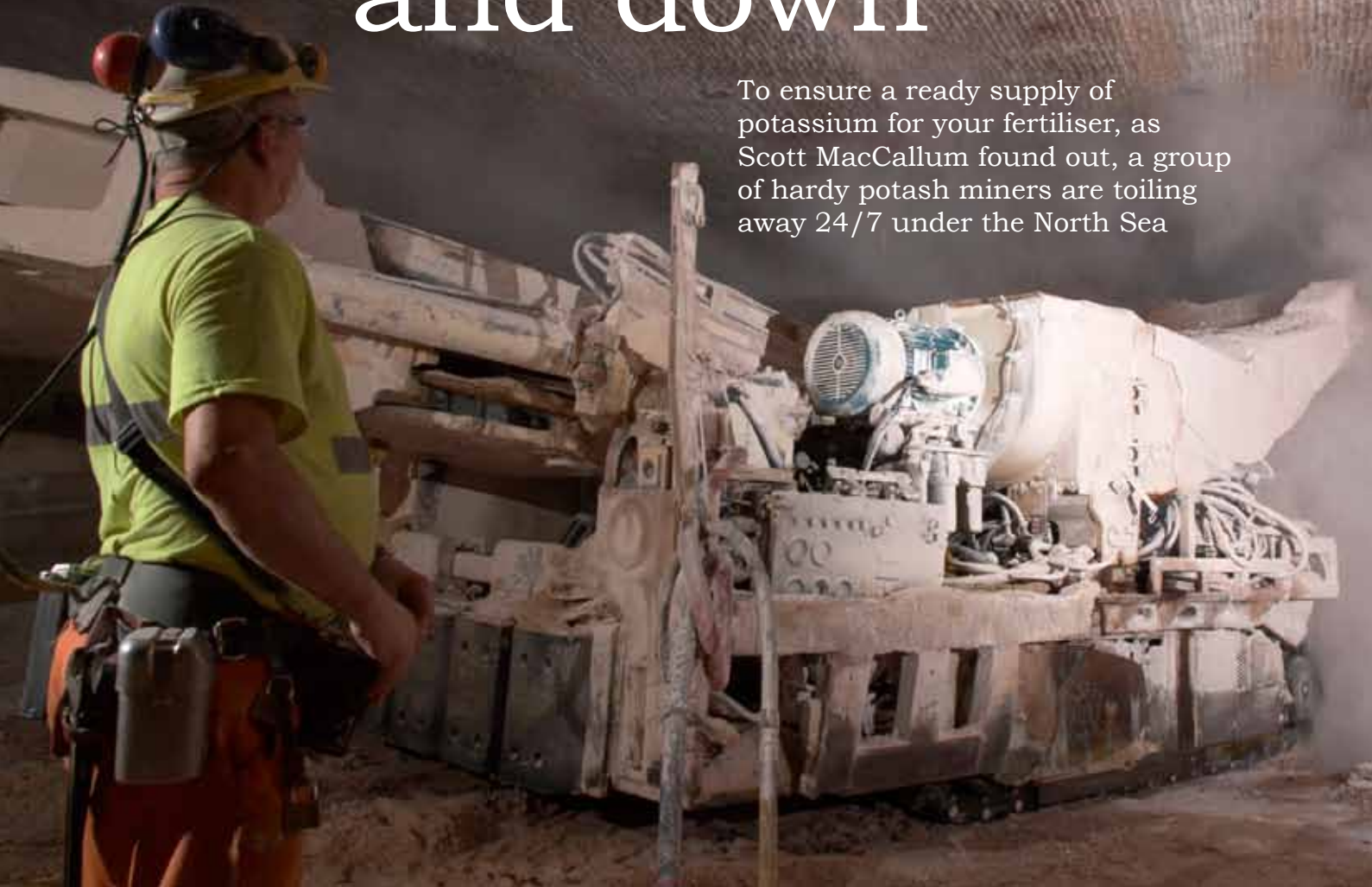


# Down down, deeper and down

To ensure a ready supply of potassium for your fertiliser, as Scott MacCallum found out, a group of hardy potash miners are toiling away 24/7 under the North Sea



**There are many things in life which we just take for granted. It may be the fact that the car always starts when we turn the key, or that the light comes on when we flick the switch, or that when you put on an application of fertiliser it does exactly what it says on the tin (or bag).**

But like most things that have become so simple and which we barely think about, there is a lot more to them than meets the eye.

