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Attention: Mr. Anthony Barnes

RE. COMMENTS: PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT FOR ESKOM'S PROPOSED NUCLEAR-1, -2 AND -3 POWER STATIONS AND ASSOCIATED INFRASTRUCTURE

Dear Mr. Barnes

Your correspondence to Ms. M. Ntene of the then Department of Environmental Affairs and Tourism (DEAT) (now Department of Environmental Affairs or DEA) entitled "*Comments: Plan of Study for Environmental Impact Assessment for Eskom's Proposed Nuclear-1, -2 and -3 Power Stations and Associated Infrastructure*" (Reference: E12/2/3/5-A5/15-WJ140/07), dated 23 June 2009, refers.

Arcus GIBB acknowledges receipt of the above-mentioned letter. We thank you for your valuable comments and your participation in the Environmental Impact Assessment (EIA) for the proposed Eskom Nuclear Power Station (NPS) process to date.

Responses to your comments are as follows:

1. Your comment: Alternative sites

Based on the findings of the Scoping Report, the Brazil and Schulpfontein sites were not considered feasible for further assessment based on severe time constraints associated with Nuclear-1's development coupled with limited local demand and the lack of existing power corridors. Now that three nuclear power stations are being considered with the last envisaged to be constructed in 2016, it is argued that it may not be reasonable to exclude these two sites from the current EIA process. Furthermore, much needed specialist studies at these two sites may provide information to suggest that these sites are more appropriate for development than the other sites identified. It is this Department's view that the Brazil and Schulpfontein sites should be included in the EIA based on the fact that the reason for excluding them in the first place may no longer be valid.

If the DEAT have agreed in principle with Eskom's approach to submit a combined application, it is not understood why Eskom cannot pursue the proposed combined application at present i.e. why Eskom is waiting for the amended EIA regulations to be promulgated.

1. Response

As correctly highlighted by yourself, originally five (5) alternative sites were considered namely, Schulpfontein, Brazil, Thyspunt, Bantamsklip and Duynefontein. The Schulpfontein and Brazil sites were excluded during the Scoping Phase. The Final Scoping Report was approved by DEAT on the 19th of November 2008. Section 2.17.1 of the DEAT letter states that "The Department accepts the exclusion of the



Brazil and Schulpfontein sites for further investigation in this EIA process, as they are not technically feasible at this stage. The Department has also however noted that these sites will be considered for future Nuclear projects.”

In terms of Section 29 (b) of Government Notice No. R 385 of 2006 under the National Environmental Management Act, 1998 (Act No. 107 of 1998), scoping reports should include “a description of the proposed activity and of any feasible and reasonable alternatives that have been identified”. Based on the information contained in Eskom’s 20 GW Nuclear Transmission Grid Draft Impact Report (2007), which was included as an appendix to the Scoping report, it is evident that Brazil and Schulpfontein are not considered as feasible alternatives to be pursued in the EIA process for Nuclear-1.

Furthermore, your assertion that Eskom’s investigation of the potential roll out of up to 20 000MW of nuclear power negates the time constraints originally identified as one of the reasons for the Northern cape sites, neglects to consider the remaining issues that prevent the development of Brazil and Schulpfontein as part of the initial phase of the 20 000MW as indicted in the Plan of Study for Scoping.

In this regard the final Scoping report states the following:

*“Thus, the Brazil and Schulpfontein sites require the construction of new power corridors and the exportation of the majority of the power to areas of demand given the limited local demand (**Figure 78**). Thus, the Brazil and Schulpfontein sites are deemed unfeasible for the proposed NPS based on the following reasoning:*

- *Optimal, strategic and cost effective utilisation of existing infrastructure associated with the Duynefontein, Bantamsklip and Thyspunt sites, with respect to local integration and exportation of power via existing power corridors;*
- *Prevention of lengthy time delays associated with the authorisation and construction of the new power corridors applicable to the Brazil and Schulpfontein sites, which will prevent Eskom from providing the power within the required timeframes;*
- *Unnecessary environmental impacts associated with the construction of new power corridors given that there is existing infrastructure; and*
- *Cost implications associated with the development of new power corridors”*

All issues identified above are considered to be relevant for nuclear development on the Northern Cape sites for the short- to medium-term.

