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Your Ref: Email received 26 July 2011



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Ms Tamara Manton
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6312

Email: tamara_lynne@hotmail.com

Dear Ms Manton

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

Comment 1:

Firstly I would like to bring to your awareness that you have not added me to your list of interested and affected party. My details are Miss Tamara Manton PO Box 741 St Francis Bay 6312 and if you have I never received any email notification that I have been added.

Response 1:

Your comments are noted. The address details as given above had previously been included on the Stakeholder Database under Miss Samantha Manton with e-mail address sammanton@gmail.com and as such all written and e-mail correspondence have been forwarded in terms of these details. Your name and e-mail details have also been added to the address entry and GIBB confirms that you are a registered Interested and Affected party in terms of the Environmental Impact Assessment process.

As such Draft and Final Minutes for the St Francis Bay Public Meeting were sent to the address via mail and as a soft copy on 28 July 2011 (please see attached).

Comment 2:

I attended the meeting at The Links 31 May 2011 and I would like to state that I am deeply unhappy with the revised EIA report.

My objections are as follow:

The access road you are planning on using Saffery Road is totally unsuitable this is a residential area, firstly have these property owners been informed that you are planning on sending +- 950 trucks per day through their residential area. This road is already in a terrible state full of potholes and is a very narrow road so how can it be possible for trucks to use this as access. The road does not even have a shoulder or pavement on. There will be a huge pedestrian risk and there are three schools along your planned access route namely St Francis College, Sea Vista Primary and Humansdorp Secondary I fear for the safety of these children. Also the Sandriver Bridge is consistently being flooded and it has

washed away twice in the last month leaving us stranded with no evacuation route to leave the village in any event of an accident at the proposed plant.

Response 2:

Your comments are noted. Similar concerns from the public around Humansdorp area up to St Francis have been raised and acknowledged regarding the use of Saffery Road. As such the Transport Specialist study was revised to consider other alternative routes. The revised report recommends that the main street through Humansdorp and Saffrey Street be bypassed. New transport roads for abnormal load vehicles were therefore considered and three alternate bypasses were investigated, as shown in the figure attached. All three alternatives are proposed new roads that run along existing land boundaries between farmland.

Alternative A directly links between Voortrekker Road (MR389) and Park Street (MR381) and is 850m in length. The beginning of Alternative A crosses the Boskloof Valley and the rest of the route will be constructed on Municipality land.

Alternative B is connects between Voortrekker Road (MR389) and Park Street (MR381) along the east of the Boskloof area, and crosses privately owned farmlands and is 1.3km in length. The topography of Alternative B is considered acceptable, except for the section of the route where it crosses the Boskloof Stream at a deep vertical alignment. Additional cost will be required for the construction of a bridge to cross the stream at an acceptable grade.

Alternative C is located the furthest east from Humansdorp and is the longest of all three alternatives (2.7 km). This route also crosses privately owned farmlands. Similar to Alternative B, Alternative C crosses two relatively deep valleys, which will require additional cost for the construction of bridge structures to achieve acceptable grade crossings.

Alternative A is therefore considered as the most viable option as it is the shortest and most economical route to construct, and it has a good alignment for the transportation of abnormal loads. Once the route is constructed, it will also alleviate the traffic congestion in Humansdorp.

The revised Transport specialist study therefore acknowledges that the Thyspunt site requires significant transport infrastructure upgrades. The R330 is now proposed to be used for light vehicle traffic and abnormal load transport, and sections will require upgrading for this purpose. The Oyster Bay Road is now proposed to be upgraded to a surfaced road to be used during the construction and operations phases for staff access, light vehicle traffic, heavy vehicle traffic and as an emergency evacuation route for areas such as Oyster Bay. DR1762, which links the R330 and Oyster Bay Road is now proposed to be surfaced to provide improved east-west connectivity.

The report further notes that a section of R330 across Sand River was destroyed by flood and debris flow in July 2011. The box culvert was severely damaged and inhibited traffic flow between Humansdorp and St. Francis Bay while it was being repaired for a few days. Bridges and culvert are generally designed for 1:100 year floods. The flood experienced in 2011 was, however, considered to be a flood with much greater scale than designed for. Construction and operation of Nuclear-1 may be affected should the flood occur again during the construction and operations phase of the proposed nuclear plant. It is, therefore, suggested that a Stormwater Assessment Plan should be undertaken for the flooding situations of Sand River at the R300 crossing. Design specification of the bridge should be reviewed and mitigation measures, such as embankment protection, should be implemented.

