Our Ref: J27035

Johannesburg

14 Eglin Road
Sunninghill 2191
PO Box 2700
Sunninghill 2128

Tel: +27 11 519 4600
Fax: +27 11 807 5670
Web: www.gibb.co.za

21 December 2011

Attention: St Francis Bay Residents' Association, on behalf of the Thyspunt Alliance

Dear Sir

ESKOM ENVIRONMENTAL IMPACT ASSESSMENT (EIA:12/12/20/944) FOR A PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Your correspondence to Ms. Bongi Shinga of ACER (Africa) entitled *"Response to Nuclear 1 Draft Environmental Report 1"* refers.

Arcus GIBB (GIBB) acknowledges receipt of the above-mentioned letter. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Your Comment (1)

Introduction

This response relates only to the Thyspunt site, and not to those at Duynefontein or Bantamskip, except where comparison may be indicated.

It is emphasized that this response is without prejudice; that we retain all options; and that it is provisional, on the grounds that minutes of meetings and audio-recordings have either not been made available, or have been released at the last minute prior to follow-up meetings, despite having been promised within a week of meetings.

The context of this proposal is to place a huge industrial plant, at an estimated cost is in excess of R100 billion, with all its associated infra-structure, on a section of sensitive virgin coastline, some of which is of high conservation value, on a major tourism route, adjacent to well-established and world-renowned resorts, with an existing economic system based on tourism and fisheries, both of which could be threatened, with consequent loss of sense of place, and without consideration of alternative sites.

In the view of this Association, environments such as these are a scarce resource, should be regarded as part of South Africa's heritage, and should only be disturbed if all other options have been exhausted.

In view of the multi-faceted nature of this response, it has been divided into three sections:

- Due process
- Specialist reports
- Case for review of sites

Response (1)
We take note of your comments.

Your Comment (2)
Due process
The view of this Association is that due process is not being followed in this EIA for the reasons given below:

i) The attitude of the developer, Eskom, appears to be that the selection of the five sites in the early nineteen-eighties is beyond question; that the outcome of the EIA is a foregone conclusion; and that all is required is to go through the motions as required by the NEMA Regulations, which did not exist when the sites were selected. Strategies used have amounted to gross abuse of the EIA process, through omission of material information, fragmentation, exclusion of the NNR from the EIA process, and inadequate information to I & A Ps.

ii)
See Appendix 1 – Letter from Coega Development Corp to DEA.

Response (2
The establishment of an NPS includes a number of activities, which require authorisation in terms of the Environmental Impact Assessment (EIA) Regulations promulgated under the National Environmental Management Act (No. 107 of 1998), as amended. The EIA process, by law, is administrated by the Department of Environmental Affairs (DEA). It is Eskom's view that the EIA process has been followed, this is supported by the fact that the authorities have approved both the scoping report and the Plan of Study for EIA.

Your Comment (3)

iii) The attitude of the EIA consultants, Arcus Gibb is similar. They have clearly been mandated by Eskom to obtain a favourable ROD, and have consistently favoured Eskom in the public meetings held in this area. In our view this is contrary to the requirements of Clause 18 of the NEMA Regulations, and could lead to the invoking of clause 19.

Response (3)
From the Environmental Assessment Practitioner's (EAP's) point of view, the basis of the site selection process, namely the Nuclear Site Investigation Programme (NSIP), was reviewed during the Scoping Process and found to be based on facts that continue to be valid. This approach has also been approved by the Department of Environment Affairs (DEA), as well as the Final Scoping Report. The Final Scoping Report recommended that certain of the alternative sites were carried forward for further investigation in the EIA Phase of the EIA. The technical specialists that undertook studies during the Scoping Phase confirmed that the three alternatives carried forward to the EIA Phase had no fatal flaws, from an environmental perspective, and were considered to be reasonable and feasible alternatives for the construction, operation and decommissioning of a nuclear power station. The two Northern Cape site were not recommended for further investigation, and this was approved by the DEA.

GIBB can confirm that there have been no deliberate attempt on the part of the EAP during the EIA process to omit material information, fragment the process, exclude the NNR from the EIA process, nor provide inadequate information to I&APs.

Where unfortunate instances have occurred that parts of specialist reports have been omitted this has been immediately rectified, I&APs informed and the Comment Period extended.

As indicated repeatedly in public forums and in EIA documentation, the separation between the EIA process and the NNR licensing process is based on the legislative provisions of the relevant Acts, namely the National Environmental Management Act, 1998 and the National Nuclear Regulator Act, 1999, as well as the DEA / NNR co-operative agreement that governs the consideration of radiological issues in EIA processes.

Your Comment (4)

iv) The whole process illustrates shortcomings in the EIA system, in which consultants and specialists are selected, appointed and paid by the developer. This is a clear case of conflict of interest, and we believe that there is evidence of this throughout.

