

PEER REVIEW OF AGRICULTURAL IMPACT SPECIALIST REPORT: NUCLEAR-1 EIR REPORT

Eskom proposes to construct Nuclear-1 with a power generation capacity of 4,000 MW on each of three sites, namely Thyspunt in the Eastern Cape, Bantamsklip in the Western Cape and Duynfontein in the Western Cape. The Agricultural Impact Assessment forms part of the Environmental Impact Report (EIR) as required by the Department of Energy. The EIR details the Impact Assessment Phase of the EIA process, which is aimed at investigating the potential impacts of the proposed nuclear power stations on the receiving environment.

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

The report states that the primary objective to measure the nature and magnitude of the impacts on agriculture emanating from the increased production activities in the Eastern Cape and Western Cape due to the construction of a nuclear power station. These aspects were adequately addressed in the report.

2. Consider whether the report is entirely objective.

The report may be considered objective, with no indication of any conflict of interest or any other undue statement(s).

3. Consider whether the report is technically, scientifically and professionally credible.

The report seems to be well-written and technically sound. It is assumed that the author is a registered professional with SACNASP, but this could not be confirmed, as it is not specifically stated.

4. Consider whether the method and the study approach is defensible.

The methodology seems to be logical and well laid out, covering the main aspects of agricultural production, namely the natural resources and the economic factors.

5. Identify whether there are any information gaps, omissions or errors.

Several errors and inconsistencies were noted:

- Concerning the soil characterisation component, there seems to have been some confusion about the mapping units used. The basic unit (at 1:250 000 scale) is the **land type**, where for each land type, the soils are listed with their expected occurrence and

properties. Each land type falls into a specific broad soil pattern, so that these can be combined to form a map with broad trends (eg sands, red soils, vertic clays etc). These broad soil patterns can also be somewhat aggregated further into **generalised soil pattern units**, which have the lowest level of detail and cannot easily be used for agricultural potential determinations. This is what was used in Figures 2-8 to 2-10, although the captions for the tables refer to broad soil patterns. For Figures 2-11 to 2-13, the figures refer to broad soil patterns, while the captions refer to land types. This is also a confusion of the level of detail. However, the principle of this report is a summary, desk-top study and is mainly concerned with agricultural production, so it is possibly not too serious. However, it seems as if the compiler mis-interpreted the **level** of soil data.

- There are soil analyses for 8 samples given in Appendix 2 (four each for Thyspunt and Bantamsklip, none for Duynfontein). However, it is not stated where these samples were collected (co-ordinates), whether they are topsoil or subsoil samples or what the classification of each soil is. In addition, there is no mention of the soil analyses in the report, leading one to wonder what the point of including such data was.
- One of the main stated impacts concerns dust generation from roads. It can be expected that construction of such roads will be done using locally sourced materials (eg gravel from borrow pits and topsoil) from the vicinity. Therefore, in order to properly assess the impact of the dust, a number of 7-fraction particle size soil analyses should be done, so that the specific percentage of fine grade soil particles (which are more likely to be detached and carried by wind action) can be assessed. In addition, information on wind strength and direction needs to be collected.

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

The report contains all the information necessary to summarize the status of agricultural potential in the three study areas. The economic analysis seems to be well stated and comprehensive.

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

It is unlikely that there are major alternative viewpoints that have not been considered.

8. 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 is written in plain English and is thus accessible to non-specialist readers. Technical jargon is limited to a minimum and concepts are adequately explained.

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

With the exception of the issues highlighted in Section 5 above, most of which are not critical for a summary report of this nature, the report is generally professionally compiled, laid out and presented.

