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The Evolutionary Studies Institute



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SAHRIS Case ID: 4912

Mr Justin du Piesanie and
Ms Natasha Higgett
Digby Wells Environmental

Ms Colette Schermeyer and Ms Jenna Lavin
SAHRA
PO Box 4637,
Cape Town 8000,

Dear Sirs

RE: Best Practice for Palaeontological Chance Finds – proposed extension into adjacent Block 4 reserve of Syferfontein Mine (Sasol), Mpumalanga

As requested by Digby Wells Environmental (Mr Justin Du Piesanie) on behalf of their client, Sasol, and on the recommendation of SAHRA (SAHRIS Case ID: 4912), outlined below is the best practice procedure for the treatment of the palaeontological heritage.

The mine proposed to extend their operations into Block 4 and utilise an underground bord and pillar method. No surface impacts are envisaged for this project. According to the assessment carried out by Digby Wells (or their subcontractor) the area is underlain by the Madzaringwe Formation of the Karoo Supergroup which is considered of high palaeontological sensitivity. Evidence of plant fossils and specifically Glossopteris leaves, roots and inflorescences, lycopod and sphenophyte stems, ferns, cordaitaleans and early gymnosperms have been previously identified in this formation in the proximity of the project area.

Coals are formed by the compression and heat alteration of plant matter but in most cases the coal is so altered that the fossil plants are unrecognizable, However, in the shales and mudstones between the layers of coal within a seam, good quality fossil plant compressions can commonly be found. During the mining of the coals these shales will unavoidably be broken up and removed. Therefore it is recommended that:

1. The following procedure is only required if and when underground mining commences. The surface activities would not impact on the fossil heritage as the coals and any associated fossil plants are below ground.

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2. When mining operations commence the shales and mudstones (of no economic value) must be given a cursory inspection by the mine geologist or designated person before being added to the dumps used by the mine. Any fossiliferous material should be put aside in a suitably protected place. This way the mining activities will not be interrupted.
3. Photographs of similar fossil plants must be provided to the mine to assist in recognizing the fossil plants in the shales and mudstones.
4. On a regular basis, to be agreed upon by the mine management and the qualified palaeobotanist sub-contracted for this project, the palaeobotanist should visit the mine to inspect the selected material and check the dumps where feasible. The frequency of inspections should be monthly. If the geologist/deputy is diligent and extracts the fossil material then inspections can be less frequent.
5. Fossil plants considered to be of good quality or scientific interest by the palaeobotanist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the mine a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA.
6. If any underground inspection is deemed necessary then the normal safety procedures that the mine management endorses, must be followed by the palaeobotanist and associated mine employees.
7. If no good fossil material is recovered then the site inspections by the palaeobotanist can be reduced to annual events until mining operations cease. Annual reports by the palaeobotanist must be sent to SAHRA.

No further palaeontological impact assessment or monitoring are required until mining operations commence.

Yours sincerely



Prof Marion Bamford PhD (Wits University)
Palaeobotanist
Evolutionary Studies Institute