



GIBB

ENGINEERING & SCIENCE

05 August 2015

Our Ref: J27035
Your Ref: Email received 05 August 2011

Email: Tian.Classens@bigenafrica.com

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

Dear Tian Claassens

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

COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

Comment 1:

- The report is complete and covers all applicable aspects as may be required.
- I believe the report is objective and impartial
- I accept the analysis and valuation of the sites as conducted and agree that the result is conclusive.
- All my concerns relating to any potential adverse environmental impact relating to the Site at Thyspunt have been fully addressed and allayed.
- I support the recommendations of the report.

Response 1:

Thank you for your support of the project and process undertaken. Your comments are noted.

Yours faithfully
for GIBB (Pty) Ltd

The Nuclear-1 EIA Team



GIBB Holdings Reg: 2002/019792/02

Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras

Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

05 August 2015

Our Ref: J27035 / J31314
Your Ref: Email received 07 August 2011

Email: iiosiphakis@gmail.com

Dear John Losiphakis

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

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

A COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

1 FINANCE

Comment 1:

- (a) How will this Project be financed? Let's say the estimated cost at today's prices is R 9 billion. The project will need 1 billion rand per year during the construction phase. Will Eskom issue a bond? Will there be international borrowing?

Response 1:

The funding and procurement process is led by Government and has not been concluded yet. These processes are being championed by National Nuclear Energy Executive Coordination Committee (NNEECC) chaired by the current deputy President.

Comment 2:

- (b) What are the accumulated costs of this project so far? What is the source of these expenses?

Response 2:

The nature of your question is unclear. Please note that the project is currently in its feasibility/definition phase. As with any other project in this phase funds are made available to develop the project through the PFMA process and approved by the shareholder, department of Public Enterprises (DPE). The cumulative cost of the full project has not been disclosed to the EAP as the project is still within the feasibility phase.

2. MARINE ISSUES (page 8-Intake of Sea water)

Comment 3:

- (a) In the past KNPS had a problem with Jelly Fish. The intake area was flooded with millions of Jelly Fish that affected the operation of the Power station.

Nuclear1 should have a new design on the Intake facilities to eliminate such a problem. Check the seasonal activity/production of Jelly Fish if it is excessive on the chosen site.

Response 3:

Eskom have undertaken to ensure that the design of the cooling water intake system for Nuclear-1 take account of any lessons learnt from the operation of the Koeberg Nuclear Power Station.

3. DESALINATION (Refer to page 8 - Utilisation of ground water)

Comment 4:

- (a) Desalination plants generate lot of waste. How this waste is going to be disposed. Will this affect the environment?

Response 4:

As indicated in Chapter 3 of the EIR, brine (hyper-saline effluent) will be disposed in the marine environment. The Marine Ecology Assessment (Appendix E15 of the EIR) assessed the impacts of this proposed disposal method and found it to be an acceptable method of disposal, since the brine would be completely dissipated within a short distance from the point of release. An assessment of this impact is contained in Chapter 10 of the Revised Draft EIR Version 2.

Comment 5:

- (b) The possibility of using a water treatment plant for the treatment of ground water instead of building a desalination plant may be an alternative. Please comment.

Response 5:

The Fresh Water Supply assessment (Appendix E8 of the EIR) investigated several alternative fresh water supply alternatives, including ground water, and came to the conclusion that the groundwater resources are not sufficient for the proposed nuclear power station at any of the three alternative sites.

4. MANAGEMENT OF SPOIL (page 8)

Comment 6:

- (a) Low level and Intermediate level radioactive waste will be disposed at Vaalputs Nuclear waste disposal site.

A comparison is required on the logistics and economics (expenses) for the transportation of the Nuclear waste to Vaalputs,

For example what is the traveling distance from Thyspunt to Vaalputs. What will it cost for one trip of a truckload (radioactive waste) from Thyspunt to Vaalputs? And this amount to be

multiplied by the number of trips per year. By doing this calculation we shall know the Thyspunt costs of transport to Vaalputs per year. Now we need to do the same calculations for the Duynefontein site. It is obvious that the costs per year for transport of waste to Vaalputs will be less for Duynefontein (since Duynefontein is nearer to Vaalputs than Thyspunt). But by putting a value to these costs we shall have a better picture of the costs involved for each site. It may be a significant factor to justify a re-evaluation of the findings and the report.

Response 6:

Section 3.2.1.3.5 of the Economic Impact Assessment (Appendix E17 of the EIR) contains a comparative analysis of the distance and costs of waste transport to Vaalputs. The results of this analysis are provided in Table 3.18 (reproduced below for ease of reference).

Table 3.18: Radioactive Waste Removal Distance and Volume (2008 prices)

	Unit	Thyspunt	Bantamsklip	Duynefontein
Vaalputs to site	km	930	940	723
Number of return trips per annum		24	24	24
Cost per return trip	Rands	55,800	56,200	47,520

Source: Number of Trips – Nuclear-1 Project team; Consultant's assumptions.

The number of trips per year is assumed to be constant regardless of where the Power Station is built. The comparative cost per annum of radioactive waste removal from each site can therefore easily be calculated from the table as follows:

Thyspunt: R1, 339, 200.00
 Bantamsklip: R1, 348, 800.00
 Duynefontein: R1, 140, 480.00

5. PWR TECHNOLOGY (see page 3 Project Description)

Comment 7:

- (a) The specialists should study the APWR = Advanced Pressurised Water Reactor technology to be used for Nuclear-1 rather than the PWR one. This design is a latest development in the Nuclear power plant technology and has greater advantages than the PWR technology.

Response 7:

Thank you for your comment. The consistent data sets envelops the current PWR designs to be built. Please refer to Chapter 5 for further information as to why the PWR design was chosen for Nuclear-1.

6. WATER AS A COOLANT (ref. page 3)

Comment 8:

- (a) *Intake and outfall structures required to obtain / release water used to cool the process, as quoted on page 3 of the report.*

The function of the Intake water is to cool the system so as to condense the steam that is discharged from the turbines.

- (b) The sea water of the West Coast is colder than the East coast sea water. This sea water temperature is significant as to where a Nuclear power plant should be located. Low water temperature increases the thermal efficiency of the plant
- (c) On locating the Nuclear-1 at Duynefontein the efficiency of the plant will be greater than locating the plant at Thyspunt.
- (d) Sitting Nuclear-1 at Thyspunt would decrease its output and will increase the costs of generating power.
- (e) The specialists must quantify this problem and answer the following:
 - (e.1) What will it cost to generate 1kwh (kilowatt-hour) of electricity at both sites. Comparison
 - (e.2) By how much (by what percentage) the efficiency of the plant is reduced at Thyspunt. For example, if the efficiency of Nuclear-1 at Duynefontein is 36% how much is at Thyspunt

These results may need further investigation and evaluation by the specialists. A report will be required on this item.

Response 13:

The sea-water temperature plays an important part in plants' efficiencies. The power plant vendors stipulate ranges of temperatures which allow the plant to be operated. In as much as the Thyspunt sea water is slightly warmer than the Duynefontein one, this temperature differential is within the stipulated range for safe and efficient plant operation. Thus, the Thyspunt sea-water temperature will result in an insignificant efficiency drop, and this is overcome by the other factors such as transmission losses if the plant were placed in an undesirable position for transmission grid balancing

B Any other Comments:

Comment 14:

The Group or Groups that oppose the building of the plant at Thyspunt will continue with their efforts activities.

What actions will be in place to come to some agreement with these Groups?

Response 14:

The Nuclear-1 EIA process is by its very nature a consultative process that provides information to all interested and affected parties on the potential negative and positive impacts of the proposed project to enable them to formulate an informed opinion about the project. However, with a technology such as nuclear, it has to be accepted that certain interested and affected parties are in principle opposed to any form of nuclear electricity generation, irrespective of the merits of the particular proposal. There are, unfortunately, many misconceptions about nuclear science that drive public perception. For instance, some I&APs have a perception that background radiation does not exist and that all radiation is the result of human-induced nuclear activity. Some perceptions only change over a long period of time and could not be changed within the relatively short time-frame of an EIA process. For instance, predictions of disastrous environmental impacts were made prior to the construction of Koeberg

Nuclear Power Station (KNPS). However, perceptions of the population living around the KNPS have become significantly more positive in 30 years of its operation.

A debate on the merits of nuclear power generation vs. other forms of electricity generation (e.g. renewables) is outside the scope of a project-specific EIA process like the EIA process for Nuclear-1 (however please refer to Chapter 5 of the EIR for a strategic discussion on alternative power generation technologies). It will therefore have to be accepted that some I&APs will always remain opposed to the Nuclear-1 project as a matter of principle. However, in spite of such constraints, the EIA process has facilitated redesign of some project components, optimisation of some positive impacts and mitigation of many negative impacts, such that the net negative impact has been greatly reduced and the net positive impact has been enhanced. Greater acceptance of the proposed project may be achieved through this process.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character, positioned above a horizontal line.

The Nuclear-1 EIA Team

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

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

Email: patmiller@telkomsa.net

Dear Dr Pat Miller

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

COMMENT BY HERMANUS BOTANICAL SOCIETY ON THE REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE ESKOM NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (NUCLEAR-1) dated MARCH 2011 : Department of Environmental Affairs (DEA) Reference No.: 12/12/20/944

Comment 1:

The Hermanus Botanical Society (Botsoc) is registered as an Interested and Affected Party (I&AP) for this process. Botsoc expresses on record its grave concern regarding aspects of the above document, and wishes full consideration to be given to the following points:

1. Bantamsklip EMP:

It appears that there is no Environmental Management Plan (EMP) for the Bantamsklip site, as the EMP attached to the report refers to the Thuyspunt (sic) site. We assume therefore (no doubt with unwarranted optimism) that Bantamsklip will no longer be considered as an alternative site. If so, this would be good news indeed.

The Bantamsklip site is botanically rich and home to many endemic species, within an ecosystem that is peculiar to the site. It is a commonly held fallacy that one fynbos site is as good as another and that species are interchangeable in their situation. In fact, species are often specific and unique to a very small area and once destroyed in that area can never be replaced. It is also fallacious to think that restoration of fynbos after development is a feasible option. Very few fynbos species can be restored once their home ground has been disturbed. The intricate underground web of symbiotic relationships that take place in the soil is very poorly understood. What is clearly realised however is that once the soil has been disturbed, biodiversity in fynbos is impacted extremely severely.

Response 1:

Site specific Environmental Management Plans (Appendix F of the EIR) for Thyspunt and Duynefontein have been included in the EIR. Please note that in Chapter 5 of the RDEIR Version 2, it is indicated that Bantamsklip is no longer considered a feasible site for Nuclear-1. However, as mentioned in the various public forums, Bantamsklip will be considered as an alternative site for future nuclear power projects as part of the cabinet approved Integrated Resource Plan (IRP) 2010.

Comment 2:

The Groot Hagelkraal property is registered as a Private Nature Reserve (proclamation 983 /88) and would need to be deproclaimed should it still be under consideration. If this is ever proposed, there will be very vocal opposition to it. Undisturbed pristine sites such as this one, representing highly endangered coastal fynbos, are sadly becoming ever fewer. It should in fact be given far greater protection than it has at present. We owe it to our country's heritage to preserve all that remains of our Cape Floral Kingdom – it is unique and irreplaceable.

Response 2:

Your comment is noted. As per Chapter 5 of the RDEIR Version 2, it is indicated that Bantamsklip is no longer considered a feasible site for Nuclear-1. However, Bantamsklip will be considered as an alternative site for future nuclear power projects as part of the cabinet approved Integrated Resource Plan (IRP) 2010. Should development be authorised at Bantamsklip in the future, it is assumed that it would be located on the botanically least sensitive portion of the site, away from the botanically sensitive Limestone Fynbos.

Comment 3:**2. Tourism impact:**

The superficial treatment given to the lifeblood of the Overberg – tourism focused around its natural beauty and unique ecology – would be laughable were it not so patently directed to “spinning” Eskom’s aims. This area is economically dependent on tourism, and tourists visit it to experience its unspoilt scenic splendour, unique ecology and local character. We even have a small number of botanical tourists who come from all over the world to study (sometimes very specific) aspects of the fynbos. To suggest that this tourist profile could be replaced or supplemented by people drawn to the area because of the presence of the proposed power station/s reads like a Monty Python script.

Response 3:

Your perception of the Tourism Impact Assessment (Appendix E22 of the EIR) is noted. The Tourism Impact Assessment is based on a balanced assessment of the potential loss of existing nature-based tourism and the potential increase in business tourism associated with the establishment of a power station. This is based on experience with the operation of tourism around Koeberg Nuclear Power Station and the current construction of power stations such as Medupi near Lephalale in Limpopo Province.

Comment 4:

Please note that the Overstrand Municipality acknowledges its role as a custodian of this area of internationally significant biodiversity (both land and sea-based) and focuses on the potential for eco-tourism as one of the key aspects of its Local Economic Development (LED) Strategy. One would expect your investigators to give credence to the assumption that local government is well placed to determine what is key in its area. However, the LED strategy is summarily dismissed in the report, which discards the growth potential of eco-tourism as insignificant.

Response 4:

Research for the Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR) was conducted in 2008. No Overstrand LED strategy was available at the time. The tourism specialist obtained older documents (with difficulty) from the Overberg District Municipality. These documents

included a spatial development framework document from 2004 and an integrated development plan from 2002. These documents make generic and expansive mention of tourism as a holistic concept, with eco-tourism as a part of the greater definition of identified sub-sectors of tourism. No specific planning, development targets, empirical research, responsibility mandates, nor plans of action were evident. The documents were expansive with macro-economic statements with policy formulation proposals and guidelines.

The Tourism Impact Assessment report does not disregard the growth potential of eco-tourism as insignificant. However, it does acknowledge the disparate and haphazard statistical evidence thereof. There are multiple claims of eco-tourism's growth, however Stats SA, Western Cape tourism, CTRU and all the relevant Western Cape provincial government departments are unified in their admission that tourism statistics are insufficient and quantifiable data for specific geographic areas such as those for the Nuclear-1 project are lacking. As a result of the data inequalities and the absence of localised evidence or statistics, claims of growth potential on a policy and strategy document level cannot be leveraged as accurate and the report indicates this data situation and recognises this in the assumptions and limitations of the study.

In conclusion, the Tourism Impact Assessment does not dismiss eco-tourism, nor does it dismiss the Overstrand Municipality's LED. It cannot acknowledge a document or strategy that did not formally exist at the time and it certainly does acknowledge eco-tourism. Indeed, it goes to some lengths to quantify it within the context of the study. The respondent is directed to the evident increase in eco-tourism that was experienced around Koeberg Nuclear Power Station and the surrounding reserve areas. This represents the only contextualised eco-tourism experience and available statistics that were available at the time of the assessment.

Comment 5:

It is possible that data on tourism in this area was either lacking or insufficient for your needs in assessing the extent of the impact of the proposed power station/s on tourism. However, because data is lacking on an issue does not mean that the issue itself does not exist. Botsoc is unaware of any serious attempt by you to investigate this issue with the professionalism it deserves. This is an extremely serious flaw in the report.

Response 5:

The data and occupancy rates were obtained from available tourism data, the relevant tourism bureaux and a public stakeholder meeting, and verified in tourism service provider and operator sampling. It is an international standard practice in tourism research to refer to and utilize the data gathered by tourism bureaux and offices. These data are unanimously recognised and employed by tourism industry authorities, academic and research institutions and government, and form a quantitative pillar of the Tourism Impact Assessment.

Comment 6:

3. Local socio-economic implications of the construction phase:

The Overstrand area has many socio-economic problems, many centred around housing and infrastructure. Scant attention, if any, has been given to the increased socio-economic impact of the presence of some 7000 construction workers and their families. It appears that the assumption is that they can be absorbed into the local residential areas and that local infrastructure will be able to accommodate their needs.

The presence of such large numbers of people in what is essentially a rural and small town environment will have a profound impact on many levels – social, economic and - not the least - environmental. Absorbing this influx into the local population will undoubtedly require an economic

development plan on its own if it is to run at all smoothly. Such a plan – with its associated funding implications - should have been part of the EIA. Its omission is a very serious flaw.

Associated with this is the issue of access to the Bantamsklip site itself during the period of construction. Vast quantities of equipment, some of which will be very heavy, will need to be delivered. This will necessitate the construction of adequate routes to do so, either by land or sea, which will obviously need to be done before construction can commence. An EIA would be required for this, which should logically form part of this process. Again, its omission constitutes a very serious flaw.

Response 6:

Your comment is noted. It is mentioned in Section 9 of the Revised Draft EIR that there would be a requirement for barging of material to Bantamsklip and that details of the landing site and facilities for barge operation were not available and therefore assessed in the Nuclear-1 EIA process. Should barging be seriously considered, the landing facilities would be required to undergo an EIA process in its own right. This is one of the significant factors that weigh against Bantamsklip being considered as a potential site for Nuclear-1.

Comment 7:

4. Transmission lines to Bantamsklip:

It would appear that Eskom has still as yet not identified a feasible transmission route from Bantamsklip to the feed-in point/s, and that the separate transmission line EIA process is well behind schedule. Until such time as this element shows progress, it is pointless to go much further in considering aspects of the power station EIA. The power station issues are of academic interest only until such time as a feasible transmission line route has been agreed. The lack of such a route is a serious flaw in the entire process.

Response 7:

Your comment is noted. As stated in Chapter 5 of the RDEIR Version 2, due to the fact that the EIA for the transmission lines for the Bantamsklip site was put on hold, the same level of assessment and comparison conducted for the Thyspunt and Duynefontein sites could not be done for Bantamsklip. As such (amongst other reasons) Bantamsklip is no longer considered feasible for Nuclear-1.

Comment 8:

It should be noted that Botsoc's concerns noted above are also applicable to the transmission lines.

Careful consideration of the document leads to the conclusion that it contains a number of fatal flaws. This leads Botsoc to reiterate its position that the Bantamsklip site should be excluded from further consideration as a possible site for the proposed nuclear power station.

Response 8:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd



The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

Thyspunt Alliance
St Francis Bay Resident's Association
St Francis Kromme Trust

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

Dear Mr Thorpe, Thyspunt Alliance and its members, the St Francis Bay Resident's Association and the St Francis Kromme Trust

EXECUTIVE SUMMARY – THYSPUNT ALLIANCE

Comments on the Second Draft of the Environmental Impact Assessment Report.

This document is an Executive Summary of some of the most important points we would like to highlight.

Comment 1:

Due to the fact that we only received the comments on our first submission at the same time that the second draft was issued we have not responded to each of your responses on the various documents that we presented. This should not be interpreted as a concession on our part that we accept the correctness of the response. On the contrary, unless otherwise indicated, the absence of a specific response to the EAP's comments indicates that we are of the opinion that our original arguments are still valid.

Please note that this document must be read with:

1. The comments submitted on behalf of the Thyspunt Alliance and its members in respect of the draft Environmental Impact Assessment Report ("DEIAR") on 30 June 2010 which are still applicable.
2. The comments on the revised DEIAR submitted by Earthlife Africa and Greenpeace in response to the revised DEIAR, which are endorsed by the Thyspunt Alliance and its member organisations.
3. Lengthy submissions with regard to individual assessment reports.

Response 1:

Your comment is noted.

Comment 2:

1. GENERAL:

1.1 Failure to allow for constructive engagement

We believe that the Public Participation Process for the Second Draft of the Environmental Impact Report has not allowed for constructive engagement. As an organisation we have undertaken to approach this EIA as unemotionally as possible and therefore we went out of our way to get specialists to review the various studies presented to us. This approach was followed to enable the Department to get a very clear view of all relevant issues. We specifically requested that the Key Focus Group meeting be held in time for our specialists to complete their reports. This opportunity was denied to us and constitutes a serious flaw in the process. The second draft should have been treated no differently from the first draft. We are not at fault that the first draft was riddled with mistakes and omissions. We are now presented with a so-called second draft where most of the mistakes were not rectified and attention was only given to a few of the more glaring holes in the report.

Response 2:

A Key Stakeholder Workshop (KSW) that was attended by relevant specialists from the EIA Team requested by the Thyspunt Alliance during the review period for the **Draft EIR** was held on 25 May 2010. GIBB liaised with representatives of the Thyspunt Alliance in preparation for this workshop to ensure that the pertinent issues could be addressed.

With regards to this KSW it must be pointed out that direct engagement between interested and affected parties and EIA specialists is unusual in South African EIA practice. Much planning went into the arrangement of this Key Stakeholder Workshop, which was attended by specialists from seven different fields of specialisation. Whilst it may have been ideal to arrange a workshop earlier, it was practically impossible to arrange an earlier date on which all these specialists could be present in St. Francis simultaneously. These specialists are engaged on other projects as well and are often doing fieldwork, in South Africa or abroad, during which time they may not be contactable. One of the specialists is now resident in New Zealand. The logistics of getting all the specialists around the table on a single date was problematic, which accounts for the date of the KSW late in the comment period for the Draft EIR.

