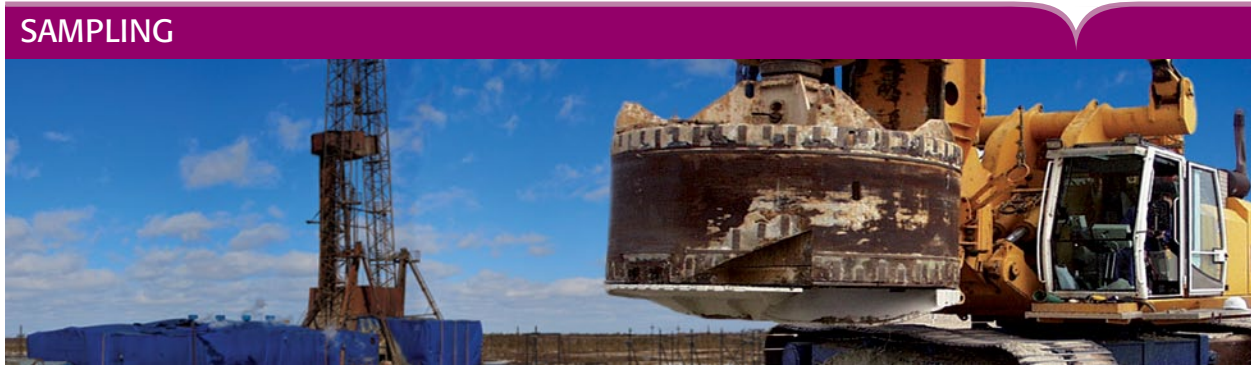


Sampling is defined as taking a small portion of a whole mass that accurately represents the whole mass.



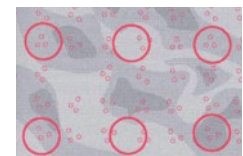
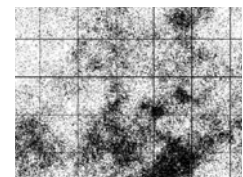
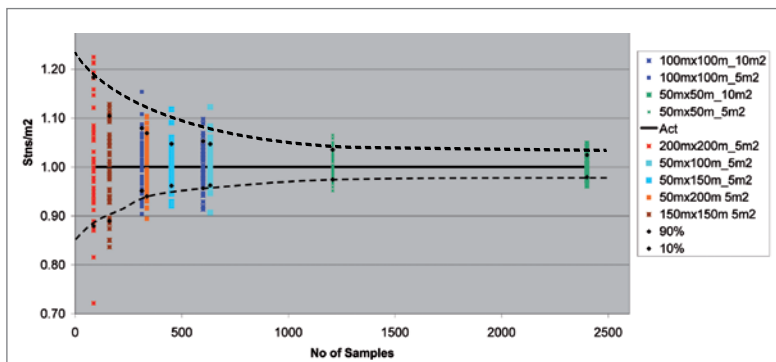
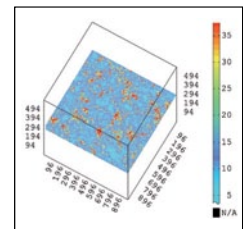
Sampling is critical in terms of providing representative data for estimating mineral resources. The provision of data that are spatially non-representative or that lack integrity will result in an inaccurate, low confidence mineral resource estimate. It is therefore imperative that all possible efforts are invested in ensuring that an optimised and high quality sample dataset is provided. Z* have extensive experience in all aspects of sampling including sample design, optimisation, assurance and QA/QC.

SAMPLE PROGRAMME DESIGN AND REVIEW

Physical sampling of mineral deposits is a costly exercise and it is essential that correct planning is undertaken to ensure optimal results. Z* have extensive experience in planning and organising primary exploration and contiguous evaluation programmes and can offer a specialised consulting service to ensure that sampling programmes have been designed properly to fulfill the designated objectives and thus facilitate the delivery of a mineral resource at the required level of confidence.

SAMPLE OPTIMISATION

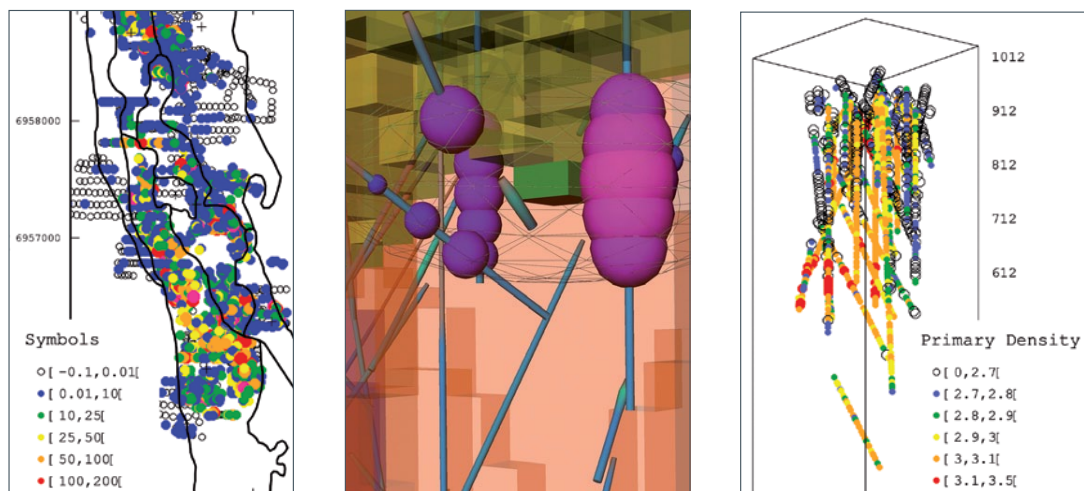
Sample optimisation studies are a critical component of deposit evaluation and are often overlooked despite the minimal cost when compared to the physical sampling programme. Sampling must be representative, both in terms of the correct sample support size and the optimum sampling density. The correct sample orientation and shape are also important in certain deposits that display anisotropy. Correct optimisation may result in a considerable saving in capital expenditure.



SAMPLING

The most effective scientific technique to establish an optimal sampling programme is geostatistical simulation. A number of possible realisations of the deposit are created and sampled with different sampling configurations (size and spacing). The theoretical sample results for each configuration are used to estimate the mineral resource many times over. These estimates can then be compared to the known simulation and thus establish the uncertainty associated with that sampling programme. This approach also allows a comparison of the different sampling programmes in terms of the error associated with the estimate and thus facilitates an optimal programme to be chosen to fit a set objective (e.g. mineral resource estimate at a certain level of confidence).

Similarly, Z* is able to assess the level of uncertainty associated with historic sampling programmes and make recommendations in terms of possible follow-up or in-fill sampling if required.



INDEPENDENT ASSURANCE AND QA/QC ON SAMPLING PROGRAMMES

QA/QC and assurance audits can be provided by Z* to ensure that the physical acquisition of sampling data is correctly undertaken. This can comprise verification of sample locality, auditing of sample excavation and plant processes in terms of sample integrity and database validation. It is imperative that sampling databases are checked in detail to ensure that estimation datasets are of high integrity.



Z Star provide robust assurance of mineral resource estimates and conduct risk analyses on existing mines or new projects. The company will undertake due diligence audits, resource performance analysis and provide governance advice.

Services include:

- comprehensive geostatistical estimation service
- mineral asset valuation
- Competent or Qualified Persons Reports
- classification of mineral resources
- size frequency distribution modelling
- geostatistical simulation
- sample optimisation
- data validation
- geological modelling
- statistical analysis

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