Our last newsletter was a review of activities in 2012. We have drilled 17,240 m to date. This newsletter describes our plans for 2013. KSK has a budget of $16.2 million for 2013, which will enable us to complete a substantial drilling and exploration program. An additional 15 major prospects will be explored this year to generate drill targets with the intention of achieving up to 3,000 m of drilling per month.
using 5 rigs supported by helicopter. KSK is currently spending approx. $1.5 M per month in its operations.

Our 2013 activity focuses on five main areas:

- surface mapping
- remote sensing
- drilling
- assaying
- data compilation & modelling

In this newsletter we will cover what we will be doing in the field, beginning with going to an area that no one has ever seen before and finishing with the core being shipped from the field to our sample preparation laboratory at KM 37. The next newsletter will describe what happens with the core at our KM 37 lab and afterwards.

A team of sixteen geologists is now systematically mapping, sampling and evaluating 15 known prospects throughout the CoW. They are also identifying the drill targets based on these results. The prospects and target areas we will be working on in 2013 are shown in Figure 1.

To date, seven prospects have undergone comprehensive geological mapping and sampling, including rock chip, soil, and stream sediment sampling. These prospects include: Low Zone, Beruang Tengah, Beruang Kanan, BK North Massive Polymetalic Zone, Ketambung, Focus One and Rinjen. A total of more than 3,000 samples have been collected and sent for analysis.

A total of 11,000 samples have been sent to Tangkiling Preparation Lab and 12,000 pulp samples sent for assay.

Prospects scheduled for exploration next are Beruang Kanan West, Beruang Tengah West, Mamuring, Volcano, Tumbang Hoi, Baroi, and Mansur immediately the forestry permits are issued.

Some Background

Our joint venture objective is to find a large tonnage copper/gold porphyry deposit. There are several geological processes that concentrate copper. Various indications of these processes are what our teams search for and what we will document in 2013.

The geological processes that form copper deposits begin deep in the earth. Melting of the deep crust at convergent plate margins, such as in Indonesia, forms magmas with a small amount of copper and other metals, such as lead, zinc, molybdenum, gold, and silver. These magmas rise up through the earth’s crust from depths of 30 km or so and erupt as chains of volcanoes such as those along the Indonesian Archipelago.

As they rise, copper and other metals are progressively concentrated. At shallow depths of 1-5 km the magma partially solidifies, releasing a water-rich fluid laden with metals that are deposited in fractures forming veins with metal sulfide minerals that potentially form a copper porphyry deposit. Copper tends to stay in solution longer than many other metals. The fluids rise through fractures, and as it rises it cools. It crystalizes when it reaches saturation point at about 300 - 350°C and deposits copper. Gold, copper, molybdenum, tin, and tungsten deposit at the different temperatures that occur at different depths. The crystal size in the rocks increases or becomes coarser as you go deeper, because they crystalize slower at depth, where it is hotter longer.

The deposits are exposed by erosion after the magmatic and volcanic activity has ceased. It is the task of our exploration geologists to search for these using a variety of techniques, with the aim of developing an economically mineable deposit.

What do we do when we go to an area that no one has ever set foot on before? We focus
on three things:
• surface mapping
• remote sensing
• drilling

**Surface Mapping**

We will continue our 2013 exploration surface mapping by:
• mapping rock types ~ soil geochemistry
• defining igneous intrusions
• looking for rock alterations patterns
• defining veining
• checking for evidence of sulfide mineralization

When we go to a new area we set out gridlines at fixed distances (usually 200 m between lines and 50 m between samples on a line) and take soil and rock chip samples along the gridlines. These are bagged and sent to the lab at KM 37 to prepare for assaying.

As mentioned above, very hot igneous intrusions penetrate host rocks and copper is deposited from hot fluids that alter the host rocks. We can use these altered rocks or alterations to target ore bearing areas.