GIBB further acknowledged the request for a Key Focus Group Meeting during the review period for the Revised Draft EIR Version 1 as received from Ms. Trudi Malan on 12 May 2011 and responded to say that the request will be considered and that she would be notified as soon as a decision is reached in this regard. A decision in terms of this request was not reached. We would like to note however that a comprehensive round of public participation was undertaken during the review period for the Revised Draft EIR Version 1 where ample opportunity was provided to stakeholders and Interested and Affected Parties to interact with the Nuclear-1 EIA team as per the table below:

VENUE	DATE	TIME
Western Cape, Pretorius Hall, Main Road, Gansbaai	Monday 23 May 2011	17h00 - 18:00 Public Open House and 18h00 - 20h00 Public Meeting
Western Cape: Atlantic Beach Golf Club, Melkbostrand	Wednesday 25 May 2011	17h00 - 18:00 Public Open House and 18h00 - 20h00 Public Meeting
Sea Vista Community Hall, Sea Vista	Sunday 29 May 2011	14h00 - 17h00 Public Open House
Eastern Cape, Oyster Bay Hall, Oyster Bay	Monday 30 May 2011	17h00 - 18:00 Public Open House and 18h00 - 20h00 Public Meeting
Eastern Cape, St. Francis Links Golf Club, St. Francis Bay	Tuesday 31 May 2011	17h00 - 18:00 Public Open House and 18h00 - 20h00 Public Meeting
Eastern Cape, Sea Vista Community Hall, Sea Vista	Wednesday 01 June 2011	16h30 - 18h00 Public Open House and 18h00 - 20h00 Public Meeting

Comment 3:

1.2 Failure to address shortcomings in the First DEIAR

We believe that the second DEIAR has not sufficiently addressed the serious shortcomings of the first DEIAR. It is also apparent that all the specialists were not notified about the revised methodology for impact assessments as most of the specialist's studies still contain the same tables as in the previous DEIAR.

We do not believe that the consultants are addressing the majority of the problems and queries that we have raised from the very beginning of the process. They seem to constantly be moving the goal-posts. The majority of the studies have not changed and most of our concerns were not addressed. The current report is still riddled with uncertainties, areas not covered and vague references.

The report still contains no detailed designs, cross sections or layouts for any of the planned new access roads, sea tunnels, pumping tunnels, the Open Cycle Gas Turbine, desalination plants or waste water works. We cannot comment on information that is not available to us and specialists cannot comment on possible impacts.

Response 3:

All specialists were comprehensively informed of the revised impact assessment methodology prior to revision of their reports for the Revised Draft EIR. All specialists were consulted prior to finalisation of the assessment criteria to ensure agreement regarding the definition of the criteria, and teleconferences were additionally held with all the specialists to ensure their understanding of the criteria once revision of the criteria was completed.

Comment 4:

1.3 Final Rating Criteria Flawed

We believe that the final rating criteria is flawed in favour of the developer and does not sufficiently consider the impact on the affected environments both from a social and biophysical sense. We request the following:

- Any future integration meetings be held independently of any Eskom involvement
- The names of the Arcus Gibb Project Team as well as the minutes of the Project Team Meeting where the final rating were done.

Response 4:

The key functions of an EIA integration meeting for Nuclear-1 were to:

- Facilitate communication between specialists so that alignments and potential conflicts in the recommendations of the specialists can be understood;
- Facilitate understanding of the key findings of the each of the specialists by the EAP and the applicant;
- Understand the key sensitive areas identified by the specialists on each site and determine whether there is alignment between the areas that each of the respective specialists identified as being sensitive or suitable.
- Seek consensus between specialists and the Environmental Assessment Practitioner (if possible) on the findings and recommendations of the EIA process, particularly with regards the recommended alternatives for issues such as access roads.

It is not effective to discuss these issues in the absence of the applicant. The applicant has information at hand on the technical viability of certain alternatives, and it is most effective to obtain feedback from the applicant as these issues arise. Three-way discussion between the applicant, the specialists and the EAP provides a way to deal with the issues in an effective and efficient manner.

On a practical note, arranging to have more than 20 different specialist teams¹ around the table simultaneously is difficult. For the EAP to have firstly met with the specialists without Eskom's attendance, for the EAP to secondly discuss the outcomes one-on-one with Eskom, and then thirdly for the EAP to return to the specialists with Eskom's response, and adapt the recommendations and design accordingly through further to and fro negotiations would have resulted in a virtually never-ending and open-ended exchange of information with little chance of a definitive outcome.

Furthermore, please note that the National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site.

Comment 5:

1.4 Manipulation of process

It becomes more and more obvious that the process is being manipulated in order to suit the outcome preferred by the developer. We object to statements made by representatives from the developer that they do not want to expose the specialists to the general public and from the consultant that it is a costly exercise to organise the Key Focus group meetings with the specialists.

Response 5:

Your comments are noted. Please refer to Response 2 above regarding the costs and logistics of arranging a Key Stakeholder Workshop.

Comment 6:

1.4.1 Specialist Integration Meeting

Further manipulation of the outcomes are clear from the notes of the Specialist Integration meeting held in November 2009. (See Addendum 1). Firstly we find it very strange that no minutes were taken at a meeting of this importance. We believe that it would have been far more transparent if these notes were included in the DEIAR. Secondly we find it unacceptable that at a meeting of the independent specialists there was a total of thirteen Eskom employees present.

Response 6:

Your comments are noted.

With respect to the issue of minutes, the Integration Workshop took place over two full days. To keep detailed minutes of such a long workshop would have defeated the object and would not have added value to the workshop. One of the primary outcomes of the workshop was a spatial definition of the sensitive areas of each of the alternative sites. Such information is portrayed on maps of the sites and cannot be communicated through minutes. The presentations of the findings and recommendations prepared by each of the specialists form a substantial part of the records of the Integration Meeting.

¹ Each team may consist of a number of members

Further outcomes of the workshop (e.g. key factors for decision-making) have been provided to the Thyspunt Alliance.

With respect to Eskom's attendance of the Integration Workshop, please refer to Response 4 above.

Comment 7:

1.4.2 Independence of the consultants

We would like to state that the fact that Eskom is paying for the EIA does not allow them to manipulate the process. The fact that the developer is responsible for appointing consultants to conduct an EIA is part of the NEMA and the whole notion that this allows the developer to have more say in the process than I&AP's should not be allowed. The consultants are responsible to keep the process independent. We do not believe that this is the case in this EIA. We are of the opinion that Eskom, as the developer, is too integrated into the EIA team and that the consultants have therefore lost control of the process.

Response 7:

We take note of your comments. It is within Eskom's rights as applicant to say what alternatives it prefers, as it is within the rights of all I&AP to say what alternatives they prefer. All applicants are involved in the EIA process, as it is by its very nature a process in which there is a constant flow of information between the applicant, the EAP and I&APs. Environmental recommendations for Nuclear-1 are based on the merits of the case.

Comment 8:

1.4.3 ESKOM statements pre-empting outcome

We would like to place on record that we object to statements made by senior Eskom officials at a recent public meeting held in St Francis to the effect that the "development is going ahead no matter what." This statement clearly indicates that senior officials in Eskom are of the opinion that the EIA is nothing more than a rubber stamp. The amount of disrespect this indicates for the constitution and the law of the country should not be tolerated.

Response 8:

The EIA is definitely a serious process; hence the duration of this current EIA running up to approximately 9 years which is indicative of the effort and time Eskom invested in this project to ensure extensive and constructive consultation. The current and previous EIR information does recommend Thyspunt as the site for Nuclear-1 and sometimes this is used as a basis in the debates. However, the EIA due process has not been concluded yet.

Comment 9:

2. EUR'S & Generation III

We believe that the use of the so-called EUR exclusion zones throughout the current document constitutes a clear bias towards the client. The European Utility requirements group was created in the early nineties by a small group of European utilities participating in the US advanced Light Water Reactor programme. Safety relevant requirements, though reflecting a common analysis and understanding of some safety issues, were never contemplated as substitutes to National Safety Authority Requirements. The EUR is not a regulatory body.

Eskom would have us believe that these emergency protection zones as proposed by them will be accepted by the National Nuclear Regulator. This is simply not true, in fact the zones proposed by Eskom are not used anywhere else in the world. The bias towards the client is clear when you consider that they are basing the EIR on an "envelope of information". The use of an "envelope of

information” allows the developer to dream about a Generation III Reactor but gives them enough leeway in case they have to accept a Generation II design. If they were to be allowed to use this approach, they should use either the planning zones currently relevant at Koeberg or follow the IAEA recommendations. It is clear that Eskom is allowed to manipulate the process to favour them and to the detriment of the communities who will be affected even in the “unlikely event of an accident.”

Response 9:

It is an assumption of the EIA process that the NNR will accept the EUR’s emergency planning zones. Initial indications provided by the NNR are that it is likely that the EPZ will be reduced. 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 ...”*

Should this prove not to be the case, one of the basic assumptions of the EIA would be invalid. Furthermore, as stated very clearly in the EIR and in all other publicly available information for the Nuclear-1 EIA process, it is a basic assumption of the EIA process that the proposed power station will be a Generation III plant. Should this assumption or any of the other key assumptions no longer be valid, it would imply that the EIA is no longer valid. An authorisation issued for a Generation III plant would not allow construction of a Generation II plant.

Various vendor reactor suppliers have qualified their designs according to the EUR requirements. Hence if the designs comply with these requirements, the prescribed EPZs are justified and are still subject to regulatory approval from that specific country adopting a EUR qualified reactor. There are reactors under construction globally that comply with the EUR requirements. As such the basis for adopting the EUR by Eskom is that the EUR aims at ensuring that the design that is adopted has minimal impact on man and the environment

Comment 10:

3. Squid Industry

In spite of the fact that we have alerted the consultants about the possible impacts of the development on the squid fishing industry as far back as the original scoping phase, they chose to ignore this industry until after the second draft of the EIR was issued. The first meeting with the Scientific Squid Working group only took place on 20 June 2011 with follow-up meetings on 8 July and 02 August 2011. The consultants are now expecting comments from this industry before 7 August 2011. We believe that this situation is completely unfair and smacks of manipulation.

Response 10:

The Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) was revised based on the comments of I&APs like the South African Squid Management Industrial Association (SASMIA) on the Draft EIR. Should any verified information indicate that the findings of any specialist report is incorrect, the EIA team would amend that report. However, information that has been supplied by the Squid Working Groups does not substantively change the findings of the Marine Ecology Assessment. Furthermore, data that SASMIA has indicated is in its possession since 2010 that would refute the findings of the Marine Ecology Assessment have to date not been provided.

Comment 11:

4. Power Line Issue

The very selective inclusion of the Power Lines in this DEIAR also needs some interrogation. Eskom chose to conduct a separate EIA for the 400KvA power lines as well as the 132KvA power line. We believe that this is in contravention of the NEMA regulations that clearly states that all related infrastructure should be included. Be that as it may, during the entire EIA both the consultants and Eskom selectively include the power lines if and when it suits them. This selective inclusion cannot be allowed.

In the final rating exercise Thyspunt scores the highest score due to the ease of integration into the national grid. This assumption is based on a 12 page document produced by Eskom in 2008. This means that an outdated 12 page document submitted by the developer carries more weight than any of the independent specialist reports that forms part of this DEIAR. One of the key assumptions and considerations in this Eskom report states:

“No EIA fatal-flaws exist on any of the sites and associated corridors.”

If the EIA for the power-lines is not even completed, how do they know that there are no fatal flaws?

Furthermore the document states the following:

Factor	Thyspunt Site	Bantamsklip Site	Koeberg Site
Line length required	500 km of 400 kV lines	990 km (400 kV and 765 kV combined)	190 km (400 kV line combined with Cable)
Infrastructure Cost (R' Billion)	5.3	12.72	5.1
EIA and Servitude difficulty	Medium	High due to extensive 765 kV network	Medium (but high between Acacia and Philippi)

We fail to understand how technical people with no knowledge whatsoever of the affected environment can make a statement that the EIA and servitude will only be of medium difficulty.

This report is not an independent report the fact that the consultants used this report as the basis for rating Thyspunt higher than the other sites clearly indicates bias towards the needs of the developer.

Response 11:

As indicated in previous responses, while it may be theoretically possible to integrate the EIA processes for all forms of infrastructure, it is practically not possible. Achieving complete integration of EIA process for all forms of infrastructure would mean that the Nuclear-1 EIA would have to be integrated with the public participation processes for the Duynefontein, Thyspunt and Bantamsklip transmission lines, as well as for other infrastructure such as roads, potentially new residential areas, etc. Each of these transmission line studies has very different issues and different stakeholder groups. That is why, for a practical point of view, EIA processes for power stations and their associated transmission lines have been kept separate. There is no EIA process in South Africa undertaken by Eskom where the studies for the power station and the transmission lines have been combined.

Please refer to Chapter 10 of the Revised Draft EIR Version 2 for an updated assessment on the proposed sites. This updated assessment no longer utilises the ranking / scoring system for the sites,

but rather considers the residual risks associated with the proposed Nuclear power station at the proposed sites.

The difficulty of acquisition of the transmission line is a relative indication of the issues likely to be encountered with land acquisitions. This is based on the experience of specialists responsible for the acquisition of power line servitudes with respect to other power lines in the respective areas.

Comment 12:

5. Improved Conservation value:

We would like to object to the very absurd notion in the DEIAR that placing a Nuclear Power Station in an area of critical biodiversity would raise the level of protection and conservation value.

None of the specialist takes cognisance of the fragmentation impact of a project of this scale. It is only mentioned in the Vertebrate (sic) Faunal report. This notion would only hold truth if there was 100% certainty that the very dynamic, integrated system at work in the landscape would not be affected.

It is clear from most of the specialist studies that **no such an assurance can be provided.**

We highlight this with a few examples:

Dune Geomorphology:-

“Final recovery of the natural surface water & groundwater dynamics will probably take decades.”

“Special rehabilitation techniques may have to be developed to ensure that the wetlands, surface water & groundwater dynamics fully recover.”

Fresh Water Ecology:

“4.4.9 Cumulative impacts associated with the NPS development at Thyspunt

The cumulative impact of the proposed NSP development and its associated pylons (within the site) and access roads, even assuming in each case that the alternative that is associated with the least ecological impact in terms of wetland systems is selected, would be high negative significance, resulting in loss of individual wetlands and net degradation of a wetland system of international conservation importance, that is considered a one-of-a-kind system.”

Botany & Dune Ecology:

*“If compromising the functioning of the wetlands at **Thyspunt** cannot be avoided, then this is regarded as a fatal flaw, especially as these systems are endemic to this coast, and the Langefontein wetland is a “one-of-a-kind” system.”*

Vertebrate (sic) Faunal Assessment:

“An important negative factor is the lack of definitive information on whether adequate engineering solutions are available to avoid serious negative impacts on groundwater flows and sensitive wetlands at Thyspunt.”

*“These provided further evidence of the **ecological importance, as well as the richness and sensitivity of the coastal wetlands**. To our knowledge, the largest number of Cape Clawless Otters ever filmed together in the wild – six adults and juveniles – were filmed at Thyspunt”*

*“While the Leopard is not a Threatened species, its occurrence in coastal environments has become rare. **This species is symbolic of the wild, unspoilt nature of the site, and of an ecosystem that is intact and functioning in, or quite close to, its original condition.**”*

“This has given rise to an ecosystem with a pattern of resource utilization that is atypical and unusual. These ecological patterns, quite apart from the species themselves, are rare, of scientific interest and ecologically important, and therefore should be viewed as conservation worthy and of high significance. The same logic applies to aquatic and semi-aquatic communities in the dune field.”

Response 12:

Your comment is noted. All biophysical specialists indicated the potential value of the conservation of the site, provided that the sensitive portions of the site are avoided.

The quotes from the specialist studies provided above by the Thyspunt Alliance must be interpreted in context. Specialists have, in most cases, based their assessments on a worst case scenario i.e. they have assessed the impacts as if the most sensitive of the resources on the site would be destroyed. Some of the quotes also do not take account of further information that has been generated to improve confidence in the assessments.

The following is an example from the Vertebrate Faunal Assessment (Appendix E13 of the Revised Draft EIR): *“An important negative factor is the lack of definitive information on whether adequate engineering solutions are available to avoid serial negative impacts on groundwater flows and sensitive wetlands at Thyspunt.”* This statement assumes a worst case scenario impact on the wetlands and does not take account of the extensive wetlands monitoring undertaken in 2010 (culminating in the Wetlands Monitoring Report – Appendix E12 of the Revised Draft EIR), which found that the Langefontein Wetland is not geo-hydrologically linked to the footprint of the power station and that impacts on this wetland can be mitigated. The statement also does not consider the fact that the placement of the power station and other infrastructure has specifically avoided sensitive wetland communities such as the dune slack wetlands within the headland Bypass Dune System and the Langefontein Wetland.

The following quote from the Botany and Dune Ecology Assessment refers: *“If compromising the functioning of the wetlands at **Thyspunt** cannot be avoided, then this is regarded as a fatal flaw, especially as these systems are endemic to this coast, and the Langefontein wetland is a “one-of-a-kind” system”*. The statement is conditional i.e. impact will be a fatal flaw **IF** the impact on wetland functioning cannot be avoided. As indicated in the response above, this impact can be avoided.

With respect to the issue of raising the conservation value of the Thyspunt site: As indicated in the revised Draft EIR, a maximum area of approximately 280 ha is required for the power station. The land currently owned by Eskom at Thyspunt is approximately 3828 ha. Thus, if 280 ha were to be used for development, it would leave approximately 93% of the site undeveloped. At Duynefontein, where the Eskom owned property is 2928 ha, even a larger proportion of the site is undeveloped and dedicated to nature conservation. All biophysical specialists have indicated that the conservation value of the site could be improved, provided that impacts on the sensitive biophysical features on the site are avoided. Every EIA process must examine the merits of the particular project, which in this instance do not involve indiscriminate development and fragmentation of the site. Development of the nuclear power station is proposed to be focused on a concentrated footprint, which has been defined for its low environmental sensitivity, leaving more than 90% 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 undeveloped area being managed as a nature conservation area is considered to be a significant benefit for conservation.

Comment 13:

5. The “land sale threat”

We object to the statement by the majority of the specialists that if Eskom is not allowed to build the Nuclear Power Station at Thyspunt, the land will be sold off and there will be no control over

development. Any developer will have to conduct an EIA for any development on the site and we would be as rigorous in our oversight as we would be for this EIA.

Furthermore the new Integrated Coastal Management Act combined with the overreaching NEMA regulations will make it very difficult to for any developer to have a development of the size and impact of a Nuclear Power Station, especially if you consider the cumulative impacts.

No consideration is given to the possibility of establishing a National Park. The establishment of a national park will not only protect a system that is deemed to be of global importance and situated within an area of critical bio-diversity, but it would also protect the heritage value of the site. This will allow for long term gain from tourism development instead of the possible short term gain from a power station (60 years).

Response 13:

As the Thyspunt Alliance has stated in much of its correspondence, the St. Francis region has been developed as a tourist area for high-end tourism. The development of Cape St. Francis, St. Francis Bay and other more recent tourism developments in this region (e.g. the St. Francis Links Golf Estate) are indications of the attraction of this area for tourism development. The coastline is a tourism draw card and further development along the coastline is therefore a very feasible scenario in the absence of a nuclear power station. The dramatic growth of Jeffreys Bay in the last decade is a further indication of the pressure for residential on this stretch of coastline.

Housing, as a form of development, is arguably more environmental destructive than the development of a nuclear power station. Residential development has the potential to transform the landscape completely. In the case of the proposal for Nuclear-1, the power station development is located on the least sensitive portion of the site, with more than 80% of the site, including valuable ecosystems like the Langefontein Wetland, remaining undeveloped. Given these alternatives, it is not unrealistic to come to the conclusion that, on balance of probabilities, the development of a power station with a surrounding nature reserve would provide greater security for the long-term conservation of the site. It must also be borne in mind that the power station would have an Emergency Planning Zone with a radius of at least 800 m, within which no development would be permitted for the lifespan of the power station and after decommissioning a review of the EPZ would have to be done.

The Botany and Dune Ecology Assessment (Appendix E11 of the Revised Draft EIR) does not come to the conclusion that the Thyspunt site is of “global importance” or situated in an area of “critical biodiversity”. The potential impact on the transverse dune system at Duynefontein is rated to be of higher significance than the botanical impacts at Thyspunt. Should you have any published information to dispute the findings of the botanical assessment, we would gladly consider this.

It is unlikely that the Thyspunt site would be considered for expansion of the National Parks network. The focus of the National Protected Area Expansion Strategy² is on for large, intact and unfragmented areas. The Thyspunt site is situated between two developed areas (St. Francis and Oyster Bay) and is completely isolated from other natural areas further inland by extensively transformed dairy farming regions. The above-mentioned strategy does not indicate that any areas within the St. Francis region are considered for inclusion in a protected areas network.

Therefore, the development of a formal conservation area has not been considered. However it has been recommended in Chapter 10 of the Revised Draft EIR Version 2 that Eskom should enter into negotiations with a statutory conservation body such as SanParks upon decommissioning of the power station.

Comment 14:

6. Heritage

² Government of South Africa. 2010. *National Protected Area Expansion Strategy for South Africa*. Government of South Africa. Pretoria.

One of the new studies in the revised draft is a Heritage Mitigation study. In the introduction to the study the following statement is made: *"We have however conducted significant amount of consultation with respect to mitigation of archaeological sites"*. We find it unacceptable that none of the specialist or affected parties in the Eastern Cape was even invited to this discussion and we therefore does not consider this consultation as significant.

