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THE SOUTH AFRICAN MINERAL REPORTING CODES

SAMREC

THE SOUTH AFRICAN CODE FOR THE REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES

SAMVAL

THE SOUTH AFRICAN CODE FOR THE REPORTING OF MINERAL ASSET VALUATIONS

SAMOG

THE SOUTH AFRICAN CODE FOR THE REPORTING OF OIL AND GAS RESOURCES

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Reporting of Exploration Results, (including Exploration Targets and Mineralisation)

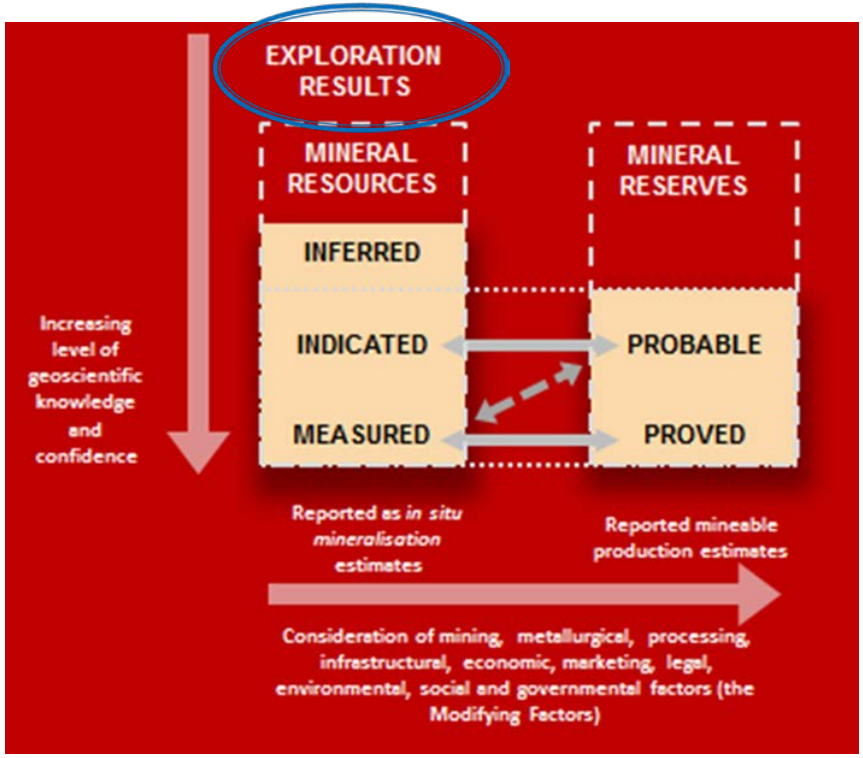
Tania R Marshall
SAMCODES Standards Committee (Chairperson)

marshall.tania@gmail.com

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SAMREC CODE

- SAMREC 2016 has a much expanded section on Exploration Results
  - Clauses 20-22 on reporting of Exploration Results and referenced in each section of Table 1
- Applicable to all SAMCODE compliant documents which might find their way into the public domain
  - Impacts Listed and Private entities
  - "Confidential" reports included
- Many companies are looking for investment in projects
  - Competition
  - Potential for creative reporting practices

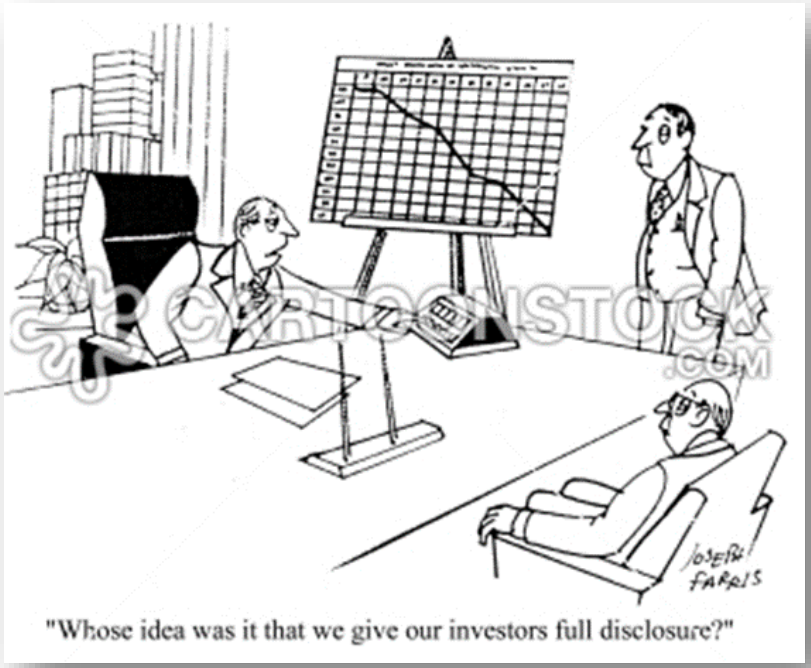


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Exploration Results

Exploration Results include data and information generated by exploration programmes that may be of use to investors…

- Must include relevant data and information relating to the mineral property - both positive and negative
  - Allow reader to draw conclusions
- Must not be presented in a way that implies the discovery of potentially economic mineralisation (Mineral Resource).



