THE ECONOMIC NECESSITY OF GOOD SAMPLING PRACTICES

INSTRUCTOR: DR. FRANCIS PITARD

Date: October 31st and November 01st, 2023
Schedule: 9:00 a.m. to 6:00 p.m.(peruvian time)
Venue: Hotel Jose Antonio, Miraflores, Lima – Peru

INTRODUCTION

For Metallurgical Accounting there is no substitute for Sampling Correctness: Sampling Correctness is the cornerstone of the Theory of Sampling. Stationary cutters and many sampling devices heavily promoted by some well-known manufacturers are transgressing the most elementary rules of sampling correctness, therefore cannot and will not work. A profound analysis of this problem is presented.

Quantifying a sampling bias is an exercise in futility. Many people think that if they can quantify the sampling bias, they then can decide if they can live with the bias or not. Unfortunately, sampling biases are never constant; furthermore, an incorrect sampling system is likely to be biased in several independent ways. This important topic is vastly overlooked and will be discussed.

COURSE OBJECTIVES

Poor sampling, compounded by poor laboratory subsampling, leads to questionable geostatistics, and generates severe conciliation problems between the geological model, the mine, and the plant estimates. These problems also affect the price of commodities and the validity of environmental assessments. The result is a huge money loss for the company involved, evolving later in likely litigation. It is of key importance for geologists, miners, metallurgists, chemists, and environmental specialists to extract maximum information from the available data, as large investments and crucial decisions depend on it. False evaluations lead to devastating scenarios such as:

- Abandonment of viable properties.
- Exploitation of unprofitable properties.
- Mismanagement of viable properties.
- Incompetence in fraud detection.

It is critical to quantify the heterogeneity of important constituents in any new property. Failure to do appropriate testing leads to invalid sampling and subsampling protocols, excess drilling, and a biased database that would later lead to false geostatistics. The following sequence is part of an inescapable practice:

- How is the constituent of interest distributed in the material to be sampled?
- Conduct Heterogeneity Tests to quantify the sampling characteristics of the constituent of interest.
- Optimize sampling protocols and the way they are implemented, according to the results from the Heterogeneity Test.
- Implement protocols using valid sampling equipment: 75% of the sampling equipment available on the market will never do the job.
- Implement a comprehensive, systematic quality control program to monitor sampling precision and accuracy.

The staggering cost of irrelevant data variability is not easy to detect, quantify, or correct. A strategy for effective management of variability will enable managers to identify and minimize annoying conciliation problems between theoretical models and reality: Your decisions are only as good as your samples!

The course offers simple ways to quantify money losses for a given sampling precision, and it provides a good strategy to prevent sampling inaccuracy for which there is no statistical cure. Unless sampling precision and accuracy are clearly connected to economic.

Issues, it is unlikely that managers would understand the need to improve sampling protocols and the way they are implemented. At the end of the course, attendees will be better equipped to present the economic advantages of good sampling. Thus, the course is a pre-requisite for bank investment: Bankers must listen and trust the Sampling Theory.

WHO SHOULD ATTEND

This course is designed for individuals responsible for optimizing the performance of mines, metallurgical plants, chemical plants, and environmental assessments. The course also applies to many other areas where someone must collect samples to make important decisions. The course is highly recommended for managers to optimize their operations. You should attend this course if you are:

- Exploration and ore grade control geologists
- Presidents, Vice Presidents, and operations managers
- Geostatisticians and laboratory supervisors
- Miners, metallurgists and chemists
- Quality Assurance and Quality Control managers
- Environmental engineers & pollution control specialists
- Concerned investors and company shareholders