The difficulty in tropical areas like the KSK CoW is that copper is leached out of the surface rocks because of the high rainfall. We collect and assay soil samples and rock chips to look for trace copper, gold, lead, and zinc in the soil to find areas that are relatively richer in copper and related gold, lead, zinc and molybdenum.

If the ore body is buried, the rocks above it will still be altered from contact and heat from the igneous intrusions, and will have anomalous gold, lead, zinc and molybdenum.

Beruang Kanan is a Volcanogenic Hosted Massive Sulfide (VHMS). These are typically high-grade low tonnage deposits. We have found the stockwork vein feeder zone for an eroded VHMS submarine deposit at BK Main; and at BK North, there is a massive sulfide polymetallic lead, zinc deposit that fits KGC’s requirements for a potential resource.

We are now looking for copper at Beruang Kanan North because there is normally a copper rich core associated with peripheral massive sulfide lead, zinc.

As work continues on these fascinating prospects,
we are also looking forward with high interest to exploring and mapping the copper/gold porphyry potential of the Baroi, Tumbang Hoi, and Mansur targets.

**Remote Sensing**

While carrying out surface mapping, we also use geophysical exploration techniques based on gravity, magnetic, and electrical properties of rocks to get an indication of what is underground. The ore deposits we are looking for have specific magnetic and electrical signatures that we are trying to locate.

Magnetic anomalies can indicate fresh intrusive or ore-bearing rock, and a drill hole is needed to tell the difference. There is often a lot of magnetite (rich in iron) in porphyry deposits, but not always — yes, it’s an art!

We sometimes date samples using isotopic techniques to understand the sequence of geological events better. We can then determine which temporal events have mineralization associated with them.

During the last quarter of 2012, we completed an Airborne LADAR (Laser Detection and Ranging) Survey over 25,000 ha of the concession area, including all
major prospect locations. The LADAR survey accurately maps subtle topographic features and can be used to interpret geological and structural features that are known to control the location of copper mineralization. It includes high-resolution aerial imagery that provides excellent accuracy for spotting drill-holes.

A fixed wing airborne gravity and high resolution geophysical survey is planned early in 2013, over the entire Contract of Work area.

We combine the surface exploration and remote sensing surveys to develop an exploration model for each site and then define drill targets.

Drilling

Our 2013 drilling program is being undertaken to prove the exploration model or to ground truth the models. We use the shallow ~ up to 300 m ~ drill rigs at close intervals for delineation drilling to define resource bodies. We use the deep ~ 1,500 m ~ drill rigs at large intervals, as a subsurface exploration tool.

The deeper the ore body, the greater the percentage of copper required in the ore to make a viable mine. An open pit to 300 m requires grades of about 0.5% copper or more, while an underground mine to 1,000 m needs 1.5 - 2.0% or more. Again, however, the percentage depends on the meters of grade found.

We are nearing completion of mapping and drilling in

Figure 8. Soil and rock chip samples showing Cu assay results – BT East/Bukit Dea
Beruang Tengah and Beruang Kanan. The next target areas we have started work on are Mamuring and Focus 1. Mamuring is interesting because mineralization occurs in a limestone host forming a skarn. Skarns are formed at the contact zone between magmatic intrusions and limestone ~ they often have lots of garnet!

Core Logging

The core retrieved from drilling is taken back to Marinyoi base camp where it is logged. What the logging geologists look for is exactly what we look for in surface exploration and mapping - ie, geochemistry, igneous activity, hydrothermal alteration, veining, and sulfide mineralization.

From the core logging a 3D model of the prospect is constructed, in addition to the 2D surface map. This is used to prove the exploration model and determine where the next hole should be drilled. Each deep hole costs $0.5 M to drill, so the geologists cannot make any mistakes in the selection of the drill location.

The next newsletter will describe what happens to the core from the time it leaves the Maryinoi base camp after it has been logged.

