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Developer promises a 'green' approach at Elandsfontein



Michelle Lawrence, Kropz's Technical Director.

A recent view of the processing plant at Elandsfontein.

Kropz, the private company behind the development of the R1,35 billion Elandsfontein phosphate mine near Saldanha Bay in the Western Cape, says that the project – which has been opposed by environmental groups – is being built to the highest standards and that fears that it will unduly impact on the sensitive West Coast environment are misplaced. Kropz's Technical Director, Michelle Lawrence, recently briefed members of the media in Johannesburg and said that the company would protect 15 hectares for every hectare disturbed over the life of mine.

Construction of the new mine is already well advanced, with commissioning expected in the first quarter of 2017. Once in production, it will produce between 1,2 and 1,5 Mt/a of rock concentrate with a grade of 32 % P_2O_5 and will provide at least 450 long-term jobs in an area where unemployment is rife. It will rank as one of only three producers of phosphate in South Africa, the others being Foskor in Phalaborwa, a 1,7 Mt/a producer, and the much smaller (40 000 t/a) Gecko phosphate mine on the West Coast.

The project is jointly owned by Kropz, with a 70 % stake, and African Rainbow Capital (ARC), which is a broad-based BEE investment company owned by Ubuntu-Botho Investments.

One of the directors of Kropz is Mike Nunn, a mining entrepreneur who at one stage of his career was closely involved in the mining of tanzanite in Tanzania through TanzaniteOne, a company he founded.

Lawrence, who is responsible for the technical and operational functions at Kropz, holds an honours degree in chemical engineering from the University of Cape Town and has been





involved with the Elandsfontein project since mid-2013. She previously held various roles in the mining industry, including with Impala Platinum and DRA.

The Elandsfontein deposit – drilled and defined in the 1980s by Samancor – is a shallow sedimentary (as opposed to igneous) orebody and is reportedly the second largest phosphate resource in South Africa. A mining right application was submitted in December 2013 and it was granted in January 2015, with the Environmental Management Plan (EMP) being approved by the DMR the following month. According to Lawrence, more than 32 specialist studies were undertaken at a cost of R25 million in the development of the EMP. The Integrated Water Use Licence and the Atmospheric Emissions Licence are both still pending.

Construction of the mine access road started

in February 2015 with civil construction getting underway in September 2015. Mining development began in August this year (2016). The EPCM contractor for the processing facility is DRA while the mining contractor is Trollope Mining Services. The running of the plant will be outsourced to Minopex, part of the DRA group. The construction of the mine has provided jobs for up to 1 025 people, almost half of them resident within the Saldanha Bay Municipality.

Detailing the measures being taken to ensure an environmentally friendly mining and processing operation at Elandsfontein, Lawrence said a key factor would be the employment of the roll-over mining method, whereby the mine would be excavated in 50 m wide strips with overburden from the new strip being placed back into the previously mined strip. At any

The mine office could be converted into a future tourism hub.

Environmentally friendly aquifer dewatering and recharge is planned. As shown below, water is pumped up from underground (A) before it reaches the deposit and is then transported above ground via a closed pipeline (B) to boreholes beyond the deposit, ensuring the water chemistry remains unchanged. It is then pumped back into the ground (C) to restore the water table to its natural level.





one time, the open area of the mine excavation would be limited to 60 ha. She said a search for protected species would precede each stage of mining, with plants being removed to a nearby nursery for further propagation.

The process allows the land to recover during operations over the course of the project, with seedlings being established five months after placement. Lawrence also pointed out that the sandy nature of the deposit meant that it was free digging with no drilling or blasting being required.

Lawrence told the journalists at the media briefing that the processing route would upgrade the ore using size classification and flotation. The plant function, she said, was to separate silica and apatite with the silica being recovered via a reverse flotation process using a biodegradable collector – a departure from conventional phosphate flotation. She added that the plant tailings would be filtered for maximum water recovery, avoiding the need for a conventional tailings storage facility.

In order to access the ore, a portion of the Elandsfontein aquifer needs to be dewatered. Fears have been expressed by environmental groups that this process could ultimately affect the Langebaan Lagoon, which lies 15 km to the west of the deposit. Lawrence, however, was adamant that the mine would take care to ensure that fresh groundwater flowing towards the lagoon remained unaffected and said a groundwater monitoring programme was being put in place for continuous surveillance.

Water is pumped up from underground before it reaches the deposit, ensuring that the mining area remains dry and that the water does not come into contact with any

mining activities. The water is transported above ground via a closed, dedicated pipeline to boreholes beyond the deposit and is pumped back into the ground to restore the water table to its natural level.

According to Kropz, the land on which the project is located was previously zoned as agricultural land, and no communities or economic activities were displaced as part of the mine development. The project lies adjacent to a remote wilderness area of the West Coast National Park but – contrary to some reports – is not located in a buffer zone.

Elaborating on Elandsfontein's offset programme, Lawrence said that an initial 1 500 ha of offset land had been identified and secured and that further incremental acquisitions would take place over the life of mine (which is 15 years in phase 1). The final details would be agreed between Elandsfontein's management and SANParks.

The mine is also collaborating with Heritage Western Cape to protect the Elandsfontein Fossil Beds, which lie on a portion of the property and a full-time archaeology/palaeontology team has been appointed as part of the Heritage Management Plan.

Finally, Lawrence said that once operations finally ceased at Elandsfontein, there was potential for its facilities to form the basis of a tourism hub and she showed the journalists at the briefing a series of slides illustrating how the mine entrance had been designed with future tourism in mind and how the mine office could be converted into a visitor centre and the ROM stockpile tunnel into a future fossil museum.

Photos courtesy of Kropz

It is intended that the ROM stockpile tunnel could ultimately become a fossil museum.

Plant tailings will be filtered for maximum water recovery, avoiding the need for a conventional tailings storage facility.