Study shows mine will have little impact on lagoon

TRISH GOOSEN

According to a recent study, the Elandsfontein phosphate mining project will most likely not disturb the Langebaan lagoon’s water balance.

The mining project falls within the West Coast National Park’s buffer zone near Hopefield, an area of critical biodiversity, and is situated on top of the Elandsfontein Aquifer. Two groundwater bodies, the Elandsfontein and Langebaan Road aquifers, which feeds into Langebaan Lagoon, exits in the West Coast area.

Residents are concerned about the proposed phosphate mine situated on the Elandsfontein Aquifer and its possible impact on the Langebaan lagoon.

The Elandsfontein aquifer consists of a primary (upper) and secondary (lower) aquifer or water body that is separated by an aquitard or clay layer that varies in thickness, at places up to 30 meters thick.

Elandsfontein Exploration and Mining (EEM) proposes to mine phosphate rich sediments in the primary (upper) aquifer above the clay layer.

They need to drop water levels below working surface by a series of boreholes and reintroduce this water back into the aquifer not to disturb the water balance of the aquifer and to prevent less water flowing into the Lagoon to prevent hyper saline conditions in the lagoon.

On 16 October, at the annual State of the Bay open day of the Saldanha Bay Water Quality Forum Trust (SBWQTF), Dale Barrow, groundwater specialist and geologist for Geoss (Geohydrological and Spatial Solutions International) presented his study and results. A ground water model for the Saldanha Bay area (by Geoss) was shown and discussed.

It includes flow directions and flow volumes of groundwater in a large part of the catchment area of the Saldanha Bay municipality, but also parts of the Berg River municipal area.

A contour model of the deep bedrock layer and one of the area showing the upper layers were presented.

According to Christo van Wyk, chairman of the SBWQTF, this ground water model is a first for the area and valuable geological information that was previously unknown.

Van Wyk says the fact that Barrow mentioned that only 700m3 of water from the upper aquifer flows into the lagoon daily, puts things into perspective.

From Langebaan’s waste water treatment works about 2 500m3 of effluent reaches Saldanha Bay daily and 2 800m3 from the Saldanha waste water treatment works.

Phosphate is present in the sediment layers of the upper aquifer and de-watering is essential for mining this mineral.

Van Wyk says he is uncomfortable with the fact that Barrow said that 200 l/s or 17.3 ML/day of water could possibly be made available for domestic use.

It is his understanding that the water balance will not be disturbed provided the water is returned to the source.

Dr Martin Carstens, responsible for the mine’s legal compliance, says SRK Consulting did more research on the groundwater model for dewatering the mine pit, based on the best scientific information and the study found that the mine will have no negative impact on the lagoon or consumers.

SRK Consulting is also responsible for researching best practice with regards to the de-watering and replacing of water in the aquifer.

The Department of Water and Sanitation, SANParks and EEM created an ongoing monitoring programme that requires 12 additional bore holes before mining commences.