Severe time constraints to the nuclear programme are still applicable. In spite of the current economic downturn, the programme for Eskom to meet energy demands in South Africa is very stringent. The EIA for Nuclear-1 remains on the critical path of Eskom’s nuclear programme, with the first Nuclear Power Station (NPS) expected to be operational by 2018.

DEAT can only approve a proposed development in terms of current legislation. Thus there is no legal basis for approval of the combined application before the amended NEMA EIA Regulations are promulgated. In this light Eskom has only indicated its intention to apply to DEA to have all three sites approved. The realisation of such an intention will depend on the final promulgation of the amended NEMA regulations and DEA’s approval thereof based on the legislation and consideration of public comment received on the revised Plan of Study for EIA.

2. Your comment: Other Alternatives

With respect to alternatives, the POS EIA is not clear about what types of alternatives will be assessed in the EIA other than plant layout options on the various sites. Power generation alternatives (dealt with in terms of need and desirability for the proposed developments), nuclear technology alternatives and nuclear fuel options are not mentioned and should form part of the EIA.



2. Response

Nuclear fuel elements are designed and manufactured for a specific nuclear power station technology and form an integral part of the design and operation of the nuclear reactor and the safety systems. The design of the nuclear fuel is thus integral to the safety analysis and the nuclear installation licence issued by the National Nuclear Regulator (NNR). The proposed nuclear power station will make use of the latest proven Pressurized Water Reactor (PWR) technology, which includes the design of nuclear fuel. The design of the technology under consideration already takes into account the efficiency of fuel utilisation and the production of used fuel. The management of used (spent) fuel will be further discussed in the EIR.

Power generation and technology alternatives were discussed in the Scoping Report, where relevant these technologies will be discussed further in the EIR as a means of explaining relevant processes and motivations. Plant type alternatives, will be based on commercial availability, the tender process and NNR requirements and therefore the NNR is the competent authority in this regard. As a result, envelope data will be used to assess the worst case scenario associated with the various plant types and will therefore account for the worst case potential environmental impacts. Plant layout options and their potential environmental impacts will be assessed for the various sites.

3. Your comment: Decommissioning

Impact methodology is presented for the construction and operation phases of the development. The decommissioning phase of the development seems to have been disregarded. Although this phase will only come onto (into) effect after 60 yrs of operation making it practically difficult to assess all the impacts associated with this phase at present, there are impacts that must be assessed in the EIA. For example, the consequences for future land use options around the sites and the economic impacts related to the decommissioning phase must be assessed. The public and authorities must be in a position to understand what the long term implications of the project on the environment will be and adequate forward planning must be done to ensure that the environment is protected for future generation. These aspects must be assessed as part of the EIA.

3. Response

The specialists will assess the potential impacts associated with the decommissioning phase to the best of their ability in the Environmental Impact Report, given the information available at present. The impacts and the management will also be determined by the selected decommissioned strategy coupled with technological and legislative advancements. Arcus GIBB will provide generic guidelines, principles and criteria based on international literature and best practice. The EMP will also contain specific 'in principle' commitments which will ensure responsible decommissioning.

Further, the EIR will also elaborate on the NNR's role and requirements on decommissioning and address the long-term impacts and the long-term sterilisation of land, as requested by DEAT in their letter dated 19 November 2008.

4. Your comment: Emergency Response

The Emergency Response Specialist Assessment should include an investigation of emergency preparedness in the areas to be affected i.e. the degree to which medical facilities are prepared for casualties as a result of a nuclear incident at any of the plants as well as information as to what measures have been put in place and ...(fax unclear at this point) ...decision on the matter i.e. the safety case will have had to be finalised and reviewed by the NNR and approved before an environmental authorisation is issued. In any event, the construction of the plants will not be able to commence without the NNR's installation licence which follows the evaluation of the safety case.



