

Recommended Rules for Public Reporting of Exploration Results, Surveys, Feasibility Studies and Estimates of Mineral Resources and Mineral Reserves in Sweden, Finland and Norway

By SveMin, FinnMin and Norsk Bergindustri

1. Introduction

The present rules, the so-called standards of the Fennoscandian Review Board (FRB), are an independent regulatory framework based on “The International Template for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves, July 2006”, which was drawn up by the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) in order to achieve a harmonization for public reporting on an international level.

The FRB standards have been adopted by SveMin, FinnMin and Norsk Bergindustri to be applied in Sweden, Finland and Norway respectively. These rules are subject to national laws. The FRB standards are supplemented by the “Guide for Implementing the Standards of Public Reporting of the Fennoscandian Review Board”.

The rules may become part of the code of conduct of each organization.

The document may not, however, be applied to public reporting of natural resources such as oil, natural gas, oil shale, sand, ground water or other substances that are not defined by the term “mineral resource”.

The major goal of the FRB standards is to protect shareholders, investors and potential investors from incorrect, incomplete or misleading information. These rules apply to companies that present public reports of exploration and survey results as well as feasibility studies and project assessments, whether the information is released in the form of e.g. newsletters, annual reports, quarterly reports or the usual ongoing reports, regardless of publication form, in print or through the internet. The FRB standards always apply, whether the information is given in written or oral form, by the company itself or by anybody representing the company.

Estimates of mineral resources and mineral reserves are always subject to some level of uncertainty and inaccuracy. The uncertainty in the estimates should be discussed in the reports.

The technical and scientific basis for the estimates of mineral resources, mineral reserves, feasibility studies and project assessments shall be well-documented and organised in a satisfactory manner so as to ensure that the estimates of the mineral resources can be followed clearly.

1.1. Public Reporting

Public reporting is the responsibility of the company. The board of directors and chief executive officer must ensure that the company fulfills its responsibilities. It is the responsibility of the company to appoint and make use of a “Qualified Person” as defined in Chapter 1.3.

It is recommended that the company provides as comprehensive information as possible.

Previously reported information does not need to be repeated in new reports but the earlier published information must be clearly referred to, and must be available on the company website.

1.2. Websites

Any results published shall also be made available on the company website immediately after their being made public in any other form.

All press releases shall always be available on the company website as long as the project is being worked on but is not in production.

All public information shall include clear reference to the company website.

1.3. Term “Qualified Person”

A “Qualified Person” must be familiar with the mineral industry and must have a minimum of five years of relevant experience. “Relevant experience” must, along with other items, include experience with the type of deposit/object and project being reported. The key word ‘relevant’ means that it is not always necessary for a person to have five years of experience in each and every type of deposit in order to act as a Qualified Person, if that person has relevant experience in other deposit types. For example, a person with, e.g. 20 years experience in estimating mineral resources, may not require five years specific experience in each and every mineralisation type (massive, disseminated, etc.). As a general guide, Qualified Persons should be sufficiently clearly satisfied in their own minds as to be able to face their peers and demonstrate competence in the mineralisation type under consideration. If doubt exists, the person shall either seek opinions from appropriately experienced colleagues or shall decline to act as a Qualified Person.

A Qualified Person is a member approved and registered by SveMin or FinnMin or Norsk Bergindustri, the requirements of approval and the registration being determined by each body respectively.

A Qualified Person is responsible for evaluating the quality of, and commenting on the technical and scientific documentation on which the report is based, as well as the results published in the company’s public report on the company’s exploration results, mineral resources and mineral reserves. Such documentation may be statements of mineral resources, mineral reserves, feasibility studies and project assessments.

A Qualified Person shall issue a written and signed consent stating that the evaluation has been conducted and that the Qualified Person involved has the experience relevant for the report concerned. The consent shall be made available on the website of the company issuing the public report, and shall follow directly after the report.

