

5 August 2015

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Your Ref: Email received 07 August 2011

Email: patrick@tops.org.za

Dear Patrick Dowling



Tshwane

Lynnwood Corporate Park
Block A, 1st Floor, East Wing
36 Alkantrant Road
Lynnwood 0081
PO Box 35007
Menlo Park 0102

Tel: +27 12 348 5880
Fax: +27 12 348 5878
Web: www.gibb.co.za

RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No: 12/12/20/944)

Comment 1:

WESSA COMMENT ON THE NUCLEAR 1 REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

Thank you for the detailed responses to some of our earlier comments. Notwithstanding those and the usefulness of the exchange we still have several concerns, understandable for any development of the scale being considered. We summarise these below.

The report makes several references to the fact that it covers the specifics of potential impacts on the three sites studied and does not consider the broader policy issues related to an energy plan for South Africa. Yet the supporting documents offered include "opening and closing remarks" by the NERSA chairperson on the total energy situation in South Africa.

In this address there is a call for "a national 'compact'" between all South Africans working together at overcoming our challenges. We suggest that achieving such a compact will require even more and deeper levels of public participation than have been evident to date.

Unless we have missed it in the extensive number of documents comprising the report there seems to be no overall conclusion and evaluation regarding the general public sentiment towards the proposals to date. This could have been provided by the social impact specialist whose report generally seems to have been somewhat superficial.

Response 1:

Your comment is noted. The next revision of the EIR (Revised Draft EIR Version 2) will contain a summary of the comments received during the Nuclear-1 EIR. Due to the volume of comments received this summary will of necessity focus on broad categories of issues.

Comment 2:

It is reassuring that the report drafters make it clear that this assessment can be associated only with one power station despite Eskom's stated intention to build more. However, even with this one, there are several shortcomings which require elaboration.

The report states that “Catastrophic incidents were not part of the plan of study for the assessment.” Considering two such incidents globally in less than 25 years, surely it would have been better to make such scenarios part of the plan of study. In terms of the National Environmental Management Act (NEMA) the approach to development must be risk averse and cautious taking into account the limitations of present knowledge. The National Nuclear Regulator Act (NNRA) does not remove this high order legislative requirement.

Response 2:

Thank you, your comment is noted. Kindly note that in terms of the recommendations of the approved Integrated Resource Plan, it is required that 9,600 MW of nuclear power should be developed, together with other sources of supply, to provide electricity in South Africa. Nuclear-1, being only 4,000 MW will therefore not provide the full complement of nuclear power required and additional nuclear power stations would need to be constructed. Such power stations would be subject to their own EIA processes.

Furthermore the EIA process must take cognisance of the range of government mandates, including those of the Department of Environmental Affairs (DEA) under the National Environmental Management Act, 1998 and the National Nuclear Regulator (NNR) under the National Nuclear Regulator Act, 1999. The roles of the DEA and NNR are further defined in their co-operative agreement, which governs the consideration of radiological issues in EIA processes and the interaction between the DEA and the NNR in terms of their respective mandates for environmental and radiological safety (See Appendix B4 of the Revised Draft EIR Version 1). The agreement clearly stipulates that issues of radiological safety are within the mandate of the NNR. Furthermore, it is not within the mandate of the Environmental Assessment Practitioner to question the legal mandates of either of these statutory bodies or the validity of their agreement. We must, therefore, conduct the EIA based on their mandates and their agreement. However, the public should gain comfort in the fact that the project cannot proceed without the Environmental Authorisation and NNR phased license approvals.

Comment 3:

Future casting seems to have been limited to 75 years for flood line calculations. In our view this time horizon is too short considering some sea-level rise predictions and associated surges along with the most recent evidence of the sort of damage this kind of event can cause. This threat has been acknowledged in the report which concludes that without mitigation none of the sites is suitable from a geohydrological point of view. It is WESSA’s experience that once development approval is granted the detail of mitigation plans is often lost. In the case of a NPS the results such neglect could be catastrophically hazardous.

Response 3:

Your comment is noted. The projected life span of the proposed power station is 60 years. Given this time span, it is reasonable for the time span of the flood line calculations to be based on a horizon of 75 years.

Your reference to recent evidence of the sort of damage that a storm surge can cause is presumably in reference to the Fukushima Daiichi nuclear incident. An analysis of the causes of this accident and

the lessons for future nuclear power station planning will be included in the next revision of the Environmental Impact Report. However, a condensed analysis of the events is provided here.

The design of all nuclear power stations must take cognisance of the risks of seismic events. In the case of the Fukushima Daiichi nuclear power station, the power station was designed for a high magnitude earthquake, evidenced by the fact that the power station suffered no significant structural damage as a result of the earthquake. However, the assumptions of tsunami heights and the design of the power station did not consider the heights of tsunamis that could be experienced in a country that is prone to frequent and severe earthquakes. The Fukushima Daiichi design and construction catered for a tsunami height of 6.5m. However, in this instance tsunamis of up to 8m were experienced along some parts of the Japanese coastline.