The POS EIA is not clear regarding the link between the DEAT environmental authorisation process and the National Nuclear Regulator (NNR) licensing process. The timing of these various decisions has also not been made explicit. The agreement between DEAT and the NNR of 15th June 2006 on how to deal with these matters has also not been included in the report. A clear indication of how the co-operative arrangement between DEAT and the NNR will work as well as the responsibilities of these two parties must be provided in a final POS EIA.

4. Response

This will be conveyed to the relevant specialist. The Revised Plan of Study for EIA states that the following will be undertaken as part of the Emergency Response study:

- *Address all emergency procedures applicable to both the construction and operational phases; and*
- *Consider evacuation and resources required for effective execution of the emergency responses.*

The Plan of Study for EIA explained the co-operative arrangement between the NNR and DEAT. We refer to the document titled "Notification of statement issued by the then Department of Environmental Affairs and Tourism (now the Department of Environmental Affairs) regarding the consideration of matters pertaining to nuclear safety in environmental impact assessment processes on nuclear installations" dated 10 February 2009 (included as Appendix 2 in the Revised Plan of Study). The document serves to communicate consensus reached between DEAT and the NNR. This document is available on www.Eskom.co.za under the Nuclear-1 EIA folder.

5. Your comment: Transport

It has been indicated that the determination of emergency planning zones will form part of the NNR process. This aspect, however, has implications for future land use options as well as infrastructure upgrades or new infrastructure needed for safe evacuation and this it should be evaluated as part of the EIA.

5. Response

In addition to the response provided in Response 5 it should be noted that potential land use impacts as a result of the proposed nuclear development will be assessed as part of the EIA. Although emergency planning issues will be discussed they will not be assessed, rather all assessments will focus on the various social and economic implications. In this regard a maximum EPZ of 3 000m will be utilised for all assessments

6. Your comment: Nuclear waste management

The issue of nuclear waste handling, management, storage and disposal does not seem to be covered explicitly by any of the specialist studies. How will this matter be addressed in the EIA?

6. Response

The disposal of non radioactive waste will be discussed in the EIR as well as the Environmental Management Plan (EMP). With respect to the various streams of radioactive waste, it must be noted that handling of radioactive waste falls under the jurisdiction of the Minister of Minerals and Energy in terms of the Nuclear Energy Act, and is also subject to a licensing process from the NNR.



7. Your comment: Peer review

It is not clear whether or not the findings of the specialist reviewers will be included in the EIR. The findings of the specialist reviewers must be made public knowledge to ensure transparency and promote informed decision making.

This department reserves the right to revise or withdraw comments or request further information from you based on any information received.

7. Response

The peer review process was undertaken as an internal quality check of the specialist reports. The intention was not to make these reports available to the public as the inclusion of peer review is not a legal requirement. In a letter from DEAT dated 19 November 2008, accepting the Final Scoping Report, they state that "The appointment of peer reviewers is not a legal requirement, but the role and deliverables of the peer reviewers must be made clear in the EIR". A statement of quality from all peer review specialists will be included in the EIR, thus assuring the general public that the reports meet all scientific and objectivity requirements as per the requirements of the EIA

The project team would like to assure you that the Department's comments are important to us and that your continued involvement in this process is valued. Your comments will be captured in an addendum to the EIR, which will be submitted to the decision-making authority in due course.

Please do not hesitate to contact us at any stage should you require any additional information regarding this proposed project.

We thank you for providing us the opportunity to respond to these comments and look forward to your ongoing involvement in the project.

Yours sincerely

For and on behalf of Arcus GIBB (Pty) Ltd

Jaana-Maria Ball
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Director and Discipline Leader
Environmental Services Division