Comment 3:

Also we heard during the meeting that you are planning on moving hazardous nuclear waste through this route this is totally unacceptable and irresponsible and you cannot move nuclear waste past countless schools and the Humansdorp Hospital all the way to George where the Consultant said it would be dumped. This is very dangerous for all people living from St Francis to George.

Response 3:

Your comment is noted. The transfer and associated transport of the waste to Vaalputs will be done according to the appropriate provisions of the IAEA Regulations for the Safe Transport of Radioactive Material, subject to a graded approach. The objective of the Regulations is to protect persons, property, and the environment from the effects of radiation during the transport of radioactive material. In terms of the Regulations, the transport process is subject to radiation protection, emergency response, quality assurance, and compliance assurance programmes

ADDITIONAL COMMENTS FROM INDEPENDENT NUCLEAR SPECIALIST

The IAEA transport regulations are well established and form the basis for international transport of all radioactive materials including medical and industrial isotopes and nuclear fuel cycle components of which the former account for by far the majority of transport operations globally.

Comment 4:

The proposed site is also being planned on being turned into a World Heritage Site; we need to preserve this site it is of importance to all South Africans and especially the Khoi San people we need to respect their heritage.

Response 4:

Your comment is noted however additional test excavations at Thyspunt that were approved by the South African Heritage Resource Agency and conducted in 2011 (after the release of the Revised Draft EIR Version 1), have confirmed that the heritage sites in the recommended footprint of the power station at Thyspunt are few in number and of low quality. This implies that direct impacts on heritage resources can be mitigated. Nevertheless Chapter 9 and 10 of the Revised Draft EIR Version 1 recommends that Environmental Authorisation in terms of the current application is granted only if approval is received from the South African Heritage Resources Agency

Comment 5:

I believe that the site should be revised as it was chosen over 30 years ago when there was very low human population, this has changed now and we have a fast growing town.

Response 5:

Eskom's Nuclear Site Investigation Programme (NSIP) in the mid-1980s investigated the technical feasibility of five alternative sites, namely Thyspunt (Eastern Cape), Bantamsklip and Duynefontein (Western Cape), Brazil and Schulpfontein (Northern Cape). During this EIA all these alternative sites were found to be technically feasible for the construction, operation of a conventional nuclear power station. The technical criteria that were applied for the selection of the sites identified in the NSIP

remain valid and although the investigation was undertaken during the 1980s, the outcome of the NSIP is still applicable and credible as was confirmed by Gibb for the purpose of this EIA.

Comment 6:

The proposed site is also prone to earth tremors and earthquakes there was a 4.3 magnitude earthquake on 14 May 2011 and reached the Thyspunt site, this needs to be taken into serious consideration.

Response 6:

The Seismic Risk Assessment (Appendix E4 of the Revised Draft EIR Version 1) found that based on the current state of knowledge there are no disqualifiers for this site. At Thyspunt the onshore regional pre-Quaternary-age geology and tectonics are well understood. Several fault sources (or fault systems) were identified as being potentially capable of generating significant seismic events. Some of the key sources are located offshore, which complicates characterization of these structures. Some of these are only inferred from geophysical exploration, while none of these faults have any correlation with seismicity nor any evidence for reactivation.

ADDITIONAL COMMENTS FROM INDEPENDENT NUCLEAR SPECIALIST

In addition to the given response it must be noted that IAEA requirements are informed by an extensive Body of Knowledge and where necessary derived from extensive scientific discourse and expert opinion from a variety of sources a range of complementary scientific publications and international Standards, Requirements and Best Practices which are evolutionary in nature and informed by international experience. It is therefore natural to expect standards to evolve over time - and it is unwise to be absolutist in these matters however any practices at any particular time must be based on the prevailing standards noting that the fundamental safety objective of the IAEA enshrines a common purpose that any designer operator or regulator is ultimately bound by and where necessary and guided by principles such as ALARP additional measures are considered for adoption.