Response (4)
Specialists are selected by the Environmental Assessment Practitioners (EAPs) and not by the developer (i.e. Applicant, which in this case is Eskom Holdings Limited). Their selection is based on proven expertise and experience in the relevant fields of study. The payment of EAPs by the developers is acknowledged in the EIA regulations. Section 17(1) of Government Notice R 385 of 2006 states that "Before applying for environmental authorisation of an activity, an applicant must appoint an EAP at own cost to manage the application". Various conditions for independence of the EAPs are set in Sections 18 and 19 of the same Government Notice and relevant environmental authority is empowered to take action against EAPs found to be in transgression.

Your Comment (5)

v) The most glaring example of omission of material information is the failure to indentify the specific PWR technology to be used. Eskom justifies this in terms of an "envelope of criteria". What this fails to acknowledge is that the EIA is premised on the use of Generation 111 technology, which government has indicated is "not affordable". Eskom spokesman, Tony Stott, has confirmed verbally that departure from Generation 111 would nullify the entire EIA.

Response (5)
The envelope of criteria is based on the specifications all possible PWR III generation vendors and represents a conservative set of criteria that provides a "worst case scenario" in terms of the footprint of the proposed plant.

Your Comment (6)

vi) Lack of this and other forms of material information, such as the siting and scale of the construction and staff villages make it impossible for the specialists to draw any final conclusions regarding impacts.

Response (6)

A decision on the location of staff villages will only be made once certainty has been obtained on the preferred location of the power station. It has been stated, in the Draft EIR and in public meetings, that the areas where accommodation will be required will be integrated as far as possible with areas dedicated for housing in the existing planning processes of the local authorities within which the power station is proposed to be located. Where possible, employees (especially operational employees) will obtain accommodation in existing settlements. If new urban development has already been approved in the area of the nearby human settlements, it would be Eskom's preference to make use of the opportunities provided by this rather than create a new for residential development which would then require an EIA. The potential impacts both positive and negative associated with the need for accommodation has been assessed in several of the specialist studies including social, tourism and transport.

Your Comment (7)

vii) Failure by Eskom to consider alternative sites in the light of political, legislative, technological, socio-economic and demographic changes which have occurred since the sites were selected in the early eighties, in our view contravenes Clause 32 (f) of the NEMA Regulation requirements which requires identification of potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity. (See Appendix 9 for a fuller discussion).

Response (7)

Your comment is noted. Alternatives are discussed in detail in the scoping and environmental impact reports. The site selection process has been supported by the DEA as stated in the approval of the scoping report and POS for EIA.

Your Comment (8)

viii) There are significant contradictions in the Impact Assessment Criteria, as reflected in the Final Plan of Study (Table 2, p.11); Ch7 Methodology (Table 7-10, p. 7-29); and Social Impact Assessment (Table 1.05, p. 34-36). Such inconsistencies are confusing to all concerned, and reveal a slap-dash approach to the whole process. (See Appendix 2 for a fuller discussion).

Response (8)

These apparent contradictions will be investigated and corrected in the Revised Draft Environmental Impact Report (EIR), if found to be valid.

Your Comment (9)

ix) Exclusion of the "No Go" option may be relevant to the need to provide additional power for South Africa, or even the nuclear option, but it is certainly not appropriate to the selection of specific sites, which may be shown to be highly inappropriate for the purpose.

Response (9)
The no-go option has never been excluded in principle with respect to any site. Arcus GIBB has been reliant on the findings of its specialists, who have all indicated that there are no fatal flaws at any of the alternative sites.

Your Comment (10)

x) The letter from the then DEAT to consultants Arcus Gibb, dated 19 November, 2008 approved the Final Scoping Report, subject to some 60 conditions, all of which were to be addressed in the DEIR. Appendix 3 lists these and considers whether or not they have been addressed.

xi) It is not clear how it was possible for all the specialist reports to be published only six weeks after approval of the Final Plan of Study by DEA. It is clear that some of the reports, most of which are dated prior to release of the approval, have been drawn up in terms of the original Terms of Reference, which did not reflect many of the issues raised in the Scoping Process. It is requested that careful attention be paid by the EAP to conformity with the revised ToR, and that all specialists be required to confirm in writing that their report was prepared in terms of the revised ToR.

Response (10)
Thank you for the list of conditions. GIBB will review the list an address, if appropriate, in the Revised Draft EIR.

Owing to the fact that some specialist studies required long lead times, multiple seasons of fieldwork (e.g. flora and vertebrate faunal assessment) and different seasons of fieldwork (e.g. invertebrate faunal assessment) in order to collect sufficient data to provide confidence in their assessments, the majority of the specialist studies were commissioned long before approval of the Plan of Study for EIA. Upon receipt of the approval of the Plan of Study for EIA from the DEA, specialists were accordingly informed to address the conditions of this approval, as well as any scope changes that arose during the EIA as a result of the Applicant's needs e.g. need to access options for spoil disposal at some of the sites, once the quantities of over-burden material was known. There is no legal requirement for specialists to confirm in writing in their specialist report that their report was compiled in terms of the revised ToR (GIBB presumes the author is referring to the Revised Plan of Study for EIA as approved by the DEA).