"Whose idea was it that we give our investors full disclosure?"

Exploration Results

Selected reporting is unacceptable

- Emphasis on balanced reporting
- Reporting of selected information/data without placing them in perspective is unacceptable
  - Isolated assays
  - Isolated drill holes
  - Assays of
    - Panned concentrates
    - Supergene-enriched soils
    - Surface samples



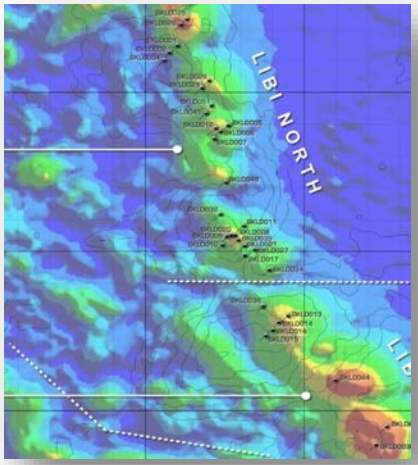
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Exploration Results

Exploration Results include data and information generated by exploration programmes that may be of use to investors…

- Exploration data and information may include survey, geological, geophysical, geochemical, sampling, drilling, trenching, analytical testing, assaying, mineralogical, metallurgical and other information, where available.







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Exploration Results

Exploration Results include data and information generated by exploration programmes that may be of use to investors…

- ***Historical data and information*** may also be included if, in the considered opinion of the Competent Person, such is relevant and reliable, giving reasons for such conclusions.





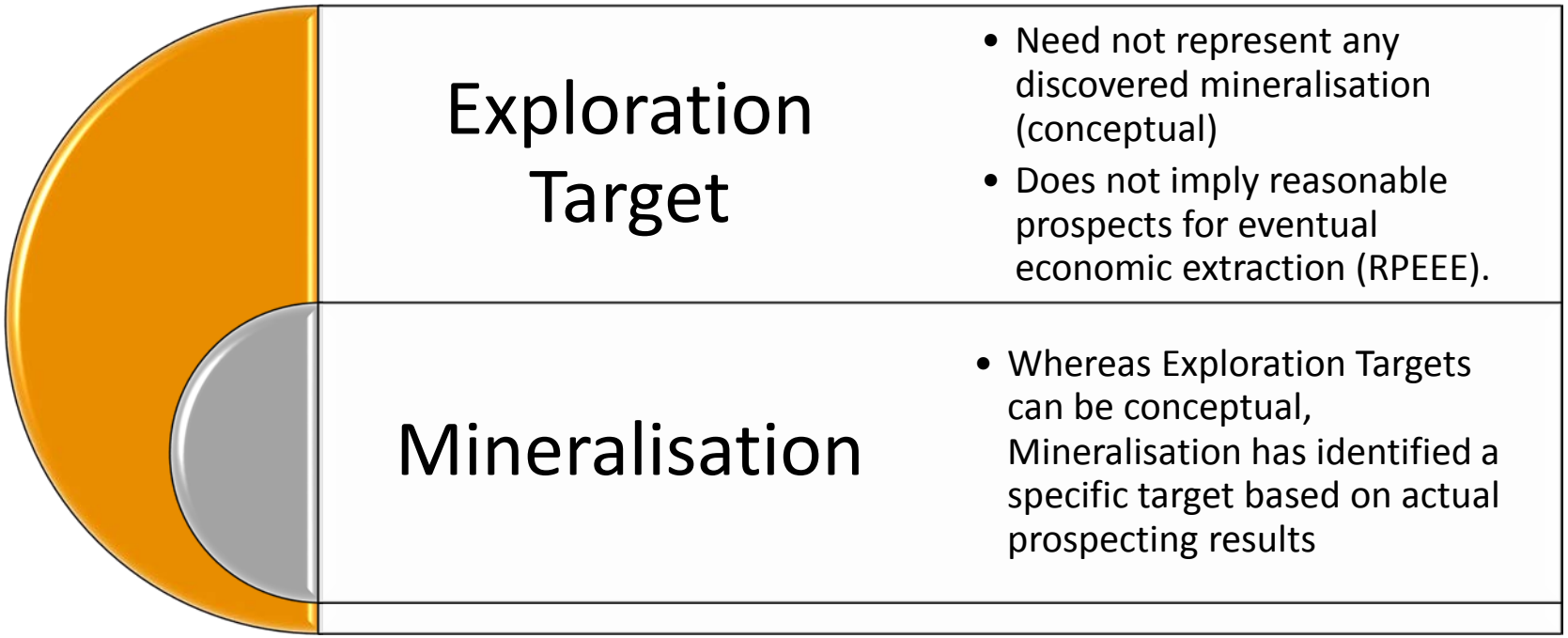
- The data and information may be derived from ***adjacent or nearby properties*** if the Competent Person can demonstrate relevance and provide justification of continuity for such an association. At least some physical evidence of assumed continuity must be presented