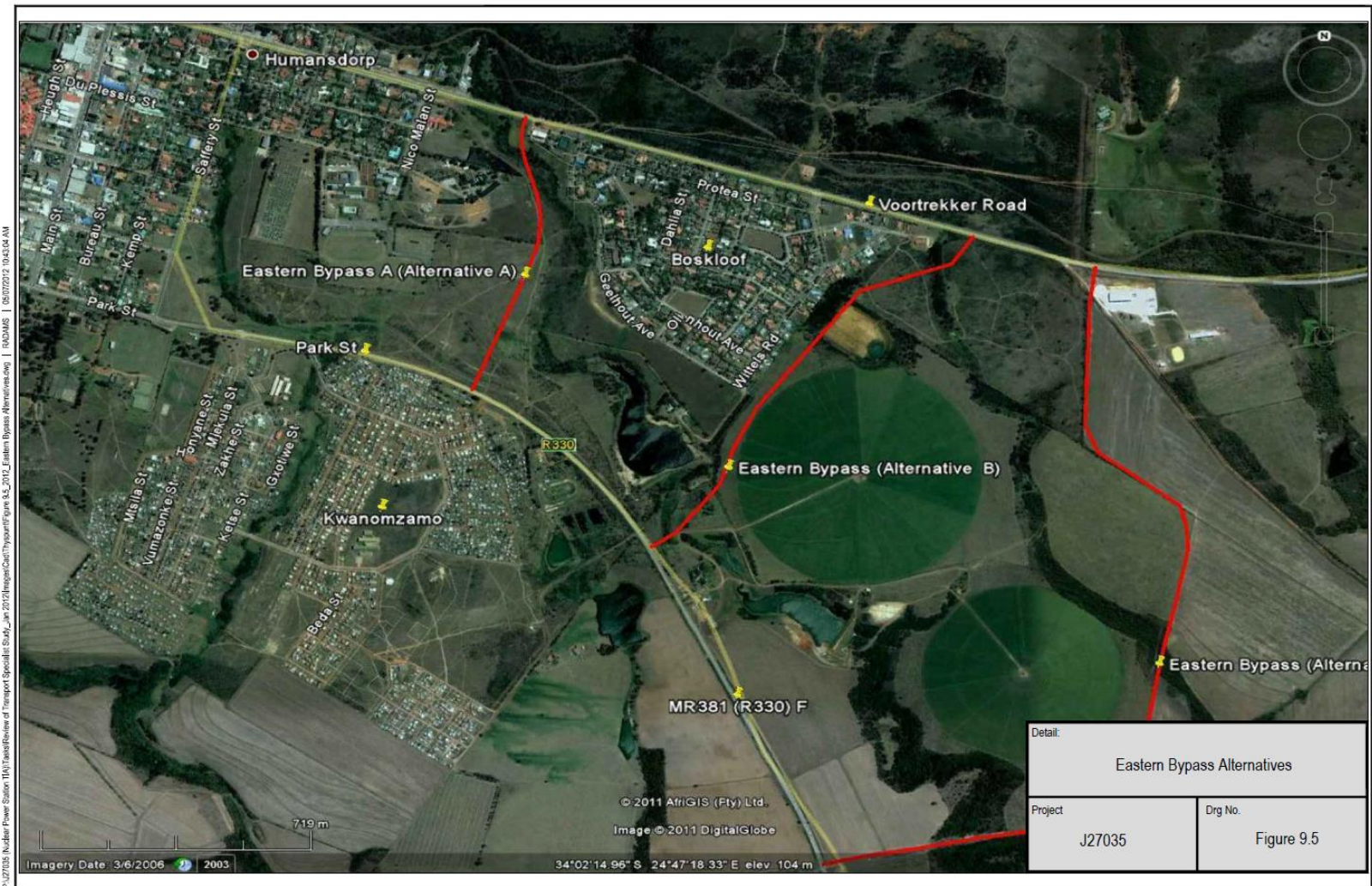


Figure 1: Thyspunt Proposed Bypasses

Comment 7:

No nuclear energy is safe - what compensation is Eskom going to give us as property owners should something go wrong at the Power Station how properties will be devalued.

