Mineral Exploration Best Practices Guidelines

***Preamble**: These guidelines have been prepared to assist the Qualified Person(s) in the planning and supervision of exploration programs which will be reported under National Instrument 43-101. Such exploration programs must be under the supervision of the Qualified Person who will be responsible and accountable for the planning, execution and interpretation of all exploration activity as well as the implementation of quality assurance programs and reporting. These guidelines are also recommended for use in the planning and execution of exploration programs which will not be reported under NI 43-101.*

The Qualified Person may base the exploration program on such geological premises and interpretation of existing information as the QP(s) may decide and select such exploration methods and tools as the QP(s) may judge to be appropriate. In planning, implementing and supervising any exploration work, the Qualified Person should ensure that the practices followed are based on criteria that are generally accepted in the industry or that can reasonably be justified on scientific or technical grounds.

This set of broad guidelines or "best practices" has been drawn up to ensure a consistently high quality of work that will maintain public confidence and assist securities regulators. The guidelines are not intended to inhibit the original thinking or application of new approaches, that are fundamental to successful mineral exploration.

Results should be summarized and reported in a Technical Report in accordance with the National Instrument 43-101 and Form 1 contained in that instrument.

1. Qualified Person

All exploration work from which public reporting will ensue must be designed and carried out under the supervision of a Qualified Person ("QP"). A QP is defined in National Instrument 43-101 as an individual who is an engineer or geoscientist with at least five (5) years' experience in mineral exploration, mine development, mine operation or project assessment, has experience relevant to the subject matter of the project or report and is a member in good standing of a recognized professional association.

2. Geological Concept

The geological premise on which the exploration work is conducted including the deposit type, geological setting and style of mineralization sought, should be supported by relevant field data and a reasoned scientific approach.

3. Quality Assurance/Control

Throughout the process of mineral exploration, the QP(s) should ensure that a quality assurance program is in place and that any required quality control measures are implemented. Quality assurance programs should be systematic

and apply to all types of data acquisition, across the full range of values measured and not only high or unusual results.

4. Exploration Methods & Data Collection

Field work is to be planned and implemented under the direct supervision of a QP(s). Data should be properly recorded and documented at appropriate scales. All data points should be accurately located with respect to known reference points. The QP(s) supervising this work should ensure that any work by employees, contractors or consultants is done by competent personnel and that appropriate quality assurance programs and security procedures are practised. Whenever several persons carry out similar duties or when the data has been collected over a period of time, care should be taken to ensure the quality and consistency of the data being used.

5. Records and Data Verification

The exploration process including planning, mapping, sampling, sample preparation, sample security and analysis or testing should be accompanied by detailed record keeping setting out the procedures followed, the results obtained and the abbreviations used. In addition to paper records, digital storage is encouraged in a standard format on a reliable medium.

A program of data verification should be in place to confirm the validity of exploration data that are entered into the database. A summary of records should be included in a periodic technical report produced and signed by the QP(s). Practices used should be well documented and justified.

6. Sampling

The practices and procedures used in each sampling program should be appropriate for the objectives of the program. All sampling programs should be carried out in a careful and diligent manner using scientifically established sampling practices designed and tested to ensure that the results are representative and reliable. Samples should be collected under the supervision of a QP(s). Quality control programs appropriate to the type of sample and the mineralization should be planned and implemented. These programs should include such measures as external blanks, standards and duplicate samples.

Where the volume of individual samples is reduced prior to shipping to a laboratory for analysis, appropriate reduction procedures to obtain representative subsamples should be applied and verified.

7. Drilling

The drilling method will be selected by a QP(s) and should be appropriate to the material being investigated, the objective of the program and local drilling conditions. The drill hole size selected should provide sufficient representative sample material for analysis and reference. Surface and downhole locational surveys should be undertaken using techniques appropriate for the hole size,

angle and length of holes. A representative fraction of the drill sample material should be retained, however if material is not retained, the QP(s) should report and explain the reason for this decision.

Drill logs, forms or software specifically suited to the type of drilling, the particular geological situation, and the minerals being sought, should be used for detailed geological logging of core or cuttings. Logs should be appropriately detailed for the type of drilling being conducted, the geological setting, type of mineralization, and geotechnical conditions. Core or sample recoveries should be noted on the logs. Cross sections depicting basic geology and hole data, including correlation with surface geology and any nearby holes should be developed and updated as drilling proceeds. Any downhole geophysical information or other such surveys should also be kept with the drill log. A photographic record of the core is recommended, where appropriate.

8. Sample Security

The security of samples from sample acquisition to analysis is a vital component of the sampling process. Procedures should include the use of secure core logging, sampling, storage and preparation facilities, as appropriate, and the prompt, secure and direct shipping of samples to the laboratories. The QP(s) should endeavour to put in place the best security procedures practical, given the geographic and topographic conditions and the logistics created by the site location.

9. Sample Preparation

The selection of sample preparation procedures should be approved by the QP and should be appropriate to the material being tested, the elements being analyzed and should be subject to the security measures as stated above. All samples that are reduced or split should be processed in a manner such that the fraction analyzed or tested is as representative of the whole sample as possible. Representative fractions of the material to be analyzed or tested should be retained for an appropriate period of time, as decided by the QP. Quality control checks should be undertaken as determined by the QP.

10. Analysis and Testing

Analysis and testing of samples should be done by a reputable and preferably accredited laboratory qualified for the particular material to be analyzed or tested. The selection of a laboratory, testing or mineral processing facility and the analytical methods used will be the responsibility of the QP. The analytical methods chosen must be documented and justified. All analytical or test results should be supported by duly signed certificates or technical reports issued by the laboratory or testing facility and should be accompanied by a statement of the methods used. The reliability of the analytical and testing results should be measured using the results of the quality control samples inserted in the process by the QP. Duplicate analyses at other laboratories should be undertaken.

11. Interpretation

A comprehensive and ongoing interpretation of all the exploration data is an essential activity at all stages of the project and should be undertaken to assess the results of the work.

This interpretation should be based on all of the information collected to date, be systematic and thorough, describe and document the interpretation and discuss any information that appears at variance with the selected interpretation. The density of the exploration data should be critically assessed as to its ability to support the qualitative and quantitative conclusions.

12. Mineral Resource and Mineral Reserve Estimation

Estimation of a mineral resource and a mineral reserve are both fundamental steps in project development. The classification and categorization of these estimates must be done in accordance with National Instrument 43-101 and be prepared by a QP(s). The methods and parameters used in making these estimates should be in accordance with the principles generally accepted in Canada and should be presented and justified with the estimate.. A mineral resource can be estimated for material where the geological characteristics and the continuity are known or reasonably assumed and where there is the potential for production at a profit. Reserves can be estimated when a positive pre-feasibility or feasibility study as defined by NI 43-101 has established the technical, economic and other relevant factors that indicate that these resources can be produced at a profit. Reserve estimates should be based on input and information from a multidisciplinary team under the direction of QP(s).

13. Environment, Safety and Community Relations

All exploration work should be conducted in a safe, professional manner with due regard for the environment, the concerns of local communities and with regulatory requirements. An environmental program, including baseline studies, appropriate to the stage of the project should be carried out.

14. Recommendations

The interpretation and assessment of the program results at the end of each phase should determine if the program objectives have been met and if further work is justified. Any plan for further work should identify exploration targets, recommend an exploration program and present a budget and schedule. Any changes in working hypotheses and objectives should be recorded.

15. Technical Reporting

A comprehensive technical report signed by the QP(s) should be prepared on completion of a particular phase or stage of work following the format and guidance presented in the National Instrument 43-101 and Form 1.