WHAT YOU WILL LEARN

- The nine kinds of sampling errors, how they take place, and how to minimize them; most people can list only two!
- Sampling correctness, so you can reject sampling systems that will never perform a satisfactory job.
- Become familiar with necessary tests to be performed at mines and plants to optimize all your sampling protocols.
- To select appropriate Data Quality Objectives for operating parameters, which are worth continuous monitoring, to minimize your operating cost.
- To better appreciate the value of existing chronological data that allows you to better control any process. This data is valuable for management in identifying structural problems that lead to unnecessary financial losses.
- Variography is the key to identify the various sources of variability affecting routine chronological data.
- You will discover the power of Chronostatistics.
- Using existing data, variability from sampling and measurement must be clearly separated from process trends and cycles.
- Unless this is well done, continuous process improvement will remain elusive.
- The careful use of the Moving Average and especially its auxiliary functions can greatly help you to minimize the effect of poor sampling and measurement precision.

COURSE IN PERSON AND ONLINE

- Relative Difference Plots can clearly show the presence of conditional biases from sampling and from laboratories.
- Realize the weakness of today's standards on sampling: They are obsolete and not in line with the Sampling Theory.
- Get updated on sampling developments exposed during eight World Conferences on Sampling and Blending.

DAY 1

- Get educated: Introduction.
- Use of precision ellipses to quantify the cost of poor precision for grade control at the mine.
- Use of precision ellipses to predict severe problems with plant performance.
- Examples of financial disasters due to poor sampling practices.
- The necessity of a far more stringent QA-QC program to optimize mining operations.
- Use the expertise of FPSC, LLC to monitor QA-QC program using the Honuatek Agreement Analysis software capabilities.
- Optimizing sample and subsample mass: The Fundamental Sampling Error

DAY 2

- Minimizing problems generated by segregation of heavy minerals: The Grouping and Segregation error.
- Giving the same probability for all constituents to become part of the collected sample: The Increment Delimitation Error.
- Making sure the sampling tool is not selective on what it is taking: The Increment Extraction Error.
- Making sure the material integrity is preserved between sampling stages: The Increment Preparation Errors.
- Introduction to Variography to better take advantage of existing plant data.
- Practical exercises.
- Conclusions and Recommendations

COURSE IN PERSON AND ONLINE

INSTRUCTOR

DR. FRANCIS PITARD

Dr. Francis F. Pitard is a consulting expert in Sampling, Statistical Process Control and Total Quality Management. He is President of Francis Pitard Sampling Consultants (www.fpscsampling.com) and Technical Director of Mineral Stats Inc. (www.mineralstats.com) in Broomfield, Colorado USA. He provides consulting services in many countries. Dr. Pitard has six years of experience with the French Atomic Energy Commission and fifteen years with Amax Extractive R&D. He taught Sampling Theory, SPC, and TQM for the Continuing Education offices of the Colorado School of Mines, the Australian Mineral Foundation, for the Mining Department of the University of Chile, and the University of Witwatersrand in South Africa. He has a Doctorate of Technology from Aalborg University in Denmark. He is the recipient of the prestigious Pierre Gy's Gold Medal for excellence in promoting and teaching the Theory of Sampling (Cape Town, South Africa, 2009).

INVESTMENT: USD 900

- Bank transfers (commissions are not included)
- Payment link
- Western Union (request data)
- Money Gram (request data)

Bank transfers

- **Deposit at Bank:**
  BANCO DE CRÉDITO DEL PERU
- **Beneficiary:**
  INTERNATIONAL METALLURGICAL CONSULTANTS S.A.C.
- **Account Number in Dollars :**
  193-1872625-1-12
- **SWIFT code :**
  BCPLPEPL
- **Inter- bankcode:**
  00219300187262511219
- **Bank Address :**
  Jr. Lampa 499. Lima , Peru

>BCP>

PAYMENT LINK

https://pagolink.niubiz.com.pe/pagoseguro/INTERMET/2434662

CONTACT US:

EMAIL:
luciana.riva@intermetperu.com
estrella.tapia@intermetperu.com

PHONE
+ 51 981 265 821
+ 51 960 995 971
(01) 489 3145