals Ltd.
Monopros Limited
Cominco Exploration
Homestake Canada Inc.
BHP Diamonds Inc.

Secretary:

Robert W. Spence, P.Eng.

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APPENDIX B

NAPEGG GUIDELINES FOR REPORTING ON MINERAL PROPERTIES

1.0 COVERING PAGE

1.1 The following data should appear on the front cover:

- nature of report (exploration, development, feasibility, special);
- name of claims, claimsheet number, latitude & longitude;
- name of author, and, if not the same, name of supervisor, with qualifications;
- name(s) of owners and/or optioners of the claims
- the dates upon which the work was done.

2.0 TYPICAL TABLE OF CONTENTS

2.0.1 A complete exploration report should at a minimum include the following:

- Table of Contents
- Summary
- Introduction
- Property Description, Location and Access
- History
- Geology
- Other Geoscience
- Mineralization or Mineral Deposits
- Reserves
- Conclusions and Recommendations (Cost estimates must be included).
- References
- Appendices and Maps as required.

2.0.2 Table of Contents for Development and Feasibility Reports

In addition to the pertinent headings listed in section 2.0.1 the table of contents for these reports should list all of the additional headings and sub-headings in the text as well as all references, appendices, maps, figures and tables. (Refer to sub-sections 3.1 and 3.2)

2.0.3 Special Purpose Reports

The contents of these types of reports are determined by the special purpose for which they are written. This purpose must be clearly stated in the introduction.

2.1 SUMMARY

All the essential factual data in the report should be summarized. If it is concluded that work should be carried out, then the recommended work, the reasons therefore, and a summary of the cost estimates, as detailed in the text, must be included. If the report is only descriptive then the fact that no conclusions or recommendations are given would be discussed in the 'Introduction'.

2.2 INTRODUCTION

This section should outline the scope and purpose of the report and give the authority of the author(s) for making it. The name of the person who gave the authority should be mentioned and the manner in which the investigation was conducted as well as the dates of any current and past property examination the principal sources of information and acknowledgments should be included in this section but a more detailed listing of other reports should be

given under the heading 'References' at the end of the report. If the property was not visited then reason(s) for not doing so must be stated.

2.3 PROPERTY DESCRIPTION, LOCATION AND ACCESS

A description of the size in hectares, continuity, shape and surface rights should be provided. A listing of staked claims, leases, patents, and surface rights with the hectares and expiry and expiry dates should be given.

If the property titles and rights have been ascertained, then the author should state by whom and in which Recording Office or Land Titles Office. If these were not checked then this fact should be clearly stated.

The property location should be clearly identified and should include the following information as required: NTS, latitude, longitude, township, district, mining division, etc. As well as the transportation routes and distances from major towns and utilities. The availability of other utilities and resources such as water, timber, electrical power, natural gas, agriculture, manpower, etc., also should be acknowledged. Special environmental situations and development restrictions such as planning acts, parks nature preservation areas, etc., should be noted as well. Other factors, such as climate, topography, site conditions or factors affecting exploration and development should also be summarized in this section and, if necessary, under separate subheadings.

A map(s) showing property, individual land titles, utilities, roads, towns, nearby parks, etc., should accompany this section of the report.

2.4 HISTORY

This section should describe all previous pertinent exploration and development

programs, including drilling and geophysical and other surveys. If this information is from previous reports, suitable acknowledgments must be given. If there is extensive work over long periods, a summary map(s) illustrating the location and significant features of these earlier programs should be included. When data are available in sufficient detail the results of previous drilling program(s) should be tabulated and appropriate plans, sections and profiles also should be provided in this section or in subsequent sections.

If mining has previously taken place on the property, a brief description of the working's should be given and the most reliable past production data should be summarized. Comments regarding the reason(s) for closure should also be given. any other unusual positive or negative features of past production should be noted as well as significant production data and other pertinent features from nearby properties.

2.5 GEOLOGY, GEOPHYSICS AND GEOSCIENCE

2.5.1 Geology

A general description of the regional and property geology including the stratigraphy, lithology and structure should, in so far as possible, be provided along with an appropriate map or maps.

2.5.2 Other Geoscience

A general description of the instrumentation, techniques employed and the results of the geophysical and/or geochemical surveys completed must be included along with maps at an appropriate scale. All techniques, including remote sensing, used to assist in the interpretation of the stratigraphy and structure and to located mineralization also should be included and adequately described.

2.6 MINERALIZATION AND/OR MINERAL DEPOSITS

2.6.1 The type of mineralization, the mode of occurrence, the size as indicated by measured or estimated length, width and depth, quantity of mineral(s) of economic interest and relationship of the mineralization to the geology (i.e. gangue, alteration, structure, etc.), geophysics and geochemistry should be clearly stated. Appropriate maps of any deposits outlined on the property should be included in the report.

2.6.2 The sampling methods and types of samples should be described and illustrated on sampling plans and drill profiles. The description should state when and how the samples were collected, under whose direction, the analytical methods and the laboratory used. a description of the procedures for sample preparation and for 'check' analysis should be included.