The Problem of Artisanal and Small Scale Gold Mining (ASGM)

In Indonesia, recent estimates suggest that around 300,000 miners are active at more than 800 small-scale gold mining locations throughout the country, and more than 1,000,000 people depend on the activity for their livelihood. This activity contributes directly to poverty alleviation and regional development putting mineral wealth directly into local hands at the village level. However, it also creates many serious environmental problems such as deforestation and mercury pollution of waterways.

The Blacksmith Institute’s national inventory of toxic ASGM sites shows that mercury is now a key pollutant in Indonesia, with 500,000 people at serious risk from mercury contamination. ASGM is the largest single demand for mercury in the world. Field interventions are urgently needed to introduce recycling and reduce mercury use.
YTS Mercury Project

Our development foundation, Yayasan Tambuhak Sinta, was established by Kalimantan Gold in 1998, together with representatives of local Dayak people. The company has been working with local communities since it began exploring in the area over 30 years ago. Establishing the foundation was a means of formalizing our commitment to the local people. The foundation runs a special program to prevent mercury pollution in the informal mining sector.

ASGM is widespread in Central Kalimantan, and is an area of concern for YTS because of the enormous health and environmental impacts that result from this activity. YTS first started working on this issue in 2006, during the UNDP Global Mercury Project in Katingan district. At that time, YTS worked with local government to build community awareness and find practical solutions for the safe handling of mercury in gold mining and processing. To prevent urban emissions, we designed a water-box condenser system for use in gold shops.

Since January 2007, when YTS first began to distribute mercury recycling equipment to miners and gold shops, the project has expanded into seven districts. As a result, our retorts and condensors have greatly reduced the level of mercury contamination in many towns and villages. Over the last six years, our interventions have prevented more than 20,000 kg of mercury emissions. Instead of escaping into the air as a gas, all of this mercury has been captured and recycled by mercury users. This activity has reduced demand for fresh mercury by the same amount. At current prices ($180 per kilogram) the value of this quantity of mercury is $3.7 million. There are also other economic benefits for these communities due to multiplier effects; as these savings can now be spent on other goods and services.

Although the economic benefits may be the main reason for the adoption of our technology, the most significant benefits are actually those that result from the prevention of the mercury emissions. Levels of contamination are now greatly reduced in many urban areas, including our city center. In terms of human health, the benefits are far greater. In terms of environmental pollution, there is less mercury accumulation within the hydrosphere, and less impact upon the biosphere.

In addition to interventions that encourage recycling, we are also demonstrating mercury-free processing alternatives to miners. In this activity, we are collaborating with international partners, including the Geological Survey of Denmark & Greenland, and the Benguet Miners Federation from the Philippines. We all believe that gold miners can stop using mercury - and switch to alternative processing methods - without suffering a loss of income. To prove...
this, YTS is demonstrating how to process ore using gravity separation methods that do not require mercury. YTS has also conducted action-research in the field, and demonstrated ways to reduce mercury consumption by miners, such as by using sluices and shaking-table technology.

Soon, our media will also be used in other parts of Indonesia.

Over the last four years, YTS has received continual support from the Blacksmith Institute, as well as UNEP and the US EPA. We are now expanding the mercury project to other districts in Sulawesi, Java, Lombok and Sumbawa. We welcome the opportunity to put the spotlight on our work in Central Kalimantan, as it is important for us to communicate our way of working to others. Indeed, through training, and through film and print media, we are making special efforts to educate other stakeholders how to conduct interventions, so we can all put a stop to mercury use wherever it occurs.

Our new health awareness campaign continues to bring new awareness to communities threatened by mercury pollution. ‘Growing-Up Healthy’ is a slogan that is aimed primarily at mothers and children: our materials are designed specifically for this audience, as women and children are more likely to experience the health impacts than men. Our campaign has spread across Central Kalimantan, targeting mercury users in particular, as well as the wider community.

For a look at our project in action go to http://goo.gl/Q0Cuu.