

5 August 2015

Our Ref: J27035 / J31314

Your Ref: Email received 03 August 2011

PO Box 92
Storms River
6308

Email: forestgranny@telkomsa.net

Dear Mr and Mrs Reed



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

Comment 1:

We have a number of concerns regarding the proposed development as we and family spend our holidays in close proximity at Rebelsrus.

Our biggest concern is the fact that there is very little final project design and in fact the type of reactor is not even finalised yet, which means that the decisions about future developments cannot be made now.

Response 1:

Your comment is noted. 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.

Assuming that an authorisation is granted by the DEA, a power station design that deviates significantly from that specified in the Consistent Dataset in the Nuclear-1 EIR (Appendix C of the



GIBB Holdings Reg: 2002/019792/02
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A list of divisional directors is available from the company secretary.



Revised Draft EIR) would render the design incapable of meeting the requirements of the EIR and the authorisation. Hence such a non-confirming design could not be considered for construction.

Comment 2:

We don't believe that enough investigation has taken place around the importance of archeological sites throughout the area and we cannot allow them to be destroyed.

Response 2:

Your comments are noted however please note that extensive field surveys were conducted during 2011 to confirm the occurrence of heritage features within the proposed EIA corridor for the power station. These studies confirmed, that the sensitivity of these features is low. This confirms that the heritage impacts at Thyspunt can be mitigated. Specific mitigation measures have been stipulated by the specialist which Eskom is legally required to implement.

Comment 3:

The proposed disposal of sand/soil 5-6km's out to sea is to us wishful thinking as it is a wild coastline and seldom does one see a calm sea, so where will it all settle, in the rock pools and gullies so loved by our children and grandchildren?

Response 3:

Your comments are noted and the disposal of spoil material is not an issue that is taken lightly. The Marine Ecology Assessment acknowledges that the disruption to the marine environment may be significant with high consequence and significance if no mitigation measures are implemented. The specialist therefore proposes the following in order to minimise the impact:

- disposing spoil offshore (6 km from the shore);
- using only a medium pumping rate and
- undertaking the activity during winter.

When the mitigation measures listed above are implemented then following disposal on the seafloor, roughly 3m of sediment will cover an area of 1.5 or 3 km², depending on whether only half or the full volume of sediment is disposed of. Subsequently, local water movement will result in shifting of the spoil in a north-easterly direction towards Seal Point. Within the first five years following disposal the sediment is likely to spread to cover an area of between 8.3 km² (with sediment to a depth of between 0.5 and 1 cm). In the next five years loose sediment originally placed on the disposal site is expected to continue to spread towards Seal Point.

Comment 4:

And what about all the marine life that will be suffocated? Remember also the Tsitsikamma Coastal National Park is very close and is an important Marine Reserve.

Response 4:

Although the Marine Ecology Reports states that disruption to the marine environment may be significant (refer to Response 3) In terms of fish species, some show site fidelity and may be displaced from their home ranges during the construction phase, but these species are widely dispersed along the South African coast. Thus while individuals may be affected, the species concerned will not be compromised and recovery is expected once the benthic community re-establishes. Another issue of concern looked into extensively is the impact on the overall squid stock. With 13.43% of catches by the inshore jig fishery being displaced as adult squid move to other spawning grounds. It is however recommended that prior to disposal of spoil at sea, benthic communities at the disposal site, and in the areas predicted to be affected by spoil over the first ten years following disposal should be sampled for at least two years. Following disposal of spoil, these sites should be sampled at the same time of the year as the initial samples for at least ten years. Importantly, communities establishing on the actual spoil site should be monitored to establish to what extent these communities recover through time.

Lastly the disposal of spoil is unlikely to affect the cetacean species using the area. Bottlenose dolphins, humpback dolphins and southern right whales all use very coastal and often murky waters as part of their natural habitat range, while the more offshore species move over large spatial scales and area likely to avoid any plumes if needed.

We refer the author to Section 3.3.1 of the Marine Ecology Assessment for a more detailed discussion.

Comment 4:

Why is it that when the rest of the world are cutting back on Nuclear Power we are going ahead, and in an area that is so sensitive as well as being an important dairy farming area, which produces 10% of South Africa's milk. We cannot risk contamination of the countryside.

Response 4:

Your comment regarding a cutting back on Nuclear-1 Power is noted. However the BBC (<http://www.bbc.co.uk/news/world-europe-13592208>) reports that Germany's decision for instance to close down its nuclear power stations will most probably lead to an increase the import of nuclear energy from France and there is a risk they will not manage as quickly to halt the dependency on fossil fuels, especially coal-based energy making your statement not as clear cut as it seems.