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Exploration Targets / Mineralisation

Exploration Results are used to generate Exploration Targets

An Exploration Target is a statement, or estimate, of the exploration potential of a mineral deposit ……



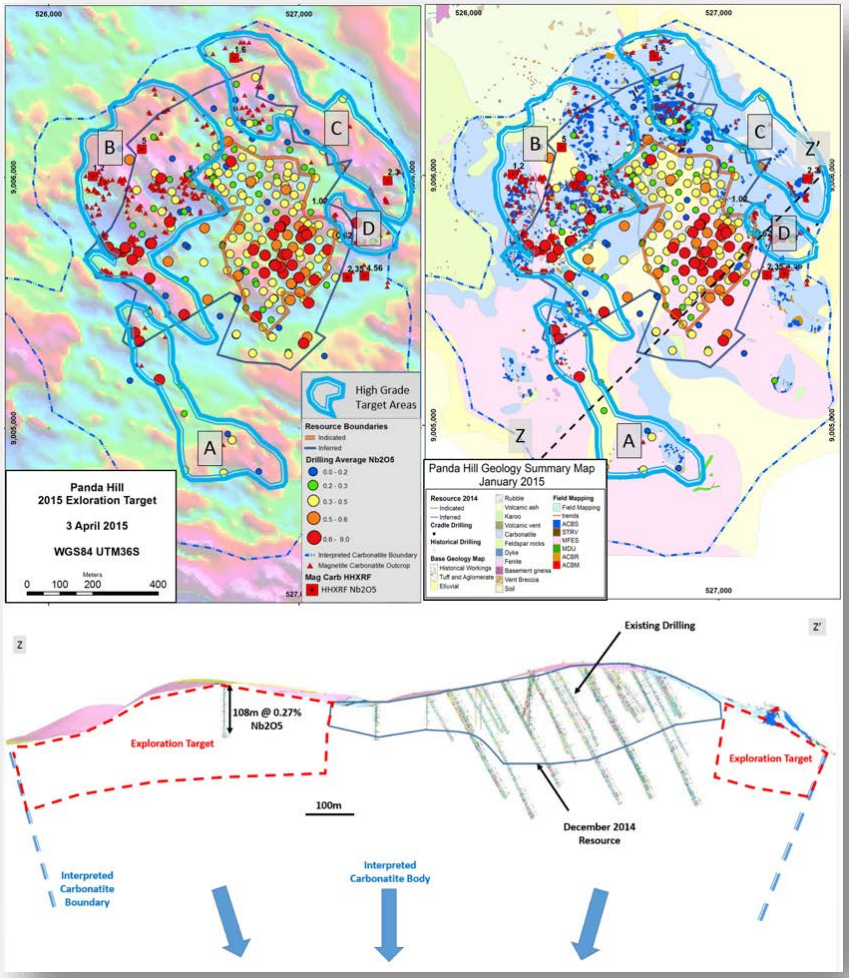
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EXPLORATION TARGETS / MINERALISATION

- It is recognised that a company may comment on and discuss its Exploration Targets in terms of size and type.

- However, any such comment in a Public Report must comply with the following requirements:
  - The explanatory text must include a description of the process used to estimate the grade and volume/tonnage, value ranges used to describe the Exploration Target or Mineralisation.
  - If Mineralisation or an Exploration Target is shown pictorially (for instance as cross-sections or maps) or with a graph, it must be accompanied by text that meets the requirements of the Code.

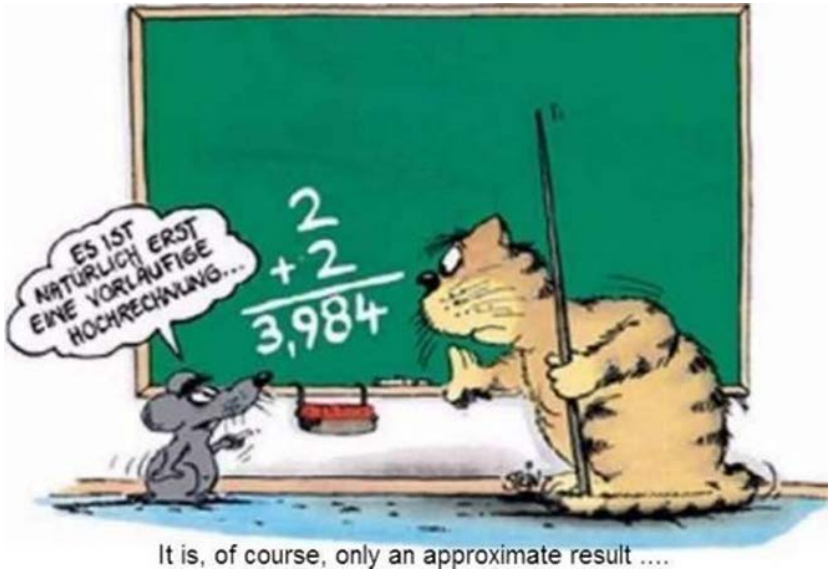
- Need to state both quantity and quality estimates – not quote one without the other