You know that NPK stands for the ratio of nitrogen, phosphorus, and potassium contained, but beyond that, how much do you know about that K element?

Potassium is the common name for potash, which comes from deep under the earth's surface and is mined in a similar fashion to coal.

One of the main potash mines is found on Teesside, at Boulby, near

Cleveland, which is run by Cleveland Potash, and owned by Everris, and it ensures a guaranteed supply of potash for its range of fertilisers. Construction on the mine began in 1969, and it began producing potash in 1973.

It is the second deepest mine in Europe at 1400 metres and produces half of the UK's annual supply of potash. As a by-product the mine also produces rock salt, an extremely valuable commodity in recent years and used across the country as a de-icing agent on roads in winter conditions.

Everris recently took a small party of journalists down the mine to demonstrate exactly how this most valuable of natural resources is harvested.

The mining process is extraordinary. Just to get to work face workers need to take a lift, dropping nearly a mile underground, before

getting into a truck and driving six miles under the North Sea.

Of a total staff of 900, including contractors, 600 work underground on shifts which ensures continuous 24-7 production.

The lift journey, in one of two lifts – the larger one can take over 30 people while the other can take around 12 – takes around four minutes and the when you arrive the immediate reaction is one of surprise at the sheer scale of the underground operation.

At any one time there are around 60 vehicles, including Land Rovers and even buses capable of transporting up to 12 people, and used to ferry face workers and engineers – and that is not counting the huge sophisticated machinery which is used for the actual mining itself.

These are all taken down in the same lifts, which are temporarily adapted for the non-human cargo.





The atmospheric conditions underground are particularly corrosive and electronic equipment, or even watches, can't be used or worn as they will not survive on return to the surface.

You are also warned that souvenir pieces of potash brought to the surface will quickly turn to dust if left in regular surface conditions.

With one way systems in operation wherever possible, a subterranean sign posting system in place, as well as tried and tested horn blowing procedures when approaching corners or junctions, the journey to the face can take over half an hour with speeds restricted to 15mph.

In effect with 45 minutes to reach the face and another 45 minutes to get back it reduces the productivity of every shift by an hour and a half and makes it all the more vital that the face workers maximise the time they have.

Technology ensures that 2.4 million tonnes of potash are mined at Boulby each year as well as 0.8 million tonnes of the rock salt which is mined two days a week.

The combination of potash and salt is important because the salt seams are much more stable than those of the potash and this makes negotiating the many seams much more manageable.

Indeed a two and a half metre high potash seam is so porous it will shrink back to nothing in the

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space of little more than a couple of years.

Indicators are placed in the roof to highlight the rate of compaction, while bolts are drilled into the roof to provide additional stability.

Walking through narrow seams of potash, six miles into the North Sea and a mile from the safety of the lift shaft, can be an unsettling experience, especially when creaks and groans can be heard coming from the roof or walls. However, safety is the bedrock of everything and accident statistics show Boulby to be an extremely safe working environment.

Underground everyone wears bright orange clothing to ensure that they will be easily visible at all times.

Off the regular tracks are cave-like expanses where miners have gone in to remove whatever extra potash can be safely extracted - miners are incentivised to produce as many tonnes as possible each day.

At any one time up to four faces are being mined at one time selected from a map, which bears a close resemblance to the London Underground map.

At the face itself, a team of around six carry out various functions - from stabilising the roof with bolts; operating the remote controlled but massive cutting machines; to driving the mobile conveyor belts which are used to transport the potash from the face to the main conveyor belts which then carry it back to the main shaft for delivery to the surface.

As the mine stretches further out into the North Sea production costs rise and while the viability of the mine is dependant on the worldwide price of potash - too low and the profit margin disappears, too high and the demand drops - the immediate future of Boulby is secure and a ready supply of K for those NPK Everris fertilisers is guaranteed.