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**PROJECT LIMA (Steelpoort Pumped-Storage Scheme): PROPOSED CHANGES IN CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION**

Dear Ms Ntene

The meeting between DEAT and Eskom on the Environmental Authorisation for the proposed Pumped-Storage Scheme in the Steelpoort area, on the 19 August 2008, has reference.

Eskom would like to clarify their understanding of the conditions below, and their implications on the activities of the PSS. Given the nature of the activity, it is considered that these conditions may not be practical, and may be subject to individual interpretations, particularly in an audit function. The discussions below clarify Eskom's interpretation of the conditions given below:

- 1. Condition 1.20.3 states, "No activities of the proposed development must be executed within 100 metres away from the river banks, streams and/or within 1:100 year flood line. Furthermore, the delineated buffer zone as outlined in the wetland specialist report contained in the Final Environmental Impact Report dated June 2007 must be adhered to".**

The **lower dam** of this station will be built within a tributary of the Steelpoort River, hence this condition is not applicable. This activity has been described and assessed in the Environmental Impact Report (EIR) provided to DEAT on June 2007 and an Environmental Management Plan (EMP) has been provided to assuage the impacts that will arise from this activity.

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The **upper dam** will be constructed in close proximity to wetlands. However, based on the recommendation of the EIR and the EMP, the construction activities will be managed in such a manner so as to ensure that these nearby wetlands are not impacted during the construction phase.

Eskom applied, and received an approval, for activity 386: 1(m) which states "The construction of facilities or infrastructure, including associated structures or infrastructure, for –

(m) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including -

- \* Canals;
- \* Channels;
- \* Bridges;
- \* Dams; and
- \* Weirs;

A borrow pit and the stockpile area for rocks will be placed above the 1:20 year flood line and, at least, 40 m away from the river banks. These activities are of a temporary nature, and limited to a period of approximately 5 years, i.e. during the construction phase. The impacts of these activities will be mitigated and the area will be rehabilitated at the end of the construction period. In addition, all permanent activities will be located above the 1:100 year flood line and at a distance greater than 100 m from the river banks. The recommendations of the wetlands specialist study will be complied with, as much as possible, during the construction phase. The authorisation in this instance is in conflict with the legislation. Eskom will be undertaking construction activity within the 1:10 and by the very nature of the project be within the 1:10 year flood line. This was the reason for the application to 1(m). The condition with respect to the legislative requirement 1(m) and the description of the activity is considered to be inconsistent and thus Eskom does not deem it feasible to be met. The EIR and EMP considered these activities and considered that the impacts can be mitigated to an acceptable level.

**2. Condition 1.20.5 states, "The quarry on site must be below the dead volume of the dam to minimize the visual impacts"**

This condition is in response mainly to visual impacts. In the case of the **upper dam** there are no visual impacts as the crest level is significantly higher than the surrounding natural ground level. The upper dam wall totally encloses the water, with the result that an observer cannot see the inside of the dam.

The excavation of dam construction material for the **lower dam** will happen within the reservoir basin where colluvial sands will be excavated. The final appearance of material within the basin will not change as the construction material is removed. The construction process does not result

in steep slopes but clearing of the topsoil/vegetation will follow the existing slope of the terrain. During this activity, a sandy colluvium type material will be ripped and removed for construction. During this process, the dam basin will be scarred. Due to the nature of the station functionality, it is not possible to ensure that all the quarry site is below the dead level of the dam all the time. During operation, when the dam is full, the worked area of the quarry will not be visible, but when the dam is drawn down, the worked area of the dam will be visible. Thus this condition may not be applicable.

**3. Condition 1.20.7 states, "the dam wall is high enough to prevent over flow from the upper reservoir during high rainfall season. This will prevent mixing of the species in the upper and lower reservoirs and water quality of the two reservoirs will be maintained".**

It is inherent feature of this pumped-storage scheme that the upper reservoir is not in a stream. The lower reservoir will be in a tributary of the Steelpoort river. The water to supply this scheme will be obtained from the Steelpoort River, through the De Hoop Dam development. Through the functioning of this scheme as a 'closed' system, the water is circulated between the two reservoirs, and hence, this condition is not applicable to this scheme, as both reservoirs will be utilizing water from the same resource. The design of the upper reservoir dam wall is such that a spillway is allowed to cater for scenarios when the dam is full. The spillway will then allow water to be channeled to the lower catchment. Furthermore, since the water is from the same system, the quality will be similar, and the species composition will be the same. Thus, this condition of the Environmental Authorisation is not applicable.

**4. Condition 1.20.8 states, "The design of the dam wall should as far as possible blend in with the natural surroundings to maintain the 'sense of place'. Materials used and the colouring of the dam wall should match the surrounding natural area".**

The outer face of the upper dam shall consist of a natural rock layer which is sourced from the dam basin. It is anticipated that the rock colour will be similar to the rock material in the vicinity of this dam. The rock used to build the dam wall will be from the surroundings and will match the surrounding natural area. It is considered that this meets the condition as set out.

However, grassing of this dam is not considered feasible due to the following reasons:

- (i) the design slopes are at steep angles, therefore any topsoil will be susceptible to erosion and/or washing into the rockfill structure of the dam wall;
- (ii) the rockfill material of the dam is pervious. Any grassing would require very frequent irrigation, which could result in soil erosion before grass establishes itself.
- (iii) Grassing of the slopes will create a habitat for plants and trees with deep root structures which contribute to creating a flow-path through the dam wall thereby potentially leading to failure

Topsoiling and grassing are therefore not a practical solution and are not recommended for dam safety considerations.

In addition, the dam design engineers have also recommended against grassing of the downstream face of the Lower Dam for reasons (i) and (iii) mentioned above. The downstream face of the lower dam wall will therefore have a layer of rock material of size of approximately 100 mm in diameter.


Eskom trusts that DEAT would be agreeable to the interpretation of these conditions on the Environmental Authorisation, and to the fact that the conditions are contradictory or not applicable to this scheme.

With the explanation provided above, Eskom would like DEAT's confirmation on Eskom's clarifications of the fact that the above conditions may not be applicable to this scheme.

I trust you find this arrangement in order.

Yours Sincerely

DL Herbst



**ENVIRONMENTAL MANAGER**

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