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EXPLORATION TARGETS / MINERALISATION

- May not be included in:
  - Mineral Resource statement / tabulation
  - Technical Study or converted to Reserves
- Any statements of quantity/quality must reflect lack of reliable data
  - Order of magnitude / Appropriate rounding
  - Suitable descriptive terms (approximate, in the order of, etc.)
  - Ranges (not a statistical term)
- Require standardised, obligatory cautionary statements in a proximate location (same/next paragraph, *not footnote or generalised comment*)
  - the potential quantity, quality and content, as appropriate,
    - are conceptual in nature,
    - that there has been insufficient exploration to define a Mineral Resource and
    - that it is uncertain if further exploration could result in the determination of a Mineral Resource



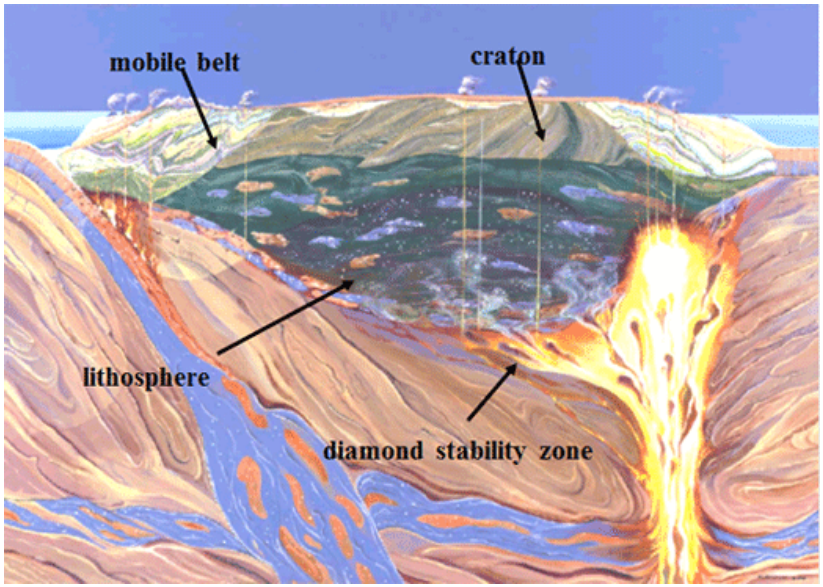
It is, of course, only an approximate result ....

- Sample quantity or quality must not be reported as a '*headline statement*' in a Public Report

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EXPLORATION TARGETS / MINERALISATION

- Clearly describe the rationale for target selection
  - Model must be geologically realistic
- The intended exploration work programme, cost and timeframe for next phase (Resource estimation) must be included



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Reasonable Prospects for Eventual Economic Extraction

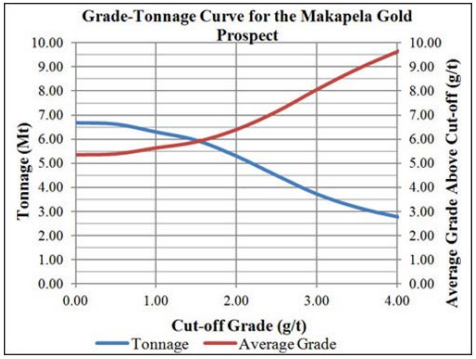
- **Exploration Targets/Mineralisation need not have demonstrated RPEEE**

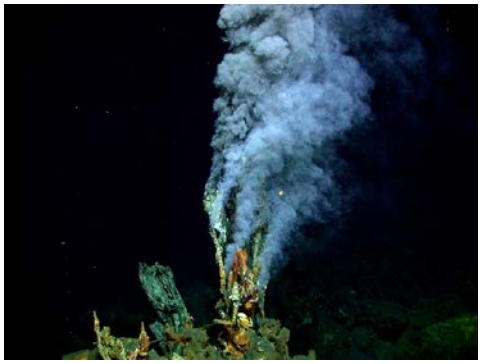
- Geological and Resource
  - Volume, grade and/or value parameters
  - Cut-off grades

- Geotechnical
  - Mining, metallurgical and processing issues, costs

- Numerous other issues that could affect RPEEE
  - Political, infrastructural, social, climatic, economic, legal, environmental, etc.

