

Our Ref: J27035



22 June 2010

Department of Environmental Affairs
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For the attention of: Ms. Joanne Yawitch

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Dear Ms. Yawitch

NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT: INDEPENDENCE OF ARCUS GIBB AS ENVIRONMENTAL ASSESSMENT PRACTITIONER (Your reference: 12/12/20/944)

Your letter to Arcus GIBB (Pty) Ltd (GIBB) signed on 10 May 2010 with respect to the above refers. We refer to the last page of the letter, on which it is stated that GIBB must make representations to the Department of Environmental Affairs (DEA) within 14 days of the signature of the letter, as well as an email from Ms. Lené Grobbelaar of your department, received on 11 June 2010, in which it is stated that the date of signature may be counted as the date of receipt of this email.

Please find below GIBB's response to your letter, which we have numbered for ease of reference. We value your comments and believe that critical review of our Draft Environmental Impact Report (DEIR) is necessary and adds to the robustness and validity of our assessment. We would welcome the opportunity to provide the DEA with a presentation on the findings of the DEIR.

No.	Text of DEA letter	GIBB response
1	<p>The site, which has been indicated as the preferred alternative (Thyspunt), after all specialist studies have been completed, is the most sensitive site. The following table indicates the potential environmental impacts and how the three sites measure up with regards to impacts of high and low significance (Table inserted as Appendix 1 to this response by GIBB).</p> <p>From the above table, it is clear that Thyspunt is most sensitive and it therefore does not make sense that Thyspunt is recommended as the preferred site.</p> <p>As indicated in the Draft EIR, the results of the specialist studies as well as an integration workshop with the specialists, the costs and the transmission integration requirements were taken into consideration when selecting Thyspunt as the preferred option.</p> <p>The Department however does not</p>	<p>The selection of the preferred site was carried out in Section 9.28 of the Draft EIR. For a full understanding of the method of evaluating potential impacts of the site alternatives, it is necessary to refer to this section of the Report. A reading only of the relevant section of the Executive Summary does not provide a complete understanding of the rationale for the preferred site.</p> <p>As indicated in Section 9.28.1, the selection of the preferred site was based on a combination of technical and environmental factors, including the following:</p> <ul style="list-style-type: none">• Results of the specialist studies: specialists have indicated the relative significance of potential impacts with mitigation at each of the three alternative sites;• An integration workshop, involving all specialists, on 24 and 25 November 2009, where potential impacts and



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	<p>understand which weighting was coupled to which impacts, as the list of impacts selected as the most important for decision-making (as per page 11 of the Draft EIR) are as follows:</p> <ol style="list-style-type: none"> a. Transmission integration factors; b. Seismic suitability of the sites; c. Impacts on dune morphology; d. Impacts on wetlands; e. Impacts on vertebrate fauna; f. Impacts on invertebrate fauna; and g. Economic impacts. <p>It seems that weightings to factors a, b and g were rated to weigh heavier than c to f. If factors a, b and g were rated as weighing more heavily, the Department would like to know how these weightings were determined and who the responsible parties were that decided on these weightings. If factors c to f were also used in determining the most suitable site, Thyspunt would have clearly come out as being the most sensitive of all the proposed sites.</p> <p>With regards to factor a, b and g, the Department is not convinced that Thyspunt would have been the recommended site in terms of those factors either. With regards to transmission integration, the Department believes that the Duynefontein site would be easier to integrate into the grid than Thyspunt. With regards to the seismic suitability of the site, the Department notes that there is not a major difference between the three sites. On page 6 of the Draft EIR you indicate that any deviations from a standard nuclear power station design will result in potentially significant cost and time delays to the project. With regards to the economic impacts, the Department is not clear to which economic impacts the reference is made. Is the economic impacts referred to beneficial to the applicant or to the Thyspunt site?</p>	<p>ranking of the sites was discussed;</p> <ul style="list-style-type: none"> • Costs; and • Transmission integration requirements. <p>One of the primary objectives of the specialist integration meeting was to agree on ranking and rating criteria for the EIA to select the most preferred site alternative for Nuclear-1.</p> <p>It must be emphasized that all 24 specialists were specifically requested to assess whether there are any fatal flaws associated with any of the three sites and were required to report on this at a specialist integration meeting held on 24 and 25 November 2009. This meeting was held after completion of draft specialist reports. <u>None of the specialists found fatal flaws at any of the three sites, as stated on page 9-246 of the Draft EIR.</u> The full presentations that the specialists delivered at this integration meeting, including their findings in terms of the presence of fatal flaws, can be provided for the DEA's perusal.</p> <p>The rationale for the selection of key decision factors is explained in Section 9.28.1(b) of the Draft EIR. This rationale is based on the discussion of decision-making factors at the specialist integration meeting. All 24 specialists had input into the selection of these decision factors. A summary of the key decision factors, based on the preceding discussions, was presented to the specialists at the end of the integration meeting, for ratification. The weightings in Table 9-74 in the Draft EIR are based on these discussions.</p> <p><u>All 7</u> key decision factors "a" to "g" were included in the ranking of the sites. With regards to the ranking of sites according to factors a, b and g, please refer to the discussion below in respect of factor "a" (transmission integration), "b" (seismic suitability) and "g" (economic impacts).</p> <p><u>Transmission integration (Factor "a"):</u> For a full understanding of transmission integration factors, it is necessary to refer to Section 9.27 of the Draft EIR, as well as the Eskom report on which this is based (Appendix E 28 of the Draft EIR).</p>