Your Comment (11)

xii) There is extreme dissatisfaction with the fact that no information has been forthcoming on the plenary meeting of specialists at which the weightings of specific areas was determined, or of the criteria used to determine these. This will have a material influence on the recommendation to DEA, and should be open to public scrutiny. It is requested that this be included in the Second Draft EIR.

Response (11)
Such information is not normally open to public scrutiny and therefore was not been included in the Draft EIR. Detailed minutes of the integration workshop were, therefore, not prepared. Notes of the integration meeting have been provided to parties requesting copies.

Your Comment (12)

xiii) We are told that there has been peer review of the specialist reports. However, this seems to have been simply verbal, with no written record, and no indication as to who the peer reviewers were. This is the type of limitation which undermines confidence in the process.

Response (12)
Section 7.6 4 of the Draft Environmental Impact Report indicates the names of all peer reviewers and this information is also on the EIA websites. The peer review reports were compiled for internal quality control purposes on the first revision of specialist reports. Documents have therefore not been provided to the public.

Your Comment (13)
xiv) It is recorded that the disadvantaged section of the community has been prejudiced, in that the reports have only been available in English.

Response (13)
Members of the Sea Vista and other disadvantaged communities have been consulted to determine the most effective methods of communication. Stakeholders have been provided with Afrikaans and Xhosa versions of the Draft EIR Executive Summary. In view of the low levels of literacy in this community, extensive public meetings (in English, Afrikaans and Xhosa) have been held to explain the findings of the EIA process. During the next public participation process several additional actions will be implemented to ensure that the community is well informed and that they are put in a position which enables them to comment on the report and issues significant to them.

Your Comment (14)
Conclusion
In view of these deviations, some of which are clearly intentional, there is a breakdown in trust in the EIA system as practiced in this case. It is our view that the entire EIA is being conducted back-to front, and should be discontinued, until such time as Eskom has finalised key points of material information, notably the specific technology, and the EAP has addressed other shortcomings in terms of due process.

Response (14)
We take note of your comment.

Your Comment (15)

Specialist Reports
What follows here is a summary of what we consider to be shortcomings in the specialist reports. Where more detail is required, this is provided in the relevant appendices.

Geological & seismic hazard
Attention is drawn to the submission by Dr MKC Roberts, under Appendix 4. Dr Roberts is an expert in mining safety, and is therefore familiar with seismological risk.

The requirement of further SSR study indicates that no final decision can be taken on the suitability of Thyspunt at this stage.

Other issues arising:

Was the report prepared under the revised ToR?
The ToR requests investigation into the Great Sumatran and South Sandwich Trench tsunami threats. These do not appear to have been addressed at all.

Response (15)
The Sumatra Area and South Sandwich Trench represent areas where tectonic activity may cause tsunamis. However, because of their great distance from the three sites they do not form part of the relevant geological environment or site seismic hazard. The impact of these areas were therefore considered and incorporated into the "NUMERICAL MODELLING OF COASTAL PROCESSES"report.

Your Comment (16)

Geotechnics
According to Table 4, p. 15 of the Final Plan of Study, this report and that on geology & seismology were supposed to be done by Irma Hattingh of the Council for Geo-Science. In fact they were done by Bruce Engelsman of SRK and Johan Neveling of the Council for Geo-Science. No CVs appear for any of these people, leading to uncertainty as to their level of competence to handle complex issues.
The report is dated December, 2009, prior to approval of the revised ToR, and does not appear to address all of the issues raised in the ToR. For example, there is a requirement to identify and assess the potential impact on beneficiaries and losers, with due consideration of downstream beneficiaries. This does not appear to have been addressed. It is requested that the EAP considers whether the report is comprehensive, and prepared in terms of the revised ToR.