- What time frame could be reflected in "eventual" economic extraction
  - Marketing, infrastructural, metallurgical, etc









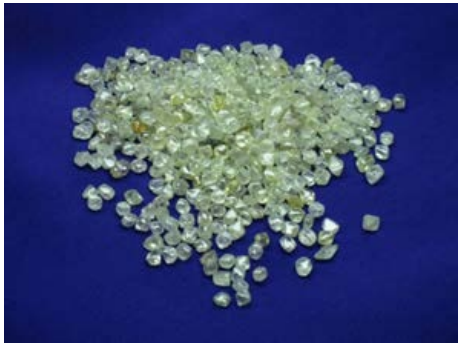




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Diamonds
Diamond Guideline Document

- Kimberlitic Indicator Minerals
  - KIM's useful in early stage ranking of Exploration Targets
  - Can give some indication of potential grade/value characteristics



- Microdiamond Data
  - Diamond grade can be estimated using microdiamonds
  - Diamond value requires macrodiamonds



- Diamond Value
  - Inferred Diamond Resource
    - 100ct may give SFD
    - 500ct for a low confidence valuation



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COAL

SANS 10320 2ND EDITION



- Coal Resource requires estimate of coal quality, not just volume/tonnage

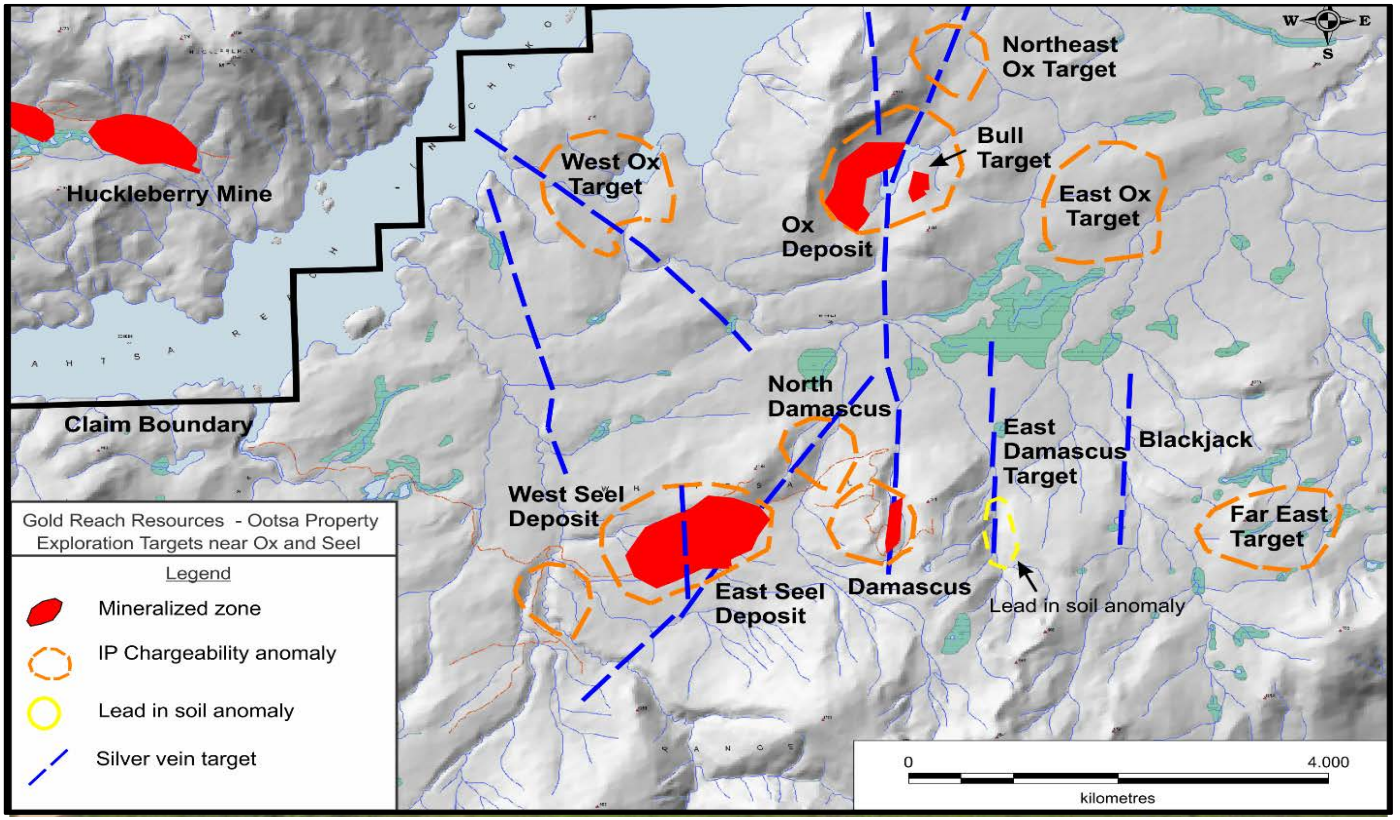
- **Coal Exploration Results** are data and information generated by exploration programmes that might be of use to investors, but ***estimates of tonnage and coal quality shall not be Publicly Reported***

- **Inventory Coal** is not recognised by the SAMREC Code, nor shall it to be included or presented in Public Reports. Inventory Coal can only be upgraded to Coal Resources by additional geological drilling.
  - **Reconnaissance Category** - this category has been downgraded to Inventory Coal and is no longer a Coal Resource

