

# COMPARISON OF UNFC, JOINT CMMI/UNFC and CRIRSCO TEMPLATE RESERVES/RESOURCES CLASSES

## - Terms, Definitions & Codes

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## RESERVE CLASSES -Mineral Reserve

### UNFC

- A "Mineral Reserve" is the economically mineable part of Total Mineral Resource as demonstrated by Feasibility Assessment.

### CMMI/UNFC

A 'Mineral Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource.....  
Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is justified.

### CRIRSCO TEMPLATE

A 'Mineral Reserve' is the economically .....  
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 governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonable justified.

# COMPARISON

## UNFC, CMMI/UNFC, CRIRSCO TEMPLATE

- JORC Code as “the code doesn't require that final feasibility study has been undertaken to convert Mineral Resources to Ore Reserves, but it does require that appropriate studies will have been carried out that will have determined a mine plan that is technically achievable and economically viable, and that all Modifying Factors have been considered”

## RESERVE CLASSES -Proved Reserve (111)

### UNFC

- Demonstrated to be economically mineable by a **Feasibility Study or actual mining activity** usually undertaken in areas of Detailed Exploration.

### CMMI/UNFC

A 'Proved Mineral Reserve' is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate, with a high level of confidence at the time of reporting, that extraction is justified.

### CRIRSCO TEMPLATE

A 'Proved Mineral Reserve' is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for 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 governmental factors. These assessments demonstrate, at the time of reporting, that extraction could be reasonably justified

## RESERVE CLASSES -Probable Reserve (121+122(?))

### UNFC

- Demonstrated to be economically mineable **by a Prefeasibility Study** usually carried out in areas of Detailed Exploration and General Exploration.

### CMMI/UNFC

1 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 losses, which may occur when the material is mined. Appropriate assessments, which may include pre-feasibility studies, have been carried out, and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that **extraction is justified**.

### CRIRSCO TEMPLATE

A 'Probable Mineral Reserve' is the economically mineable part of an **Indicated (?)** and, in some circumstances, a Measured Mineral Resource..... Appropriate assessments **and studies** have been carried out, and include consideration of, and modification by, realistically assumed mining, .... factors. These assessments demonstrate at the time of reporting that extraction **could be reasonably justified**. A Probable Mineral Reserve has the numeric code 121 indicating demonstrable economic and technological viability on the basis of at least Prefeasibility Study and detailed exploration.  
A Probable Mineral Reserve has a lower level of confidence than a Proved Mineral Reserve **but is of sufficient quality to serve as the basis for a decision on the development of the deposit.**

## RESERVE CLASSES -Mineral Resources

### UNFC

- A Mineral Resource (Remaining or Additional Resource) is the balance of the total Mineral Resource that has not been identified as a Mineral Reserve.

### CMMI/UNFC

A 'Mineral Resource' is a concentration [or occurrence] of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. The resource figures are quoted as being of intrinsic economic interest, depending on the results of a Prefeasibility Study and Feasibility Study. Generally, only in-situ resource figures are reported at this stage of geological assessment. Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured **classes**.

### CRIRSCO TEMPLATE

A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured **categories**. Portions of a deposit that do not have reasonable prospects for eventual economic extraction must not be included in a Mineral Resource.

## RESERVE CLASSES -Measured Mineral Resources (331)

### UNFC

- Estimated to be of intrinsic economic interest based on Detailed Exploration establishing all relevant characteristics of a deposit with a high degree of accuracy.

### CMMI/UNFC

A 'Measured 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 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 closely enough to confirm geological and/or grade continuity.

### CRIRSCO TEMPLATE

Same as CMMI/UNFC definition



## RESERVE CLASSES -Indicated Mineral Resources (332)

### UNFC

- Estimated to be of intrinsic economic interest based on General Exploration establishing the main geological features of a deposit providing an initial estimate of size, shape, structure and grade.

### CMMI/UNFC

1 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 too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

### CRIRSCO TEMPLATE


Same as CMMI/UNFC definition



## RESERVE CLASSES

### -Inferred Mineral Resources (333)


<u>UNFC</u>	<u>CMMI/UNFC</u>	<u>CRIRSCO TEMPLATE</u>
<ul style="list-style-type: none"> <li>Estimated to be of intrinsic economic interest based on Prospecting having the objective to identify a deposit. Estimates of quantities are inferred, based on outcrop identification, geological mapping, indirect methods and limited sampling.</li> </ul>	<p>1 An 'Inferred Mineral Resource' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which is limited, or of uncertain quality and reliability.</p>	<p>Same as CMMI/UNFC definition</p>



## RESERVE CLASSES

### -Reconnaissance Mineral Resources (334)

<u>UNFC</u>	<u>CMMI/UNFC</u>	<u>CRIRSCO TEMPLATE</u>
<ul style="list-style-type: none"> <li>Based on Reconnaissance, having the objective to identify areas of enhanced mineral potential. Estimates of quantities should only be made if sufficient data are available and when an analogy with known deposits of similar geological character is possible and then only within an order of magnitude.</li> </ul>	<p>No correspondence</p>	<p>No correspondence</p>



RESERVE CLASSES -Feasibility Mineral Resources (211)		
<p><b><u>UNFC</u></b></p> <ul style="list-style-type: none"> <li>Demonstrated to be potentially economic by a Feasibility Study or prior mining activity usually carried out in areas of Detailed Exploration.</li> </ul>	<p><b><u>CMMI/UNFC</u></b></p> <p>No correspondence</p>	<p><b><u>CRIRSCO TEMPLATE</u></b></p> <p>No correspondence</p>

RESERVE CLASSES -Pre-Feasibility Mineral Resources (221+222)		
<p><b><u>UNFC</u></b></p> <ul style="list-style-type: none"> <li>Demonstrated to be potentially economic by a Prefeasibility Study usually carried out in areas of Detailed Exploration and General Exploration.</li> </ul>	<p><b><u>CMMI/UNFC</u></b></p> <p>No correspondence</p>	<p><b><u>CRIRSCO TEMPLATE</u></b></p> <p>No correspondence</p>