Response (16)
CVs of all relevant staff were included in Appendix E1 of the Draft EIR. The specialist reports in the Revised Draft EIR will include an explicit statement of who the relevant specialist prepared the reports. The terms of reference for the specialist Geotechnical Assessment are to carry out an environmental impact assessment that defines the geotechnical characteristics of the sites and identifies any potential environmental impacts on the natural site geotechnics introduced in the proposed construction, operational and decommissioning stages of the project. Specific geotechnical characteristics to be explored include the following:

- Free field seismic response and site-specific response spectra;
- Liquefaction potential;
- Stresses in the foundation materials;
- Foundation stability;
- Soil-structure interaction;
- Settlement and heave;
- Earth pressure and stability of earth structures/buried structures;
- Nearest sources of suitable construction materials and their characteristics;

Your Comment (17)
Marine Ecology
This report was given particularly harsh treatment at the Focus meeting held in St Francis Bay on 25 May, 2010. The specialist admitted to having failed to consult the Independent Scientific Study Group set up by MCM to monitor and research the Squid Industry. This body has detailed scientific information which could have been made available, and which would almost certainly have radically altered the specialist's conclusions. According to Greg Christie, a leading player in the chokka fishing industry, the proposal to dump over 6 million cubic metres of spoil on the ocean bed could be a threat

to the entire chokka industry. This in turn could affect the economic report on the overall economic impact of a NPS at Thyspunt. It is clear that this report needs to be reviewed in the light of information available from the scientific working group, and potential implications for the Economic Assessment.

Response (17)
Subsequent to the St. Francis Key Focus Group Meeting , the marine specialists have consulted with Mr. Christie, Dr. Warwick Sauer of Rhodes University, Dr Nicky Downey of Bay World in Port Elizabeth, and the relevant specialists at the DEA's Directorate of Marine and Coastal Management. Any data they obtain through this process will be reflected in the revised marine study, which will be included in the Revised Draft EIR.

Your Comment (18)
Oceanography
The authors of this report are simply given as "WSP Environment & Energy" There is no reference to them in the CVs. Who are they, and what is their level of competence?
The report is dated January, 2010, and was clearly prepared before approval of the Revised ToR. Does the report conform in all respects with the requirements of the revised ToR?
It is noted that Prof. Branch, who was responsible for the deficient Marine Ecology Report, also acted as peer reviewer for the Oceanography Report (Marine Ecology report. P. 53). It is to be hoped that he paid more attention to detail in his review than he did in his report.

Response (18)
The CV of Rhys Giljam, the specialist for this report, is included in Appendix E of the Draft EIR. Regarding the date when the report was prepared, please refer to Response 10.
Prof. George Branch was the technical peer reviewer of the marine specialist study and not the author. The peer reviewer of the oceanography report was Mr. Eddie Bosman of the University of Stellenbosch.

Your Comment (19)
Traffic Impact Assessment
This is regarded as one of the weakest of the assessments given, partly, though not entirely, as a result of the inadequate Terms of Reference. This is discussed in more detail in Appendix 5.

Response (19)
We take note of your comment. The traffic impact assessment is being revised and the revised report will be included in the Revised Draft EIR and be made available for a further round of public comment.

Your Comment (20)
Economic Impact Assessment
Attention is drawn to the submission by Mr Helmie Tilders

The community has been kept in the dark as to how impacts were weighted, but it seems clear that the economic impact was given high status.

Great emphasis has been placed by Eskom on the job-creation possibilities for the local community. Whilst it is acknowledged that construction of an NPS would create job opportunities for some of the local population, this should not be exaggerated. Construction of a NPS is a highly technical and skilled operation, and very few of the local inhabitants will have the required skills. These jobs would be temporary and low-level, during the construction period only. The figure normally given is 25%, but this is not guaranteed in any way, and would surely depend on the vendor, who has not yet been identified. At one meeting in Sea Vista, an Eskom employee told the audience that the jobs for locals could increase to 80%! Nor is there any definition of "local". One Eskom employee stated that this could be anything up to 100 kilometres. It is already being reported in the local press that unemployed job-seekers are arriving in Jeffreys Bay in anticipation of the plant going ahead. This presents major problems to the local authority, who have no capacity to deal with a major influx.

Based on a total artisan labour force of 5000, 25% would amount to 1250 jobs. Spread over 100 kilometres, including centres such as Jeffreys Bay it would be spread fairly thinly. It is disingenuous to raise expectations in the disadvantaged community when the developers know full well that the unskilled work will be limited and temporary.

Furthermore, there is a very real potential for job losses in, for example, the chokka industry should the project go ahead at Thyspunt. If the proposal to dump 6 million cubic metres of spoil in the sea off Thyspunt goes ahead, there is the very real prospect of major disruption to the chokka industry, with the potential loss of 4000 jobs.

Response (20)
We take note of your comment. Please refer to GIBB and the specialist's response to Mr. Tilder's submission appended.

Your Comment (21)
We identify five omissions or anomalies in this report. As with so many aspects of the EIA, the report is based on incomplete information, and is therefore relatively valueless.

i) The major omission is the assurance by Eskom that they will handle up-grade of the N2 from Port Elizabeth to Humansdorp, to cater for both extremely heavy and heavy load traffic. The cost of this is likely to be astronomical, since it will involve major road construction and bridge reinforcement. None of this cost is reflected in the economic assessment, which raises questions regarding the cost comparisons between the three sites.

ii) The cost of upgrade of the R330, and construction of the eastern access road, of some 10 kilometres, is estimated at R500 million (Table 3.11, p. 28). If the entire amount was spent on construction of the new road, which is not the case, this would amount to R50m per kilometre. The 3 km of road required at Duynefontein is estimated to cost R204m, i.e. R68m per kilometre.