The days where academics can sit in conference rooms and make decisions on the protection afforded to the heritage of a nation, without involving the affected parties on a national level, is over. We have alerted the consultants that the KhoiSan structures in the country must be involved in this assessment on a national level and not just on a local level, it would seem that they have chosen to ignore this recommendation.

We further contest the following statement: ***"Both Arcus GIBB and ACO have indicated to SAHRA (as reflected in the EIA report) that the Thyspunt site is not well understood, and that there remains a possibility that a minimal damage scenario may exist"***

This statement is untruthful and should be treated with the necessary contempt. The mere fact that Arcus Gibb and ACO can even make a statement like this indicates clear bias to the developer.

We are of the opinion that there should be no difficulty in understanding the Thyspunt site. In actual fact it is fairly easy to understand – **THE SITE IS OF INTERNATIONAL HERITAGE VALUE AND SHOULD BE AFFORDED THE PROTECTION OF AN UNESCO WORLD HERITAGE SITE."**

We have a copy of a written response from the Minister of Arts and Culture, Parliamentary file number 7/1/2/B to written question number 360. This states that: "As indicated above, the HIA (Heritage Impact Assessment) is not approved by SAHRA (South African Heritage Resource Agency), so the development will not proceed." We are greatly concerned that Eskom and the EAP appears to assume that they are above the law and are carrying on as if this ministerial decision is of absolutely no value or consequence.

It is clear from the Heritage Assessment that allowing any development of this magnitude on this site will be a continuation of the disregard for the KhoiSan heritage. We believe that the conservation of this area would not only create more job opportunities, but would also safeguard the heritage of the "First Nation". We believe that the area should be declared a National Heritage site and that a Coastal Cradle of Humankind Centre should be established as part of the KhoiSan Heritage Route.

Response 14:

The Nuclear-1 EIA process has included numerous opportunities for input into the EIA process. Specialist studies, including the Heritage Impact Assessment, were included in the documentation that has been provided for review of Interested and Affected Parties (I&APs). In addition, meetings with specific heritage role players (e.g. individuals and groups claiming to represent the Gamtkwa "First Nation") were convened at their request. Refer, for example, to the minutes of the meeting with the Gamtkwa Council on 27 August 2010.

In response to the requests by groups such as the Thyspunt Alliance to interact directly with the EIA specialists after the Draft EIR was provided for I&AP comment, a specialist workshop was convened in St. Francis on 25 May 2010. The Thyspunt Alliance made significant inputs into the agenda for the workshop and the list of specialists that were requested to attend this workshop.

Furthermore, your quote above from the Heritage Impact Assessment is related specifically to *"mitigation of archaeological sites"* and should be understood in that context. The specific consultations mentioned were of a technical nature and focused on organisations and individuals involved professionally in the management of archaeological sites.

We take note of your objection. However, recent additional monitoring of archaeological sites at Thyspunt (undertaken during the 2nd half of 2011 and therefore not yet reflected in the Revised Draft EIR Version 1 from 2011) indicate that there are very few archaeological sites within the proposed footprint of the power station and that these sites are of poor quality compared to the concentration of well-preserved archaeological sites along the coastline.

The statement by the Minister of Arts and Culture was made prior to any formal application by Eskom for excavation of the heritage sites at Thyspunt. A formal application for excavation of the site at Thyspunt has not yet been lodged. As indicated above, further test excavations at Thyspunt have revealed there will be minimal heritage impacts within the recommended power station footprint. SAHRA can only make a formal response to this issue once all the facts have been placed at their disposal.

Your comment regarding the establishment of a “Coastal Cradle of Humankind Centre” is noted. One of the key recommendations made in Section 10.3.4 of the Revised Draft EIR is the following: “*On-site curation and interpretation facilities need to be provided and sufficient resources need to be provided for the ongoing maintenance of these facilities throughout the operational life span of the proposed power station.*” Funding of such a centre by Eskom, as part of its mitigation responsibilities, provides a secure mechanism for development and funding of an interpretation centre. Recent examples of offset mitigation measures by Eskom (e.g. the creation of a 9000 ha wetland conservation area at the Ingula pumped storage scheme) indicate that large-scale mitigation measures, undertaken in conjunction with the development of a large infrastructure project, are feasible and can be enforced.

Comment 15:

7. Dune Geomorphology

We will be submitting a report conducted by Prof Fred Ellery with regard to the Dune Geomorphology report and the possible impacts of the very dynamic system on infra-structure. It is clear that both the consultants and Eskom are not willing to take a “whole systems” view, instead they divide the study area into a western and eastern system - with the site for the nuclear power station site in the western watershed, and dismissing the eastern watershed section.

We are of the opinion that the complexity of this very dynamic system is understated in the DEIAR.

Response 15:

We take note of your comments and will consider any scientifically verifiable facts provided in the submission by Prof. Ellery.

Comment 16:

8. Specialist studies of concern:

We believe that the following assessments should be rejected and re-done:

- Agricultural Assessment
- Social Assessment
- Marine Ecology Assessment
- Economic Assessment
- Transport Assessment

These studies does (sic) not provide all the relevant information, contains outdated information and does not reflect all the relevant impacts. The shortcomings of these studies will be discussed in lengthy submissions.

Response 16:

Your comments are noted. We will respond to the claimed shortcomings of these studies in the lengthy submissions.

Comment 17:

8.1 Social Impact Assessment

We believe that this study is a flawed study based on out-dated information and filled with perceptions and assumptions without any realistic discussion of facts and impacts. The SIA contains long descriptive paragraphs, some copied directly from the Kouga Draft IDP, but very little ground truthing. Most of the mitigation measures suggested are theoretical in nature but not practical at all. Alerting the Education Department to the shortage of schools is not a mitigation measure. The current social conditions in the Thyspunt area are not reflected in this SIA at all and therefore the real impact of adding more strain onto a system that is already far over-capacity is not recorded. The SIA does therefore not address the principles of sustainable development.

Nowhere in the SIA is any mention made of the impacts related to loss of employment. We maintain that the development of Nuclear 1 at Thyspunt poses a serious threat to the viability of the Squid Industry. The Economic Impact Assessment clearly states that there will be an expected drop in tourism figures during the construction phase. The impacts of these possible job losses should be discussed as part of the SIA.

The SIA makes the following statement:

“Different people tend to view the realities of life differently and therefore the impact that may be perceived negatively by one individual or community could be perceived as the best and most positive impact by the next individual;”

To avoid this confusion about the realities of life it is necessary that the studies conducted as part of this EIA should be based on fact. The department will base their response not on perceptions and the specialist therefore has the responsibility to provide both the department as well as I&AP's with a clear and truthful description of the social situation as it is currently reflected in the affected environment. Whether people perceive Nuclear as good or bad as a very small role to play in the social impact assessment and although these perceptions can be recorded the social impact assessment should focus on the actual impact of a development of this size on the society at present.

Response 17:

Potential job losses in the tourism sector and in the fisheries sector are discussed in the Marine Ecology Assessment, the Economic Impact Assessment and the Tourism Assessment (respectively Appendices E15, E17 and E22 of the Revised Draft EIR). Potential job opportunities arising from construction and operation of the power station are likewise addressed.

The data used in the Social Impact Assessment (Appendix E18 of the Revised Draft EIR) are the latest official and verifiable information for the study area.

A social impact assessment is by nature an assessment of the impact on people and how they perceive their environment and the influences on their environment. Ignoring people's perceptions and focusing only on "facts" would defeat the purpose of a social impact assessment.

Comment 18:

9. Peer Review:

The only Peer Review in the revised draft report is reflected in App H, which makes it clear in its very first paragraph that it is only concerned with the process, and not with the specialist reports:

“It is principally a process review and is not intended as a means of verifying the scientific accuracy or completeness of the specialist studies that were prepared for the investigation. Specialist reviews have been undertaken for that purpose.”

We find it unacceptable that, according to a recent verbal communication between the EAP and a member of the Alliance, no peer reviews of specialist reports have taken place in this EIA since the earliest draft stage in 2008. The EAP specifically stated that she relies on I&APs for this kind of monitoring. This totally overlooks the fact that the “specialist reports” are just that, and that it will not often be the case that I&APs are sufficiently well-informed to monitor these reports. Under these circumstances, therefore there is no adequate monitoring of the scientific accuracy or completeness of the specialist studies. This has to be a fatal flaw in the process.

Response 18:

Peer review of specialist reports were undertaken in late 2008 to early 2009. The EAP’s statement is correct, in that one of the functions of I&AP involvement is monitoring the correctness of the EIA process. I&APs do not necessarily have to be subject specialists to provide valuable information. It is often so that local people with local knowledge provide valuable information that would not normally be available to the EIA Team.

Yours faithfully

A handwritten signature in black ink, appearing to be a stylized 'S' or 'J' with a flourish.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

TAG Action Group
PO Box 519
CALEDON
7230

Email: tesselaardsdactiongroup@gmail.com

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

Dear TAG Executive Committee

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

RE: REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT FOR ESKOM'S PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No. 12/12/20/944)

This document constitutes our TAG organisation's response, on behalf of all of its members, to the above-mentioned document, for which the extended public comment period ends on the 07th August 2011. Please take note of the new contact details for TAG per the above header, as well as the attached TAG membership list, where members' details that have changed have been highlighted in red. As was the case in the past, any correspondence to those of our members that do not have their own postal address may be posted c/o the TAG address listed above.

Comment 1:

1. As before, we are immensely relieved to find that this revised DEIR has not recommended the Bantamsklip site as being the preferred location for the proposed Nuclear-1 project. However, as was indicated to us at the public meetings during March 2010, the Bantamsklip site may still be reconsidered for future nuclear applications by Eskom. Whilst it is clear that such future projects do not fall within the ambit of this EIA process, many of the findings of this draft EIA report indicate, in our opinion, substantive reasons for the Bantamsklip site to be removed from any list of possible future nuclear power generation developments. As such, therefore, we feel obligated to make use of this forum to lay the groundwork for our objections should such project proposals for the Bantamsklip site ever be tabled in the future. We therefore reiterate our standpoint that the high level of local opposition, the eco-heritage and unspoiled sense of place which is integral to the burgeoning eco-tourism industry of the area, the cumulative findings regarding Bantamsklip by the various specialists in this revised DEIR, as well as the high cost and difficult logistical implications found to be associated with this proposed project, make this site unsuitable for a large-scale development such as this one.

Response 1:

Your comments are noted.

Comment 2:

Of concern is that whereas the DEIR issued for public comment in March 2010 removed the Bantamsklip site from contention for the Nuclear-1 project completely (per page 11 of that Executive Summary)

“The comparative assessment of the three alternative sites by Arcus GIBB was based on the following:

- *Results of the specialist studies: specialists have indicated the relative significance of potential impacts with mitigation at each of the three alternative sites;*
- *An integration workshop, involving all specialists, on 24 and 25 November 2009, where potential impacts and ranking of the sites was discussed;*
- *Costs; and*
- *Transmission integration requirements.*

Although there are obvious differences between the significance of the impacts of the three alternative sites, all specialists agreed that there are no fatal flaws at any of the sites (provided appropriate mitigation is implemented) and that all three alternative sites are suitable for development of a nuclear power station in time, given sufficient mitigation of impacts. Although the current application is only for a single nuclear power station, the assessment confirmed that all sites are suitable for the construction of nuclear power stations.

The impacts of high and medium significance after mitigation were considered important for decision-making. These impacts were further filtered to a manageable number of key impacts for the purpose of decision-making. The following decision factors were selected as most important for decision-making:

- *Transmission integration factors;*
- *Seismic suitability of the sites;*
- *Impacts on dune geomorphology;*
- *Impacts on wetlands;*
- *Impacts on vertebrate fauna;*
- *Impacts on invertebrate fauna; and*
- *Economic impacts.*

*The Bantamsklip alternative would be costly because its location would require longer and larger transmission lines than either of the other two sites (900 km of combined 765 kV and 400 kV transmission lines at Bantamsklip vs. 500 km and 190 km of 400 kV lines at Thyspunt and Duynefontein respectively). The road and bridge upgrades that would have to take place to transport extra heavy loads from Cape Town harbour to Bantamsklip also contribute to the high costs of this site. The Bantamsklip alternative would be R 8 billion less costs effective than either of the other two sites. **Despite the positive benefits that could potentially be realised through conservation of the northern portion of the site, bearing the cost and integration factors in mind, the Bantamsklip site was regarded as the least preferred site alternative and was removed from further consideration for this application.** Only Thyspunt and Duynefontein were considered for selection of a recommended site and were compared using a numerical ranking model that takes only the weighted (filtered) decision factors into account. Thyspunt was identified as the preferred site for Nuclear-1.”*

the current Executive Summary of the Revised DEIR states the following:

“The comparative assessment of the three alternative sites was based on:

- *Specialist studies: specialists have indicated the relative significance of potential impacts with mitigation at each of the three alternative sites;*
- *An integration workshop (November 2009), involving all specialists, where potential impacts and ranking of the sites was discussed;*
- *Costs; and*
- *Technical requirements (e.g. transmission integration, seismic suitability).*

The 259 impacts were grouped into categories and then consolidated and filtered to provide the 16 most important impacts for decision-making. This involved the removal of impacts with low significance, impacts of equal significance across all sites as well as those not applicable to all sites.

An analysis of the impacts showed that Duynefontein could be the preferred site. However it was necessary to consider the relative importance of each of the impact categories between sites and within a site. To this end a weighted numerical comparison of the alternative sites was undertaken in an attempt to identify the most suitable site for Nuclear-1. Technical and environmental factors, including negative and positive impacts, were considered in this comparison. The following nine decision factors were applied in this weighted ranking exercise:

- *Transmission integration;*
- *Seismic suitability of the sites;*
- *Impacts on dune geomorphology;*
- *Impacts on wetlands;*
- *Potential conservation benefits;*
- *Impacts on heritage resources;*
- *Economic impacts;*
- *Impacts on invertebrate fauna; and*
- *Impacts on vertebrate fauna.*

The weighted comparison of alternative sites, undertaken in terms of the above-mentioned environmental and technical factors, and the weighting thereof, results in the following scores for the respective alternative sites:

- *Duynefontein: -8*
- *Bantamsklip: -8*
- *Thyspunt: +5*

This result indicates a higher score for Thyspunt, followed by Bantamsklip and Duynefontein. This suggests that Thyspunt is the preferred site from an environmental and technical perspective. The above conclusion has also been tested by applying a non-numerical comparison to the alternative sites and the conclusion with regards to a preferred site remains the same.”

Firstly, the reasons for taking the Bantamsklip site out of contention and consideration in 2010 DEIR are still valid in 2011 - the issues of costs, transmission line integration factors and the upgrading requirements of the roads and bridges are unchanged, and these can hardly have been affected by the inclusion of the ‘potential conservation benefits’ and the ‘impacts on heritage resources’ as decision-making factors in the current and revised DEIR. In addition the option of barging heavy load items to the Bantamsklip site has also been rejected as an option (Revised DEIR Executive Summary page 7) adding even further to its lack of desirability as a potential project site. So why was

Bantamsklip taken out of contention in the initial DEIR, but the revised DEIR now not only does not consider the site as being disqualified, but now even lists it as having the same preference score as Duynefontein? Perhaps the answer lies in the following - per the Peer/Process Review Report prepared by Sean O'Beirne and Mark Wood, on page 16 of this report:

“2.3.3 Have cumulative impacts been adequately considered in the report?”

There are two broad principles at stake here. The first of these is whether or not the full extent of the development has been adequately presented and assessed (viz. power station and transmission lines and staff village) and the second is whether the combined (cumulative) impacts of all activities in the area have been assessed. We deal only with the former issue as we have not reviewed the individual specialist studies. In our opinion the latter appears to have been satisfactorily addressed, bar the issue of significance rating and presentation of impacts which has already been dealt with extensively in this review.

In terms of the former issue we note the comments of both DEA&DP and DEA in respect of the need to present the „big picture“. We also note the response provided by the EIA practitioners that to provide all the information on all the possible transmission line routes would require that multiple scenarios be presented in the EIR which in itself is already very difficult to digest. Our view is that the EIA practitioners must find a way of reducing the complexity so that the decision-making significance of the transmission lines (and other associated infrastructure) is properly presented. It simply has to be recognised that transmission line impacts (for example) could well influence the optimal siting of the NPS. The most important issue is to ensure that the authorities are not forced to approve the transmission lines at a later stage by virtue of the approval of the power station. However, this latter item only becomes important if the authorities are forced to approve the transmission lines in the face of a potentially intolerable impact. In these terms it is not incumbent on the EIA practitioners to present the transmission lines in detail but rather to simply highlight key concerns that could result in such a fatal flaw.

In using the sensitivity of the transmission line routing as one of the reasons for disqualifying the Bantamsklip site, the EIA practitioners have upheld this principle. We contend that in principle at least the practitioners are compelled to do no more than what they have already done, although there are two further issues that should also be addressed. The first of these is whether or not Bantamsklip does in fact remain a viable site for the later possible development of an NPS as indicated in the EIR (given the sensitivity of the transmission line routing and the other issues that lead to the site being excluded). The second is whether enough has been done in the existing EIR to present a compelling case for having adequately assessed the possible fatal flaws in the transmission line routings. We contend that the flexibility in routing a transmission line means that it is highly unlikely that authorities would be compelled to authorise the transmission lines (because they had already authorised the power station) despite being faced with a fatal flaw. The same would apply to the issue of the staff village.

A second important issue is that the applicant must also recognise that there is some risk in this approach. That risk is that the authorities find during the detailed EIA of the transmission lines or the staff village that they simply cannot approve one or both. For this reason, it is critical that the fatal flaw analysis on the transmission lines and the staff village be thorough and meaningful in the interests of both the applicant and the authorities.”

As we (and numerous other I&AP's) have repeatedly indicated, both in discussion forums and in our written responses, the cumulative impacts of the proposed project MUST be considered in order for a proper assessment of the impact of a NPS to be made, and it is indeed gratifying to have this view now supported by an independant party. Additionally, it is also clear that this Peer/Process Review feels that, based on the listed shortcomings and sensitivities of the Bantamsklip site and the principles

employed in disqualifying it from consideration for Nuclear 1, that a decision should be made sooner rather than later about whether this site should in fact continue to be considered as a potential nuclear site in the future – we support this view, and, as was made abundantly clear in our previous response document in this regard dated 30 June 2010, contend that Bantamsklip must be permanently removed from the list of potential NPS sites.

Response 2:

As indicated in Chapter 7 of the Revised Draft EIR, the assessment methodology, particularly the rating of impacts, has been changed substantively between the Draft EIR and the Revised Draft EIR version 2. Given this change in assessment methodology, it was considered important by the EIA team to apply this rating methodology consistently to the alternative sites.

Your comment regarding the permanent removal of the Bantamsklip site from consideration as a nuclear site is noted. Please note that Chapter 5 of the Revised DEIR Version 2 states that Bantamsklip is no longer considered as a feasible site for Nuclear-1. It may however be considered for future Nuclear power stations. Please refer to Chapter 5 for more information.

In terms of the consideration of strategic impacts, please refer to Chapter 10 of the RDEIR Version 2. This assessment chapter considers the residual risk of establishing a power station at the proposed sites. This approach not only extracts the key factors for decision making but also by virtue of the consideration of residual risks, considers the cumulative impacts of the power station.

Comment 3:

The Executive Summary gives no explanation as to why there is this change in approach regarding Bantamsklip's status, nor how the weighted ranking system resulted in this change - one cannot, therefore, help but have some questions about the how's and the why's of the processes employed in the drafting of the DEIR's, and whether or not there has been a 'shifting of the goal posts'.

Secondly, this change in the scoring/status of the Bantamsklip site is surely a substantive difference between the two DEIR's, and yet it is not mentioned under the "Key Changes" heading or anywhere else in the latest Executive Summary as such.

Response 3:

We apologize for this oversight, however please note that the Revised DEIR Version 2, no longer utilises the ranking system. Please refer to Chapter 10 of the RDEIR Version 2, for an updated assessment approach which focuses on residual risks of establishing a power station at the proposed sites. This chapter outlines the key decision making factors which need to be considered by the decision maker. Furthermore Bantamsklip is no longer considered feasible for Nuclear-1 (see response 2 above).

Comment 4:

2. The Peer Review Report prepared by Sean O'Beirne and Mark Wood reviews the EIA process and formulation of the DEIR. It raises some key issues regarding the significance rating method used, the presentation of key impacts and their mitigations, addresses the perception of bias with regard to how the recommendation was reached to propose Thyspunt as the preferred site as well as the lack of clarity on how the criteria were selected and weighted in order to reach this conclusion. This is summed up in the last paragraph of point 2.3.4 on page 19 as follows:

“Overall the EIR is good technically but appears to have been weakened by the significance rating system that has been used and the presentation of multiple impacts at their smallest component level rather than synthesising and integrating. The weak significance rating system has exaggerated the significance of the impacts and made the site selection process appear biased because of that. It has also had the effect of reducing conviction in the mitigation presented. It is strongly recommended that the significance rating scheme be revisited and dramatically improved so that the revised EIR is more sensibly and coherently presented. We argue that if these changes are made the EIR will be a considerably more robust assessment than it is at present.”

We can only agree with this assessment.