The technical and scientific information and supporting documentation shall be conducted in accordance with the rules in force and ‘The Guide for Implementing the Standards of Public Reporting of the Fennoscandian Review Board’.

The evaluation and statements of the Qualified Person do not absolve the company from its responsibility for the information published.

Whenever a public report is thought to have a major impact on the rating of the company, and when the company does not have any production history, the Qualified Person preparing the report should be independent of the company. Production is defined in Chapter 6.

2. Exploration Results

2.1. General Requirements

Public reports concerning a company’s exploration results must disclose the source of the results if these results were not generated by the company itself.

Apart from reporting the results of exploration activities, described in more detail below, public reports must always include a description of the geological setting of the mineralisation. Such a

description shall include information on potential problems with sampling or analytical results such as nugget effects or anticipated metallurgical problems.

Public reports must not contain selective results but all relevant information. For example, if a drilling program consists of six drill holes with three of them containing interesting mineralisation, the results of all six drill holes must be presented, including location, dip and azimuth, geological units intersected, etc. so that the reader is provided with sufficient information in a manner which is as complete and unambiguous as possible.

Whenever possible, information shall be presented in tables together with maps, profiles, long sections and estimated true width of the mineralized zones, as well as information on the current stage of development the project.

If results of earlier investigations are available, these shall be commented on in relation to the new results from the area.

Grades are presented e.g. as gram/tonne or ounce/tonne for precious metals and in percentages for iron and base metals.

2.2. Preliminary Results

Results obtained through exploration activities such as geophysical surveys, till sampling, etc., which are used to identify potential mineralisations, shall be clearly described as preliminary. The technique used, e.g. trenching or drill samples and the spacing between the sample points, shall be described.

Visual assessments of grade and quantity of a mineralisation shall never be reported.

Observations concerning mineralisations from outcrops, trenching or drill samples shall be described in a clear and careful manner, using such wording as to avoid the uninitiated reader and investor being misled into thinking that the results can be interpreted with the same confidence as assay results.

If independent samples or reviews show results deviating from earlier published results, these results shall be published. Details of such a verification program shall be published, describing sampling techniques, location and number of samples taken, and a comparison with previously presented results.

2.3. Results of Advanced Programs

When a company publishes information concerning advanced projects, these shall include a detailed description of the work completed, e.g. sampling and measuring techniques and spacing between data points.

Whenever possible, there shall be a complete description of drill hole intersections and of the true widths of the mineralized zones. If grades have been corrected using statistical methods, the report shall contain information on the motive for such a procedure and a description of it.

The company shall report if independent samples have been/will be taken or if a review has been/will be carried out. If such be the case, the report must contain the name of the person in charge of the procedure and the person's qualifications. Details of such a verification program shall be made public and contain information about sampling techniques, location and number of samples taken, including any deviations from results that have been published earlier.

Great care must be taken to ensure concise reporting during the entire exploration program. Assessments of the average grade and quantity of the mineralisation must not be reported before the company has conducted an estimate of the mineralisation in accordance with the definitions in Chapter 10.

The requirement prohibiting use of selective results also applies to advanced programs.

2.4. Assay Results

The name of the laboratory responsible for analyzing the samples, the assay methods used, and the laboratory's level of accreditation for the assay method used must be reported. If the assay methods used are not generally established, an explanation shall be given.

Quality control procedures and quality assurance for the assays shall be described.