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		<p>Integration considerations were based on three factors, namely:</p> <ul style="list-style-type: none"> • System reliability and quality of supply; • Integration considerations; and • Future potential for generation in each of the provinces. <p>In terms of reliability and security of supply, the critical factors favouring the Eastern Cape is the fact that generation in this province currently only supplies 4% of the load (from a peaking power plant), and the remaining power is imported into the province. In contrast, the Western Cape already has significant generation capacity installed in terms of base load and peaking capacity.</p> <p>In terms of the transmission system, Thyspunt and Duynefontein rank equally, with the exception of the ease of acquiring transmission corridors. Recent experience has indicated that obtaining transmission servitudes is exceptionally difficult in the Western Cape. The relatively short length of the lines favours Duynefontein, but from a national transmission planning perspective, the Eastern Cape is preferred. Development of a power station in the Eastern Cape would result in substantial improvement in system adequacy and supply security due to a better “generation to load balance” in the local area, as it has no base-load generating capacity. Strengthening of the Western Cape network is still required in time, but Eskom can delay this until after the construction of a power generation infrastructure in the Eastern Cape.</p> <p><u>Seismic rating of the sites (Factor “b”):</u> As far as the site selection of a nuclear power station is concerned, the seismic characteristics of the site are key. Seismic suitability is assessed in Section 9.4 of the Draft EIR and in Appendix E4. As stated in the Draft EIR, the Peak Ground Acceleration (PGA) values for Duynefontein, Bantamsklip and Thyspunt are 0.3 g, 0.23 g and 0.16 g respectively. As stated on p. 9-13 of the Draft EIR, a Senior Seismic Hazard Analysis Committee (SSHAC) Level 3 study must also be undertaken at the sites. Such an assessment may raise the PGA value, in which case Duynefontein’s PGA is at risk of being raised above the 0.3 g for which a standard nuclear power station is designed. This risk is remote for Thyspunt, as its PGA value is almost half of 0.3 g.</p>

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		<p><u>Economic impacts (Factor “g”):</u> The macroeconomic impact analysis gives mixed results for the construction and operational phases at the three sites. Macroeconomic indicators favour the Western Cape sites but household and social indicators favour Thyspunt. The cost-effectiveness analysis indicates that Thyspunt has a very slight edge over Duynefontein and a somewhat larger edge over Bantamsklip. The economic specialists gave slightly greater weight to cost-effectiveness, which favours Thyspunt.</p> <p><u>Costs of deviations from a standard power station design:</u> With regards the costs of deviations from a standard Nuclear Power Station design, your attention is drawn to p. 9-248 of the Draft EIR, where the following is stated with regards to additions to the budget of a power station as a result of a seismic value beyond 0.3g: <i>“No detailed cost assessment of such additions has been undertaken (since it requires detailed design work and since it will only be undertaken if it is confirmed that the seismic risk exceeds the design basis of 0.30 g), but indications from the Koeberg experience are that it would add approximately 1.5 % to the total construction cost (i.e. approximately an additional R 2.25 billion based on the 2008 estimate of R 150 billion per nuclear power station)”</i>.</p> <p>Such economic impacts (additional costs) would accrue to Eskom and, ultimately, would be passed on to the public, as Eskom is a public entity. Such negative economic impacts would therefore be experienced on a national scale.</p>
2	<p>The Department is also concerned that the Bantamsklip site is removed from further consideration purely based on the costs of the project to the applicant.</p>	<p>Bantamsklip was not removed from consideration only on the basis of cost. As indicated on Page 9-258 of the Draft EIR, the exclusions of Bantamsklip from further consideration is based on <u>three</u> factors, of which only one is cost:</p> <ul style="list-style-type: none"> • Cost (Bantamsklip would be approximately R 8 billion more expensive than either of the other two sites); • Cumulative environmental impacts of the power station and transmission lines, based on the significantly longer transmission corridors associated either of the other sites (Appendix E 28), the relative sensitivity of the terrain through which the Bantamsklip transmission lines would be required to pass and the larger size (765 kV as opposed to 400 kV for