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Exploration Target Conceptual

- Mineralised zone
  - Regional grade information
- Known porphyry Cu-Mo-Ag deposits
  - Operating mine on adjacent tenement
  - Historical high-grade silver vein mine
- Geophysical anomalies
- Structural anomalies
- Soil geochemical anomalies

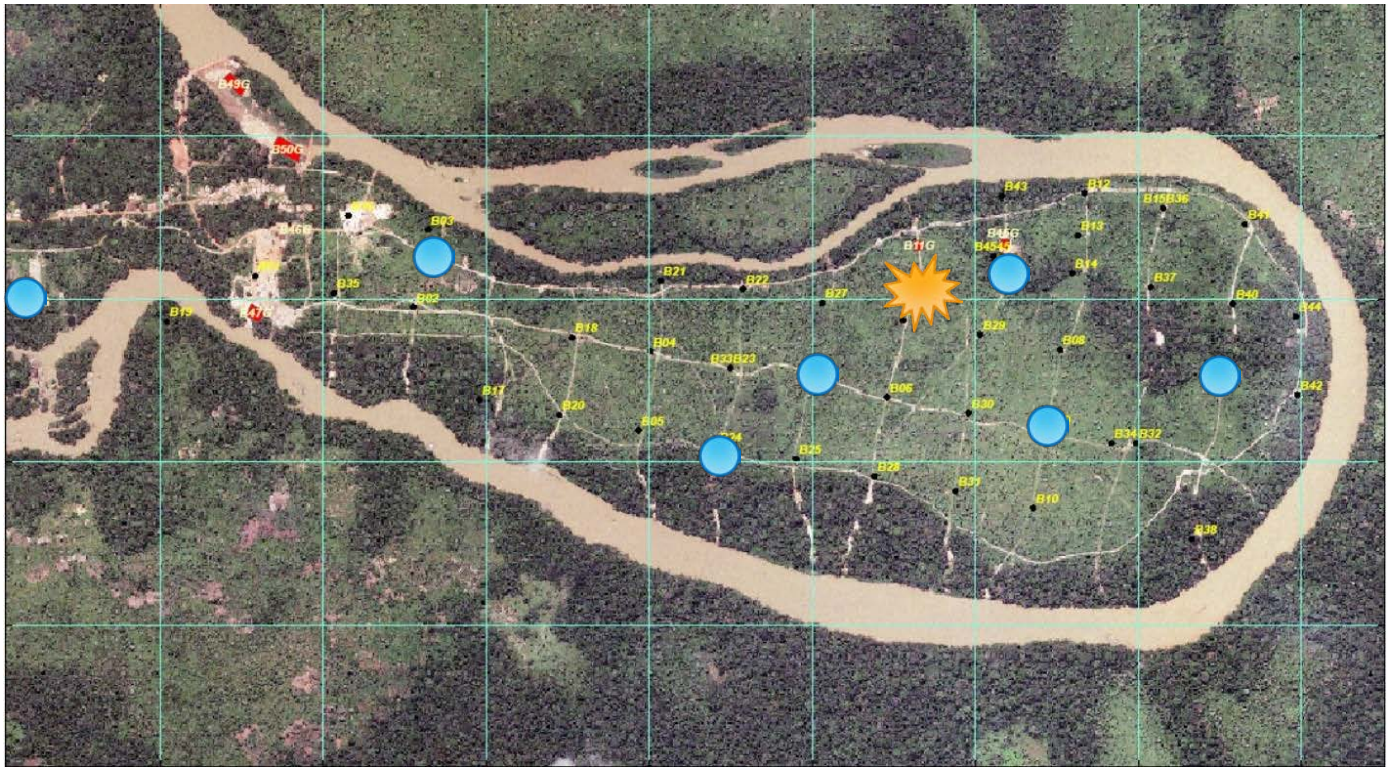


Concession – Exploration Target (Conceptual)

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Exploration Target Mineralisation

- Satellite data
- Geophysical anomalies
- Preliminary, limited drill/sample data
- Insufficient technical data to define a Mineral Resource

