

Hyperspectral Technology for Best Practices Mine Environmental Management – Dream or Reality?

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PRESENTATION ABSTRACT

Environmental measurements are essential information routinely required by the mining industry and regulators to demonstrate that the environment is not adversely impacted by exploration and mining. Currently, most information is obtained via traditional methods, which primarily rely on point measurements. The collection of such information can be a labour intensive exercise and sampling design for traditional methods is also somewhat fraught, due to time and technical difficulty constraints at the scale that the work needs to be done. Remoteness, landform inaccessibility and cultural or environmental sensitivities can also make these measurements not only difficult and spatially non-representative. Hyperspectral sensing technology is potentially an ideal tool to fill this void.

At CSIRO Exploration and Mining, we have been conducting research and development on hyperspectral sensing technology over the last two decades. More recently, we have focussed our effort on the delivery of operational information products tailored for the mining industry for the assessment and monitoring the mine environment. Key examples will be shown to demonstrate how the technology has been able to deliver crucial information product to assist the environmental manager and regulators. Some of these examples have now been adopted as a management tool. The lessons we have learnt in Australia are topical to the EU especially now with the introduction of directives such as the Mine Waste Directive. These directives afford the opportunity to contribute to the guidelines and hence ensure the adoption of hyperspectral technology as a routine assessment and monitoring tool.