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		<p>the other two alternative sites).</p> <ul style="list-style-type: none"> • Furthermore, potential impacts on invertebrate fauna are of significantly higher significance at Bantamsklip than at either of the other site alternatives, due to the confirmed presence of two undescribed species at Bantamsklip.
3	<p>On page 11 of the draft EIR, you state that it is acknowledged that Thyspunt would experience environmental impacts of higher significance (particularly biophysical impacts) than Duynfontein. You then emphasise that the positive impact of long-term conservation on site is a significant positive impact. The Department would like to remind you that the site is currently owned by the applicant and terms of Section 28 of the National Environmental Management Act, Act 107 of 1998 (NEMA) as amended, which relates to "Duty of Care", the applicant has a responsibility to take care of their property.</p>	<p>The statement regarding the potential conservation benefits on p. 11 of the Draft EIR's Executive Summary is based on the findings of the biophysical specialists, and is related to the significant conservation benefits that have been realised through the establishment of the Koeberg Nature Reserve more than 20 years ago.</p> <p>GIBB takes note of the "Duty of Care" provisions in terms of NEMA. However, as much as this duty of care is applicable to Eskom as a landowner, it is equally applicable to all other owners of land in proximity to the sites. If one were to place reliance only on the 'Duty of Care' principle, it might be possible to do away with formal conservation management completely. However, the history of development, particularly around Thyspunt, indicates that relying on the 'Duty of Care' for responsible management of the land will not secure appropriate conservation and that formal conservation is essential.</p> <p>Development over the past decades (including large recent developments that have been authorised through formal EIA processes), has demonstrated that the ecosystems, physical and biological processes around the site continue to be impacted significantly. The vast majority of the land around the Thyspunt site is covered by invasive alien plants and the functioning of the mobile bypass dune system has been virtually destroyed. Therefore, the declaration of the Thyspunt site as a formal conservation area, as well as the purchase of private land outside the current Eskom-owned land to secure it for conservation (as recommended in the DEIR) would secure a significant portion of land for conservation. The opinion of the biophysical specialists, based on this experience, is that "Duty of Care" and even legislated EIA processes, cannot be relied on to secure protection of sensitive environmental systems.</p> <p>Eskom is currently practicing active conservation at all three alternative sites, although the Koeberg site is the only officially declared Nature Reserve.</p>

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4	According to the three sensitivity maps included in the Draft EIR, Thyspunt was identified as the most sensitive site and this site also has a minimum amount of "least sensitive areas" compared to the other two sites.	Your comment is noted. The sensitivity maps indicate the areas of least sensitivity, but do not indicate "no-go" zones where no development should be allowed. Given appropriate mitigation, all three alternative sites can be developed.
5	The Department finds it difficult to believe that the beneficial impacts of the development of the Thyspunt site would outweigh the detrimental impacts of the development of that site.	Refer to the response to point 3 above. Although potential negative impacts may be significant in the short term, particularly during the construction phase (9 years), the biophysical specialists indicated that the long-term benefits of the declaration of a conservation area around the power station (which would extend beyond the 60-year life span of the power station) would also be significant and could potentially outweigh the initial construction-related impacts.
	The Department hereby questions how the EAP could have reached the conclusion with regards to the preferred site with all the information that came forward during the drafting of the EIR report.	As indicated above, our recommendation of Thyspunt as the preferred site is based on a number of factors, including technical factors, a number of social and biophysical factors, and cost. The evaluation of the sites takes into account factors within all three spheres of sustainability, namely economic, social and biophysical factors.
	Section 18 of the EIA Regulations, GN R385, reads as the follows: "An EAP appointed in terms of regulation 17 (1) must – a) be independent; b) have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity; c) perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; d) comply with the Act, these Regulations and all other applicable legislation; e) take into account, to the extent possible, the matters listed in regulations 8 (b) when preparing the application and any report relating to the application; and f) disclose to the applicant and the competent authority all material information in the possession of the EAP that reasonably has or may have the potential of influencing: i. any decision to be taken with respect to the application by the competent authority in terms of	As indicated above, Arcus GIBB believes that its independence has not been compromised and that its assessment of the preferred site has been based on the relevant and important decision factors. We value your comments and would welcome an opportunity to interact with your review team in this regard.