Further although the Agricultural Impact Assessment discusses the effect of radionuclides on livestock (section 3.3.1) it has not identified a significant impact in terms of the contamination of milk in the area due to the construction and operation of the Nuclear Power Station. Issues related to the impact on health and nuclear safety will also be dealt with in detail as part of NNR licensing process.

ADDITIONAL COMMENTS BY INDEPENDENT NUCLEAR SPECIALIST

In addition to what has been said - the issue of competing technologies and preferred energy mix scenarios in the context of demand side and economic growth trajectories are clearly in the ambit of the IRP. IRP 2010 remains the formal IRP adopted by government. The regulatory regime is as stated and nuclear facilities are in general required to consider a range of "design basis security threats" as part of the design assessment process - however the exact nature of these threats and the

preventative or mitigative provisions which may be put in place are for obvious reasons restricted in accordance with a "need to know" principle.

Comment 5:

We believe greater emphasis should be placed on developing solar, wind generated and hydro-electric power throughout the country before any potentially dangerous nuclear plants are erected.

Response 5:

Your comments are noted. There are indeed many technologies (including alternative/renewable energy sources as you listed above) which could be employed to generate energy to meet South Africa's current and future energy demand. The choice of technologies (although described in Chapter 5 of the Revised Draft EIR Version 1) and the weighting to be given to each in terms of addressing South Africa's energy requirements however does not fall within the ambit of this Environmental Impact Assessment (EIA) to address. It falls within the ambit of strategic government initiatives such as the Integrated Resources Plan 2010.

This EIA and Application for Environmental Authorisation is therefore not a strategic assessment of South Africa's energy requirements and the future energy mix proposed to address these requirements or an investigation into the pros and cons of the use of Nuclear Power versus Renewable/Alternative Energy. It is a tool used to assess the possible positive or negative impact which the proposed project may have on a specific receiving environment, which in this case are the Duynefontein, Bantamsklip and Thyspunt sites.

Comment 6:

What about potential seismic events, such as that in Japan and closer to home the recent one earlier this year on the South coast which was felt as close by as Plettenbergbay?

Response 6:

Your comment is noted. It is acknowledged that the incident at Fukushima as a result of this natural disaster has highlighted many important safety factors in terms of the future of nuclear energy and is indeed a stark reminder of the unpredictability of the natural environment. However it is also well known that South Africa is located on a vastly more stable tectonic environment than that of Japan which is situated close to a major subduction zone within the Pacific Ocean and the two cannot, in all fairness, be compared to one another.

Please note that the Seismic Risk related to each site was assessed as part of the Seismic Risk Assessment (Appendix E4 of the Revised Draft EIR Version1) and we refer the author to Sections 4 and 5 of the report for a more detailed discussion on the assessment of the significance of the impacts and proposed mitigation measures. Site safety issues will also be dealt with in the NNR process which will be open for public scrutiny and comment.

ADDITIONAL COMMENTS BY INDEPENDENT NUCLEAR SPECIALIST

In terms of each of the above; TMI whilst causing some reactor core damage had only minor actual radiological consequences. However significant lessons have been learned from the event. Similarly

Chernobyl whilst having significant off site impact occurred due to a unique combination of reactor design (of a type no longer considered for commercial application) and a particular combination of operational circumstances underpinned by a poor safety culture. Apart from the proposed technology for any reactors in South Africa being not capable of exhibiting the sort of reactor kinetic behaviour, displayed at Chernobyl, the industry as a whole has learned significant lessons from the event - particularly in terms of Safety Culture which has since become an embedded characteristic of nuclear operators world wide. With respect to Fukushima this was due to a unique combination of external events and a reactor design neither of which would specifically feature in the South African context - not withstanding this industry has undertaken stress tests of all facilities against the type of challenges a Fukushima type event would pose and where necessary and as far as reasonably practicable implemented necessary changes. Over and above this reactor operators are required to make appropriate provisions in terms of mitigating beyond design base events and to provide the necessary decision making tools to assist even in the remote event of such occurrences in the form of for example severe accident management guides.

Comment 7:

This coastline is prone to abnormal sea conditions which are extremely powerful and could create potentially dangerous wash-a-ways.

