**JH CONSULTING**
**Acoustics, Noise & Vibration Control**

**Address: PO Box 1668, Northriding 2162 RSA**
**Tel. 011 679 2342 Fax. 088 011 679 2342**
**Cell. 082 886 7133 Email: jh29@pixie.co.za**
**VAT Nr. 4360180873**

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# Peer Review

## The Environmental Impact Assessment For The Proposed Nuclear Power Station ('Nuclear-1') And Associated Infrastructure - Noise Impact Assessment

### Assess the document/report in terms of its fulfilment of the Terms of Reference set

The report contains all the elements I would expect to be required of the ToR for an assessment of this type.

### Consider whether the report is entirely objective

I can see no evidence within the report or from my knowledge of the project that this is other than an objective professional approach to this type of assessment.

### Consider whether the report is technically, scientifically and professionally credible

There are no flaws in the technical execution or scientific assumptions which indicate that the assumptions and conclusions are not credible.

### Consider whether the method and the study approach is defensible

All three sites are all equally treated using the same predicted noise levels, plant orientation in relation to the site, and assumed site layout which enables valid comparisons between them to be made using the same predicted noise data and assessment procedures. Because of local geographical or topographical conditions, there may be changes to the actual plant layout or orientation between the three sites which will have to be taken into account and the report updated when the actual site or sites are selected.

It is true that SANS 10328 and the appropriate Noise Control Regulations which apply locally at each the three sites may be in conflict, but treated in an equal manner the comparisons and assessments are all comparable. It is noted that two of the three sites are located in the Western Province, where well-defined Noise Control Regulations were promulgated on 20 June 2013. The report should be reviewed to reflect this fact, as well as including it in the References section. It is appropriate to use the same procedures and limits for the Thyspunt site, even though it is in the Eastern Cape, in the interests of valid comparisons.
On the on the other hand it may not be appropriate to mention and discuss the WHO guidelines as these will not generally be relevant in South Africa unless funding is via an organisation requiring the use of the WHO guidelines.

Measurements and assessments have been made according to SANS 10103 and SANS 10328 as required. Site measurements have been made to determine the current noise climate at the

three proposed sites to confirm the choice of district and therefore the noise limit levels to be met.

The sound power output of the proposed plant must be determined. In the absence of reliable supplier information, the correct route is to make measurements at the existing (assumed similar) Power Station, and apply these to the new plant. At 4GW the proposed plant is 2.2 times the size of Koeberg and its current noise output is assumed identical. There is no evidence to suggest that a power station 2.2 times the power will emit 2.2 times the sound power. It may be greater or less depending on specific design features, as yet unknown, so the assumption is Neutral, the best possible under the constraints of current knowledge.

The sound levels permitted are appropriate to the type of district adjacent to the plant. The most stringent of the SANS noise zones, the rural criterion, has been used in the assessment. It could be argued that the less strict suburban criterion could in fact have been applied to one or more of the sites.

Since the report was issued there have been changes to the Western Province Noise Control Regulations which may affect some of the assumptions.

The comparisons made and the exceedances determined have been appropriately assessed.

**Identify whether there are any information gaps, omissions or errors**

Both the construction and operation conditions have been assessed. Changes in road noise have been considered where appropriate using the recommendations of SANS 10120.

The inclusion of the OCGT peaking power plant in the assessment is confusing the direct comparison of the three primary nuclear power plants, unless of course it is part of the scope of works for the Thyspunt site. The assumptions made in calculating and assessing the noise generated by the OCGT peaking power plant are the most difficult to determine and therefore the most unreliable in the report. The difference between 4x150MW turbines and 2x25MW turbines, which is a ratio of 12:1, (predicting a Tyspunt noise level 11dB lower than that measured at Ankerlig), is rather too great to be reliably predicted, and the report draws attention to this.
However, the assumption that the Thyspunt OCGT peaking power plant sound power output is proportional to the electrical power output is tentative and likely to lead to an optimistic assessment.

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

I can find no fault with the mitigation measures or other recommendations put forward.

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

It may not be appropriate to mention the WHO guidelines as these will not generally be relevant in South Africa, unless the funding for the project specifically requires this information. If not, I would prefer to remove all references the WHO, which may lead to

some unnecessary confusion and questions not immediately relevant to the target group of report recipients.

**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 report, together with the glossary of terms is appropriate for the intended recipient group

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

Yes, I have known Adrian for twenty years and can vouch for his relevant background and experience, as well as his objective professional approach to this type of assessment.

John R Hassall 21 September 2105