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	<p>these Regulations; or</p> <p>ii. the objectivity of any report, plan or document to be prepared by the EAP in terms of these Regulations for submission to the competent authority [my emphasis]</p> <p>This section clearly emphasises the requirement that the EAP must be independent.</p> <p>Based on the abovementioned analysis, <i>inter alia</i>, we have reason to believe that your independence may have been compromised.</p> <p>In accordance with Section 19 of GN R385 of the EIA Regulations, April 2006 as per NEMA, which reads as follows:</p> <p>“19 (1) If the competent authority at any stage of considering an application has reason to believe that the EAP managing an application may not be independent in respect of the application, the competent authority must –</p> <p>a) notify the EAP of the reasons for the belief; and</p> <p>b) afford the EAP an opportunity to make representations to the competent authority regarding his or her independence, in writing.”</p> <p>The Department is hereby requesting the EAP to submit representations to this Department regarding their independence within 14 days of the date of signature of this letter.</p>	

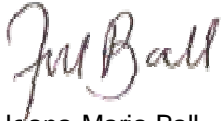
As independent Environmental Assessment Practitioners, we re-affirm our commitment to comply with the letter and intent of our responsibilities in terms of the EIA regulations, particularly Section 18 of Government Notice No. R 385 of 2006, as follows:

- “18. An EAP appointed in terms of regulation 17(1) must –
- (a) be independent;
 - (b) have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity;
 - (c) perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
 - (d) comply with the Act, these Regulations and all other applicable legislation;
 - (e) take into account, to the extent possible, the matters listed in regulation 8(b) when preparing the application and any report relating to the application; and
 - (f) disclose to the applicant and the competent authority all material information in the possession of the EAP that reasonably has or may have the potential of influencing –
 - (i) any decision to be taken with respect to the application by the competent authority in terms of these Regulations; or
 - (ii) the objectivity of any report, plan or document to be prepared by the EAP in terms of these Regulations for submission to the competent authority”.

Arcus GIBB has engaged respected independent peer reviewers to review the DEIR and provide us with an independent opinion on its objectivity and independence.

Should the DEA have any further comment or queries with respect to the information contained in this letter or the DEIR, please do not hesitate to contact us.

Yours faithfully
for and on behalf of Arcus GIBB (Pty) Ltd



Jaana-Maria Ball
Nuclear-1: EIA Manager



Reuben Heydenrych
Senior Environmental Scientist

Cc. Ms. Deidre Herbst – Environmental Manager, Eskom Generation

APPENDIX 1
Table from DEA letter indicating site preferences

POTENTIAL ENVIRONMENTAL IMPACTS	LOW SIGNIFANCE	HIGH SIGNIFICANCE
Geology and geological risk assessment	All three sites	
Seismological risk	Thyspunt followed by Bantamsklip and Duynefontein	
Geotechnical suitability		All three sites
Hydrological conditions	All three sites	
Fresh water supply	All three sites	
Dune morphology	Bantamsklip and Duynefontein	Thyspunt
Air quality	All three sites	
Flora	Bantamsklip	Thyspunt followed by Duynefontein
Wetlands	Bantamsklip and Duynefontein	Thyspunt
Terrestrial vertebrate fauna	Duynefontein	Bantamsklip and Thyspunt
Terrestrial invertebrate	Duynefontein	Bantamsklip and Thyspunt
Fauna		
Marine biology		All three sites
Oceanographic impacts	All three sites	
Economic impacts	Bantamsklip and Duynefontein	Thyspunt
Social impacts		All three sites
Visual impacts		All three sites
Heritage impacts	Duynefontein	Thyspunt followed by Bantamsklip
Agricultural impacts	Thyspunt followed by Bantamsklip	Duynefontein
Tourism impacts	Duynefontein and Bantamsklip	Thyspunt
Noise impacts	Duynefontein and Bantamsklip	Thyspunt
Transportation systems	Duynefontein	Bantamsklip and Thyspunt