



Scientific Aquatic Services

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Attention: T. Naicker

RE: SPECIALIST EXTERNAL REVIEW OF THE FRESHWATER ECOLOGICAL ASSESSMENT COMPILED AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS FOR THE NUCLEAR 1 PROJECT, WESTERN CAPE

Scientific Aquatic Services was requested to undertake a specialist external review of the freshwater ecological assessment compiled as part of the environmental authorisation process for the Nuclear 1 project by Freshwater Consulting Group undertaken by Dr. L. Day *Pr Sci Nat* (Reg No 400270/08) and Dated March 2011. The objective of the review was focused on the following aspects:

- Assess the document/ report in terms of its fulfilment of the Terms of Reference set;
- Consider whether the report is entirely objective;
- Consider whether the report is technically, scientifically and professionally credible;
- Consider whether the method and the study approach is defensible;
- Identify whether there are any information gaps, omissions or errors;
- Consider whether the recommendations presented are sensible and present the best options;
- Consider whether there are alternative viewpoints around issues presented in the report and if these are clearly stated;
- Consider whether the style of the report is written so as to make it accessible to non-specialists, technical jargon is explained and impacts are described using comparative analogies where necessary; and
- Report on whether normal standards of professional practice and competence have been met.

The following points highlight the findings of the review

Less attention was paid to formatting and grammatical issues as these have no bearing on the scientific validity and independency of the work done, however where these issues were identified during the review process it was noted and are indicated in the bullets below:

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1. Overall the report is extremely well written and provides detailed description of the alternatives assessed and the author displays in depth knowledge of the subject material;
 2. First use needs to be checked throughout the report, acronyms list needs to be updated with those used within the report;
 3. The consistent use of italics for references containing *et al.* should be checked throughout the report;
 4. Format of captions of figures and tables differ throughout the report;
 5. Some of the legends of figures are not clear, Figure 5.2 is illegible;
 6. Caption of Figure 5.2 is incomplete;
 7. Although not critical, the report would come across neater if all bullet formatting were similar throughout the report; and
 8. Page 7 – Bullet was left out before ‘Assessment of the potential impacts of specified alternatives for the temporary...’

Assess the document/ report in terms of its fulfilment of the Terms of Reference set and that the report is entirely objective. Consider whether the report is technically, scientifically and professionally credible.

It is the opinion of the reviewer that all aspects as stipulated within the Terms of Reference were adequately addressed. Findings and recommendations are based on sound scientific reasoning and information acquired over several years in combination with specialist knowledge of each area assessed. The document can therefore be considered objective and a true representation of the freshwater ecological aspects pertaining to each site.

Consider whether the method and the study approach is defensible. Identify whether there are any information gaps, omissions or errors.

It is noted that the assessment and subsequent report writing started in 2007, however methods such as Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland systems (Ollis *et al.*, 2013) were updated after use and it is suggested that the reason for outdated methods be either included as a limitation or if possible methods be updated to include the most recent methods.

None of the wetlands were assessed with the use of Wet Eco-Services as defined by Kotze *et al.* (2008). If possible this should be included or the omission thereof justified.

No reference is made to Job (2009) and if those findings contributed to conclusions made during the wetland delineation or presence of special case scenarios as specified.

No national or regional desktop information is provided as available on the Biodiversity GIS website. This information is considered important to ensure that the project takes into consideration national and regional ecological conservation targets and concerns for the area. It would also assist the general public with understanding the importance of conservation in a regional context.

No reference is made to legislation that would be applicable, should the development proceed. It is considered important for non-specialists reading the report to understand the authorisation processes that will need to be followed.

By incorporating the above it is the opinion of the reviewer that the report would not only be based on expert knowledge of the specialist, but will also incorporate methods considered best practise in the industry. Furthermore, present results can be used as baseline information against which future monitoring results can be compared, providing a long term repeatable overview of impacts which would be defensible.

Consider whether the recommendations presented are sensible and present the best options.

The recommended wetland monitoring programmes for Dynefontein and Thyspunt is largely based upon perceived conclusions and findings that would be specific to the knowledge and expertise of the appointed specialist. It is recommended that thought be given to incorporating wetland methodology such as WET-Health and Wet Eco-Services that would be defensible and repeatable by all wetland specialists with knowledge of the area.



As with Dynefontein it could prove valuable if assessment of the Function and Ecoservice provision (Kotze *et al.*, 2008) is included in the monitoring program.

Consider whether there are alternative viewpoints around issues presented in the report and if these are clearly stated.

The impact assessment allowed for in depth assessment of different layouts of infrastructure as stipulated by the Terms of Reference including desalination plants, on-site administrative buildings and infrastructure, additional roads and infrastructure within the remainder of the sites, including a 400kv power line between the NPS and the High Voltage Yard at the Thyspunt site.

The summary provided as part of the impact assessment also gives a clear description of negative and positive impacts that can be expected.

Comparison of impact assessment ratings might be aided with the inclusion of a summary table, where comparisons of the significance of similar impacts are presented next to each other. It is noted that for Thyspunt for example there are several additional impacts that had to be considered. However, by presenting the significances of such impacts in relation to the other two sites, the sensitivity of the site will be highlighted.

In addition to the Langefonteinvelei setback, it is recommended that buffers or setbacks be recommended for all identified wetlands. Extent and location will aid the decision making process as well as inform any further layout plans. The inclusion of ha of terrestrial versus wetland habitat for each site might also prove valuable.

Consider whether the style of the report is written so as to make it accessible to non-specialists, technical jargon is explained and impacts are described using comparative analogies where necessary.

The baseline information provides an in depth discussion on the findings and limitations associated with each site.

First use needs to be checked throughout the report, acronyms list needs to be updated with those used within the report. However, overall the report is set out in a logical way, findings and results are easy to interpret and should be relatively easy to understand by the general public.

Report on whether normal standards of professional practice and competence have been met.

Based on the findings of this review it is the opinion of the independent reviewer that the information presented in this report is very accurate and the results are reliable. The impact assessment is considered accurate and the mitigation measures proposed are considered relevant and necessary. However it is the opinion of the reviewer that contextual desktop information from national databases and the application of nationally accepted standard methods of classification and assessment such as the classification method of (Ollis *et al.*, 2013) and methods such as WET Health and WET Eco Services should be applied in order to improve the scientific validity of the report.

Professional Registration Details

The freshwater ecological assessment compiled as part of the environmental authorisation process for the Nuclear 1 project by Freshwater Consulting Group was reviewed by Mrs. N. van de Haar and Mr. S. van Staden, credentials presented below.

Both reviewers are professional members of the Southern African Council for Natural Scientific Professions (SACNASP) (Mrs. N van de Haar 400229/11; Mr. S. van Staden Reg. No. 400134/05) (registered for botany and ecological Sciences, respectively) and members of the Western Cape / Gauteng Wetland Forums and the South African Wetlands Society (SAWS). In addition Mr. S. van Staden is registered with the South African River Health Program as a SASS5 practitioner.

Please don't hesitate to contact me should you require clarity about this review or have any other queries.

Yours Faithfully,

Digital Documentation Not Signed For Security Purposes

Natasha van de Haar

