OPTIMIZING THE BALANCE OF QUALITY AND TURNAROUND TIME FOR A PROCESS CONTROL XRF LABORATORY

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The Kennecott Utah Copper Smelter relies on WDXRF data for much of its process control. Because of the nature of the Smelter design and the need for optimum performance to maximize efficiency, as well as the use of some results in metals accounting calculations, the XRF work must be very accurate. However, this must be balanced against the need for rapid reporting of results to allow close to real-time process control. This presentation describes the setup of a program to maximize the value of XRF in process control from the standpoint of both quality and turnaround time.

The program is guided by initial determination of customer requirements and regular customer communication to keep program developments aligned with needs and avoid wasting resources on what will not add value. Quality starts with well-thought-out preparation procedures and good calibration curves, keeping in mind that proper attention up front saves time later on. Where a quality improvement would increase turnaround time, a choice must be made, weighing the advantages and disadvantages. Attention must be given to the quirks of each sample stream (there are 16 routine sample types), and method limitations must be explained to data users. The initial quality is maintained with repeatable preparation procedures, optimized drift correction, and instrument and support equipment maintenance. Scheduling of maintenance procedures and research and assessment samples is designed to minimize interruption to the normal flow of work. Other factors that help minimize turnaround time are an efficient sample logging and data reporting system, teamwork among analysts, and management support for system improvements. New technology and new uses of existing technology are considered to increase the contribution of the lab to efficient Smelter operation. Continuous improvement is an important part of the program.

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This abstract is being submitted for the DXC, and the paper is intended to be published in the DXC proceedings. Oral presentation is preferred, possibly in the session on Fusion and Industrial Applications of XRF.

I give permission to post the abstract on the DXC web site and affiliated web sites.