Response 4:

Changes proposed by the peer reviewers have been implemented in the Revised Draft EIR Version 1. The impact significance rating system has been substantially revised in consultation with the team of specialists. The revised impact assessment rating system is indicated in Chapter 7 of the Revised Draft EIR. Furthermore, based on comments received from the DEA during the review of the RDEIR Version 1, The National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site. Please refer to Chapter 10 for the updated assessment approach.

Comment 5:

3. Per the Executive Summary page 7 “Forms of power generation” – please see the attached article “24 Hour Solar Power – here and now” which contradicts the statement made in this section that solar cannot provide guaranteed base-load generation capacity. Whilst this article is focused on Australian policy and conditions, it is equally applicable and relevant to our South African conditions and requirements.

Response 5:

Your comment is noted. Concentrated solar is the only solar technology that provides the potential for based load generation. The statement in the Executive Summary will be amended accordingly. Eskom has assessed the feasibility to construct a 100 MW Concentrated Solar pilot plant in the Northern Cape as part of its efforts at rolling out new renewable generation technologies. Information on this proposed development is available at:

http://www.eskom.co.za/content/RW_0003ConsentrSolPowRev1.pdf

Subsequent to the EIA commissioned by Eskom, Solafrica commissioned an EIA for a 50 MW plant on the sites identified by Eskom.

Comment 6:

4. Per the Executive Summary page 8/9 “ No-go alternative” – *“Given the urgent power demand based on economic growth in South Africa, the No-Go alternative is not considered to be a logical alternative, as Eskom’s mandate is to provide power to the country. Eskom, would in all likelihood, apply to develop more coal-fired power stations if the current application is declined”*

We do not dispute the need for more power generation, however logically it would be of benefit to the public and our country's economy to increase this capacity as quickly and cheaply as possible – nuclear is neither quick to get into place nor is it cheap, and the hazard potential of such a development must also be factored in when comparing power generation options. It is also presumptuous, to say the least, to indicate that Eskom would “*in all likelihood apply to develop more coal-fired power stations*”, with its implied threat that the public would just have to grin & bear the nasty environmental impacts of these because the supposedly ‘green’ nuclear option was now off the table. In our opinion Eskom’s mandate to provide power includes the duty to investigate, invest in and develop all possible forms of energy production and the no-go alternative regarding this nuclear development also has the potential impact of forcing Eskom to develop more renewable energy projects. More coal-fired power stations is thus most certainly not the only possible or likely consequence of a no-go decision, and for this Executive Summary to imply that this is so is misleading.

Response 6:

South Africa has started making progress to a more diversified mix. This brings along with it both positive and negative aspects. Cost as well as security and quality of supply remains important considerations which will support sustainable economic growth. To meet the needs of the country base load options are an essential component as reflected in the Integrated Resource Plan (2010). The only two proven sources of base load power supply in South Africa are coal and nuclear generation. Thus, should nuclear power not be developed, the only other proven technology available for base load generation would be a coal-fired power station. The statement was by no means made as a threat. It is a reality that the only proven source of bulk baseload power generation besides nuclear is coal-fired generation. Taking into consideration the significance and focus of climate change and as stated in the IRP South Africa does need to move to a less carbon intensive technology mix.

Comment 7:

5. Per the executive Summary page 9 “Key mitigation measures and conditions of authorisation” – we submit that the Environmental Management Plan (EMP) **must** form part of the contract with the contractors appointed to construct the proposed nuclear power station and ancillary infrastructure, rather than “should”.

Response 7:

Your comment is noted and GIBB is in agreement with your comment. The word “should” in the executive summary instead of “must” as used in your comment was in no way meant to lessen the importance of inclusion of the EMP in the construction contract. The wording will be changed in subsequent versions of the EIR to ensure that there is no room for interpretation.

Comment 8:

6. Per the “Summary of Specialists Findings” we have the following comments:

Seismic risk – pg 9/10 “*There is no physical upper limit for the seismic design of a nuclear power stations, but increasing the specification to seismic criteria above 0.3 g increases both cost and time required for design of the power station.*”

Whilst this upper limit may be 'generally accepted internationally' one would think that some scope for increased cost and time in the design of the proposed nuclear power station would be recommended, given the recent, ongoing and frightening consequences in Japan (Fukushima) of what was thought to have been an 'improbable' scenario during the planning process at that nuclear power generation development.

Response 8:

The release of radioactivity from the Fukushima Daiichi nuclear power station was not caused directly by seismic activity but by the tsunami (tidal wave) caused by the earthquake. The earthquake itself caused no structural damage to the buildings that housed the nuclear reactors. The release of radioactivity was caused by the failure of all electrically-driven cooling systems to the nuclear reactors, including the flooding of backup diesel generators that were meant to supply power to the cooling systems in the event of the failure of the primary power supply. Emergency planning at Fukushima Daiichi assumed a tsunami height of only 5 m, which was inadequate in a country like Japan, considering that it is prone to frequent earthquakes. Please refer to the Beyond Design Accident Report (Appendix E33) for a more detailed discussion on the Fukushima events

This contrasts with the planning for Nuclear-1, where planning for extreme waves assumes that emergency power generation infrastructure should be located at least 12 m above sea level.

A "standard" design nuclear power station designed for a PGA of 0.3g would still be able to withstand an earthquake with a Magnitude of 7 on the Richter Scale (depending on site conditions). It is common practice for additional seismic design to be applied to designs of nuclear power stations in seismically active zones such as Japan. In seismically stable areas subject to lower seismic risk, it is not considered necessary to apply these additional seismic design measures, since a "standard" design can withstand a PGA up to 0.3g. In the case of the KNPS, however, the following measures have been taken to prevent an occurrence similar to Fukushima, even though no tsunami has ever been recorded on the affected coastline:

- The original design of Koeberg provided protection against earthquakes and tsunamis and loss of off-site power supplies.
- The two nuclear reactors at the KNPS are constructed on an "aseismic" raft, and all the components and plant systems that are important to nuclear safety have been designed to these seismic specifications so that they will be able to perform their expected functions during and after an earthquake.
- A 4 m tsunami (as a result of an earthquake in the South Atlantic) was considered in determining the Koeberg terrace height. This was considered to coincide with a maximum spring tide and a major storm surge and maximum wave set-up and run up, leading to a water level of 7 m above mean sea level. The Koeberg terrace height is at the 8 m level above mean sea level.
- During normal operation, each unit at Koeberg is supplied from two 400 kV lines connected to the national grid. The station also has supply from a 132 kV line connected to the national grid.
- If there is a problem with the normal 400 kV and 132 kV supply, the Acacia open cycle gas turbine power station (far inland) supplies electricity to Koeberg through a dedicated 132 kV line.
- Koeberg has two emergency diesel generators of 5MW each for each unit respectively to provide backup power supply. A fifth emergency diesel generator that can be switched between either of the two units is also installed. These five diesel generators are all located on the Koeberg terrace at 8 m above mean sea level.
- Two smaller (1 MW) diesel generators are installed, one for each unit, which are independent of the emergency diesel generators, and physically located in a different place (at a higher

elevation (14 m) above mean sea level). They will ensure that the batteries and hence the instrumentation & control systems have power, and will ensure the integrity of the reactor coolant pump seals – thus enabling the fuel to be cooled through natural convection if all other systems fail.

- There are a further two portable generators on site that could also provide emergency power supplies.
- Each unit at Koeberg has a steam driven auxiliary feed water system, i.e. it operates without power supply, that can ensure that heat is removed from the steam generators and thus keep the nuclear fuel cool.

For illustrative purposes, the 1969 Tulbagh earthquake (the highest ever magnitude earthquake in the Western Cape) had a magnitude of 6.3 on the Richter Scale. The PGA experienced during this earthquake, based on the probable location of the epicentre approximately 25 km from Tulbagh, was 0.22g¹. A standard nuclear power station design, capable of withstanding a PGA up to 0.3g, would therefore have withstood the Tulbagh earthquake. The KNPS, having been designed for a PGA value of 0.3 would also have withstood this earthquake. The earthquake with the highest ever magnitude recorded off the coast of South Africa occurred in 1932, had a magnitude of 7 and originated approximately 40 km offshore from St. Lucia on the northern coastline of Kwa-Zulu-Natal. In contrast, the earthquake that led to the Fukushima tragedy had a magnitude of 9 on the Richter Scale.

The seismic design of the power station would result in sufficient protection against a nuclear disaster. Greater planning is required to mitigate against loss of power to the power station to allow the cooling systems to continue to function and to provide several forms of alternative backup power supply at a height above sea level that will be unaffected by a possible tsunami event.

Comment 9:

Social impacts – pg 15 – it is said that the potential positive impacts include temporary employment of workers, however no mention is made of the potential negative impact of these same temporary workers that no longer have work at the end of the construction phase. A truly positive social impact would be an increase in permanent employment, which no NPS can provide extensively.

There is no indication of whether potential positive impacts outweigh the potential negative impacts, nor is there an indication of whether the different sites will experience the social impacts differently.

Response 9:

Your comment is noted. It is quite correct to state that there would be a negative impact on temporary workers after the end of the construction phase. This is assessed as “Loss of employment after construction” in the Social Impact Assessment (Appendix E18 of the Revised Draft EIR).

Your comment regarding positive impacts outweighing negative impacts is noted. It is very difficult, if not impossible, to say with absolute authority whether one social impact or set of impacts outweighs another social impact. Due to the nature of social impacts, they are experienced by different members of society, who have different perspectives, background and perceptions of social changes. The Social Impact Assessment has, therefore, not expressed an opinion on the controversial question of whether one social impact can be regarded as more important than another social impact. Such an opinion would amount to saying that one person is more important than another. However, the experience at other large infrastructure projects is that such projects provide the opportunity to provide many people

¹ Kijko, S, Retief, J. P. and Graham. G. 2002. Seismic Hazard and Risk Assessment for Tulbagh, South Africa: Part I – Assessment of Seismic Hazard. *Natural Hazards* 26: 175–201, 2002

with basic building skills which can be used in other infrastructure projects and possible entrepreneurial opportunities. For many individuals such a project could provide opportunities for a productive future.

Comment 10:

Impacts of nuclear and non-nuclear waste – pg 17 – no mention is made of the hazard and risk potential of low-level and intermediate level nuclear waste being transported from each of the three proposed sites to Vaalputs – there are risks to the road users as well as the inhabitants of towns along the routes which must be considered and assessed.

Response 10:

Only Low Level Waste (LLW) and Intermediate Level Waste (ILW) will be transported from the nuclear power station to the Vaalputs nuclear waste disposal site in the Northern Cape. LLW and ILQW will be transported in sealed drums (metal drums and concrete drums, respectively) that prevent the escape of radiation into the environment. This is an internationally acceptable practice that will be undertaken in terms of the conditions of the National Nuclear Regulator and the IAEA Regulations for the Safe 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. Such waste transport to Vaalputs has taken place from Koeberg Nuclear Power Station without incident for several decades.

Comment 11:

7. We do not dispute the fact that there is an urgent need to reduce greenhouse gas emissions and carbon footprints as a matter of urgency, worldwide. To this end, we would never support development of a coal-fired power station. And whilst it may be true, as is stated in the Need & Desirability report on page 4-7 that “*nuclear power generation does not emit sulfur dioxides (SO_x), nitrous oxides (NO_x) and requires much less water than coal-fired power stations.*” the hazard aspect of nuclear emissions and radioactive waste, which is inherent to nuclear power production should be considered, but is not mentioned. Any and every process will have negative aspects associated with it, what must be considered however is the extent and overall long-term impact of developments we undertake now – and whilst wind and solar production might have the carbon equivalent of nuclear power production, neither wind nor solar has the nuclear hazard and risk factor associated with it. To illustrate the point, we attach a copy of “Nuke Info Tokyo – Citizens’ Nuclear Information Centre” and highlight the article on pages 1 – 5 about the Fukushima situation which gives some idea of not only the hazards associated with extreme environmental events happening that could affect the functioning of a NPS, but also that design issues could compound any problems associated with the running of a NPS. Whilst many arguments and assurances can be made about mitigating measures being employed, and design and procedural requirements that have to be met, and statistical data can be presented to try and illustrate the minimal potential of such events happening, the mere fact that such measures have to be employed mean that the risks are there, and the potential for problems occurring is there. As stated in our previous response, our view centres on the argument: why inflict such potential long-term hazard on an area when there are other, proven, sustainable and inherently less risky and costly means of achieving the same result?

Response 11:

It is not factually correct to state that the waste impacts of nuclear power stations are not mentioned. The Nuclear Waste Assessment (Appendix E29 of the Revised Draft EIR) and Section 9.29 of the previous Revised Draft EIR are dedicated to assessing the potential impacts of nuclear waste.

Your statement “ ... and every process will have negative aspects associated with it, what must be considered however is the extent and overall long-term impact of developments we undertake now – and whilst wind and solar production might have the carbon equivalent of nuclear power production, neither wind nor solar has the nuclear hazard and risk factor associated with it.” is completely correct and is not disputed.

However, as indicated in the Revised Draft EIR, nuclear generation is not considered as an alternative to renewable electricity generation i.e. it is not a question of either nuclear generation or renewable generation. It is accepted, both by GIBB as the Environmental Assessment practitioner, and by Eskom as the applicant, that renewable generation must make up an increasing proportion of South Africa's generation mix. To this end, the Integrated Resource Plan (IRP) has targeted the inclusion of 17.8 Giga Watt of renewable generation in the generation mix, as well as 9.6 GW of nuclear generation.

The EIA for Nuclear-1 is undertaken in the context of the IRP. The environmental application for Nuclear-1 is for a nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal fired power stations currently under construction. In all these previous instances, the scope of the EIA was restricted to a specific power station on a specific site or sites within a defined geographical area. It cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa's electricity needs. This is especially the case in the instance of the Nuclear-1 application, where the government has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa's future electricity needs for the next two decades.

Comment 12:

8. Per page 9-3 of the Impact Analysis document:

“It is a requirement of Section 32(2)(e)(iv) of the EIA regulations (Government Notice No. R 385 of 2006) that the EIR must include copies of any representations, objections and comments received from registered Interested and Affected Parties (I&APs). In this instance, all such representations, objections and comments are included verbatim in the Issues and Response Reports (IRRs) appended to this Report. Inclusion of the original written comments as appendices to the report is impractical due to the volume of these documents. Therefore, these documents will be made available for viewing on request, if required.”

We request that this document as well as all other response documents (together with their various appendices) which we have submitted to date during this EIA process must be appended verbatim and in their entirety to the final EIR which will be submitted to the DEA for a decision, rather than just the documents which include the EAP's and specialists' responses (IRRs) to selected issues and comments raised. This should in fact be the case for responses submitted by all I&AP's, particularly as the volume of these has been deemed large enough to be considered 'impractical' to submit – as such, one would think therefore, that these responses can be deemed as being a fair reflection of the opinions, input and sentiment of the public at large, and consequently the DEA must be given the

opportunity to review the extent and nature of the public's responses received in their entirety, as part and parcel of making its decision about the proposed project, in our opinion.

Response 13:

Due to the sheer volume of comments submitted for the Nuclear-1 EIA process, inclusion of hardcopy original responses from all respondents is considered impractical. The Revised Draft EIR is very large. Adding very long appendices which I&AP's have used as reference information will be referenced and made available on the website and in electronic versions. However please note that your submissions are included in this IRR.

Comment 14:

We would like to have it noted that consideration must be given to the fact that, with the limited resources available to an organisation like TAG it is impossible to comment on all the technical aspects and specialist reports in detail, and our failing to do so does not imply that we agree with the information, methodologies, statements or conclusions contained in this report or any of the specialist reports included therein.

Response 14:

Your comments are noted.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

The Nuclear-1 EIA Team

Attachments: TAG membership list
24 hour solar power: here and now
From Fukushima to disarmament – by Malcolm Fraser
Nuke Info Tokyo CNIC No.143

TAG MEMBERSHIP LIST

	SURNAME VAN	NAME NAAM	ADDRESS ADRES	TEL. NO. TEL. NR.	CELL. NO. SEL. NR.	EMAIL ADDRESS EPOS ADRES
1	Abrahams	Natasha	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
2	Adams	J.P.	P O Box 711, Caledon, 7230		082 374 3407	dehoektrading@gmail.com
3	Adendorff	Daniel	P O Box 190, Caledon, 7230			
4	Andries	Johannes	P O Box 62, Caledon, 7230	Dunghye Uitspanning	082 782 2948	
5	Andries	Maria	P O Box 62, Caledon, 7230	Dunghye Uitspanning	082 782 2948	
6	Arendse	S	P O Box 748, Caledon, 7230	028 2122 536		
7	Arendse	Hendrik	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
8	Arendse	Marilyn	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
9	Arendse	Marthinus	P O Box 659, Caledon, 7230		073 103 7851	
10	Arendse	Cecilia Delphine	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	<i>028 212 2145</i>		
11	<i>Arendse</i>	<i>Monica</i>	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		<i>083 563 4011</i>	
12	Arizon	Jeffrey	P O Box 399, Caledon, 7230	028 212 2530	073 161 9125	teslaarsdal@ruens.co.za
13	Arries	Donevin	<i>P O Box 370, Caledon, 7230</i>		073 302 3993	
14	Arries	Mandy	<i>P O Box 370, Caledon, 7230</i>		<i>073 359 7172</i>	
15	August	Una	P O Box 491, Caledon, 7230		073 183 4621	
16	August	Aldin	P O Box 491, Caledon, 7230		073 183 4621	
17	Avontuur	Marenda	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 212 1871		
18	Avontuur	Henry	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		079 544 9780	avontuurhenry@hotmail.com
19	Baillie-Cooper	Simon	28 Kemms Rd, Wynberg, 7800	021 761 1810	082 344 8816	simon@lighthouses.co.za
20	Basson	Patricia	P O Box 286, Caledon, 7230		073 554 9978	
21	Basson	Phillip	P O Box 190, Caledon, 7230		078 744 4074	
22	Basson	Bernard	P O Box 286, Caledon, 7230		083 473 5078	
23	Basson	Hilton	P O Box 286, Caledon, 7230		073 043 2524	
24	Basson	W.	P O Box 286, Caledon, 7230		073 728 4910	
25	Beukman	M	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
26	Blease	Peter	7 Piet Retief Plein, Ysterplaat, Cape Town, 7405	021 551 3535	082 958 8545	peterb@hiremac.co.za

27	Blignaut	Karel	P O Box 412, Hermanus, 7200		082 893 0300	karel@blignaut.co.za
28	Blignaut	Janine	P O Box 412, Hermanus, 7200		082 877 6752	karel@blignaut.co.za
29	Blomquist	Vic	P O Box 280, Hermanus, 7201		082 890 3815	corvic@hermanus.co.za
30	Blomquist	Cora	P O Box 280, Hermanus, 7201		082 890 3815	corvic@hermanus.co.za
31	Booi	Margaret	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
32	Booyesen	Aletta	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		072 324 5482	
33	Brikkels	Susanna	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
34	Brikkels	Albert	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		082 394 5597	
35	Burger	J.E.A.	P O Box 193, Caledon, 7230	028 214 1202	083 293 5306	hburger@iafrica.com
36	Burger	Ludovicus	P O Box 351, Caledon, 7230	028 214 1170		caledonapteek@mweb.co.za
37	Burger	Sharon	P O Box 193, Caledon, 7230	028 212 2631	083 293 5301	sharonburger@iafrica.com
38	Cape	Jacobus	P O Box 399, Caledon, 7230			
39	Carelse	Daniel S.	39 Woodlands Rd, Wetton, 7780	021 703 2696	083 961 7105	dannyc@cybersmart.co.za
40	Carelse	Christopher R.	12 Impala Str., Bergsig, Caledon, 7230		072 126 3143	chrishmp@gmail.com
41	Claassen	Rudi	P O Box 1949, Durbanville, 7551	021 975 5187		rudi@kingsley.co.za
42	Claassen	Sarrette	P O Box 1949, Durbanville, 7551	021 975 5187		rusa@kingsley.co.za
43	Cockburn	Annette	19 Bellevliet Road, Observatory, 7925	021 447 8200	073 200 8092	annettec@telkomsa.net
44	Cook	Vincent	P O Box 75, Rondebosch, Cape Town, 7700		072 393 0302	dncnck@yahoo.com
45	Dauids	Linda	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		071 397 3183	
46	Dauids	David	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		076 515 7383	
47	Davy	Rosi	P O Box 816, Bredasdorp, 7280			mikedavy@cytanet.com.cy
48	Davy	Mike	P O Box 816, Bredasdorp, 7280			mikedavy@cytanet.com.cy
49	De Bruyn	Pietersarel	P O Box 368, Caledon, 7230		082 338 5550	pdeb@herbs-aplenty.com
50	De Bruyn	Letitia D.	27 Demper Str., Caledon, 7230		071 249 5257	letitiacc@gmail.com
51	De Klerk	Lenie	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
52	De Klerk	Willem	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
53	De Klerk	Doreen	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
54	De Kock	J.D. (Poenie)	P O Box 710, Caledon, 7230	028 212 3494	082 416 7947	poenie@b360.co.za
55	De Ville-Malan	Paul Roux	P O Box 490 caledon, 7230		082 062 9210	paulrouxdevillemalan@yahoo.com
56	Dippenaar	J.J. (Hannes)	P O Box 1209, Postmasburg, 8420	086 528 3457 (fx)	082 826 9951	hannes@concor.co.za
57	Du Plessis	Johannes	P O Box 512, Caledon, 7230		083 228 5266	affiplaas@mweb.co.za
58	Du Plessis	Catharina	P O Box 512, Caledon, 7230		082 659 0410	