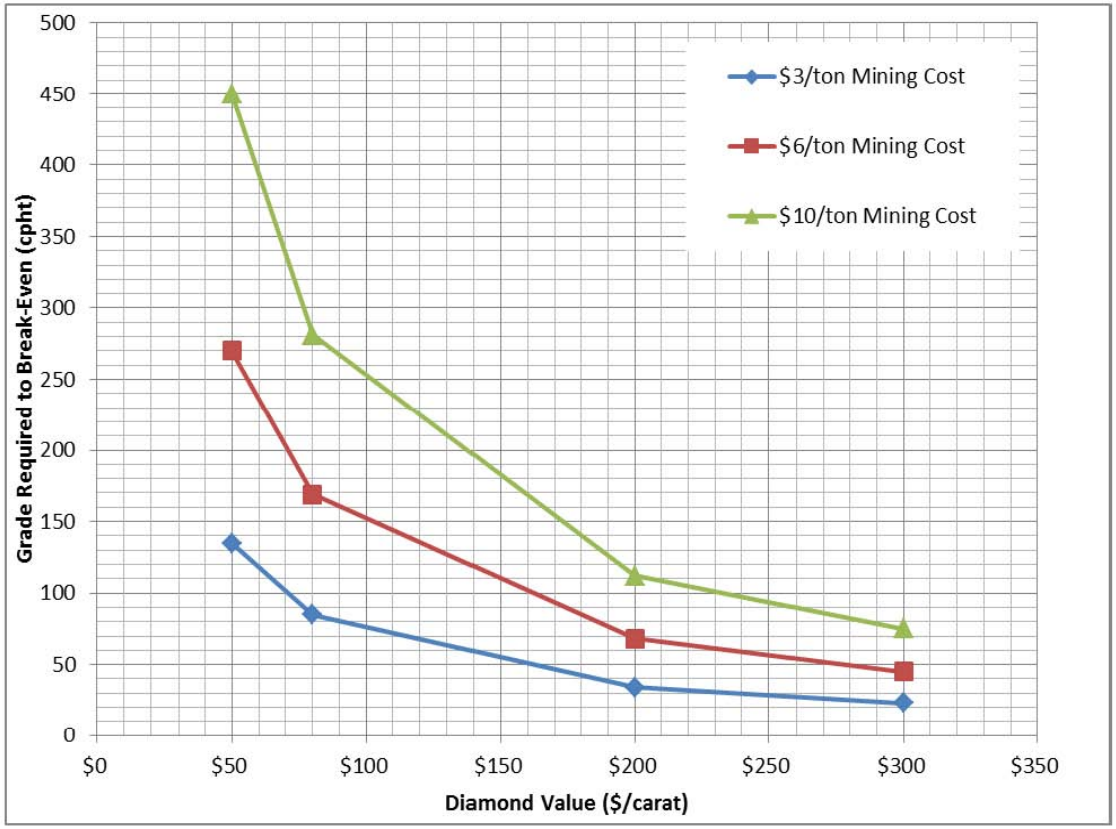


Concession – Exploration Target (Mineralisation)

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Exploration Target Mineralisation

- Sufficient technical data to define a Mineral Resource
- Reasonable prospects for eventual economic extraction not yet demonstrated



Concession – Exploration Target (Mineralisation)

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EXPLORATION TARGETS

EXPLORATION PHASE	ACTIVITY	CLASSIFICATION
Phase I (Desk-top study) Conceptual targets	o Review of historical data o Regional grades, values o Satellite data, geophysical anomalies o Target volumes/area	**Exploration Target** o Insufficient data/confidence to estimate a Resource o Present volume, area, tonnage, grade and value as ranges and approximations o Cannot be included in Mineral Resource Statements or Tabulations o Cannot include in technical studies or economic assessments
Phase II (Reconnaissance) Identified Mineralisation	o Reconnaissance drilling/pitting o Reconnaissance sampling (grade & value/quality data), assay data o Kimberlitic Indicator Mineral (“KIM”) mineral chemistry o Soil geochemistry	

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EXPLORATION TARGETS

EXPLORATION PHASE	ACTIVITY	CLASSIFICATION
Phase I (Desk-top study) Conceptual targets	o Review of historical data o Regional grades, values o Satellite data, geophysical anomalies o Target volumes/area	**Exploration Target** o Insufficient data/confidence to estimate a Resource o Present volume, area, tonnage, grade and value as ranges and approximations o Cannot be included in Mineral Resource Statements or Tabulations o Cannot include in technical studies or economic assessments
Phase II (Reconnaissance) Identified Mineralisation	o Reconnaissance drilling/pitting o Reconnaissance sampling (grade & value/quality data), assay data o Kimberlitic Indicator Mineral ("KIM") mineral chemistry o Soil geochemistry	
Phase III (Resource Estimation)	o Systematic drilling/pitting (volume) o Sampling, Bulk-sampling, Assay o Demonstration of reasonable prospects for eventual economic extraction (RPEEE)	**Mineral Resource**

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Economic Assessments



- Exploration Results, Exploration Targets, Mineralisation cannot be
  - Included in DCF-based economic assessments in the public domain
  - Included in a Technical Study (Scoping/PEA, PFS or FS)
    - Scoping Study requires minimum of Inferred Resources
  - Cannot be converted to a Mineral Reserve

Does not mean that it has no value

VALUATION

Valuation of Exploration Results

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THE SOUTH AFRICAN CODE FOR THE REPORTING OF MINERAL ASSET VALUATIONS

- In terms of the SAMVAL Code
- Valuation is date specific
- Must be completed by registered Competent Valuator
- Important to state the basis of valuation
  - Intrinsic value, fair value, market value, etc.
- Important to state the reason for valuation
  - Buying, selling, merger, financing, legal dispute, etc.
- Three generally accepted approaches
  - CV must apply at least two approaches and explain differences in results, where applicable
  - Different approaches may be more applicable at different stages of exploration/mining programme