When it is considered that the 10km access road from Sea Vista to Thyspunt is scheduled to pass over shifting sand dunes which have no adhesion, and which verge on being wetlands, with a high level of potential for debris flow and liquifaction, the question arises as to how the Duynefontein road could possibly cost more per kilometre.

A full engineering assessment of the proposed eastern route is required before any conclusions on viability or costs can be drawn (See Dune Morphology Assessment for fuller discussion).

iii) A similar costing anomaly appears in the costing of the 400kv transmission lines. According to the Draft EIA report, the lines from Thyspunt to Port Elizabeth would cost R10m per kilometer, whereas those from Duynefontein would cost R26.8m. How can this be? Could this not also affect the comparative costing between Duynefontein and Thyspunt?

iv) A major omission relates to the potential damage to the chokka industry. Blame for this omission must lie with the Marine Ecology Assessment, but it has an immediate bearing on the Economic Report. Should the combined impacts of R6 million cu.m of spoil on the ocean bed, together with market perceptions that squid captured in this area could be contaminated, destroy the squid industry, this would lead to the loss of 4000 jobs and R500 million per annum to the area.

A further major omission from the economic calculation is the cost of the proposed pipelines for inlet and outlet of cooling water at Thyspunt. It is clear that no proper feasibility study has been done on this. What can be stated with confidence is that such a pipeline would be situated on one of the most storm-prevalent pieces of coastline in the world, and would have to be built to very high levels of specification. The engineering involved would be challenging in the extreme. No attempt can be made to calculate the cost, but it would be extremely high

In this context, attention is drawn to comment by Glen Ashton of Ekogaia Consulting (Appendix 7) It would seem clear to us that the entire Economic Assessment needs to be re-done, based on a comprehensive knowledge of all relevant economic factors.

Response (21)

i) Initial assessment of the ultra heavy routing indicates that the routing is feasible. The construction of bypasses around overpass structures and interhanges are not substantial costs. Detailed design work is required for certain bridge structures to ensure the loading is shared across several piers or supports to reduce loading to acceptable limits. Initial investigations indicate that it is feasible.

ii) Your comment is noted.

iii) The costs between two sites cannot be simply divided to get a cost per km of transmission line as there are other servitude specific requirements that are included in the estimates However one of the main reasons for the difference in costs between Duynefontein and Thuyspunt is due to the assumption of using underground 400kV cable in the Koeberg integration in order to route the transmission circuits out of the immediate area before moving them up to overhead lines. As can be seen underground cable has a significant impact on the cost, however the actual line routes may allow us to reduce or even eliminate the use of underground cable thereby reducing the cost for Koeberg.

iv) This does not mean that Duynefontein(Koeberg) site is the most cost effective choice. Most of the Nuclear-1 power generated at this site will in effect go straight into the 765kV main transmission system to travel north to our Gamma substation before been sent back down to the south-east to the Port Elizabeth load centre area. This is what is meant at the transmission voltage level by moving the generation closer to the load centres, in this case locating Nuclear-1 at Thyspunt is significantly closer than the Duynefontein site. However at transmission voltage levels that location of Thyspunt is relatively close to Port Elizabeth load centre and in fact the integration 400kV lines form part of the transmission development to support the westward expansion of Port Elizabeth. Locating at Thyspunt also has significant quality of supply advantages for the Eastern Cape as this will improve with a large power station injecting into the system here which will also contribute to improving the stability of the Eskom network as a whole.

v) The Marine Ecology study is being substantially revised.

Your Comment (22)

Social Impact

From the perspective of the local community, this is one of the major issues raised by the current proposal. It cannot be simply swept under the car. A detailed critique is attached in Appendix 8.

It is our view that another more competent and more practical specialist should be appointed to review and revise the report in the light of issues raised.

Response (22)

We take note of your comments.

Your Comment (23)

Emergency Response Assessment

This report is dated 3 December, 2009, some seven weeks before approval of the final ToR. Once again, the EAP is requested to obtain confirmation that the report conforms with the revised requirements.

It is written by Mogwera Koathane of SRK, whose qualification is "Pr Sci Nat". No CV is given for such a person, and it is not possible to determine his(?) level of experience.

The entire assessment is based on the assumption that Generation 111 technology will be used. This assumes that nothing can possibly go wrong outside a 3 kilometre radius. In the absence of any decision to use Generation 111, and government's confirmation that this is "unaffordable", this assumption has to be challenged. We have also been given to understand that the NNR has not accepted EUR criteria for Generation 111.