59	Du Preez	T.	P O Box 5592, Helderberg, 7135		083 264 6541	
60	Du Toit	Dawie	P O Box 50, Caledon, 7230	028 214 3803	084 582 1851	dutoitjaco@mweb.co.za
61	Du Toit	D.A.	10 Pillans Rd, Rosebank, Cape Town, 7700	021 686 5624	082 452 4352	dutoitfamily@cybersmart.co.za
62	Du Toit	P.G.	P O Box 19, Stanford. 7210		082 715 7388	jacobsdal@whalemail.co.za
63	Du Toit / Lötter	Marieta	P O Box 462, Caledon, 7230	028 212 1060	082 770 8377	marieta@gtlaw.co.za
64	Edwards	G.R.	3 Hope Str, Caledon, 7230	028 212 1202	083 293 5336	ngkcaledon@com2000.co.za
65	Evason	Alan	P O Box 235, Caledon, 7230		083 675 8667	alan@winfall.co.za
66	Evason	Kathy	P O Box 235, Caledon, 7230		083 675 8667	kathy@winfall.co.za
67	Filby	Kim	P O Box 403, Caledon, 7230	028 316 4774 (w)	073 214 8702	filby@tiscali.co.za
68	Filby	William	P O Box 403, Caledon, 7230	028 212 2520 (h)	083 790 3705	filby@tiscali.co.za
69	Fortuin	Thomas Wallis	P O Box 729, Caledon, 7230		076 933 6659	
70	Fourie	Gertie	P O Box 664, Caledon, 7230	028 212 2915	072 753 1932	
71	Freeman	Calven	c/o Accman, 5th Floor, 60 St.George's Mall, C.T., 8001	021 424 1738	082 580 0838	accman@iafrica.com
72	Gaffley	Eric John	P O Box 520, Betty's Bay, 7141	028 272 9535		gaffleybouers@absamail.co.za
73	Gardener	Edwina	c/o TAG, P O Box 519, Caledon, 7230		073 807 8082	
74	Gardiner	J.J.	P O Box 310, Caledon, 7230	028 212 2266	072 707 4643	
75	Gardiner	Jonathan Johannes	c/o TAG, P O Box 519, Caledon, 7230	028 212 2266		
76	Gardiner	Daniel	c/o TAG, P O Box 519, Caledon, 7230		072 248 3427	
77	Gardiner	Jesnay	P O Box 399, Caledon, 7230		076 881 7466	
78	Geldenhuys	Gabriël S.	P O Box 175, Caledon, 7230		082 620 1695	
79	Giliomee	D. de W.	P O Box 146, Bredasdorp, 7280		082 777 8866	gilidan@whalemail.co.za
80	Hamman	Nick	Postnet Suite 163, Private Bag X16, Hermanus, 7200	028 312 1591	083 285 7327	nick@cygni.co.za
81	Hanekom	A.H.	P O Box 624, Caledon, 7230	028 214 1016		cfk@telkomsa.net
82	Hanekom	A (jnr)	P O Box 624, Caledon, 7230	028 214 1016	076 933 5103	adriaanhan@hotmail.com
83	Hans	Andre	P O Box 27, Caledon, 7230	Dunghye Uitspanning	082 782 2952	
84	Hans	Jacoline	P O Box 27, Caledon, 7230	Dunghye Uitspanning	082 782 2952	
85	Harford	Duncan	P O Box 1750, Hermanus, 7200	028 212 2903		waterberrycc@telkomsa.net
86	Hendricks	Jonathan	c/o TAG, P O Box 519, Caledon, 7230			
87	Hendricks	Siena	P O Box 326, Caledon, 7230		079 470 8771	
88	Hendricks	D.	P O Box 495, Caledon, 7230		076 898 3818	

89	Hendricks	Johnvin	P O Box 475, Caledon, 7230	028 214 1603	073 888 0826	<a href="mailto:johnvin.hendricks@za.sabmill
er.com">johnvin.hendricks@za.sabmill er.com
90	Hendricks	Ryan	P O Box 475, Caledon, 7230	028 212 2530	073 835 9751	
91	Hendricks	Lucretia	P O Box 475, Caledon, 7230	028 212 2530		
92	Hendricks	Rhyna	P O Box 475, Caledon, 7230	028 214 1603	028 212 3094 (fx)	
93	Hendricks	Christopher	P O Box 326, Caledon, 7230		079 470 8771	
94	Henn	Nadine	P O Box 358, Caledon, 7230		079 953 7704	
95	Henn	Deon	8 Sher Crescent, Elsies River, Cape Town, 7490	021 932 2419	084 780 3811	
96	Hoffman	Mary-Ann	P O Box 330, Caledon, 7230	028 212 2125	078 510 2103	
97	Hunt	Errol (Snr)	P O Box 804, Caledon. 7230		076 270 9872	
98	Hunt	Errol (Jnr)	P O Box 804, Caledon. 7230		072 290 7121	
99	Janse Van Rensburg	Johan	P O Box 58, Bredasdorp, 7280	028 423 3267	082 748 5177	johanvr@overbergagri.co.za
100	Johnston	Leanne	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		074 230 9793	
101	Julies	E.G.J.	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
102	Julies	Whilhemina	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
103	Julies	Mina	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
104	Julies	Elisa	P O Box 681, Caledon, 7230			
105	Julies	Irene	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		078 525 3417	
106	Julies	G.M.	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 212 2531		
107	Julies	Daniel	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		076 341 7678	
108	Julies	J	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
109	Julies	David	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
110	Julies	Jacobus	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
111	Juul	Bonnie	P O Box 507, Caledon, 7230		084 832 3230	bakarafarm@yahoo.com
112	Kenevy	Elvira	P O Box 310, Caledon, 7230	028 212 2266		
113	Koudstaal	Shirley	P O Box 701, Caledon, 7230		082 447 6864	<a href="mailto:shirleykoudstaal@vodamail.co
.za">shirleykoudstaal@vodamail.co .za
114	Kroes	Godfried	P O Box 384, Caledon 7230	028 214 1004		g.kroes@pczone.co.za
115	Lambrechts	Frederik (Ds)	NGK Caledon, 3 Hope Street, Caledon, 7230	028 212 1202	028 2121202 (fx)	ngkcaledon@com2000.co.za
116	Lategan	Sonia	P O Box 632, Caledon, 7230		073 490 0830	
117	Le Roux	Kobus	P O Box 908, Hermanus, 7200	028 316 2104	082 570 0923	lerouxtp@telkomsa.net
118	Le Roux	Sylvia	P O Box 908, Hermanus, 7200	028 316 2104	082 570 0923	lerouxtp@telkomsa.net

119	Lehoko	Khetsi	3 Hyacinth Avenue, Pinelands, 7405	021 531 4180		klehoko@cybersmart.co.za
120	Louis	Jacques J.	P O Box 336, Caledon, 7230		078 077 2555	
121	Louis	Frank	P O Box 336, Caledon, 7230	028 214 1666	078 830 0130	
122	Louis	Mary Frances	P O Box 336, Caledon, 7230	028 214 1666		
123	Louis	Francesca	P O Box 336, Caledon, 7230		072 753 2023	francesca.louis@cnty.com
124	Louw	Freek	P O Box 27, Caledon, 7230	Dunghye Uitspanning	072 370 1272	
125	Louw	Katriena	P O Box 27, Caledon, 7230	Dunghye Uitspanning	072 370 1272	
126	Lowe	Patrick	P O Box 369, Kommetjie, 7976	021 783 4412		patlowe@intekom.co.za
127	Lugg	John	P O Box 833, Cape Town, 8000	021 462 7779	082 959 6626	jlugg@tiscali.co.za
128	Maans	Hendrik	P O Box 152, Caledon, 7230			
129	Maritz	E.M.	P O Box 842, Caledon, 7230	028 212 1895		elizabethm@bolandcollege.com
130	Mars	Rachel	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
131	Mathee	H.M.	P O Box 322, Caledon, 7230		083 432 9252	
132	Matusik	Marcel & Sally	P O Box 1323, Hermanus, 7200	028 312 1091		matusik@hermanus.co.za
133	May	Esau	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
134	May	Deborah	P O Box 426, Caledon, 7230	028 212 2414		
135	May	Daniël (Mrs)	<i>c/o TAG, P O Box 519, Caledon, 7230</i>			
136	May	J.F.	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 214 1349		
137	May	G.T.	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 214 1349		
138	May	C.	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 212 2145		
139	May	Gabriël	P O Box 386, Caledon, 7230		076 811 6017	
140	May	Jurina	P O Box 386, Caledon, 7230			
141	May	Gabriël	P O Box 426, Caledon, 7230	028 212 2414		
142	May	Annie	P O Box 426, Caledon, 7230	028 212 2414		
143	May	Petros	P O Box 761, Caledon 7230	028 212 2190	078 064 7520	
144	McHattie	Stuart	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		073 914 0719	stu@stuartmchattie.com
145	McKerchar	David	P O Box 461, Caledon, 7230		082 425 4806	terraheim@ruens.co.za
146	Meyer	S.	P O Box 681, Caledon, 7230	028 212 2946		
147	Meyer	Jacobus	P O Box 681, Caledon, 7230		072 857 2377	
148	Millard	Peter	173 De Villiers Str., Sandbaai, 7200			pmill@vodamail.co.za
149	Milligan	Elizabeth Anne	8 Hastings Court, 28 Hastings Rd, Cape	021 424 8394	082 344 5739	annim@vodamail.co.za

		Town, 8001			
150	Ming	Alan	c/o P O Box 3205, Somerset West, 7129	0061 75 580 9078	Australia alanjohnming2@yahoo.com.a u
151	Morkel	Alet	P O Box 12364, Die Boord, Stellenbosch, 7613	021 880 2470 (fx)	083 455 1098 alet-earthfusion@iafrica.com
152	Morley	Ruth	P.O. Box 102, Gordons Bay, 7121		082 960 6680 sheena.morley@gmail.com
153	Motsomai	Daniël	P O Box 27, Caledon, 7230	Dunghye Uitspanning	072 370 1082
154	Motsomai	Davelene	P O Box 27, Caledon, 7230	Dunghye Uitspanning	072 370 1082
155	Muller	Howard	P O Box 248, Noordhoek, 7979		capeups@mweb.co.za
156	Muller	Jan Lourens	P O Box 261, Caledon, 7230		084 582 5769 hiway@caledontyre.co.za
157	Müller	Naomi	P O Box 1717, Hermanus, 7200	086 666 7034 (fx)	082 783 1802 shabach@omail.co.za
158	Myklebust	Mike	P O Box 599, Stanford, 7210		082 820 8681 mike@froggyfarm.co.za
159	Myklebust	Lyn	P O Box 599, Stanford, 7210		082 899 5721 lyn@froggyfarm.co.za
160	Nel	Johan	P O Box 656, Caledon, 7230	028 212 2469	082 556 1660 johan.nel@andragagric.co.za
161	Nel	Barend	26 Ninth Ave, Belmont Park, Kraaifontein, 7570	021 988 1235	barend.nel@vodamail.co.za
162	Nel	Madalene	26 Ninth Ave, Belmont Park, Kraaifontein, 7570	021 988 1235	barend.nel@vodamail.co.za
163	Nel	Kristien	26 Ninth Ave, Belmont Park, Kraaifontein, 7570	021 988 1235	kristien.nel@vodamail.co.za
164	Nel	Abré	P O Box 656, Caledon, 7230		079 120 1756 abre_n@yahoo.com
165	Nigrini	Hendrik Johannes	P O Box 51, Caledon, 7230	028 214 1260	079 036 0510
166	Nowicki	James	4 Wherry Rd, Muizenberg, Cape Town, 7945	021 788 2479	082 578 0094 dorothy@kingsley.co.za
167	Oliphant	William N.	P O Box 844, Caledon, 7230		079 221 3497
168	Parker	Craig Eric	9 Belladonna Ave, Vredehoek, Cape Town, 8010		074 322 6281 craigeparker@gmail.com
169	Paulsen	George	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		<i>071 727 2046</i>
170	Paulsen	Joy	<i>c/o TAG, P O Box 519, Caledon, 7230</i>		082 394 5597
171	Pheiffer	Jerome	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 212 2539	
172	Pheiffer	Eljo	<i>c/o TAG, P O Box 519, Caledon, 7230</i>	028 212 2539	
173	Pheiffer	Diana	P O Box 370, Caledon, 7230		073 018 3070
174	Pietersen	W.D.	P O Box 634, Caledon, 7230		072 173 4915
175	Pietersen	Demas	P O Box 634, Caledon, 7230		082 844 4269
176	Pobantz	Katrin	P O Box 326, Caledon, 7230		082 343 3779 kspobantz@gmail.com
177	Powys	Connie	Suite 249, Private Bag X11, Craighall, 2024		083 327 2201 connie8@absamail.co.za

178	Reynecke	Gerard	P O Box 376, Caledon, 7230	028 214 1124	082 558 5982	gerardr@tsogosun.com
179	Reynolds	Daniel	P O Box 199, Caledon 7230		072 276 9678	
180	Reynolds	Maryke	P O Box 199, Caledon 7230		072 276 9678	
181	Ricketts	Jeremy	P O Box 247, Caledon, 7230		082 855 8575	jayric@kingsley.co.za
182	Roelofse	Joos	4 Monte Rosa Str, Protea Heights, Brackenfell, 7560	021 981 5946	082 508 0935	jroelofs@pgwc.gov.za
183	Rohlandt	Koos	P O Box 659, Caledon, 7230	028 212 1820	082 873 8963	koos.rohlandt@vodamail.co.za
184	Rohlandt	J.A. (Louis)	P O Box 659, Caledon, 7230	028 212 1820		koos.rohlandt@vodamail.co.za
185	Rooi	Hendrick	P O Box 286, Caledon, 7230		083 526 5860	
186	Rooi	Cameron	c/o TAG, P O Box 519, Caledon, 7230		083 696 0269	
187	Rosina	Cathleen Benecia	c/o TAG, P O Box 519, Caledon, 7230		072 467 3018	
188	Samuels	A	P O Box 472, Caledon, 7230		073 198 4818	
189	Samuels (prev De Klerk)	Bee-Anne	P O Box 472, Caledon, 7230		073 198 4818	
190	Sauls	Brian	c/o TAG, P O Box 519, Caledon, 7230			
191	Sauls	Reë	c/o TAG, P O Box 519, Caledon, 7230			
192	Simons	Cemonique	P O Box 399, Caledon, 7230		076 733 2515	
193	Smith	S.	c/o TAG, P O Box 519, Caledon, 7230			
194	Smuts	Riaan	P O Box 19 Caledon, 7230		082 770 0335	overberg@realnet.co.za
195	Stewart	Katriena	P O Box 286, Caledon, 7230			
196	Stewart	Allister	P O Box 378, Caledon, 7230	028 214 3091		astewart@pgwc.gov.za
197	Stewart	Joseph	P O Box 378, Caledon, 7230		083 490 4273	
198	Stewart	Margaret	c/o TAG, P O Box 519, Caledon, 7230		082 394 5597	
199	Strydom	H.G. (Dr)	34 Piet Retief Str., Stellenbosch, 7600	021 887 0305	082 789 9318	hardie.strydom@medicross.co.za
200	Swart	Barend	P O Box 775, Caledon, 7230	028 212 3366	083 226 3670	tania.swart@yahoo.com
201	Swart	Baat	P O Box 120, Caledon, 7230		082 936 3899	tania.swart@yahoo.com
202	Swart	Enid	c/o TAG, P O Box 519, Caledon, 7230			
203	Swart	James	P O Box 310, Caledon, 7230	028 212 1595	Age in Action	
204	Swart	Christina	P O Box 310, Caledon, 7230	028 212 1595		
205	Swart	P.J.D.	Die Meul, P O Box 36, Caledon, 7230		073 230 2015	
206	Swart	J.I.C.L.	Die Meul, P O Box 36, Caledon, 7230		073 230 2015	
207	Sykes	Caro	P.O.Box 11967, Silverlakes,Pretoria, 0054		082 773 9033	sykes@tiscali.co.za

208	Sylvester	Esmerelda	P O Box 86, Caledon, 7230			
209	Symons	A.	c/o TAG, P O Box 519, Caledon, 7230			
210	Symons	N.	P O Box 778, Caledon, 7230			
211	Symons	Johnethan	c/o TAG, P O Box 519, Caledon, 7230			
212	Titus	A.H.	P O Box 438, Caledon, 7230	028 212 2579		
213	Tobias	Ina	P O Box 190, Caledon, 7230	028 212 3252		
214	Tobias	Karel	P O Box 190, Caledon, 7230	028 212 3252		
215	Tobias	Janine	P O Box 475, Caledon, 7230	028 212 3094	083 439 4957	janine.hendricks@yahoo.com
216	Tobias	Peter	P O Box 475, Caledon, 7230	028 214 1603	079 829 8768	
217	Tobias	Marcia	c/o TAG, P O Box 519, Caledon, 7230		082 394 5597	
218	Tobias	Joseph	c/o TAG, P O Box 519, Caledon, 7230		082 394 5597	
219	Van Der Rheede	Christo	28 De La Cruz Str, Highbury, Kuils River, 7580	021 903 9221	083 380 3492	CRheede@Media24.com
220	Van Der Spuy	David	9 Van Ryneveld Rd, Vredehoek, Cape Town, 8001	021 938 3521	082 824 5114	vanderspd@petroleumagency.sa.com
221	Van Eyk	Sandra	P O Box 534, Caledon, 7230		084 735 8183	sands001@vodamail.co.za
222	Van Heerden	Marianne	P O Box 778, Caledon, 7230	028 212 1330	072 301 6844	bakgat@ruens.co.za
224	Van Heerden	Ron	P O Box 778, Caledon, 7230	028 212 1330	082 782 2951	ronv@ruens.co.za
225	Van Rhyn	Chris	P O Box 12364, Die Boord, Stellenbosch, 7613		083 383 0551	lavender@earthfusion.co.za
226	Van Zyl	Johan	P O Box 1035, Somerset West, 7129		082 881 0255	johan@emg-group.co.za
227	Van Zyl	Elsa	P O Box 1035, Somerset West, 7129		083 234 6599	elsavzyl@gmail.com
228	Van Zyl	W.	P O Box 829, Caledon, 7230	028 212 2255		
229	Visser	Kobus (I.J.)	P O Box 326, Caledon, 7230		082 923 8041	kobusvisser11@gmail.com
230	Vivier	Norman	7 Magnolia Street, Soneike, 7405			normanvivier@absamail.co.za
231	Vivier	Linda	7 Magnolia Street, Soneike, 7405			normanvivier@absamail.co.za
232	Warie	Henry	c/o TAG, P O Box 519, Caledon, 7230			
233	Wiese	H	P O Box 680, Caledon, 7230		078 275 1611	
234	Willemse	J J L (Hannes)	P O Box 179, Caledon, 7230		076 306 9105	
235	Williams	Christine	P O Box 418, Caledon, 7230		078 510 2103	
236	Young	Stephen	P O Box 290, Caledon, 7230	021 200 0596	082 767 6832	sryoung@twk.co.za
237	Young	Sandra	P O Box 290, Caledon, 7230	021 200 0596	076 337 7230	sayoung@twk.co.za

<http://www.greenleft.org.au/node/48104>

24-hour solar power: here and now

Saturday, July 9, 2011

Spain's Gemasolar concentrated solar thermal power plant.

It's the best news on climate change for years, and you've probably not heard about it.

Spain's new Gemasolar power plant produced uninterrupted clean energy all day and all night for the first time on July 3. That's 24 hours of zero emissions power, here and now.

Gemasolar is a concentrated solar thermal power plant. It uses a field of mirrors to concentrate solar radiation in a central tower.

What's new about Gemasolar is that the plant can store solar energy for up to 15 hours. That's baseload renewable energy, supplied all through the night.

Even better, unlike coal or nuclear plants, solar thermal power is dispatchable: it can be used to meet peaks in energy use. Baseload or peakload — solar thermal can do both.

Solar thermal power is expensive. But the costs will come down sharply once more plants are built.

Australia has some of the best conditions for solar power in the world. If Australia were to roll out solar thermal power on a large scale, it would bring the costs down fast here and around the world. This would be a great help to the global effort to halt climate change.

But in financial terms, concentrated solar thermal power is the smart move. Once it is in place, there are no more fuel costs — ever.

Oil, gas and coal prices are all forecast to rise sharply in coming decades. In time, a solar powered Australia will save billions of dollars each year, money which otherwise would be spent paying for dirty fossil fuels.

Solar thermal power is the economic gift that keeps on giving.

Detractors of renewable energy are fond of saying that Australia cannot rely on renewable energy because the sun doesn't shine at night and the wind doesn't blow all the time.

But the sun is always shining somewhere, and the wind is always blowing somewhere. By building solar thermal plants and wind farms in strategic points across the country, Australia could be powered with 100% renewable energy.

Solar thermal technology is commercially available. It's ready to go. More investment and research will refine and improve it.

It makes coal and gas-fired power obsolete, in the same way the advent of the internal combustion engine made the horse-drawn carriage obsolete.