Signed:



Date: 14th February 2016

DG Paterson (Ph.D.), ARC-Institute for Soil, Climate and Water, Pretoria
(SACNASP Registration

400483/04)


RESPONSE FROM SPECIALIST: MR JON HOWCROFT ON COMMENTS

<p><u>1. Assess the document/ report in terms of its fulfilment of the Terms of Reference set</u></p> <p>The report states that the primary objective to measure the nature and magnitude of the impacts on agriculture emanating from the increased production activities in the Eastern Cape and Western Cape due to the construction of a nuclear power station. These aspects were adequately addressed in the report.</p>	Noted
<p><u>2. Consider whether the report is entirely objective.</u></p> <p>The report may be considered objective, with no indication of any conflict of interest or any other undue statement(s).</p>	Noted
<p><u>3. Consider whether the report is technically, scientifically and professionally credible.</u></p> <p>The report seems to be well-written and technically sound. It is assumed that the author is a registered professional with SACNASP, but this could not be confirmed, as it is not specifically stated.</p>	Noted
<p><u>4. Consider whether the method and the study approach is defensible.</u></p> <p>The methodology seems to be logical and well laid out, covering the main aspects of agricultural production, namely the natural resources and the economic factors.</p>	Noted
<p><u>5. Identify whether there are any information gaps, omissions or errors.</u></p> <p>Several errors and inconsistencies were noted:</p> <ul style="list-style-type: none"> Concerning the soil characterisation component, there seems to have been some confusion about the mapping units used. The basic unit (at 1:250 000 scale) is the land type, where for each land type, the soils are listed with their expected occurrence and properties. Each land type falls into a specific broad soil pattern, so that these can be combined to form a map with broad trends (eg sands, red soils, vertic clays etc). These broad soil patterns can also be somewhat aggregated further into generalised soil pattern units, which have the lowest level of detail and cannot easily be used for agricultural potential determinations. This is what was used in Figures 2-8 to 2-10, although the 	<ul style="list-style-type: none"> The author only used generalised soil information for land classification as that was all that was available. The author does not believe the data and the detail of the data have been misinterpreted. However, the dust referred to would come from a gravel road (not the farm lands) so the soil classification of the lands is not relevant. The actual soil samples were taken from within the footprint of the actual plant (as this is the only area that would be taken out of potential agricultural production (as you know there is no production at the moment)

<p>captions for the tables refer to broad soil patterns. For Figures 2-11 to 2-13, the figures refer to broad soil patterns, while the captions refer to land types. This is also a confusion of the level of detail. However, the principle of this report is a summary, desk-top study and is mainly concerned with agricultural production, so it is possibly not too serious. However, it seems as if the compiler mis-interpreted the <i>level</i> of soil data.</p> <ul style="list-style-type: none"> • There are soil analyses for 8 samples given in Appendix 2 (four each for Thyspunt and Bantamsklip, none for Duynefontein). However, it is not stated where these samples were collected (co-ordinates), whether they are topsoil or subsoil samples or what the classification of each soil is. In addition, there is no mention of the soil analyses in the report, leading one to wonder what the point of including such data was. • One of the main stated impacts concerns dust generation from roads. It can be expected that construction of such roads will be done using locally sourced materials (eg gravel from borrow pits and topsoil) from the vicinity. Therefore, in order to properly assess the impact of the dust, a number of 7-fraction particle size soil analyses should be done, so that the specific percentage of fine grade soil particles (which are more likely to be detached and carried by wind action) can be assessed. In addition, information on wind strength and direction needs to be collected. 	
<p><u>6. Consider whether the recommendations presented are sensible and present the best options.</u></p> <p>The report contains all the information necessary to summarize the status of agricultural potential in the three study areas. The economic analysis seems to be well stated and comprehensive.</p>	Noted
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<p><u>described using comparative analogies where necessary.</u></p> <p>The report is written in plain English and is thus accessible to non-specialist readers. Technical jargon is limited to a minimum and concepts are adequately explained.</p>	
<p><u>9. Report on whether normal standards of professional practice and competence have been met.</u></p> <p>With the exception of the issues highlighted in Section 5 above, most of which are not critical for a summary report of this nature, the report is generally professionally compiled, laid out and presented.</p>	Noted

Response submitted by Jonathan Rhodes Howcroft as representative of Golder Associates Africa (Pty) Ltd.



Jonathan Rhodes Howcroft