We dispute the argument that NPS should be situated far from population centres. This may have been true under Generation 11. Population centres are the points of maximum demand for electricity, and with the cost and environmental impact of NPS on virgin territory, and of associated infra-structure, there is a strong case for placing them closer to population centres, other things being equal.

It is completely contradictory and illogical to state that there is no need for short-term emergency intervention outside 3 kilometres, and then state that NPS should not be placed close to population centres. Either they are safe, or they should have more stringent emergency planning provision. The nuclear industry cannot have it both ways.

This subject will be discussed in more detail if and when the NNR is ever approached for a licence to build at Thyspunt. This community will require scientific evidence that there is no danger outside the 3 kilometre area, and specific information on routine emissions, which fall outside the scope of this report.

In the absence of a decision on specific technology, no valid conclusions can be drawn regarding emergency response.

Response (23)

- Please refer to above Response 10 regarding the timing of the specialist studies.
- Relevant CVs of all relevant EIA team members will be included in the Revised Draft EIR.
- It is clearly stated in the study assumptions (Section 9.2.2. of the Draft EIR) that the study is based on an assumption that Generation III technology would be used, that the protective zones around the power station will be based on EUR specifications, and that the NNR would accept these specifications. If these assumption, or any of the facts in the Consistent Dataset (Appendix C of the Draft EIR) prove to be incorrect (i.e. if values of the vendor's technology substantially exceed those in the envelope of criteria), then it would imply that the assessment in the EIR may need to be revisited.

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Your Comment (24)

Dune Morphology Assessment

It is acknowledged that this is a highly specialized area in which few people have the required local knowledge and technical competence.

The assumption is that the main access route will be from the east, as shown in Fig 3.6, p.43. The main issue is whether it is feasible to take the heavy loads for 10 kilometres along unstable dune slack, of high conservation value, which is at times effectively a wetland, possibly subject to debris flow and liquifaction, and which was the source of the floods which occurred in November, 2007; and what it would cost to mitigate shortcomings.

What is remarkable about this report is that it spends a lot of space discussing ways and means of using the northern access road, across the main Oyster Bay by-pass headland dune system, which we were given to understand had been abandoned as not feasible, and then deals with the preferred eastern access road, which is fraught with potential problems, in about one paragraph (5.3.2, p. 56).
It is fortunate for the responsible authority that Prof Fred Ellery of Rhodes University Department of Environmental Affairs has detailed knowledge of the by-pass headland dune system, and is able to point out concerns regarding potential debris flow and liquifaction of any road using this unstable sand system for heavy-load traffic. It is inexplicable that the specialist neglected to include comments given him by Prof Ellery. We understand that Prof Ellery has made his own independent submission to the EAP.

It is clear that the experts do not agree here. This is an engineering issue, and a competent engineering firm with local knowledge should be engaged to undertake a feasibility study. Prestege Retief in Cape Town, or Ninham Shand in Port Elizabeth come to mind as well-established engineering firms with good local knowledge. Problems with regard to the access road for heavy traffic could be a fatal flaw for the entire project.

Conclusion regarding eastern access road
There is a great deal of uncertainty and risk associated with the eastern access road. Serious work is required before this report should be accepted by the DEA.

Due attention must be given to the concerns raised by Prof Ellery.

Response (24)
The dune geomorphology specialist, Dr. Werner Illenberger, has been in contact with Prof. Ellery and will consider any further information or data provided by Prof. Ellery in further revisions to the dune geomorphology report.

Comment for the dune specialist:
The proposed main access route from the east was laid out by Ninham Shand in Port Elizabeth, who are the engineers consulting on the road design.
All the other comments are addressed in the response to St Francis Kromme Trust comments attached

Your Comment (25)
Freshwater Ecology Assessment
In many respects, this is one of the best of the specialist reports. It shows real concern for the conservation value of wetlands in the area surrounding the proposed site, and was a scientific analysis of the situation and of problems raised.

The concern is made apparent from the Introduction to the Executive Summary (Clause E1, p.1), which reads:
This section is intended to provide a short summary of the major implications of the proposed Nuclear Power Station (NPS) development for wetlands at three alternative sites –Duynefontein, Bantamsklip and Thyspunt. All of the site alternatives include in their boundaries and immediate surroundings wetland systems that are of high ecological importance, relatively unimpacted and considered to be either among the last (in the case of Duynefontein) remnants of particular wetland habitats that have been lost from large areas or, ***in the case of Bantamsklip and particularly Thyspunt, they are considered unique systems that are unlikely to be represented in their present form and***

complexity elsewhere in the world. The conservation status of all three sites, from a wetlands perspective, is extremely high and any threats to their integrity are viewed as of high negative significance.