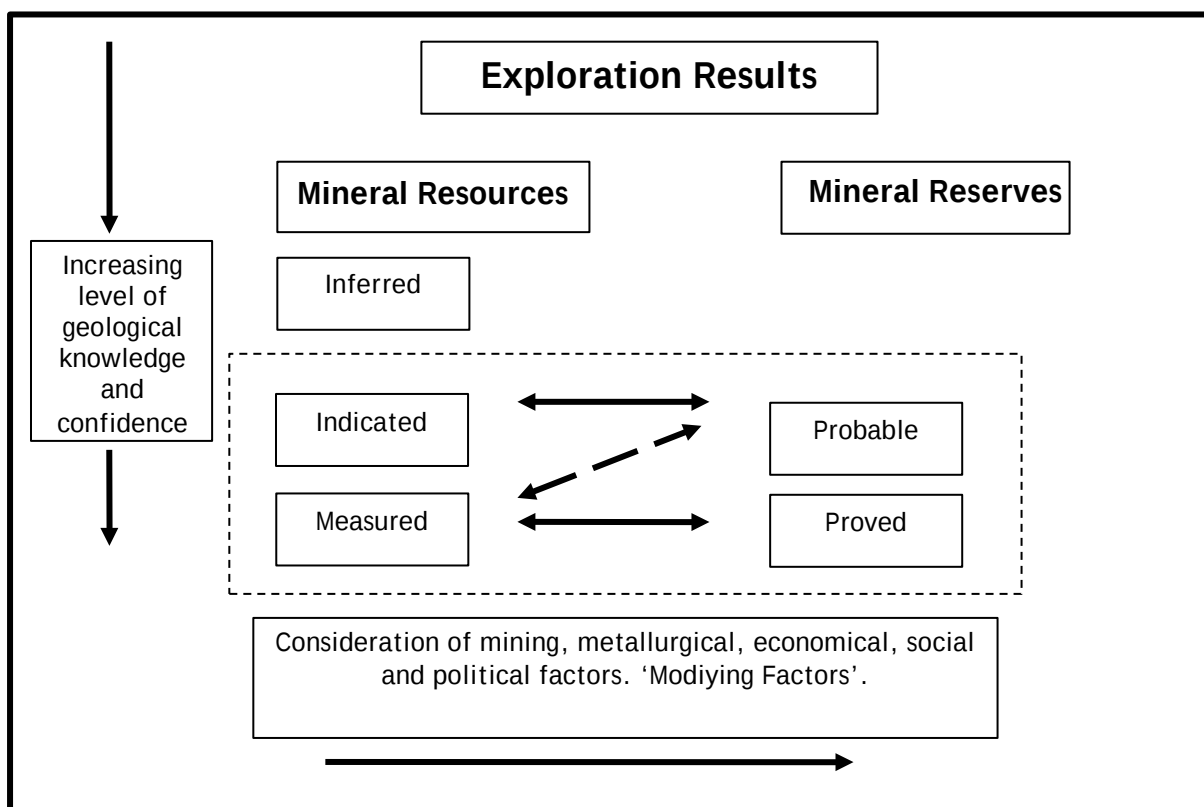
2.5. Exploration Potential - Goal

Companies shall describe the goal of their exploration work, which can be described as an approximation of tonnage and grades which the company aims to document. It is, however, important to clearly describe the approximation as a goal.

3. Mineral Resources and Mineral Reserves

3.1. Terms

Public reports shall only use the terminology established for the classification of mineral resources and mineral reserves and its categories of inferred, indicated and measured for mineral resources and probable and proved for mineral reserves. Other categories may not be used. See the figure below and Chapter 10.



General relationships between prospecting results, mineral resources and mineral reserves. Definitions of these terms can be found in Chapter 10.

These terms are applicable for CIM (Canada), JORC (Australia), IMMM (Great Britain), SEC Industry Guide 7 (USA) and SAMREC (South Africa).

3.2. Implementation

Any assessment of mineral resources and mineral reserves made public shall disclose the name of the Qualified Person responsible for the assessment and the Qualified Person's professional and corporate affiliations.

The company shall report if any independent reviews have been carried out and, if this is the case, disclose the name(s) and qualifications of the person(s) in charge of the reviews.

It is of particular importance to distinguish between mineral resources and mineral reserves to ensure that the reader understands the difference in the meaning of these terms.

Mineral resources must not be aggregated with mineral reserves and shall be reported separately in order to avoid misinterpretations. See *Guide for Implementing the Standards of Public Reporting of the Fennoscandian Board*.

