



Scientific Aquatic Services

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Attention: T. Naicker

RE: SPECIALIST EXTERNAL REVIEW OF THE TERRESTRIAL INVERTEBRATE ASSESSMENT IMPACT STUDY 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 terrestrial invertebrate assessment impact study compiled as part of the environmental authorisation process for the Nuclear 1 project by Ecocheck Environmental Service and Art CC, Dated February 2014. 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 well written, although it may be considered academic for the general public to grasp, however suitable explanations for statistical calculations and outcomes are given; and
 2. Consideration should be given to providing a descriptive legend for the headings within table 4 and 5, indicating what DA and DPF are describing, allowing for an individual to gain an understanding as to what is being illustrated.

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, background research and recommendations are based on sound scientific reasoning and information in combination with specialist knowledge of each alternative and habitat assessed. The report objectively illustrates the methods and outcomes of each survey, with no evident bootstrapping of data in order to attain the desired results. The document can therefore be considered objective, concise and a true representation of the invertebrate 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.

The overall experimental design of the various site assessments is sound and scientifically defensible. Scientifically acceptable techniques were utilised in order to gather the required data in order to develop the report. Assessments were carried out during varying seasons in order to gain a full species abundance and diversity across varying seasonal changes.

Within section 3.2.1, when referring to Red Data invertebrates it is stated that "...the study has not been completed and this scenario might change." Has the study since been completed and if so; is there any new data that needs to be included in the report, specifically with reference to Red Data invertebrates?

It is suggested that, in line with mitigation measures and in order to assess long term impacts, a suitable invertebrate monitoring program be detailed within the report.

By considering the above, and if the recommendations above are implemented, it is the opinion of the reviewer that the report can be considered up to date with current endangered species criteria, and can be considered representative of the alternative sites. 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 mitigation measures are considered to be suitable and cover all aspects associated with the project, and are in line with accepted industry standards and best ecological practice.

It is recommended that a monitoring program be detailed in the report, as well as a sensitivity map (if possible) so as to better guide the client in terms of infrastructure placement and manage invertebrate community and habitat sensitivities.

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

The impact assessment allowed for an accurate assessment of the alternatives in terms of invertebrate conservation, and will allow for a more informed decision to be made in terms of site selection. A sensitivity map will further enhance the clients' ability to suitably place infrastructure within the selected site and manage invertebrate community and habitat sensitivities.



A summary table comparing the impact assessment ratings of each site may have been useful for comparative and quick reference purposes, where comparisons of the significance of similar impacts are presented next to each other.

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 background information presented in terms of invertebrate ecology is in depth and provides a credible background for the report. The experimental design is suitably explained and set out.

The results presented and discussed are of an academic nature, and whilst are suitable to the industry, may be considered too technical for the general public/ non-specialists. However, the author has ensured that as far as possible, statistical methods and outcomes have been adequately explained.

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 applicable and necessary. All available and relevant background data was utilised in order to form a better understanding of each site and the invertebrate species and habitats therein. However, consideration should be given to including a monitoring program, utilising the current data as a baseline to which future monitoring data can be compared to. Furthermore, a sensitivity map indicating areas of increased sensitivity would help guide the client in the placement of infrastructure.

Professional Registration Details

The terrestrial invertebrate assessment impact study compiled as part of the environmental authorisation process for the Nuclear 1 project by Ecocheck Environmental Service and Art CC was reviewed by Mr. C. Hooton and Mr. S. van Staden, credentials presented below.

Mr. S. van Staden is a professional member of the Southern African Council for Natural Scientific Professions (SACNASP) (Reg. No. 400134/05) (registered Ecological Sciences). Mr C. Hooton obtained his BTech degree in conservation biology, and has acquired years of experience focusing on a range of terrestrial species from invertebrates to large mammals, and is currently employed as a faunal ecologist at a specialist environmental consulting firm focusing on invertebrate and vertebrate species.

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

Chris Hooton