The description of the sampling must include a discussion of the type of sample, sample spacing, sample lengths and/or size or, for larger sampling programs, the maximum, minimum and average length of the samples or their size.

2.7 DEFINITION AND CLASSIFICATION OF RESERVES

2.7.1 'Ore' is a natural aggregate of one or more minerals that under current conditions may be produced and sold at a profit.

It is recommended that this term should be used with discretion and prudence, generally only with feasibility studies or in conjunction with discussions of reserves of operating mines. Where it may not be used properly, the terms 'mineralization', 'mineralized bodies', or 'concentrations', etc., should be used.

2.7.2 'Proven Reserves' or 'Measured reserves' are those materials for which tonnage is computed from dimensions revealed in

outcrops or mine workings and/or drill holes and for which the grade is computed from the results of adequate sampling. The sites for inspection, sampling, and measurement are so spaced and the geological character so well defined that the size, shape and mineral content are established. The computed tonnage and grade are judged to be accurate. It should be stated whether tonnage and grade or 'Proven' or 'Measured' reserves are in situ or extractible. Dilution factors and cut-off grades, if used, should be clearly explained and the vertical and horizontal projections from intersections or sample points should be given.

2.7.3 'Probable Reserves' or 'Indicated Reserves' are those materials for which tonnage and grade are computed partly from specific measurements, samples, or production data, and partly from projections for a reasonable distance on geological evidence. The sites available for inspection, measurement and sampling are too widely or otherwise inappropriately spaced to outline the material completely or to establish its grade throughout. It should be stated whether the tonnage and grade of 'Probable' or 'Indicated' reserves are in situ or extractible. Dilution factors and cut-off grades, if used, should be clearly explained and the vertical and horizontal projections from intersections or sample points should be given.

2.7.4 'Possible Reserves' or 'Inferred Reserves' are those materials for which quantitative estimates are based largely on broad knowledge of the geological character of the deposit and for which there are few samples or measurements. The estimates are based on inferred continuity or repetition for which there are reasonable geological indications. Bodies that are completely concealed may be included if there is specific evidence of their presence.

2.7.5 Summation of Reserves

The tonnes and grades of the two classes of reserves as defined in subsections 2.7.2 and 2.7.3 may be combined into one total tonnage and average grade provided these two categories are disclosed separately in the report but the Possible or Inferred reserves must not be included in a combined total summations of all three categories and should not be used in feasibility studies.

2.8 CONCLUSIONS AND RECOMMENDATIONS

Recommendations must be based upon, and justified by the author's conclusions which, in turn, must be supported by data presented in the report.

If the recommendations involve an expenditure of money, cost estimates must be given.

3.0 DEVELOPMENT OR PRELIMINARY FEASIBILITY REPORTS AND FEASIBILITY STUDIES

3.1 Development or Preliminary Feasibility Reports

These studies on mineral deposits present preliminary estimates of the preproduction capital, ongoing capital, operating costs and operating profit for a specific deposit to justify further development. At a minimum, the pertinent information included in these reports would include the available data and assumptions on the following aspects as applicable:

- 1) Reserves
- 2) Annual mining rate and grade and the mine life
- 3) Mining methods
- 4) Mineralogy and mineral processing or beneficiation and recovery
- 5) Infrastructure and utilities
- 6) Preproduction capital costs

- 7) Annual capital additions
- 8) Operating costs
- 9) labour
- 10) materials
- 11) supplies and services
- 12) Environmental aspects and licensing
- 13) Development schedule
- 14) Sales and smelter contracts, tolls and transportation
- 15) Operating cash flow
- 16) Appropriate plans and preliminary engineering drawings and layouts.

3.2 Feasibility Studies

A feasibility study is a more detailed and comprehensive report prepared by groups of specialists in the numerous and varied aspects of mine development. All of the engineering aspects are planned and costed in detail. They are accompanied by engineering plans, diagrams and maps for the mine, plant, equipment and infrastructure. The capital and operating costs should be estimated to within an overall confidence level of -5% to +15%. The underlying basis of the feasibility study is the reserves which should be calculated according to section 2.7.

After-tax cash flow forecasts, including descriptions of the financial assumptions, must also be included as a basis for estimating the economic potential of the deposit. A final decision to either proceed or not to proceed to production is based primarily on estimated of the after-tax measures of profitability.

4.0 TRANSMITTAL

4.1 Report Signing

The author(s) of the report should keep the original copy, with a Certificate of Qualification attached, for his records and

from which additional authorized copies can be made as required.

It is recommended that, at a minimum, the first two copies of the report forwarded to the person who gave the authority for its preparation must be stamped, signed and dated (day, month and year) by the author or firm responsible and a Certificate of Qualification should be attached.

These signed reports can be reproduced as required.

All maps and diagrams in the two signed copies of the report delivered to the person under whose authority they were prepared should be signed and dated by the

responsible professional. Where information from other sources, either government or private, is used in preparing these maps or diagrams, acknowledgment must be given.

4.2 Certificate

For either a private or public report the qualifications and branch or specialization of the responsible professional(s) should be attached to the report or study. Other information should include address, years of experience, degree and relationship to owners.