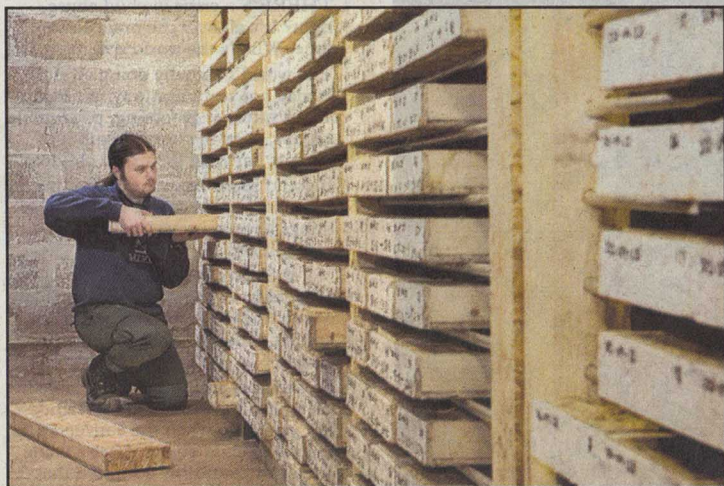


Hairdryer revolutionises Crofty's mineral analysis

BERNIE PETERSEN



In the second of his series of articles looking at the prospects for South Crofty, **Simon Parker** reports on an innovative piece of mine equipment which is saving time and money

IT LOOKS like a brightly-coloured hairdryer, yet this sophisticated device is revolutionising mineral analysis at South Crofty.

The hi-tech piece of equipment is helping to show that there is even greater mineral wealth under the site than previously imagined.

At the touch of a button, the hand-held X-ray Fluorescence machine (XRF) provides an analysis of approximately 25 mineral elements within a rock sample, listing them on a screen in order of concentration. It can do in seconds what conventional methods take a week to complete. The XRF works by firing the cylindrical sample with a beam of X-rays which stimulate different elements to emit light. The machine then reads the wavelengths of fluorescence instantly, analysing them to provide a clear idea of the elements within the sample and in what concentration they occur.

Crofty's chief operations officer, John Webster, said: "We always believed there were vast mineral resources in Cornwall and this machine is proving they are potentially world class. The plan is to run a polymetallic operation here, which means we will be mining copper, zinc, silver and possibly even some gold. We have also discovered significant amounts of indium, which is widely used in mobile phones."

Work at the mine – which employs 60 full-time staff, including four geologists – is currently focused on producing thousands of rock samples for multi-element analysis.

These are sent away to be tested in a laboratory at a cost of £30 each. The XRF substantially reduces the number of samples going for lab analysis and also provides an instant picture of mineral reserves in a particular zone.

It is an expensive piece of equipment but, as John Webster points out, with around 7,000km of core samples and thousands of channel samples being planned each year, it is already paying for itself.

Western United Mines, which owns South Crofty, will this week take delivery of three more drill rigs, two of which are capable of drilling from surface.

"This will speed up our assault on the copper, zinc and gold targets we have and



should be up and running in about two weeks," said Mr Webster.

Even with 18 drillers working in shifts that ensure the machinery is operating 24 hours a day seven days a week, only 30 to 35 metres of ground can be explored in a single shift. The new surface drills will be capable of producing between 100 and 150 metres of core samples each per shift.

Progress continues apace at Crofty, both below ground and on the surface, where all the individual core samples are logged, numbered, photographed, analysed and documented before being stored in racks. This work is crucial in building up an accurate underground picture to ensure extraction is carried out with the minimum of waste.

"When I arrived the men were doing three shifts tunnelling and one shift drilling," said Mr Webster. "To me that was the wrong emphasis, so we stopped the tunnelling and converted the tunnelling crews into drilling crews. At that time about 800 metres of drilling had been done in 18 months. Now we can produce 800 metres of core samples in one month, which is more like it."

The next priority is to establish a world-class laboratory at the Dudnace Lane site. It will be designed and equipped by a Fellow of the Royal Institute of Chemistry who has built laboratories all over the world.

"Once the lab goes in, I'll push the button on the surface drilling," said Mr Webster.



Geologist Gareth Joseph (above) operates a handheld X-ray Fluorescence machine underground at South Crofty to obtain an instant analysis of a core sample (far left), Hannah Bowyer (left) catalogues core boxes, and Francis Bowers (top, left) adds samples to the storage racks