Mineral resources and mineral reserves shall be reported in such a way as to make a total assessment of the potential of a mineralisation easier, and to avoid misinterpretations.

Quantities of mineral resources and mineral reserves that are reported shall be given in tonnes and grades. The amount of metal in a mineralisation shall be reported only if tonnage and grade are reported simultaneously and together. Every mineralisation shall be reported separately.

Each category of mineral resources shall be reported separately. Aggregate figures must not be reported, unless the relevant figures for each of the category are provided in the same text.

Each category of mineral reserves shall be reported separately. Aggregate figures must not be reported, unless the relevant figures for each of the category are provided in the same text.

Mineral reserves shall be reported only after a feasibility study has been carried out. Key parameters such as operating costs and capital costs, recovery, metal and product prices, and penalties and other deductions assumed must be reported clearly.

In-situ values of a mineral resource or a mineral reserve must not be reported. The in-situ value of a deposit only takes into account the amount of metal or mineral in the ground, without at the same time reporting grade or tonnage.

3.3. Historical Data

If the company reports deposits with historical records, the deposit shall be classified as inferred mineral resource until it can be upgraded as a result of increased knowledge in accordance with these rules.

3.4. Investigations and Development

Information on the project or the deposit being investigated shall be reported in such a way as not to give cause to erroneous conclusions that the development is in a start-up phase.

Companies engaged in mine development should avoid information that can lead to erroneous conclusions of the project actually being in operation. It is very important to state clearly what is in operation at the time and what is in the planning stage for the project.

4. Feasibility Studies

Feasibility studies are used in order to examine if a mineralisation can become an economically viable mineral reserve in a mine or quarry. Such studies are necessary in order to define a mineral reserve within a deposit.

When a company publishes the results of a Feasibility Study, the type of study and its scale, relevant key parameters such as operating costs and capital costs, recovery, metal and product

prices and penalties and other deductions used shall be reported as well as the conclusions drawn. The company shall always disclose the name(s) of the person(s) responsible for the study, their qualifications and professional and corporate affiliations.

If the company releases public information on a study carried out by an independent party (so-called Second Opinion), the company may only comment on the study, but must never make any changes to it.

4.1. Assessments

When reporting on a deposit evaluation, the method used for the assessment as well as all relevant assumptions shall be reported. The type of study and its scale shall be reported. The names of the persons responsible for the assessment, their qualifications and professional and corporate affiliations shall be reported.

Inferred mineral resources may be used in economic assessments prior to the pre-feasibility level, in which case the preliminary nature of the assessment shall be made clear. If the inferred mineral resource is an important part of the assessment, a comparison shall be made with a mine/production plan excluding inferred mineral resources.

A sensitivity analysis taking into account different metal prices must be conducted and presented clearly.

4.2. Unacceptable Reporting

Quantities and grade of resources that are not categorized in accordance with the definitions of mineral resources and mineral reserves must not be reported.

Aggregate figures of the various categories of mineral resources must not be reported unless the relevant figures for each category are presented clearly at the same time.

Aggregate figures of the various categories of mineral reserves must not be reported unless the relevant figures for each category are presented clearly at the same time.

Mineral resources must not be aggregated with mineral reserves.

In-situ quantity of metal or mineral must not be reported if quality and grade are not reported at the same time.

In-situ assessments must not be reported.

5. Ownerships and Mineral Rights

The company shall, in its first public report, give a full explanation of all necessary permits/licenses and prerequisites for exploration of, and exploitation of the deposit.

The company's percentage of ownership in the project and any debts/commitments relating to the project shall be reported.

Regarding deposits in countries with considerably different legal conditions compared to Sweden, Finland and Norway, these conditions shall be reported and explained in detail.

The report must comment on any obstacles pertaining to legal access to the deposit, land ownership and the consequences of this situation on the company's possibilities for exploration and exploitation of the deposit.