Response 7:

Your comment is noted however please note that the physical characteristics of the proposed site will be taken into account in terms of the placement of the nuclear power plant (within the context of identified sensitivities on site). The nature of the coastline has furthermore been investigated in the Oceanographic Assessment and its associated Coastal Engineering report. As such the author is referred to Appendix E16 of the Revised Draft EIR Version 1 for a more detailed discussion.

Comment 8:

We do not want to see the problem of disposal of nuclear waste increased even further.

Response 8:

Thank you. Your comments are noted. It is acknowledged that the issues of radioactive waste management is important and integral to debate surrounding nuclear energy and as stated the only alternative currently available in South Africa is long-term storage of the spent fuel in the nuclear power station. However please note that the radioactive waste management practices envisaged for Nuclear-1 are consistent with the IAEA guidelines for a Radioactive Waste Management Programme for nuclear power stations, from generation to disposal. Nuclear Power Station strives to minimise production of all solid, liquid and gaseous radioactive waste, both in terms of volume and activity content, as required for new reactor designs. This is being done through appropriate processing, conditioning, handling and storage systems. In addition, production of radioactive waste is minimised by applying latest technology and best practices for radiological zoning, provision of active drainage and ventilation, appropriate finishes and handling of solid radioactive waste. Where possible, the Nuclear-1 power station will reuse or recycle materials.

All forms of radioactive wastes are strictly controlled and numerous specialised systems and management practices are in place to prevent uncontrolled contact with these substances. These

controls and practices differ for the different forms of radioactive waste. South Africa still has to formally release a strategy for the long-term management of HLW, including spent fuel. Until such time, all spent fuel is stored temporarily either in spent fuel pools (wet storage), or in dry cask storage facilities (dry storage). This allows the shorter-lived isotopes to decay before further handling, a management strategy that is acceptable from a safety perspective. It must be noted however that as per the Department of Energy's Media Statement on Nuclear Procurement Process Update as released on 14 July 2015 strategies are complete to develop an approach for South Africa to deal with Spent Fuel/High Level Waste disposal.

Disposal of radioactive waste at an authorised facility is being done according to an approved disposal concept, defined and developed with due consideration of the nature of the waste to be disposed of and the natural environmental system, collectively referred to as the disposal system. The disposal system developed for this purpose makes provision for the containment of radionuclides until such time that any releases from the waste no longer pose radiological risks to human health and the environment. The safety assessment process used as basis for this purpose considers both intentional (as part of the design criteria) and unintentional (natural or human induced conditions) releases of radionuclides. Unintentional releases include consideration of unintentional human or animal intrusion conditions, which might lead to direct access and external exposure to radiation.

Once released into the environment, radionuclides might migrate through the environmental system along three principle pathways: atmospheric, groundwater and surface water. Due to the physical nature of L&ILW and HLW disposal concepts, migration along the atmospheric pathway is highly unlikely. The principle environmental pathway of concern is thus the groundwater pathway, with the surface water pathway of secondary concern as an extension of the groundwater pathway. Disposal systems are designed so that releases to groundwater or surface water are highly unlikely as further explained in Chapter 10 of this EIR.

ADDITIONAL COMMENTS BY INDEPENDENT NUCLEAR SPECIALIST

In addition it must be noted that the EIA process and Nuclear Licensing process for any off site waste storage facilities will be the subject of separate applications and are outside the scope of this submission. It must be noted that on site storage of spent fuel in ponds, vaults, or casks is a widely practiced and demonstrated technology which has been used to store fuels for many decades.

Comment 9:

It is our opinion that the whole project is being rushed through without due consideration of the long term effects.

We think that the proposal will only satisfy the few people driving the project and that it will be to the detriment of far greater portion of the population who will be negatively affected, as well as the environment.

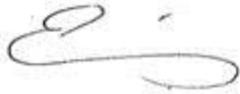
Response 9:

Your comment is noted. This application for Environmental Authorisation was submitted to the DEA (then DEAT) in 2007. It can therefore hardly be said that this process has been rushed though without due consideration of the effects of the proposed development of any of the three alternative sites. The process is indeed still on-going and as stated in communication from GIBB to registered I&APs on 14

June 2012 GIBB is currently preparing the Revised Draft EIR Version 2 which will likely be available for public comment and review only on early 2013.

In the event that no substantive changes need to be made to the report subsequent to the review of the Revised Draft EIR Version 2, the Final EIR will be prepared and submitted to the Department of Environmental Affairs for their review and decision making.

Yours faithfully
for GIBB (Pty) Ltd

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

The Nuclear-1 EIA Team