But the Australian government is not investing in any solar thermal plants that can store energy. It's committed to burning fossil fuels, which will cook the planet.

The problem is that the government is more afraid of the fossil fuel and mining companies than it is of its people. The mining industry brought down former prime minister Kevin Rudd. That's real power, and they know it.

Until that power equation is changed, we won't get 24-hour solar power in Australia.

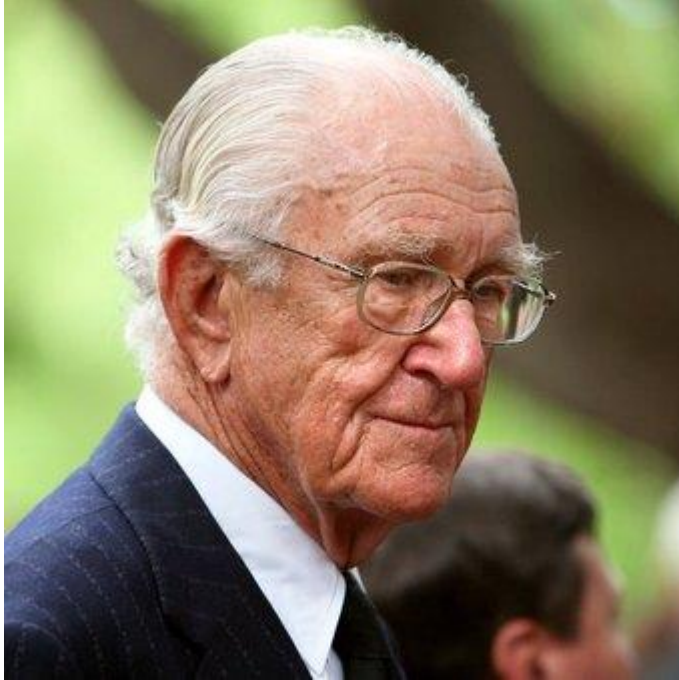
But don't let anyone tell you there is no alternative to fossil fuels or nuclear energy. There is. Solar thermal is a key part of the answer to climate change and it's ready.

<http://www.abc.net.au/environment/articles/2011/07/05/3260732.htm>

From Fukushima to disarmament

By Malcolm Fraser

ABC Environment | 5 Jul 2011



Malcolm Fraser says the risks of nuclear warfare are too great for nuclear power to be considered (file). *Credit: Astrid Volzke (AAP).*

See also

- **Related Story:** [Crews 'facing 100-year battle' at Fukushima](#), News Online, 01/04/2011
- **Related Story:** [Japan extends the exclusion zone around Fukushima](#), AM, 16/05/2011

In our rush to find a solution to climate change, nuclear energy has again been promoted. But the disaster at Fukushima reminds us of just how devastating nuclear can be.

MONTHS AFTER THE devastating March 11 earthquake and tsunami hit Japan, the ongoing nuclear disaster at Fukushima compounds the humanitarian tragedy and impedes recovery. The damaged reactors and spent-fuel ponds contain around 10 times as much nuclear fuel as did the Chernobyl reactor that exploded in 1986. In three reactors, the fuel has melted, almost certainly through the reactor vessels; primary containment structures have been breached; explosions have torn away the secondary containment (the buildings); radioactive releases continue; and closed-loop cooling has not been re-established.

More than 100,000 tonnes of highly radioactive wastewater now flood the facility to capacity, as water continues to be poured in to prevent further massive radioactive emissions. The spent fuel in pools adjacent to each reactor, containing more radioactivity than the reactors themselves, has also been severely damaged, has leaked radioactivity, and is still without needed stable cooling. The spent fuel at the Reactor 4 caused a hydrogen explosion and fire on March 15.

As a result, large amounts of radiation, on a scale comparable to Chernobyl, have already been released into the air, earth, and ocean. Further releases will continue, probably for years.

And yet, while the Fukushima disaster is attracting overdue global attention to nuclear safety and security, and provoking a reconsideration of nuclear power, its implications for nuclear weapons remain largely unremarked. The nuclear reactions that drive reactors and weapons are the same, as are the radioactive products that are dispersed by wind, rain, and water if released, with the same lack of respect for borders and the same indiscriminate long-term cancer and genetic hazards.

At Fukushima, a perfect storm - a massive earthquake and tsunami, multiple vulnerable coastal reactors with spent-fuel ponds in the same buildings, inadequate barriers, loss of power, and back-up generators situated too low - may have seemed a remote possibility. But was it really? Problems had occurred at similar reactors before. Fukushima's operator, Tokyo Electric Power Company (TEPCO), had a poor safety culture and a long history of falsifying and covering up inspection and safety data.

No nuclear reactors are designed to withstand an earthquake of magnitude 8.0. Yet there were 11 earthquakes greater than 8.5 last century, and, only 11 years into this century, there have been five. Almost all were followed by tsunamis. The seawall at Fukushima was designed for a tsunami no higher than 5.7 metres. Yet the same coast was devastated by a 38-metre tsunami in 1896, and again by a 29-metre tsunami in 1933.

Moreover, no nuclear reactors are built to withstand an attack like that of September 11, 2001 - which was also unforeseen. The aircraft that crashed in a Pennsylvania field was, it should be recalled, less than 10 minutes away from the Three Mile Island nuclear plant.

Fukushima has highlighted how vulnerable spent-fuel ponds are to direct damage or disruption of power, water, or pumps for cooling. These pools contain vast amounts of long-lived radioactivity, typically in a simple building, without multiple engineered layers of containment. Each of the world's 437 nuclear power reactors and associated spent-fuel ponds are effectively enormous pre-positioned radiological weapons, or "dirty bombs."

Moreover, the world is wired with 22,400 purpose-built nuclear weapons. Around 1,770 of them in Russia and the US, and a further 64 in France and 48 in the United Kingdom, remain on high alert, ready to be launched in response to a perceived attack with only minutes for verification and decision. Recent history is peppered with a litany of false alerts and near misses, each unforeseen, each a combination of technical and human failure. The growing potential for a nuclear disaster by cyber attack adds to the existential danger.

We now know that just 100 relatively 'small' Hiroshima-size nuclear weapons, less than one-thousandth of the global nuclear arsenal, could lift millions of tonnes of dark smoke high into the atmosphere. There, it would abruptly cool and darken the planet, slashing rainfall and

food production in successive years - and thus causing worldwide starvation on a scale never before witnessed. This could result from the arsenals of any of the 10 currently nuclear-armed states, with the exception of North Korea.

Intent, miscalculation, technical failure, cyber attack, or accident could cause the nuclear escalation of a conflict between India and Pakistan, in the Middle East (embroiling Israel's nuclear weapons), or on the Korean peninsula. Such outcomes are at least as plausible or likely - if not more so - than a massive earthquake and tsunami causing widespread damage to four Japanese nuclear reactors and their adjacent spent-fuel ponds.

Any country that can enrich uranium to fuel nuclear reactors has everything it needs to enrich uranium further, to weapons-grade strength. In a nuclear reactor, one to two per cent of the uranium fuel is inevitably converted to plutonium. This can be separated through chemical processing and used to build a bomb, as Israel, India, and North Korea did - and as many fear that Iran is seeking to do.

Currently, there is no restriction on any country building a uranium-enrichment plant or reprocessing spent nuclear fuel to extract plutonium. As we have seen, safeguards alone are not up to the job. We will not prevent further proliferation of nuclear weapons and their eventual use, much less achieve a world free of nuclear weapons, without strict international control of all uranium enrichment, and without banning the separation of plutonium from spent fuel.

That which cannot be controlled must be prevented. Today, that means preventing the threat of climate change and eradicating nuclear weapons. But we cannot afford efforts to address one challenge that end up aggravating the other. Attempting to reduce greenhouse-gas emissions through nuclear energy, thereby fueling the dangers of the ultimate global incendiary - nuclear war - could be the most tragic of all miscalculations.

Malcolm Fraser was Prime Minister of Australia from 1975 to 1983.

NUKE INFO TOKYO

July/Aug. 2011
No. 143



Citizens' Nuclear Information Center

Akebonobashi Co-op 2F-B, 8-5 Sumiyoshi-cho, Shinjuku-ku,
Tokyo 162-0065, JAPAN Phone: +81 3 3357 3800 Fax: +81 3 3357 3801
URL: <http://cnic.jp/english/> e-mail : cnic@nifty.com

TEPCO will do anything to maintain the 'unforeseeable' theory - The 'simulation analysis' deception technique -



photo released by TEPCO

Highly likely LOCA in Reactor Unit 1

If they possibly can, what the Japanese state and Tokyo Electric Power Company (TEPCO) would like to see buried once and for all is the notion that the critical equipment at TEPCO Fukushima Daiichi Nuclear Power Station Reactor Units 1, 2, and 3 (1F 1-3) sustained serious damage from seismic motion unrelated to the 'unforeseeable' giant tsunami. The reason is that if it becomes known that even in one of the three reactors critical piping was damaged in the seismic motion and that a 'loss of coolant accident' (LOCA), where coolant gushes out from a damaged pipe into the containment vessel, occurred, then the grave issue of 'earthquake vulnerability of the central structures of nuclear power stations' would arise, shaking the very foundations of the safety of nuclear power in 'earthquake country Japan.' If that happens, the tsunami measures and external power supply measures that are the current government's basic policy conditions for the resumption or continuation of operations of existing nuclear

power plants NPPs will be forced to undergo a fundamental review and it may become impossible ever to resume the operation of Chubu Electric Power Company's (CEPCO) Hamaoka NPP.

However, the facts cannot be suppressed forever. Judging from the various kinds of data released by TEPCO thus far, there is an extremely high probability that an LOCA occurred in the reactor piping in at least Unit 1 at the time the

Contents

Fukushima: Deception by Simulation	1~5
Fukushima: Lax Radiation Dose Calculations	6,7
Kashiwazaki-Kariwa: Geology	8,9
Goodbye to Nuclear Power Plants Rally	9
Who's Who: Atsuko Ogasawara	10
News Watch	11,12
10 Million Signature Campaign	12

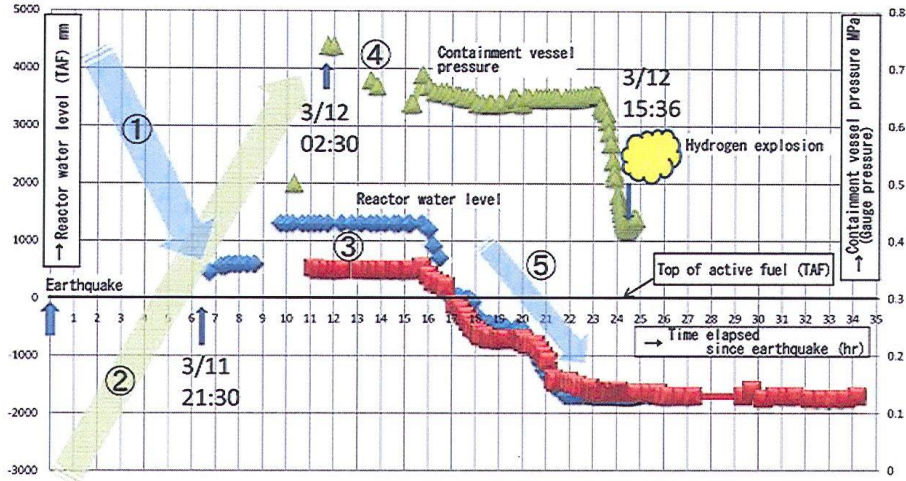


Figure 1. Changes in reactor water level and containment vessel (drywell) pressure

earthquake struck. Figure 1, based on data released by TEPCO on 16 May, shows in one figure both the changes in the 'reactor water level' (the depth of water above 'top of active fuel' [TAF]) and the changes in 'containment vessel pressure' (Note 1) in Unit 1 following the earthquake. Using this figure, I will describe below the outline of the 'LOCA sequence' that I presume occurred in 1F 1.

Note 1: TEPCO released only the 'absolute pressure' data, which includes the atmospheric pressure component, for the containment vessel (drywell and [pressure] suppression chamber) pressure, but since the problem from the viewpoint of structural strength is the 'gauge pressure,' given by subtracting the atmospheric pressure component from the absolute pressure, this figure uses gauge pressure.

Before the earthquake struck, the reactor water level was 5 m above TAF, but some reactor piping (pipes entering or exiting the reactor, such as the main steam pipe, main feed-water pipe, recirculation piping, ECCS-related piping, and so on) was damaged due to seismic motion, and as coolant began to leak from the damaged piping, by 6 hours and 44 minutes after the earthquake struck, i.e. at 21:30 on 11 March, the reactor water level had descended to a level only 45 cm above TAF (Fig. 1, [1]).

The pressure in the containment vessel during normal operation is almost the same as atmospheric pressure (although the gas inside it is not air; nitrogen is enclosed inside it to prevent

hydrogen explosions). Immediately following the earthquake, however, large amounts of coolant at 7 MPa (roughly 70 atmospheres [atm]) began to gush out of the damaged piping, the pressure and temperature inside the containment vessel began to rise gradually, and 11 hours and 44 minutes after the earthquake, i.e. at 02:30 on 12 March the containment vessel pressure rose to 0.74 MPa (about 7.4 atm), greatly exceeding the design pressure (approximately 0.4 MPa, about 4 atm) (Fig. 1, [2]).

Meanwhile, from data released by TEPCO, by almost the same time, 02:45 on 12 March, it is clear that the reactor pressure had declined to 0.8MPa (about 8 atm). Thus, since at about this time the pressure inside the reactor and inside the containment vessel were roughly equal, the leaking of coolant from the damaged piping had slowed, and for several hours after that the reactor water level was almost unchanged (Fig. 1, [3])

Nevertheless, since the pressure in the containment vessel had greatly exceeded the design pressure, steam was beginning to leak from the bolted joint (flange) of the 'upper lid' at the top of the containment vessel, causing the pressure inside the containment vessel to gradually subside (Fig. 1, [4]).

Because of this, the pressure balance between the reactor pressure and the containment vessel pressure collapsed, coolant once again began to gush from the damaged piping, and the reactor water level plunged (Fig. 1, [5]). The result of

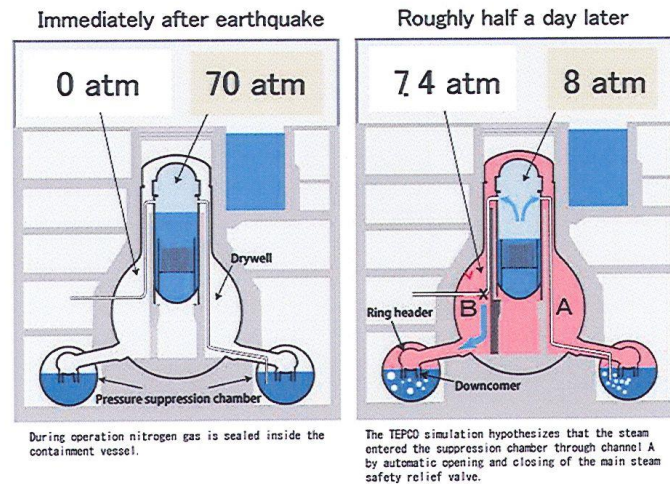


Figure 2. The 'abnormal' rise in containment vessel pressure

this was that the nuclear fuel rods were exposed far above the surface of the water, finally leading to the melting of the vast majority of them. Large amounts of hydrogen being produced by a 'zirconium-steam reaction' within the reactor then gushed out into the containment vessel along with the steam from the damaged piping, and following that, hydrogen, being light, migrated to the top of the containment vessel and finally leaked out into the operation floor through the upper lid flange.

Thus, at 15:36 on 12 March, a hydrogen explosion occurred on the operation floor.

The most puzzling aspect of the accident – Why did the containment vessel pressure exceed the design pressure?

The most puzzling aspect of the 1F 1 accident sequence data is why the containment vessel pressure rose very rapidly from 0 MPa to 0.74 MPa (about 7.4 atm), far above the approximately 0.4 MPa (about 4 atm) design pressure (Fig. 2). I think it is not too much to say that this is the greatest puzzle of the 1F 1 accident. The reason is that the containment vessel design pressure is set to the theoretically presumed greatest overpressure created when the reactor piping with the greatest diameter (in actuality the recirculation outlet pipe) undergoes an instantaneous guillotine break, and then a little more for safety.

I do not believe that a large diameter pipe such as a recirculation outlet pipe experienced a guillotine break at the time of the 11 March earthquake. If such a massive LOCA had taken place, the reactor water level would have dropped precipitously, as if the plug had been pulled out of the bath, but no such phenomenon took place. The

LOCA that I assume occurred was, at least at first, a quite unpretentious one. I think it was a relatively small or medium LOCA of this nature: First, a relatively small crack appeared in some reactor pipe, from which coolant began to blow out, and as this crack grew gradually larger, increasing amounts of coolant began to gush out. However, if this is so, then all the more reason to be puzzled about why, in just half a day after the earthquake struck, the containment vessel pressure rose 'abnormally' and exceeded the design pressure.

Unresolved safety issue of the Mark-I containment vessel

Already by the early 1970s, General Electric (GE, a US company) engineers were whistle-blowing the so-called Mark-I containment, used in 1F 1-5 as a 'defective' containment vessel. This was frequently reported in all Japanese media for some time immediately after the Fukushima Daiichi nuclear power plant accident. The issue raised by GE engineers was later named the 'Unresolved Safety Issue' by the United States Nuclear Regulatory Commission (NRC), and in 1980 the NRC published technical guidelines for the issue. What was this unresolved safety issue?

Kindly refer once again to Figure 2. When a pipe breaks and an LOCA occurs, large amounts of steam blow out into the drywell from the crack (marked as B in Fig. 2) and head furiously toward the (pressure) suppression chamber. The steam entering the suppression chamber is at first guided to a doughnut-shaped pipe called a 'ring header,' and is then introduced into the water in the suppression chamber through a large number of pipes known as downcomers. When this happens, the volume of the steam is reduced as it condenses

into water, and thus the pressure is relieved ('suppressed').

However, in fact, 'before' the steam passes through the downcomers and enters the water, the nitrogen gas filling the containment vessel is firstly pushed violently down through the downcomers and into the water. Since nitrogen gas does not dissolve in water, the instant it exits the downcomers the nitrogen gas greatly expands in the water (called 'swelling'). This causes the large mass of water in the suppression chamber to shake violently, both vertically and horizontally. This can result in the ends of the downcomers to come above the water level, failing to introduce the steam into the water correctly. The steam is then ejected into the space at the top of the suppression chamber. The water does not therefore lose volume through condensation and the containment vessel pressure is not relieved (loss of function of the pressure suppression mechanism).

Or perhaps, because of the violent shaking of the water, the downcomers and the ring header were damaged, again possibly resulting in a total loss of function of the pressure suppression mechanism. This issue of the structural strength of the suppression chamber and loss of suppression mechanism brought about by the 'hydrodynamic loads' is the NRC's 'unresolved safety issue.'

In the case of the 1F accident, the problem was extremely severe, since the extra load of the seismic motion was added to the hydrodynamic loads. The large mass of water in the suppression

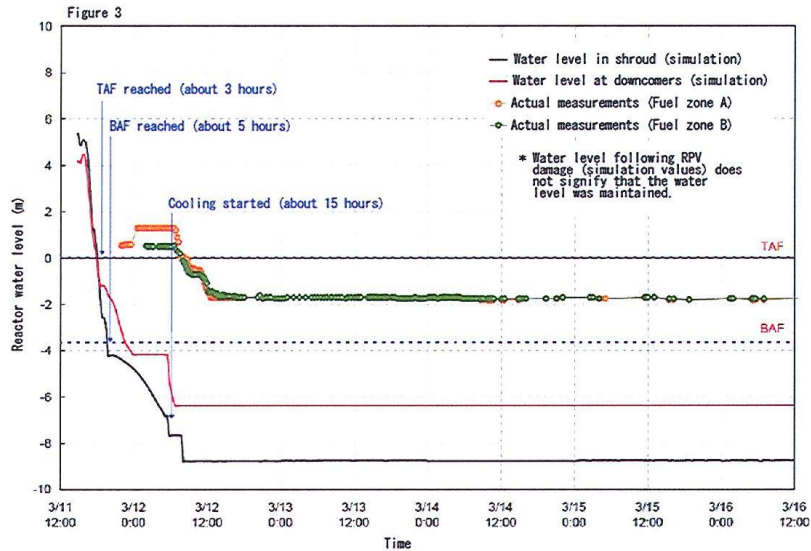
chamber (1750 tons of water in the case of 1F 1) must have been 'sloshing' violently during the main earthquake and the aftershocks, and thus the suppression chamber mechanism may not have been functioning correctly or the downcomers and ring header may have been damaged.

The 'simulation analysis' deception technique

It seems to me that an LOCA occurred due to pipe damage; large amounts of steam blew out into the containment vessel (drywell) heading toward the suppression chamber, but due to the hydrodynamic loads and the 'sloshing' at the time of the earthquake, the structures were damaged and the pressure suppression mechanism was lost. As a result, steam volume was not reduced through condensation, and thus the pressure in the containment vessel rose to 0.74 MPa (about 7.4 atm), and this is the answer to the 'greatest puzzle of the 1F 1 accident.'

