

SEG 100 Conference: Celebrating a Century of Discovery

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The Bre-X Fraud -- Impact on Geoscience in Exploration

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On March 20, 1997, the geologist in charge of the Busang Gold project plunged to his apparent death from a helicopter in East Kalimantan, Indonesia on route to camp. What led to the moment that shattered dreams, devastated gold markets, and forced the industry to confront major fraud? What were the lessons learned and what changed?

Much of the description of the Bre-X debacle focused on the characterization of gold grains and resource calculations based on data sets provided by Bre-X employees. On site process and sampling is also considered, but what is largely missing from the story is the geology.

Throughout the exploration and promotion of the property, geologic terms and models were freely used to frame the project as one with substantial potential. "Maar-diatreme" was a popular model, particularly applied in the SW Pacific to describe a subset of epithermal/magmatic-hydrothermal deposits. Bre-X referenced this model in press releases and promotional materials (Fig. 1) and used the example of the Kelian gold deposit, 200 km away as an analogy.

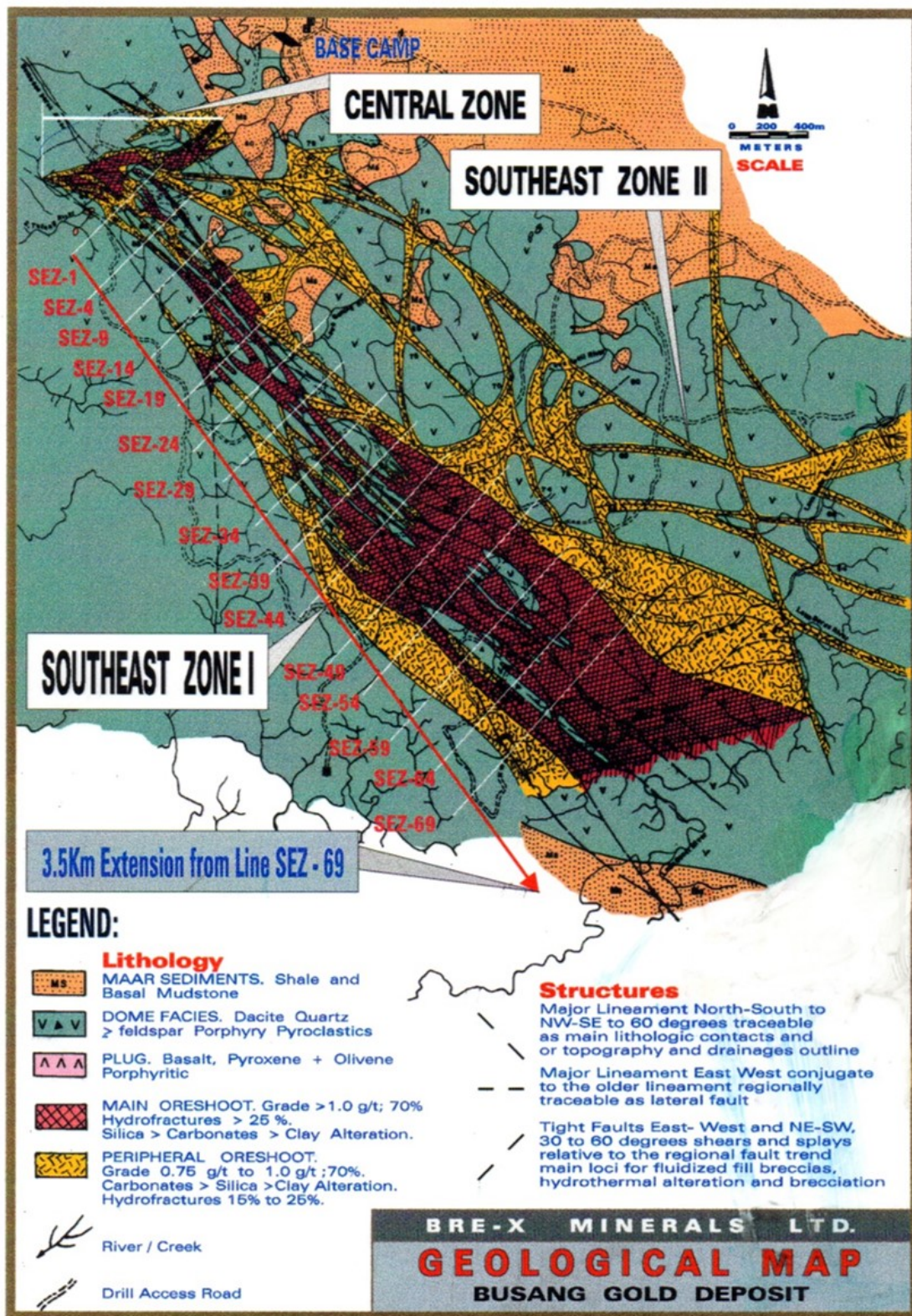
I was hired by Bre-X in 1996 to characterize the mineralization, document gold occurrences, and create a more detailed model for the deposit formation. The work included a 10-day site visit to train staff in spectroscopy, review whole drill core, and carry out analysis on skeleton core. Follow up included an extensive petrographic study.

Alteration is characterized by selectively pervasive grey to white zones of mica-clay along well-defined fractures that host minor visible base metal sulfides. Kaolinite dominates the spectral results, persisting to depth in the fractures. Petrographic work identified quartz, carbonate, and white mica alteration with minor anhydrite and tourmaline at depth. Notable are extensive zones of epidote and chlorite alteration both in core and outcrop. Reported gold correlated with the kaolinite alteration, based on SWIR spectroscopy. However, during the PetraScience petrographic study, no gold was found.

Several key observations on site were concerning, but were not noted by other visitors – likely on short, scripted trips. As a consultant at the time, there were no processes for addressing concerns or reporting discrepancies. Could we have known? Humans tend to believe what we are told, yet we are trained as geoscientists to observe and ask questions. It is worth remembering that even with that training, unconscious bias plays a big role in how we value exploration projects.

Subsequent to the collapse of the exploration market due to the fallout from Bre-X, the 43-101 National Instrument was introduced in Canada to create standards for disclosure. This was a game changer for exploration. Two key factors are important: 1) the instrument applies to all disclosures; and 2) it created a structured format for reporting all data including geologic information.

The lessons from the fraud at Busang continue to impact our business and the way we operate. Among them is the importance of geoscience, including accurate descriptions of rocks and relationship to mineralization, rather than reliance on models. Quality geoscience is critical to investor confidence and a responsible mining industry.



NOTE: Main Oreshoot based upon surface and drill results.
Peripheral Oreshoot subject for update after drill results.