

'Sleeping giant' dunefield 'threat to Thyspunt plans'

IMPORTANT new facts have been presented that could have a bearing on the feasibility of Eskom's Thyspunt nuclear reactor project.

They were explained last week by ecologist Prof Fred Ellery, associate professor at Rhodes University's environmental sciences department.

The Thyspunt site is on the eastern lip of Oyster Bay, just south of an environmental monolith called a "headland bypass dunefield": a powerful "sleeping giant" which occasionally, unexpectedly, awakens – with devastating consequences.

What happens is that the current along the shore deposits sand on the windward side of the headland. The prevailing westerly wind amplifies this process and then also transports this sand across the headland to nourish the beaches on the other side. This amazing sand corridor across the headland is the bypass dunefield.

Until this latest study by Ellery and his team the

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strange and magnificent corridor was considered to be a gentle giant, important but benign, with sand marching inexorably but slowly across it, carried by the wind.

But now another factor has been identified which explains some devastating "debris flow" events, somewhat like landslides, which have already occurred in the area, and linking them to the dunefield.

This factor is water.

In November 2007, following heavy rains, water and sand steam-rolled out of the dunefield, across the R330, just south of the entrance to St Francis Bay, causing more than R20-million worth of damage.

Following the same pattern, on July 7 last year, between 100 000 and 150 000

tons of sand drove down the Sand River, a small stream, usually dry. The debris flow on this occasion smashed through the R330 and left St Francis

cut off.

The trigger on both these occasions was heavy rainfall but the dangerous debris was straight from the dunefield.

The answer to the danger was found to be in the structure of the dunes, and the underlying groundwater table.

Water collects in wetlands in the lee of the dunes. As the critical threshold of the groundwater is exceeded by rainwater, the drainage system collapses, and debris flow occurs. The threshold is breached and a sand monster is set in motion by even relatively little water, carrying huge destructive power.

It is not possible to predict when this breaching will occur, because of the multitude of factors

involved. But one thing is sure, Ellery warns, debris flow is a feature of the Oyster Bay headland bypass dunefield – and it will continue to occur.

"The combination of these factors is hazardous. Local and regional planning needs to consider these issues.

"The possibility of debris flows occurring in the vicinity of the nuclear plant cannot be overlooked, and for this reason the site is unacceptably risky."

Eskom's plan at present is that the R330 will be the primary access road to the reactor. The intention is a new road will be built from the R330 across the dunefield.

NMMU botanist Prof Richard Cowling says: "What his study shows is this dunefield is an unpredictable ecosystem and building any infrastructure across it will cause a shift in huge amounts of sediment."

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