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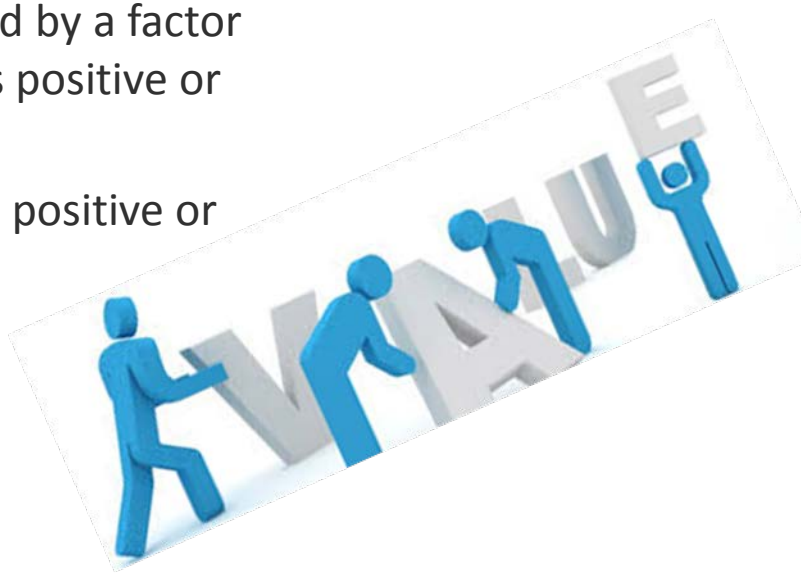
VALUATION

Valuation Approach	Exploration Properties	Development Properties	Production Properties	Dormant Properties		Defunct Properties
				Economically Viable	Not Viable	
Cash Flow	Not generally used	Widely used	Widely used	Widely used	Not generally used	Not generally used
Market	Widely used	Less widely used	Quite widely used	Quite widely used	Widely used	Widely used
Cost	Quite widely used	Not generally used	Not generally used	Not generally used	Less widely used	Quite widely used

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Valuation Cost Approach

- Variations of Relevant Expenditure:
  - Simple Relevant Expenditure
    - Extremely subjective in what constitutes “relevant” exploration expenditure
  - Relevant exploration expenditure multiplied by a factor greater or less than 1 that reflects previous positive or negative exploration results.
    - Extremely subjective in what constitutes positive or negative exploration results



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Valuation Market Approach

- Market based approaches are based on the premise that similar properties should have similar values.



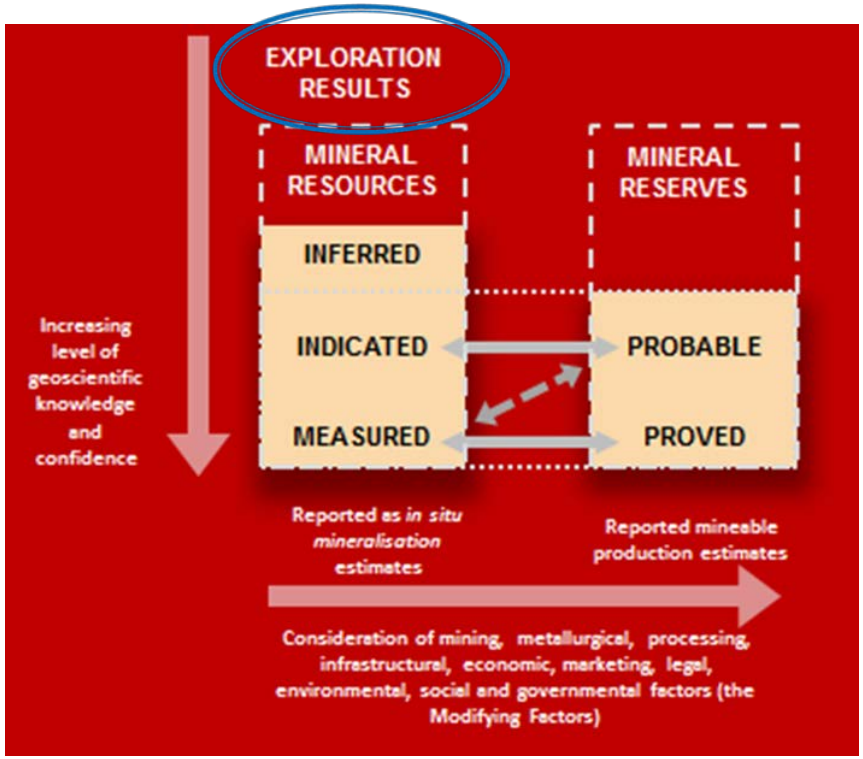
  - Comparable Transactions
  - Net Mineral Value
  - Value per area
  - Market Capitalisation
  - Option Agreement (JV) Terms
    - Most useful for large exploration concession where there is significant exploration potential, but very little work completed.
    - Based on the premise that project exploration and development costs materially escalate with time.

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EXPLORATION RESULTS

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