Response 7:

In terms of the National Nuclear Regulatory Act, the operator of a nuclear facility is obliged to take out insurance. The amount that is stipulated by the NNR is R3 billion. The NNR is however currently reviewing the amount of insurance that the nuclear power operator has to take out

ADDITIONAL COMMENTS FROM INDEPENDENT NUCLEAR SPECIALIST

In addition in terms of Chapter 4 of the NNR Act the Minister is required to Gazette the proposed level of financial security and the manner in which it is to be provided

Comment 8:

There will be negative effects on the groundwater supply and the soil in the surrounding areas this will contaminate our milk, drinking water, vegetable production and negatively affect our strong dairy farming community.

Response 8:

Your comment is noted. The specialist studies conducted as part of this EIA have identified no fatal flaws in terms of the release of radiological emission or other releases during the normal operation of the Nuclear Power Station and its associated infrastructure. The Geohydrological Assessment (Appendix E7 of the Revised Draft EIR Version 1) found that in terms of contamination of the groundwater with radioactive material the impact is Low-Medium without mitigation and Low with mitigation.

Assessment of the radiological emissions during emergency events and the readiness of the relevant role players to deal with such events is clearly within the ambit of the NNR owing to its legal mandate in terms of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999). As with many different forms of development, construction is dependent on authorisations from a number of different legal entities, including local, provincial and national authorities. Construction of such developments is reliant on all these authorisations being obtained from entities with vastly different legal mandates. Reporting requirements to satisfy all these authorisations vary hugely, and it cannot reasonably be expected that information relevant to all these authorisations should be contained in an EIR.

Also, as indicated 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, 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 protection and radiological safety (See Appendix B4 of the Revised Draft EIR). The agreement clearly stipulates that issues of radiological safety are within the mandate of the NNR.

ADDITIONAL COMMENTS FROM INDEPENDENT NUCLEAR SPECIALIST

As stated, the overall authorisation and licensing processes are conducted independently and therefore deal with different specific aspects and details at different times and through different methodologies processes and regulations subject of course to any co-operative arrangements between the respective authorising bodies.

Comment 9:

Destruction of a very sensitive Dune system, natural wetlands countless bird and animal species habitat, this is totally unacceptable and needs to be preserved for the future of all South African citizens.

Response 9:

Your comment is noted however the impact on the physical and biophysical environment has been thoroughly investigated by a number of specialist studies and although a number of significant impacts have been identified, not fatal flaws have been identified by the Nuclear-1 Specialist Teams in terms of the project. Indeed the construction of the Power Station may have a positive impact on conservation. For example as indicated in the Revised Draft EIR Version 1, a maximum area of approximately 280 ha is required for the power station. Thus, only a small portion of the site will be developed. The land currently owned by Eskom at Thyspunt is 1638 ha. Thus, if 280 ha is used for development, it would leave approximately 83% of the site undeveloped. At Duynfontein, where the Eskom owned property is 2849 ha, even a larger proportion of the site is undeveloped and dedicated to nature conservation. Indeed the indiscriminate development of industrial zones would be a threat to ecological systems. However, every EIA process must examine the merits of the particular project, which in this instance do not involve indiscriminate development across the entire site. Development of the nuclear power station is proposed to be focused on a specific concentrated footprint, which has been defined for its low environmental sensitivity, leaving more than 80% of the property free for conservation. In the absence of any significant efforts to establish conservation areas along the affected stretch of coastline (with the exception of the Rebelrus conservancy) and the vigorous alien vegetation encroachment throughout the St. Francis region, the possibility of the development of a *de facto* nature reserve is indeed considered to be a significant offset benefit for conservation.

Comment 10:

Excess sand removal and being pumped to sea is going to affect the sensitive squid breeding ground which is directly in front of the proposed power station, this is going to negatively effect the squid population and cause job losses and a huge loss of income to the town. Also the consultant mentioned during the meeting that sand will also be pumped into Cape St Francis beach this will disrupt the sensitive marine eco system there and impact the surf break. A no fish zone is being planned and this is their major fishing area, also contaminated fish will negatively affect our exports. Change in sea water temperature will not allow the squid to breed there anymore.