In contrast, emergency planning for the Koeberg Nuclear Power Station (KNPS) assumed a tsunami of 4 m, even though no tsunami has ever been recorded on the West Coast, and in spite of the fact that Southern Africa is seismically stable. In addition to planning for a tsunami, planning for the KNPS assumes that a tsunami may coincide with a spring tide and major storm surges (a so-called meteor-tsunami event), and thus the terrace for the KNPS is built at a height of 8m above sea level. Backup generators to supply power to the cooling systems has also been placed at heights of 12m above sea level, besides the backup power that can be supplied from two gas-fired peaking power stations in proximity to the KNPS. Similar planning is in place for Nuclear-1, in that a combined tsunami and an exceptional storm surge has been assumed in determining the height of the nuclear island and the location of backup power supplies.

Comment 4:

By not including a design for Nuclear-1 that is site-specific it is difficult to evaluate any potential risks that could arise in combination of a specific technology model at a particular site.

Response 4:

Your comment is noted. Whilst no specific technology supplier has been identified, the generic characteristics of a Generation III nuclear power station have been identified in the Consistent Dataset (Appendix C of the Revised Draft EIR Version 1).

It is common practice in EIA processes, especially for installation of industrial plants, to consider the performance of the systems and type of technology proposed to be installed, without referring to specific suppliers or manufacturers of this technology, of which there may be a range available in the market. As long as the inputs and outputs of the proposed technology are known and the environmental impacts can be predicted or deduced from these inputs and outputs with reasonable certainty, it is not necessary to know the brand name of the technology.

As has been done in other issues and response reports, it may be appropriate to explain the envelope of criteria in colloquial terms, as has been done in public meetings during the Nuclear-1 EIA process. If the envelope of criteria is compared to the specifications for buying a vehicle, this envelope may contain requirements with respect to top speed, fuel type, fuel efficiency, catalytic convertor performance, type of tyres and wheels, fuel tank size, effective range, CO₂ emission limits, cruise control, numbers and positions of airbags and a number of other safety systems such as ABS and EBD. The only thing that isn't specified is the brand of vehicle. Providing such a list of criteria would ensure that only a luxury vehicle with certain characteristics could qualify, but that a base model (entry-level vehicle) would not qualify. Similarly, if a vendor proposes a power station design that fails

to comply with the criteria established in the Consistent Dataset, that design will not qualify for consideration.

Comment 5:

We note with appreciation the candour of some of the specialist reports and second some of their concerns notably:

- That there are insufficient surface water or groundwater resources for construction and operation of the power station any of the three alternative sites and use of such resources by the power station would compromise other existing users of such resources.
- All of the site alternatives include in their boundaries and immediate surroundings wetland systems that are of high ecological importance, relatively un-impacted and considered to be either among the last remnants of particular wetland habitats or unique systems
- The limitations of the invertebrate studies because of short duration and inappropriate timing
- The potential for contaminated air emissions to be transported inland by prevailing winds and affect groundwater
- Significant negative impacts on fauna mainly because of the direct impacts on faunal habitats within the footprint areas. The same can be said for the footprints of any new grid extensions.
- The potential impact that the geological environment may have on the proposed Nuclear Power Station rather than *visa (sic) versa*.

Response 5:

Your comment is noted. Please note our additional input on some of the statements above.

The invertebrate study has been supplemented with further fieldwork. The results therefore will be included in the next version of the Nuclear-1 EIA, which will be provided for public comment.

The “*potential for contaminated air emissions to be transported inland by prevailing winds and affect groundwater*” is an opinion expresses in one of the specialist reports but not in the Air Quality Assessment (Appendix E10 of the Revised Draft EIR Version 1). As such, the opinion on inland transport of contaminated air emissions must be interpreted in the context of the Air Quality Assessment, which concluded that normal operational emissions would carry no risk of significant impacts and that the effective doses to the public would be far below statutory limits.

Thank you for your comment regarding the geological environment. The necessary changes will be implemented accordingly.

Comment 6:

Before any final decision is made it is essential that these real or potential problems be investigated further.

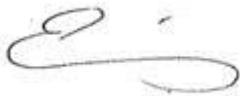
As suggested earlier we feel that the social impact of such a large development deserves more detailed attention and should go further than a survey of immediate or short-term effects on people of the biophysical nature of a NPS near them. Ideally such a study should be intergenerational in scope and include such considerations as long lead time and contrast this to potential effects of alternative development scenarios on broader South African society.

Response 6:

Your comment is noted.

The EIA process is project-specific in nature and has a specific mandate in terms of the applicable South African legislation, namely the National Environmental Management Act, 1998 and the EIA Regulations (Government Notices no. R 543 to 546 of 2010). It is therefore unclear how an analysis of alternative development scenarios on broader South African society would contribute to the purpose of the EIA process i.e. to predict the impacts of a proposed power station within specific identified geographical areas. Further detail on this issue from yourselves would be appreciated.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or 'G' followed by a flourish.

The Nuclear-1 EIA Team