6. Production

Production is the mining of economically viable mineral resources by a company generating revenue from an underground mine or an open pit

If production data, including costs, are reported based on equivalents of a metal (e.g. silver defined as gold-equivalent), the amount of the secondary metal produced shall also be reported. The value of the secondary metals converted shall then be reported separately. Conversions shall be reported in relation to the commercially most important metal.

Companies with a share in an operating mine shall report the percentage of their ownership when reporting production data.

7. Industrial Minerals

The rules described in Chapters 1-6 apply to industrial minerals that are sold in accordance with their product specifications and which are traded on a market.

Chemical assays are not, however, always relevant. Other criteria and principles such as quality and characteristics are often more applicable and accepted as a base for public reporting.

Certain industrial minerals may be used in more than one application. It is important to provide clear information on this topic.

Industrial minerals often have a more local market than metals and, therefore, the geographical area and its effect on the economy of the project shall be described, though without revealing commercial secrets.

In cases in which quality parameters are critical for competitiveness and do not allow entire transparency, this shall be reported.

When reporting only marketable products, mineral reserves should be reported at the same time.

When reporting only marketable products, this must be clearly stated.

8. Coal

The rules described in the Chapters 1-6 also apply to coal.

For purposes of public reporting, the requirements for coal are generally similar to those for other commodities with the replacement of the terms 'mineral' by 'coal' and 'grade' by 'quality'.

Given the structure and the environmental problems associated with the production of coal, a description of the entire operation should be given high priority.

Even if the rules in Chapter 3 'Mineral Resources and Mineral Reserves' are applicable, it is not always necessary to report the subdivisions of the categories, such as proven and probable for mineral reserves and inferred, indicated and measured for mineral resources.

9. Diamonds and Other Gemstones

The rules described in the Chapters 1-6 also apply to diamonds.

For the purposes of public reporting, the requirements for diamonds are the same as those for other minerals with the replacement of terms such as 'mineral' by 'diamond' and 'grade' by 'grade and average diamond value'. The term 'quality' shall not be substituted for 'grade', since in diamond deposits these have distinctly separate meanings.

Where diamond resource or diamond reserve grades (carats per tonne) are based on correlations between the frequency of occurrence of micro-diamonds and of commercial size stones, this must be clearly stated. The reliability of the method must be explained and the cut-off sieve dimension for micro-diamonds reported.

10. Definitions

A **'Mineral Resource'** is a concentration or occurrence of material of economic interest in or on the Earth's crust in such a form, quality and quantity that there are reasonable prospects for eventual economic extraction. Location, quantity, grade, continuity and other geological characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence, sampling and knowledge. Mineral resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

An **'Inferred Mineral Resource'** is that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence, sampling and assumed but not verified geological and/or grade continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. This information is limited or of uncertain quality and reliability.

An **'Indicated Mineral Resource'** is that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are, however, too widely or inappropriately spaced to allow secure confirmation of geological and/or grade continuity.

A **'Measured Mineral Resource'** is that part of mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced sufficiently closely to demonstrate and prove geological and grade continuity.

A **'Mineral Reserve'** is the economically mineable part of a measured or indicated mineral resource. It includes diluting materials and allowances for ore losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of, and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and political factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Mineral reserves are subdivided in order of increasing confidence into probable mineral reserves and proved mineral reserves.

In order to use the term 'Mineral Reserve' it is expected that studies to at least a pre-feasibility level will have been carried out, including a mine plan that is technically appropriate and economically viable.

A **'Probable Mineral Reserve'** is the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. It includes diluting materials and allowances for ore losses, which may occur when the material is mined. Studies to at least pre-feasibility level will have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and political factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

A **'Proven Mineral Reserve'** is the economically mineable part of a measured mineral resource. It includes diluting materials and allowances for ore losses, which may occur when the material is mined. Studies to at least pre-feasibility level will have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and political factors. These assessments demonstrate at the time of reporting that extraction is justified.

To emphasize the imprecise nature of both mineral resources and mineral reserves, the report should always refer to the data as an estimate and not a calculation.