"Impacts associated with the proposed NPS" (Clause E2, p.2) reads:
Development at this site would be associated with the greatest number, intensity and complexity of impacts to important wetland systems. The main impacts assessed include:

- *Permanent loss and degradation of coastal seep wetlands as a result of dewatering /groundwater diversion, concentration of groundwater flows and proposed new roads*
- *Risks of impacts to the Langefonteinvlei and its associated hillslope seep to the south, as a result of possible draw-down effects*
- *Fragmentation, infilling and physical disturbance to duneslack wetlands in the Oyster Bay mobile dune system as well as to wetlands immediately north of the Oyster Bay dunefield,as a result of impacts associated with the proposed passage of transmission lines, roads and potential options for sediment transport across the dunes*
- *Potential infilling and fragmentation of important valley bottom wetlands to allow the construction of access routes to the site, as well as laying of sewage and water pipelines*
- *Degradation of depressional and other wetlands as a result of transporting excess spoil over the dunes to the HVY platform.*

The above impacts are likely to result in significant degradation of a system that presently exists as a relatively unimpacted mosaic of terrestrial and wetland habitats, with high levels of interconnectivity and high overall biodiversity value, to which the wetland systems make a significant contribution. ***The cumulative impacts of the proposed development of a single NPS at the Thyspunt site without implementation of mitigation measures has been assessed as of very high negative significance.***

Everything therefore hangs on mitigation measures proposed.

At the Key Stakeholders Focus Meeting held on 25 May, Dr Liz Day, who had prepared the report, gave a presentation which essentially repeated these concerns, and which, at the very least, indicate that from a wetlands perspective, Thyspunt is a very unfortunate choice of site.

However, when it came to mitigation, which essentially said that the proposed mitigation measures would be preferable to the "No Go" option, on the grounds that the controlled conservation area around the site would protect wetlands from future development, the local community listened in disbelief. The threat of future development was completely speculative, having no factual basis, and in line with the propaganda in other reports that the establishment of a conservation area around the site would more than compensate for the huge environmental intrusion involved by the plant and transmission lines. The latter claim was firmly rejected by a senior official from Addo at a key stakeholders' meeting held in Port Elizabeth.

Dr Day's embarrassment was palpable. The impression gained was that she had been briefed by Eskom or Arcus Gibb to draw this conclusion, which was not her own. It is simply not credible, and completely out of line with the high level of her previous observations.
The proposal from the floor was that protection of the wetlands would be best achieved by declaring the area a RAMSAR site. There were experts present who confirmed that this is what should happen, and that steps would be taken to try to achieve this if the site was rejected.

In the view of this Association, it is clear that this is just another indicator as to why Thyspunt is a very poor choice for a NPS. There should be a peer review of Dr Day's findings, with particular emphasis on the credibility of the mitigation measures proposed.

Response (25)
We take note of your comments. Dr. Day is a professional and independent specialist. She has not been instructed either by Eskom or Argus Gibb to make any statements that would compromise her as a specialist.

Your Comment (26)
Human Health Assessment
Once again, the identity of the specialists is not clear. There is no indication either at the beginning or the end of the report, and the only clue is given at the bottom of each page, which refers to "HHRA Assessment Study". There is no reference to any such body in the list of CVs. This assessment is complimentary to and dependent on the Air Quality Assessment. The whole subject comes within the ambit of the NNR.

The arguments regarding radiological risks are the familiar ones: NNR determines what level of exposure is acceptable; Eskom will operate within those parameters, and everything will be fine. Once again, we are in a highly technical area on which it is difficult for the layman to comment, though it is obviously a cause for deep concern. The following comments would appear to be relevant:

1. Radiological impacts always appear to be theoretical, based on desktop studies, complex calculations and many assumptions, which are susceptible to manipulation. It would be more reassuring to the public if there was evidence of thorough follow-up investigation of changes in radio-activity in fruit, vegetables, dairy products, crustaceans, molluscs etc. in the area surrounding Koeberg since its commissioning, and what their implications for human health might be. Our understanding is that reporting on these changes ended in about 1990. This is specifically requested by the DEA in its letter to Arcus Gibb, dated 19 November, 2008, under "Air Quality", Section 22.6 is relevant in this respect.

   It would also be appropriate to have information on any independent epidemiological studies on changes in the incidence of thyroid and other forms of cancer in the area surrounding Koeberg, since the current NPS has been operating, with comparison with other less exposed areas.

2. It is disappointing to note in the list of references that there is no reference to publications by respected critics of nuclear power generation, including Dr Helen Caldicutt ("Nuclear Power is not the answer", 2006), Prof. Sam Epstein ("Nuclear Power causes cancer: What the Industry doesn't want you to know", 2009) and Dr Joseph J. Mangano (Geographic Variation in US thyroid cancer incidence, and a cluster near nuclear reactors in New Jersey, New York and Pennsylvania, 2006).