Response 10:

The Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR Version1) has assessed the impact of spoil release and the release of warm water used for cooling purposes on the marine environment. In terms of the release of warm water comprehensive oceanographic modelling has

demonstrated that the effects of elevated temperature are expected to be focused on the open water habitat. This is of particular relevance at Bantamsklip and to a lesser degree at Thyspunt, as it would help to mitigate impacts on abalone and chokka squid egg capsules respectively. While chokka squid at the Thyspunt site are expected to avoid water temperatures elevated above their thermal tolerance range, the area predicted to be affected represents less than one percent of the coastal spawning ground.

In terms of spoil release disruption to the marine environment is significant with high consequence and significance. When mitigated by disposing spoil offshore (and by using only a medium pumping rate and undertaking the activity during winter at Thyspunt), the impact is minimised. The impacts associated with the disposal of spoil on chokka squid at Thyspunt will have limited 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.

Comment 11:

A planned 3 km evacuation zone is totally unacceptable and the whole village needs to be included in the evacuation zone.

Response 11:

As indicated in the Revised Draft EIR Version 1 & 2, one of the assumptions of the Nuclear-1 EIA process is that the Emergency Planning Zones of the European Utility Requirements (EUR) will apply to the Nuclear-1 power station. These zones are a maximum of 3 km and hence, no restrictions would apply on St. Francis, which is situated more than 10 km from the proposed nuclear power station site at Thyspunt. However, even if a 16 km Urgent Protective Zone (UPZ) were to be applied to a nuclear power station at Thyspunt, it would not rule out development of a power station at this site. Private development is only restricted within the inner (smaller) Protective Action Zone (PAZ), which in the case of Koeberg Nuclear Power Station (KNPS) is 5km. The 16 km UPZ imposes evacuation planning restrictions but does not prevent private development.

Initial indications provided by the NNR are that it is likely that the EPZ will be reduced, even for the Koeberg Nuclear Power Station. For instance, in a presentation to the Parliamentary Select Committee on Economic Development on 1 June 2010, the Chief Executive Officer of the NNR stated the following: *“One major outcome of these new designs is that the emergency planning zones, specifically the Urgent Planning Zone, which is the zone within which evacuation of the public has to be catered for, would in all likelihood be reduced from 16 km in the case of Koeberg, to a much smaller radius which could fall within the property owned by the holder ...”*.

ADDITIONAL COMMENTS FROM INDEPENDENT NUCLEAR SPECIALIST

Whilst the responsibility of emergency planning rests with the licence of the facility (i.e. identification of potential accidents and the assessment of potential consequences) - the responsibility for disaster management (i.e. emergency responses outside of the licensed site) lies with the relevant local authority.

Comment 12:

You are planning on storing High Radiation Nuclear Waste on the site of the power station, this is not safe as nuclear energy has a life span of 200 000 years to degrade, what are your plans of keeping this from the ocean and the groundwater and soil.

Response 12:

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 a radioactive Waste Management Institute is in the process of being established. One of the functions of this institute will be to identify a repository for high level waste in South Africa.

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 FROM INDEPENDENT NUCLEAR SPECIALIST

The proposed arrangements are in line with international best practice. Liquid and gaseous effluents will be controlled within defined and regulated limits as per license conditions and as assessed through the plant safety case. The arrangements for solid waste management are also in accordance with international best practice. i.e. either storage and disposal at Vaalputs for low and intermediate wastes or on site wet or dry storage for spent fuel pending provision of a centralised or dispersed long term storage facility are all in accordance with internationally accepted practices. It must be understood that the social discourse on radioactive waste disposal has become largely a socio-political one rather than a rigorous debate on the technical merits of particular options.

Comment 13:

Lastly the negative social impacts this is going to have on the population and the future generations.

Response 13:

Your comments are noted. As mentioned previously the specialist studies conducted as part of this EIA have identified no fatal flaws in terms of the construction and operation of a Nuclear Power Station at any of the three sites under investigation. This is not to say that there are no impacts on the Social Environment. These impacts can however be sufficiently mitigated as described in Chapters 9 and 10 of the Revised Draft Environmental Impact Assessment Report Version 1.

Yours faithfully
for GIBB (Pty) Ltd



The Nuclear-1 EIA Team