

Sharing the Wealth

Amidst the philosophical debate about the value of exploration, a paradigm shift in some quarters could change forever how research is applied to making new discoveries. By Jess Tyler*

A new exploration research philosophy has been on the boil at the Predictive Mineral Discovery Cooperative Research Centre (pmd*CRC) for around four years now. The concept: create an integrated, pragmatic approach to discovering new deposits that is a quantum leap in how exploration is done.

With many research programs failing through lack of continuity, communication, or connectivity with exploration, a group of pmd*CRC researchers and industry colleagues saw an overwhelming need for a pragmatic, on-site researcher who could undertake fundamental and practical research aligned with external contracted research organisations.

They came up with the idea of the Embedded Researcher – an on-site researcher who would liaise with all members of the exploration cycle, involving core loggers, exploration geologists and target generation specialists and importantly, would keep the research momentum going.

The payoff would be twofold: the researcher on-site full time would gain a better understanding of industry and the problems in discovering new deposits as well as being given free-reign for communication with all members of the exploration business; the exploration group would get directly applicable research and an open door into the latest research at leading agencies.

According to one of the advocates of the embedded researcher concept, Gold Fields Ltd St Ives' Bob Morrison, spotting the gap was not rocket science, but the solution to building the bridge has been truly inspired.

"We recognised years ago that the standard exploration methodology, used throughout the industry since the 1960's, no longer worked," he says. "We haven't discovered a single significant deposit since Junction in the early 1980's and we needed a quantum leap in the way we do exploration. And we couldn't do it on our own".

"Placer Dome had also recognised that if we were to achieve a quantum shift in the way we do exploration, we had to share ideas and resources."

Bob says that this concept of sharing has traditionally been taboo in the old mining and research circles: secret in-house "knowledge" was considered to provide a "competitive advantage" and not to be shared with anyone – or at least not without serious financial compensation.

True competitive advantage, he says, is not in the data itself, but on how quickly and effectively a company can interpret the data and generate ideas from the data.

So Placer Dome and Gold Fields (St Ives) started to share data and ideas. St Ives was strong in stratigraphy and geophysics, Placer Dome was strong in structure and geochemistry – a perfect sharing opportunity.

"The communication side has been critical," says Bob. "If the concepts are not disseminated to the people doing the targetting and evaluating the exploration results, there is little hope in advancing the way we do business."

“The Embedded Researcher provides direct evidence that the research is out of the Ivory Towers; it’s on-site, it’s pragmatic, practical, focussed, responsible and realistic.”

“It also provides direct research opportunities to site geologists, to raise awareness, and help advance their own knowledge in the science of exploration, and provides a source for exploration enthusiasm.”

“And with the embedded researcher on site, it invigorates the discovery business, and satisfies senior management that yes, we are doing everything we can in the most effective way possible to ensure the long-term profitability of St Ives.”

Created in a joint initiative between pmd*^{CRC} and the Mineral and Energy Research Institute of Western Australia (MERIWA), the concept has been “going gangbusters” according to manager John Walshe (CSIRO). He has been surprised and delighted with industry’s acceptance of the idea and its movement to other companies looks set to take off.

“We’re all under pressure to make discoveries and science doesn’t always have the answers. We need to constantly churn through the realities and be responsive to the real world. The main thing is that R&D makes a difference.”

So the good news may not stay quiet for long. According to Placer Dome’s Kas Deluca, when she outlined the concept at a recent industry forum, interest was phenomenal. In particular, juniors who were perhaps not able to afford one researcher each were keen to look at sharing options so that they too, could be part of a new collaboration with researchers. As well as the enthusiasm of the juniors to pool resources, the big players in the concept have been open in their collaboration and she expects this trend to grow exponentially as other companies come on board. It is this spirit of collaboration, says Kas, that sees the Embedded Researcher Program changing the face of exploration.

“It’s one of the best initiatives I’ve ever seen in the industry and we are pitching it throughout Placer Dome globally because we see the benefits within months of a project starting.”

“We all spend money on research but in the past we rarely got to physically use it on the ground and we never seemed to capture the learning.”

“With the embedded researchers on our team, we have a person on site who can bring academic research to us and translate it for the field staff, and we have the chance to direct research programs towards answering real questions.”

For us, it’s one of the most cost effective forms of research that Placer Dome is undertaking and one that we are pitching to be adopted globally.”

“It puts us ahead of normal practice.”

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The latest Embedded Researcher recruits are Carl Young (Placer Dome) and Tony Roache (St Ives).

Carl’s principal role at Placer Dome’s Kanowna Belle is to examine the link alteration and gold mineralisation in the deposit by integrating alteration, structural and geochemical data collected from drill hole logging and underground mapping. These data will be used to differentiate the various

stages of alteration and link these with the structural history for the deposit. The expected outcome of the research is to confirm the conceptual models for gold mineralization processes that are currently used to define exploration targets in the Kalgoorlie area. As well, Carl supports Kalgoorlie exploration group's geochemistry program by processing and interpreting geochemical data from a variety of exploration projects, including reviews of the geochemistry of regional exploration targets in the Kalgoorlie area. He also trains staff in geochemistry.

Tony Roache's role at St Ives is to focus effort on predicting the spatial distribution of silver in the Conqueror area, with the ultimate aim of applying the knowledge to identifying techniques suitable for camp-scale exploration. A 6-month work plan is focussing on detailed geochemical and structural data compilation across two ENE-trending cross-sections in the Conqueror area. At the end of the project, they hope to correlate geochemical signatures of Au-stage alteration with regional-scale structures, providing a framework for the prediction of prospective areas. The geochemical and structural knowledge generated will be immediately integrated into exploration projects, including an appraisal of mineralogical data already collected from several deposits as early as April 2005. From July 2005, all the routine data collection by mine geologists, exploration geologists and geological assistants will reflect the research methods that are important for targeting silver.

The end result of research is to form partnerships with members of the exploration team to use the research results in an active exploration program. The idea is to team up with a project geologist and plan drilling around research that has boosted the understanding of the spatial distribution of silver. The approach will specifically involve collaboration from re-logging of core in the general area of interest (may need to gain specific data), through to the planning of new drilling targets. If research methods that are useful in one area are not useful when moving to new areas of exploration interest, new data will be collected from the newly-drilled holes, and included into the 3-D model. It's like a circular approach: research_exploration_research until we find economic mineralisation.

- *Jess Tyler was commissioned by the pmd*CRC.*

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