Meanwhile, on Sunday, 15 May, TEPCO held an emergency press conference to explain that, as a result of a 'simulation analysis,' 1F 1 had experienced a 'meltdown' (by this term TEPCO apparently meant that molten fuel rods had fallen to the bottom of the reactor) at quite an early stage.

TEPCO did not really need to explain this as it had already become quite obvious to many people that a meltdown had occurred, but perhaps because this was the moment when TEPCO at last 'formally' recognized the fact, this meltdown press conference is still accepted



by the general public in a positive and favorable light. In fact, it was clearly a TEPCO 'trap,' and most people walked straight into it. In a simulation analysis, you can get any result you want simply by altering the conditions of the analysis (i.e. the input data). However, most people were so surprised by TEPCO's admission of the so-called 'high-speed meltdown' that almost no one thought to ask about the simulation analysis conditions.

Once again, the greatest puzzle of the 1F 1 accident sequence was why the containment vessel pressure rose to 0.74 MPa (about 7.4 atm). TEPCO must naturally have thought at first that it was an LOCA. They probably wondered about what sorts of things could happen to cause the containment vessel pressure to rise to 0.74 MPa. The Mark-I containment vessel's 'unresolved safety issue' must have passed through the analyst's mind. Certainly, the 'sloshing' problem at the time of the earthquake must also have passed through his mind. However, TEPCO would not wish to take up these matters in the simulation analysis, because that would then make an issue out of 'earthquakes.' If this were to be presented in a simulation, the ten Mark-I containment vessels still being used in Japan (excluding those used in 1F 1-5) would immediately become a 'big problem.'

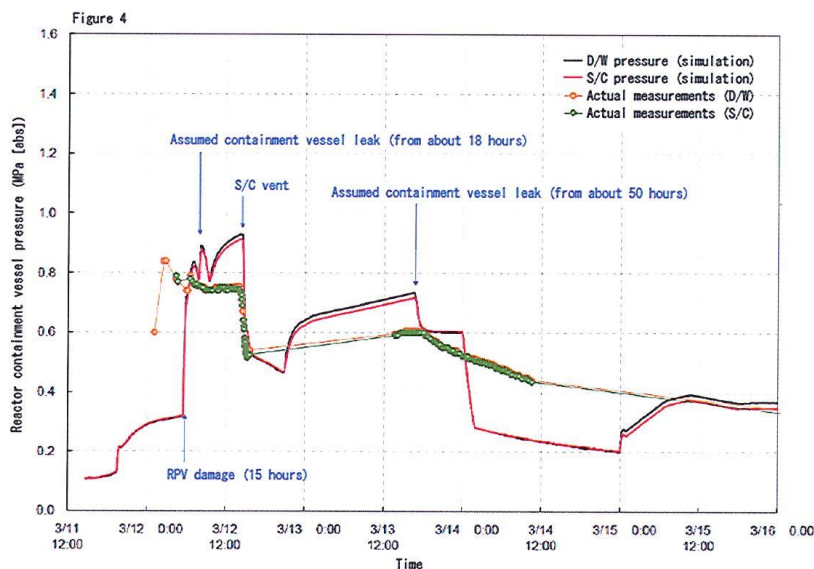
The TEPCO simulation analysis considered no impact from the earthquake. So how did TEPCO manage to arrange for the simulation to achieve the 'abnormal' containment vessel pressure rise? Figures 3 and 4 give the answer. Looking at Figure 3, the reactor water level drops precipitously (because the input conditions are set

for it to do that, but I will not go into the details here). In this case the fuel rods very quickly melt down. In fact, looking at Figure 4, you can see that it says 'RPV (reactor pressure vessel) damage' at about 15 hours after the earthquake struck. That is, a meltdown occurred and a hole opened up 'somewhere' in the RPV.

As a result, as the meltdown proceeded in the RPV, the high temperature, high pressure gas blasted violently out through that hole into the containment vessel. Thus the containment vessel pressure rose rapidly (Fig. 4). This is TEPCO's 'simulation analysis' deception technique.

This is nothing but a 'voodoo simulation' in which the earthquake issue is cleverly ignored using the smokescreen of the high-speed meltdown. The undeniable gap between the actual measured values for the reactor water level and the result of the simulation is the very piece of evidence that is needed to see through this disgraceful deception.

Mitsuhiko Tanaka (Science writer; ex-RPV designer)



Lax radiation dose calculations continue at Fukushima Nuclear Power Station: CNIC and other groups hold joint negotiations with government on plant worker exposure

At Fukushima Daiichi Nuclear Power Station, workers are being forced to undertake dangerous work while being exposed to high levels of radiation. The plant operator Tokyo Electric Power Co. (TEPCO) continues to be lax with radiation dose calculations, and the mass media are reporting almost daily cases of plant workers exposed to extremely high levels of radiation.

On June 20, TEPCO announced that a total of nine plant workers are known to have been exposed to radiation higher than the legal limit of 250 mSv. (See **Table 1**)

On March 15, four days after the accident at Fukushima Daiichi, the Ministry of Health, Labor and Welfare (MHLW) revised its ministerial ordinance and raised the maximum exposure limit for workers engaged in emergency operations at the plant from 100 mSv to 250 mSv.

On April 28, the ministry issued an administrative notification 0428-1 entitled 'Guidance concerning exposure rates for workers engaged in emergency work when they carry out non-emergency work following the emergency work' to the heads of all regional labor departments. In this notice, the ministry said it will not issue a guidance to the worker even if he exceeds the annual radiation exposure limit of 50 mSv, but will direct him not to exceed the "100 mSv in five years" limit. This is taken as an easing of ministerial action against worker radiation exposure.

On May 2, the Citizens' Nuclear Information Center (CNIC) submitted to the government a request that the government protect the health and safety of both the workers exposed to radiation at Fukushima Daiichi nuclear power plant and local residents, and compensate for damage to their health. CNIC submitted this request jointly with six other groups tackling the problems facing the plant

workers.

On May 16 and June 17, CNIC negotiated with the government jointly with the Japan Occupational Safety and Health Resource Center (JOSHRC) and Campaign Against Radiation Exposure (CARE).

On June 21, CNIC and the six other groups that submitted the request on May 2 engaged in negotiations with the government and held a meeting between the citizens concerned and lawmakers in the Diet building. The citizens participating in the meeting included Koshiro Ishimaru and Tatsuhiko Sato representing the citizens' league in Futaba Town, Fukushima Prefecture, opposing the Fukushima Nuclear Power Station, and Takumi Aizawa from Iitate Village, Fukushima Prefecture.

In the May 16 negotiations, it was revealed that no officials from the Labor Standard Inspection Office (LSIO) have been dispatched to the Fukushima Daiichi Nuclear Power Station since the outbreak of the crisis at the plant in March, except when cabinet ministers visited the plant. According to the ministry, the officials summoned the plant operator to the ministry office whenever necessary in order to avoid exposure to radiation.

At the plant, however, many workers are being forced to work without receiving any of the necessary radiation-related education in advance, and are eating and smoking in the highly contaminated environment. This clearly indicates that there is a need for LSIO officials to visit the plant and inspect the working conditions there. On May 27, LSIO officials finally went to the plant to carry out the inspection.

On March 24, three workers from a TEPCO subcontractor company were exposed to radiation as high as 180 mSv. Why did LSIO not go to the plant and conduct an on-the-spot inspection at that time?

It was later revealed that a female worker was also exposed to a level of radiation in excess of the official limit of a total of 5 mSv over three months, which is stipulated in the Labor Safety and Sanitation Law. We were stunned by the ministry's excessively slow response.

On June 7, the ministry reportedly conducted an on-the-spot inspection to check the working conditions at the plant before determining whether there were problems with TEPCO's and its partner company Kandenko's handling of radiation dose management. As a result, on June 10 the ministry ordered TEPCO to correct practices regarding its failure to prevent the plant workers from being exposed to excessive amounts of radiation in violation of the Labor Safety and Sanitation Law.

In the negotiations on June 17, the Ministry

Table 1: Evaluated external and internal exposure levels of emergency workers who started work at Fukushima Daiichi Nuclear Power Plant up to the end of March (Preliminary values)

Level	TEPCO	Subcontractor	Total
250mSv~	9	0	9
200~250mSv	4	4	8
150~200mSv	20	6	26
100~150mSv	59	22	81
50~100mSv	179	109	288
20~50mSv	271	352	623
10~20mSv	232	523	755
~10mSv	650	1074	1724
Total	1424	2090	3514

(Based on TEPCO report of June 20)

of Economy, Trade and Industry explained why it decided to lift the 50 mSv annual radiation exposure limit on the workers participating in emergency operations at Fukushima nuclear power plant and who intend to go on working at other nuclear power plants. According to the Ministry, TEPCO had demanded the elimination of the limit because it had estimated that the total number of workers who would probably exceed the 50 mSv limit and become unable to work at other plants at around 1600, which would mean that other nuclear power plants may face labor shortages.

Furthermore, it has been revealed that thousands of workers are currently working under very severe conditions in the radiation-controlled areas, but that only one medical doctor is stationed there. Immediately after the accident, there were occasions when no doctor was present. However, since May 14, when a worker died of a cardiac infarction while delivering drainage machinery and materials, a doctor has been stationed in the plant twenty-four hours a day. It is obvious that only one doctor is insufficient for this large number of workers. With the searing summer heat coming on, proper measures need to be taken promptly.

CNIC and other groups have demanded that the government provide them with a list of TEPCO subcontractor companies to which the workers belong. The government, however, stated that it does not know which workers belong to which company. Although MHLW ordered TEPCO to conduct, before the end of June, whole body counter examinations on about 3,700 workers who took part in emergency operations in March, TEPCO is still unable to identify around 30 of the workers.

On June 27, the head of the Industrial Safety and Health Department of MHLW's Labour Standards Bureau summoned medical experts to the ministry to hold discussions on long-term health management of the workers at the Fukushima Daiichi nuclear power plant.

This was the first meeting of its kind and the main objective of the meeting was to discuss how to provide long-term health management, including post-retirement management, for the workers engaged in emergency operations. There are concerns that in the future the workers may have health problems resulting from their exposure to radiation, and the participants of the meeting discussed various issues, such as the types of data that should be included in the database.

In view of this situation, it is necessary for the public to closely monitor the plant workers' exposure to radiation.

Mikiko Watanabe (CNIC)

A list of the requests for protecting the health and safety of nuclear power plant workers and local residents, and for compensating for damage to their health, which was included in CNIC's written request submitted to the government on May 2. This list was presented during the negotiations with the government and in the

meeting held between the citizens and lawmakers concerned in the Diet on June 21.

- 1) Promptly repeal the 250 mSv radiation exposure limit for the plant workers engaged in emergency operations.
- 2) Guarantee non-radiation-related jobs for TEPCO's sub-contractors and affiliated companies' workers who were exposed to radiation exceeding the maximum permissible exposure level in ordinary conditions while engaged in emergency operations. Such jobs should be offered not only to the plant workers who are exposed to a total of 100 mSv or higher in five years, but also to those who absorb a total of 50 mSv or higher in one year.
- 3) Determine the total number of plant workers engaged in emergency operations not carrying a dosimeter, and accurately evaluate their external and internal exposure levels, record their readings in the radiation dosage management notebook, and notify them of the results immediately. In addition, strictly manage the radiation dose calculations of not only the plant workers exposed to radiation, but also all other workers as well.
- 4) Provide all nuclear power plant workers with health-record books immediately, and manage the condition of their health appropriately. Moreover, provide various types of health management for those who have worked in Fukushima Daiichi plant, including mental care.
- 5) Improve the existing extremely poor working environment for the workers dealing with the problems arising from the accident at the nuclear power plant.
- 6) Repeal the maximum allowable radiation exposure level for children at 20 mSv/year (3.8 μ Sv/hour outdoors) stipulated in the "Provisional concept for determining the usability of school buildings and playgrounds in Fukushima Prefecture," and radically lower the limit in consideration of the maximum allowable exposure level for the public. The central government should carry out the removal (or purification) of contaminated topsoil from Fukushima school grounds and take responsibility for this work.
- 7) The government should provide the victims of the accident at the Fukushima Nuclear Power Station with a health-record book and take responsibility for management of their health. It should compensate victims for health damage caused by the accident.

Futaba Anti-Nuclear Energy Alliance, Japan Congress Against A- and H-Bombs, Ibaraki Anti-Nuclear Collective, No Nukes Hiroshima, Citizens' Nuclear Information Center, Campaign Against Radiation Exposure (CARE)

Reassessment of the geological condition of the ground beneath Kashiwazaki-Kariwa Nuclear Power Plant.

Niigata Prefecture should hold an earthquake and ground condition subcommittee meeting as soon as possible.

Although more than 100 days have passed since the accident, nobody knows when and how the problems of the Fukushima Daiichi Nuclear Power Plant (NPP) will be resolved. However, we now see the effects of what the government calls the peaceful use of atomic energy - the continuing trial and error in the work to remove radioactive materials from heavily contaminated water; the danger of further releases of tons of radioactive materials; the difficulties of cooling down the nuclear fuel which has already gone into a state of meltdown; the nuclear reactors, the reactor containments and the reactor buildings in a seriously damaged state; the workers at the plants being exposed to high levels of radiation; children being exposed to radiation on a day-to-day basis; the people of Fukushima distraught as they have little option but to roam from town to town; and many tons of radioactive debris at the accident site.

When the Niigata Chuetsu-Oki Earthquake struck in July 2007, all seven nuclear reactors at the Kashiwazaki-Kariwa NPP shut down. As Niigata Prefecture's technical committee on the safety control of nuclear power plants endorsed the restart of the nuclear plants, four reactors are now operating. However, the four reactors are not safe to run even though they have been restarted, with pro-nuclear people supporting the restart of the reactors and anti-nuclear power people opposing the restart. The people of Niigata Prefecture, for their safety and assurance, wanted the committee to reconsider, pointing out a number of matters the committee had not sufficiently discussed. However, the chairman of the technical committee and each chairman of the other two subcommittees which discuss technical matters repeated only the engineering points of view without due consideration for safety issues, and thus the reactors were restarted. We should not allow the members of these committees to get away with the excuse that the disaster at Fukushima Daiichi NPP was "unforeseeable."

Seismic activity possible in the Madogasaka Fault and the fault immediately beneath the Kashiwazaki-Kariwa NPP

The Great East Japan Earthquake on March 11th was a magnitude 9.0 earthquake, which led to large crustal disturbances. It is likely that these have altered the stress fields over a wide area of the Japanese archipelago.

The next morning, March 12th, an M6.7 earthquake occurred in the area between Niigata

and Nagano Prefectures. The ground under the Iiyama Line, running along the Shinano River collapsed, leaving the railroad track hanging in the air. Heavy damage occurred in Sakae Village, Nagano Prefecture, and in Tsunan Machi and Tokamachi City, Niigata Prefecture. Furthermore, on April 11th, an M7.0 earthquake occurred in Iwaki City, Fukushima Prefecture. A new earthquake fault has shown up on the surface of the ground along the Yunotake and Idotani faults in Iwaki City. From government back-checks concerning earthquakes for the Fukushima NPPs, the government had judged that the Yunotake fault was not active.

The Nuclear and Industrial Safety Agency (NISA) therefore sent an official notice to all electric power companies asking them to report two matters to NISA by May 31st: 1. Reassess the faults, fault geometries, and lineaments which should be considered for seismic design; 2. If there is a fault which will affect the ground under nuclear plants, reassess the potential seismic movements.

Tokyo Electric Power Company (TEPCO) reported to NISA that they had summarized the information about other faults which they did not consider when the nuclear plants were built based on former investigations. They also reported that they would gather data concerning the impacts of the Great East Japan Earthquake and the relationship between earthquakes and faults, which they would reflect in future assessments.

This official NISA notice revealed that nationwide a total of 432 faults were ignored in assessments. NISA issued an additional official notice on June 3rd, to which reports must be submitted by August 31st.

On May 31st, TEPCO reported three faults which were not considered when Kashiwazaki-Kariwa NPP was designed: 1. Hosogoe fault (7 km in length); 2. Madogasaka syncline (11.5km in length); and 3. a fault inside the Kashiwazaki-Kariwa NPP. This fault inside the NPP includes many sub-faults such as alpha-faults, beta-faults, F-faults, and V-faults. If these faults move, reactor buildings or turbine buildings may begin to tilt. The Madogasaka syncline is a fault that runs into the power station from the northwest. If this fault moves, it will probably cause a serious earthquake in which the ground will move. While the local anti-nuclear movement has repeatedly asserted this concern since August 1974, it has been disregarded by the Japanese government

and by TEPCO and scholars who support nuclear power in the Niigata Prefecture's subcommittee on earthquakes and the geological condition of the ground.

Discussion in the Japanese Parliament

If the fault inside the Kashiwazaki-Kariwa NPP or the Madogasaki syncline were active, this would have prevented the Kashiwazaki-Kariwa NPP from being built. The government and TEPCO have therefore repeatedly asserted that these faults will not move as they are old faults.

On November 22nd, 1991, the following discussion was held at the Senate's Science and Technology Special Committee.

Q: If the fault directly under the Kashiwazaki-Kariwa NPP reactor core moves, is the Kashiwazaki-Kariwa nuclear power plant safe? Or is it safe because the fault does not move?

A: Because we recognize that the fault does not move, the plant is safe.

Q: What are the grounds for asserting that the fault does not move?

A: The fault passes through the Nishiyama fault and the lower part of the Yasuda fault, but does not go through the upper part of the Nishiyama fault and the Banjin sand stratum. Based on guidelines for seismic design that the fault should not have moved for over 50,000 years, we concluded that the fault will not move in the future.

On September 2006, the Regulatory Guide for Aseismic Design of Nuclear Power Reactors was revised. The basis for judging an active fault was changed from 50,000 years to 130,000 years in the past; the Late Pleistocene. After the Niigata Chuetsu-Oki earthquake in July 2007, anti-nuclear power representatives asked NISA the

following.

Q: The standard was changed from 50,000 years to 130,000 years in the past. The existence of the fault inside the Kashiwazaki-Kariwa NPP indicates that the plant is in an inappropriate location for a nuclear power plant, doesn't it?

A: The upper Yasuda layer was accumulated after the Late Pleistocene (130,000 years ago). Since the fault does not pass through the Yasuda layer the guideline for plant location has not been contravened.

However, on April 11th 2011, the fault which does not pass through the layer accumulated in the Late Pleistocene moved, suggesting that the standard is clearly deficient. Therefore, although the May 31st TEPCO report disregarded the three faults discussed above for Kashiwazaki-Kariwa NPP, it is possible that the fault inside the Kashiwazaki-Kariwa NPP will cause the most serious damage to the power plant.

Niigata Prefecture's technical committee on nuclear power plant safety held a second meeting on June 21st. Several members pointed out that the government has absolutely no grounds for guaranteeing that other nuclear power plants besides Hamaoka NPP are safe. Some of the members who had formerly agreed with the government also spoke up.

We are seriously concerned for the future of Kashiwazaki-Kariwa NPP, and so since the Fukushima disaster we shall be paying close attention to the discussion in Niigata Prefecture in order to ensure that the details are correctly handled without any further deception.

Kazuyuki Takemoto (Kashiwazaki Alliance Against Nuclear Energy), Yukio Yamaguchi (CNIC Co-Director)

Come and join in the "Goodbye to Nuclear Power Plants" Rally!

We will hold the "Goodbye to Nuclear Power Plants" Rally as follows. Please participate with your family and friends.

Date: September 19th, 2011, Starting at 13:00

Place: Meiji Park, Tokyo

(5 mins walk from JR Sendagaya station. 2 mins walk from the metro Oedo Line 'Kokuritsu Kyogijo' station (Exit E25))

Expected number of participants: 50,000 (There will also be a parade after the rally.)

10 Million People's Action to say Goodbye to Nuclear Power Plants

The executive Committee declares 17th to 19th September as "Fukushima Day" (provisional title), and calls for actions nationally and internationally.

Please share information about your own actions. (Submission form to be prepared)

More information; <http://sayonara-nukes.org/english/>

Anti-Nuke Who's Who

Atsuko Ogasawara**Owner of Asako House, built in the center of the planned Ohma Nuclear Power Plant premises**

by Mayumi Nishioka*

A major earthquake hit eastern Japan on March 11, 2011. The Fukushima Daiichi NPP was critically damaged and has been emitting large amounts of radionuclides since that time. This earthquake-vulnerable country has nuclear power plants nationwide. A small but increasing number of municipalities are adopting antinuclear policies. Regarding the Ohma NPP project, however, politicians and local municipalities are clear about having no plan to give it up.

The town of Ohma, where the nuclear power plant is under construction, is situated at the northernmost tip of Honshu, the largest Japanese island. There are two large plots of land, about one hectare in total, in the middle of the planned NPP premises. Their former owner was the late Asako Kumagai, who opposed the NPP project and did not agree to sell the land to the Electric Power Development Company (J-Power), the would-be operator of the plant. Because of the disagreement with Ms. Kumagai, the company reviewed the construction plan and moved the reactor core position, which was originally very close to her land, about 200 meters. (The reactor core will still be only 300 meters away from the land, if completed.)

Atsuko Ogasawara is Asako Kumagai's daughter. The mother and daughter together built a log house on one of the plots to show their resistance, but Asako passed away in 2006, before moving into the house. Atsuko Ogasawara has been guarding Asako House ever since.