   These publications reflect years of scientific research and study, and are written by respected scientists. They are very relevant to the whole debate, and affected parties are fully entitled to know the precise risks involved in living in proximity to (and down-wind from) such plants. Eskom should not expect confidence in their own PR while issues raised by such people are ignored.

   The argument is often made that these reports draw evidence from out-dated plant, and that the attendant problems have been addressed. If this is the case, it is incumbent on the developer to show in precisely what ways the problems have been addressed. Once again, the Generation 111/11 debate is relevant.

3. Details on emissions of radio-nuclides are always dealt with quantitatively, and not qualitatively. We have details of emissions measured in becquerls, and of "effective average dose", calculated on the basis of extremely complex and problematic desk-top studies. What is never mentioned is what specific radio-nuclides are emitted, and what their decay periods are. If they have half-lives of a few seconds, minutes or even hours, they may not be too much of a problem. If however, they take the form of Strontium 90, or Caesium 137, with half-lives of 30 years, and decay period to "natural" levels of 200 – 300 years, this is a very different matter. We are then into calculation of cumulative impacts over the entire operational life of the plant. These could have serious implications for human health, and are not addressed simply by quantitative calculations of annual emissions. We believe that the public is entitled to full transparency with regard to these matters, and that it should not be necessary to have to go via PAIA in order to achieve it. We request that they be included in any second Draft EIR.

4. It would lead to greater confidence in Eskom's pronouncements on this if we were spared such propaganda as was received recently from Eskom's media department by the Herald Newspaper in Port Elizabeth. This claimed that there were no radio-nuclide emissions from Koeberg, and promptly went on the state that the emissions conformed with NNR requirements! It also stated that any radiation experienced in the Cape Town area was due to fall-out from nuclear weapons testing in the Pacific, which were discontinued in the early nineteen-seventies! This has been shown to be complete fabrication.

Conclusion
Until Eskom commits to a more transparent and comprehensive declaration on the impact of routine emissions, there will be scepticism in the mind of the informed public on the reliability of their evidence. The shortcomings listed here should be addressed in the second Draft EIR.

Response (26)
The report was prepared by Dr Willie van Niekerk of Infotox, as indicated in Table 7-8 of the DEIR. His CV is included in Appendix E of the DEIR.

As indicated in Response 2 above, the separation between information required for the NNR licensing process and that in the EIA process is based on legislation governing these processes, and upon the co-operative government between the NNR and the DEA. It has further been stated by the DEA that nuclear safety, radiation, and radiological impacts are clearly within the ambit of the NNR and that the NNR would make a recommendation to the DEA on any information in this respect that is included in the EIR.

1 As part of the licensing conditions from the Regulator, Koeberg as well as any other new nuclear power plant is expected to perform monitoring programmes in areas surrounding the facility. Data collected are used as input to evaluate the dose to the public resulting from the releases from Koeberg. This information gives a good indication on the potential health risk to the public. Results thereof are summarised in the National Nuclear Regulator annual reports. Should the results show that the amount of radiation released to the environment is above the specified limits, actions will be taken by the regulator.

2 The bodies referred to are put in place to ensure peaceful application of the nuclear technology and to ensure that the public and the environment are protected. The references are from international agencies, literature publications and reports of independent consultants, not from the industry (i.e., Eskom) seeking approval from the NNR. Information contained in such reports emanate from extensive research from different member states, scientific evidence and experiments, and working group activities from different member states.

3 Emissions are discussed in the Air Quality Impact Assessment report, attached as appendix E10 to the Draft EIR. This report assesses the potential air pollution impacts associated with the

construction, operation and decommission of the proposed nuclear power station on the surrounding environment

4 Refer to 1 above

Your Comment (28)
Overall conclusion
This submission has attempted to show that there are serious shortcomings in the EIA process being followed for Nuclear 1, and in the specialist reports commissioned in terms of this EIA.

It is our view that the entire EIA process should be discontinued pending decisions on material information such as the specific technology to be used.

Furthermore, it is our contention that the NNR process should run in parallel with the EIA process, and not be divorced from it, since some aspects are inter-related.

At the very least, there should be a second Draft Environmental Impact Report before this is submitted to the DEA for an ROD.

Shortcomings in the process, such as failure to release key information timeously should be addressed in the Second Draft Report.

Finally, we believe that there should be a complete review of the Thyspunt site and consideration of alternative sites, in the light of the many changes which have occurred since Thyspunt was selected in the early nineteen-eighties. This is discussed in further detail in Appendix 9.

Response (28)
We take note of your comments. With regards to the issue of the specific technology to be used, the Consistent Dataset provides a conservative set of criteria that provides for all possible vendors. A revised Draft EIR is due to be released for public comment in early 2011.

Should you have any queries with respect to the above please do not hesitate to contact Arcus GIBB.

Yours faithfully
For Arcus GIBB (Pty) Ltd

Jaana-Maria Ball
Nuclear-1 EIA Manager