Ms. Ogasawara, whose home is located in Hakodate, the city facing Ohma across the Tsugaru Strait, visits Asako House several times a week to take care of the house and the vegetables she raises there. The antinuclear action she is most committed to is to request people to write to her at Asako House. She always carries prepaid postcards on which the address of Asako House is printed. The one-kilometer pathway J-Power prepared to allow access to Asako House is unpaved and fenced in on both sides. If someone writes to her, a mail carrier must visit the house, treading the pathway. This whole routine implicitly tells the company, and the neighborhood that cannot see the house from the outside, that Asako House is there, and has not been abandoned.

When I visited Asako House in 2008 for the

*Mayumi Nishioka is founder of the Ohma Message Flag Project



Atsuko Ogasawara in front of Asako House

first time, soon after the Ministry of Economy, Trade and Industry granted a reactor construction license to J-Power, the movement against the Ohma project was rather small. Subsequently, however, geomorphologists have reported that it is highly possible that there are active faults in the areas near the planned NPP site, and in 2010 a group of Hakodate residents filed a lawsuit against the Japanese government and J-Power to suspend construction. Ogasawara joined the group and delivered a speech during the first oral proceedings.

While having a bright and cheerful character, Ogasawara is often filled with emotion and moved to tears when talking in public. I believe that at such a time she strongly wishes she could show the audience to her late mother. When the Ohma NPP project was announced, many local landowners were against it and refused to sell their land at first. However, one after another, they gave up and finally Asako became the only landowner to own major plots of land in the very center of the premises. In the town, where a great majority of the population was in favor of the project, Asako faced a very lonely struggle.

In late May 2011, a rock festival was held on Atsuko's plots, surrounded by cranes and plant facilities under construction, including the bizarre containment vessel. The festival attracted many supporters and music lovers, and was covered by multiple media outlets. Atsuko, who took over her mother's lone struggle, is no longer alone.

If you wish to send a postcard to Atsuko, please address it to:

Ms. Atsuko Ogasawara, c/o Asako House, 396 Aza Ko-okoppe, Oh-aza Ohma, Ohma Machi, Shimokita Gun, Aomori Prefecture, JAPAN 039-4601

NEWS WATCH

Lithuania receives bids from Westinghouse and Hitachi-GE Nuclear Energy for NPP project

Lithuania plans to build a nuclear power reactor in Visaginas City, Utena Region, located in the northeastern part of the nation, and is aiming to start operation between 2018 and 2020. Toshiba-affiliated Westinghouse and Hitachi-GE Nuclear Energy have submitted bids for this project. Westinghouse proposed a 1,100 MW AP1000 pressurized water reactor, while Hitachi-GE have proposed an advanced boiling water reactor of the 1,350 MW class. A Korean company had obtained priority negotiation rights for this project in 2010, but withdrew before the end of the year due to disagreements in funding conditions, according to sources.

Obama City's municipal assembly adopts antinuclear statement

The municipal assembly of Obama City in Fukui Prefecture, Japan, which neighbors Ohi Town, where Kansai Electric Power Company has four pressurized water reactors (Units 1 and 2, 1,175 MW each, and Units 3 and 4, 1,180 MW each), unanimously adopted a statement on June 9, 2011 proposing withdrawal from nuclear power generation.

Yamaguchi Prefecture's governor mentions possible suspension of Kaminoseki NPP project

Sekinari Nii, the governor of Yamaguchi Prefecture, mentioned in the prefectural assembly on June 27, 2011 that, in consideration of current circumstances, he would not renew the land reclamation license for the construction of the proposed Kaminoseki Nuclear Power Plant (two ABWRs, 1,373 MW each). The Kaminoseki NPP project, a long-standing issue in Yamaguchi, is scheduled to build the reactors on sea-reclaimed land. The prefecture granted the reclamation license to Chugoku Electric Power Company (CEPCO), the would-be operator of the plant, in October 2008. The license will expire in October 2012. Following the Fukushima Daiichi disaster, the prefecture requested CEPCO to exercise prudence in proceeding with the project. Construction work was actually suspended before that time and it will now be effectively impossible for the operator to complete the reclamation before the expiry. If the governor does not renew the license, the construction will no longer be possible.

Electric power companies hold shareholder meetings

On June 28 and 29, 2011, Japan's ten electric power companies that are operating (or constructing) nuclear power plants, held their annual shareholder meetings. On the 28th, four power companies, Tokyo, Chubu, Hokuriku and Kyushu, as well as Electric Power Development (J-Power), held shareholder meetings, and on the 29th, meetings were held by five companies, Hokkaido, Tohoku, Kansai, Chugoku, and Shikoku. Proposals for withdrawal from nuclear power generation were submitted by shareholders at six of these meetings, but were voted down because major shareholders such as banks and life insurance companies voted against the motions (five to eight percent of shareholders were in favor). Compared with past shareholder meetings, however, more shareholders were in favor of the anti-nuclear proposals, and at Tokyo Electric Power Company's meeting, shareholding Minami-Soma City and Shirakawa City, both in Fukushima Prefecture, supported the anti-nuclear proposals for the first time. Japan Proxy Governance Institute, an institutional investor advisory organization, advised its clients to vote in favor of the proposals, which was also a first instance. Kunio Hiramatsu, Mayor of Osaka City, the company's biggest shareholder, participated in Kansai Electric Power Company's shareholder meeting. He stated that it was the electric power company's responsibility to shift from dependence on nuclear power generation to more diverse energy resources, and requested that the power company make prompt efforts to develop renewable energy sources.

Japanese government requests restart of Genkai NPP reactors

On June 18, Japanese Minister of Economy, Trade and Industry, Banri Kaieda, issued a "safety declaration" for nuclear power generation reactors that are undergoing regular inspections, but the governors of the host prefectures are showing reluctance to give their approval for reactor restarts. Under these circumstances, the government is engineering a bald campaign to restart the operation of Kyushu Electric Power Company's Genkai NPP Unit 2 (PWR, 559 MW) and Unit 3 (PWR, 1,180 MW) reactors, to set a precedent to be followed by other suspended reactors. On June 9, the Nuclear and Industrial Safety Agency (NISA) and the Agency for Natural Resources and Energy (ANRE) explained to Saga governor

Yasushi Furukawa and prefectural assembly members that restarting the Genkai reactors would pose no safety concerns. The assembly of Genkai Town unanimously adopted a statement requesting an early reactor restart on the 17th, and Hideo Kishimoto, Mayor of Genkai Town, expressed his acceptance of the restart. However, the Saga governor had not yet expressed approval. On the 26th, the NISA and ANRE held a local explanatory meeting in Saga City, in which seven "citizen representatives" were selected to participate by an advertising agency. The meeting was broadcast via cable television networks and the Internet. However, even the "citizen representatives" were not persuaded by the claims of safety. On June 29, METI minister Banri Kaieda visited the Mayor of Genkai Town, the Governor of Saga Prefecture, and the Mayor of Karatsu City, which neighbors Genkai Town. On July 4, the Genkai Town mayor met with Toshio Manabe, president of the Kyushu Electric Power Company, and officially delivered

the Town's agreement to restart the reactors. At the time, the Saga governor was intending to approve the restart after extracting a promise from Prime Minister Naoto Kan that the reactors would be "safe." However, it became apparent on July 6 that the management board of the Kyushu Electric Power Company had instructed both its own employees and those of its affiliates to send messages to the cable TV station that broadcast the above-mentioned explanatory meeting in which "citizen representatives" participated (some of the messages would be read out during the meeting). On the same day, the Minister of Economy, Trade and Industry announced that all reactors would be obliged to undergo a new safety test (stress test). The Genkai Town mayor, who became upset about this sudden news from Tokyo, withdrew the Town's agreement to restart the reactors. The Saga governor then indicated that the restart would be unlikely to occur before the completion of the test.

10 Million Signature Campaign to say Goodbye to Nuclear Power Plants

Petition for the Realization of Denuclearization and a Society Focused on Natural Energy

Demands

1. *We demand the cancellation of construction plans for new nuclear power plants and the planned termination of existing nuclear power plants, including the Hamaoka power plant.*
2. *We demand that the fast-breeder reactor "Monju" and the nuclear reprocessing plants, which use the most dangerous material on earth, plutonium, not be operated and that they be shut down permanently.*
3. *We demand an immediate shift in energy policy towards energy conservation and placing natural energy in the center.*

Sponsoring Organization/ Core Promoters

Citizens' Committee for the 10 Million People's Petition to say Goodbye to Nuclear Power Plants

Core Promoters:

Katsuhito Uchihashi, Kenzaburo Oe, Keiko Ochiai, Satoru Kamata, Ryuichi Sakamoto, Hisae Sawachi, Jakucho Setouchi, Takashi Tsujii, Shunsuke Tsurumi

Signature format

http://sayonara-nukes.net/html/wp-content/uploads/2011/07/0620sayonara_genpatu_E2.pdf

Deadline

Initial deadline: 10th September 2011, Second deadline: 20th December 2011, Final deadline: 28th February 2012

How to send the petition

Please send the original copy (duplicate copies and faxes are not accepted) to the above sponsoring organization

c/o Gensuikin, 1F 3-2-11 Kanda Surugadai, Chiyoda-ku, Tokyo 101-0062, JAPAN

More information; <http://sayonara-nukes.org/english/>

Nuke Info Tokyo is a bi-monthly newsletter that aims to provide foreign friends with up-to-date information on the Japanese nuclear industry as well as on the movements against it. It is published in html and pdf versions on CNIC's English web site: <http://cnic.jp/english/>

Please write to us if you would like to receive email notices when new editions are published.

Editor: Nozomu Nagai

Translators: Hideo Suzuki, Mayumi Nishioka, Sumie Mizuno, Tony Boys

Proofreaders: Baku Nishio, Nobuko Tanimura, Tony Boys, Yukio Yamaguchi



GIBB

ENGINEERING & SCIENCE

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

05 August 2015

Our Ref: J27035

Your Ref: Email received 05 August 2011

Email: alexander.vergus@mizuho-sc.com

Dear Alexander Vergus

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

ESKOM – ENVIRONMENTAL IMPACT ASSESSMENT FOR A PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE: REVISED DRAFT EIR (DEA REF NO. 12/12/20/944) : REVISED DRAFT EIR

Comment 1:

We wish to express our concern that the EIR has not undertaken an adequate consideration of alternatives, particularly technology alternatives such as boiling water reactor (BWR) and advanced boiling water reactor (ABWR).

The EIR states that it would consider “a full range of different technologies”. However, this does not seem to be the case, as there are several references where it is stated that Eskom has made up its mind that the technology for the new nuclear power station would be a Pressurized Water Reactor (PWR). See for instance the statement under the subheading “Assessment of alternatives – nuclear plant type alternatives” in the Executive Summary, which says that “two nuclear plant type alternatives belonging to the Pressurized Water Reactor (PWR) technology family are proposed” and also see section 4.6 – Proposed Technology of the revised EIR, which states that “the PWR technology.....is proposed as the technology for use in the new NPS”.

It therefore appears that Eskom has made up its mind on the technology of choice, without considering the full range of technology alternatives available for a nuclear power station. It could therefore be argued that this EIA process is fundamentally flawed. Naturally, we reserve the right to comment further at a later stage in this process, and reserve the right to appeal any decision that may be made without full consideration of the technology options



GIBB Holdings Reg: 2002/019792/02

Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras

Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

Response 1:

Your comment is noted however it is not the purpose of the Environmental Impact Assessment (EIA) process to act as a selection mechanism or to drive procurement in terms of the nature of the technology to be used in the construction and operation of the Nuclear-1 Power Station. It is the purpose of the EIA to assess the impacts of the construction and operation of a Generation III type (as described by an envelope of criteria) reactor on three proposed sites in the Western and Eastern Cape Provinces of South Africa.

Table 5-3 of the Revised Draft EIR Version 1 does however indicate the five reactor technologies that Eskom short-listed following the screening phase for the proposed project, which occurred in 2006/7. The table provides a list of the various technologies and the salient features associated with each reactor type. Please note that the ABWR is included in this table.

Table Error! No text of specified style in document.-1: Summary of Eskom’s short-listed nuclear plant type technologies

REACTOR TYPE	TECHNOLOGY	PLANT TYPE	SALIENT TECHNICAL FEATURES
Light Water Reactors	Pressurised Water Reactor	AP1000	Reactor Thermal Power : 3 400 MWt Electrical Power Output: approximately 1140 MWe Safety systems such as: <ul style="list-style-type: none">• Passive core cooling system (PXS)• Passive containment cooling system (PCS)• Control room emergency habitability systems (VES)• Containment isolation Efficiency (overall): 33.53%
		EPR	Reactor Thermal Power: 4 616 MWt Electrical Power Output: approximately 1 650 MWe Safety systems such as: <ul style="list-style-type: none">• Three protective barriers• Core Catcher• Safety injection system• In-containment refuelling water storage system (IRWST) Efficiency of 35.75%

REACTOR TYPE	TECHNOLOGY	PLANT TYPE	SALIENT TECHNICAL FEATURES
		RSA 1000	<p>Reactor Thermal Power : 2 895 MWt Electrical Power Output: 1 020 MWe Safety Aspects:</p> <ul style="list-style-type: none"> • Several interconnecting systems resulting in various complex failure mechanisms • Proven technology with more likely design base incident optimized as a result of OE. • Operator intervention only necessary after 20 minutes. <p>Overall efficiency: ~33%</p>
	Advanced Boiling Water Reactor	ABWR	<p>Reactor Thermal Power: 3 992 MWt Electrical Power Output: approximately 1 371 MWe Safety systems such as:</p> <ul style="list-style-type: none"> • Vessel-mounted recirculation pumps • Fine motion control rod drives • Advanced digital and multiplexed instrumentation and control system <p>Efficiency: Unknown with present data Overall efficiency: 34.34%</p>
Heavy Water Reactors	CANDU	CANDU -6	<p>Reactor Thermal Power: 2100 MWt Electrical Power Output: approximately 700 MWe Safety features such as:</p> <ul style="list-style-type: none"> • Defence in depth design approach incorporate tri-level passiveness • Preventative boundaries (safety systems are separated physically and functionally) and two independent shutdown systems are built in at different levels <p>Efficiency: 33.33%</p>

Comment 2:

Although the revised EIR refers to a “consistent data set” that was provided to all specialists to serve as a basis for that assessment, we are concerned that this approach is in reality merely intended to cover a decision already made by Eskom.

It is therefore our demand and we require Eskom to confirm that the envelope of nuclear power station characteristics and hence the “consistent data set” includes the characteristics of BWR/ABWR technology. We also require Eskom to confirm that all the specialist studies have taken the characteristics of BWR/ABWR technology into account in their impact assessments and that these are highlighted as alternatives. In the event that the “consistent data set” does not include the characteristics of the BWR/ABWR technology or that the specialist studies have not taken into account

in their impact assessments the characteristics of BWR/ABWR technology, we will require Eskom to revise the process in this EIR to ensure that these requirements are met. In addition, we require that the application for environmental authorisation of this project is not just for PWR technology, but also for BWR/ABWR technology.

Response 2:

Your comments are noted however it is the applicant's prerogative to procure the technology that best fulfils the needs and specifications of the Nuclear-1 Power Station in terms of the applicant's procurement procedures. However, the procurement process is now being led by Government and has not been decided on as yet. The PWR plant technology is premise on the Nuclear energy policy of South Africa.

It is furthermore 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

Comment 3:

The legal basis for our demand is that the regulations (No. 385 of 2006 published on 21 April 2006) in terms of NEMA (National Environmental Management Act) state at Section 28(e) (iii): "...the EAP managing the application must....subject the application to scoping by identifying.....alternatives to the proposed activity that are feasible and reasonable". It is to be noted that the regulations refer to alternatives to the activity, not alternatives to the location, and that the alternatives need to be "feasible and reasonable". The reasons for choosing the PWR technology as provided in Section 8.6 of the final scoping report do not provide any reasons for excluding other technologies from the EIR. The purpose of the EIR is to assess the potential environmental and social impacts of various alternatives. Alternatives can therefore not summarily be disregarded on the basis of the reasons provided in Section 8.6. The impacts by the alternative technologies may indeed be such as to make the alternatives the preferred technology from an environmental and social perspective. Further strength to the argument is provided in the Guidelines published by the Western Cape Department of Environmental Affairs & Development Planning in August 2010, in which it specifically states "Alternatives: the key consideration of EIA" (Section 3.1 of the Guideline on Alternatives, DEA&DP, August 2010) and that the alternatives may include "the technology to be used in the activity". It is significant that in the comments received on the revised PoS of EIA, DEAT and DEA&DP indicate the lack of clarity on what types of alternatives will be assessed, other than site layout alternatives, with DEA&DP specifically stating that technology alternatives should form part of the EIA investigation.

Response 3:

The author is reminded not to quote sections of the legislation out of context in order to highlight its own agenda. The consideration of alternatives in a project is indeed a key requirement of an EIA as it provides a basis for choice for the competent authority and I&APs. The NEMA EIA Regulations of 2006 define alternatives in relation to a proposed activity as "different means of meeting the general purpose and requirements of the activity, which **may** include alternatives to the –

- (a) property on which or location where it is proposed to undertake the activity;
- (b) type of activity to be undertaken;

- (c) design or layout of the activity;
- (d) technology to be used in the activity; and
- (e) operational aspects of the activity;”

Alternatives are considered as a means of reaching the same need and purpose as the originally proposed project design in a way that minimises its negative and maximises its positive impacts. Alternatives that are considered must be reasonable and feasible.

In the case of Nuclear-1 the following alternatives (including Nuclear plant types) were assessed:

- Location of the power station;
- Forms of power generation;
- Nuclear plant types;
- Layout of the nuclear plant;
- Fresh water supply and utilisation of abstracted groundwater;
- Management of brine;
- Intake of sea water;
- Outlet of water and chemical effluent;
- Management of spoil material;
- Access to the proposed sites; and
- The no-development alternative (i.e. ‘No-Go’).

PREVIOUS PROCUREMENT PROCESS

Comment 4:

We wish to question the relevance of this EIR, as it does not seem to take into consideration a previous procurement process through which the AP1000 and EPR technologies were prequalified; a procurement process which has since been terminated, as it was found that the technologies offered (AP1000 and EPR) were not affordable. We therefore do not see the sense in undertaking an EIA on a project description for a technology that was previously found to be unaffordable. The EIR can therefore only be relevant if the project description is expanded to cover all possible technologies, including BWR and ABWR.

Response 4:

The PWR plant technology is premised on the Nuclear Energy policy of South Africa. In 2009, Eskom abandoned the procurement process due to funding constraints particularly in the context of the global financial crisis. At that stage Government supported this decision to ensure that Eskom does not over-extend its balance sheet and that its ability to provide the economy with competitively priced energy is not jeopardized. The procurement process will now be led by Government.

Comment 5:

CONCLUSION

At this stage our demands do not include the need for Eskom to revise the Plan of Study or for the specialists to revise their reports, as it is up to Eskom and the EAP to decide what changes to the EIA process they would need to make in order to meet our requirements.

Response 6:

Your comments are noted however the EIA process will not be altered in order to consider the BWR and ABWR type technologies.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'G' or similar character, located below the typed name.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 08 August 2011

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

Dear Jimimah Birch

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

Comment 1:

COMMENT ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

I am writing in response to the revised draft environmental report for the proposed Nuclear 1 Power station:

There are a few things that have not been clearly thought through. Please add the following concerns to your records:

1. Alternatives to nuclear:

There are many ways to generate energy that will not be as costly as the proposed nuclear station. I don't believe this country can afford another station on various levels.

2. Construction:

Financially construction will impact negatively on the entire country's economy and the country will be disadvantaged by this expense.

Response 1:

Your comments are noted. There are indeed many technologies which could be employed to generate energy as you have stated. The choice of technologies 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 the energy requirements of South Africa 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 or indeed a site selection process. 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 Duynfontein, Bantamsklip and Thyspunt sites. Despite the site specific nature of the EIA process the Economic Report (Appendix E17 of the Revised Draft EIR Version 1 – Section 3.3) prepared by Conningarth Economists and Imani Development (SA) (Pty) Ltd nevertheless conducts a macroeconomic equilibrium analysis in order to quantify the macroeconomic impact associated with the possible construction and operation of the Nuclear-1 Power Station.

The report acknowledges that as the nuclear power station is such a large capital investment (equivalent to that of six times the capital investment in Gautrain) the economic ripple effects will go far beyond its direct boundaries.

We refer the author to section 3.3 of the report for an expanded discussion.

Comment 2:

Accidents:

Should there be an accident (even a small one) how will clean up be paid for. How will the country afford the medical costs, which are likely to be chronic rather than once-off? How will an accident of any nature impact the economy of local communities?

Response 2:

Eskom as the owner of the Power station is a contributor to the Nuclear Liability fund estimated at 3 Billion to date. The costs of the economic impacts of a nuclear power station incident are determined by the NNR Act. Section 29 of the National Nuclear Regulatory Act, 1999 requires Eskom to make financial provision for insurance purposes. Any shortfall will be covered by the government.

Comment 3:

3. Waste:

The plan doesn't consider the cost of waste disposal effectively. To date there has been no solution to high level waste disposal at Koeberg and now there are plans to generate more. Mounting nuclear waste is a very real concern. We cannot leave it to become the problem of the next generation. The planners need to have a cradle to grave proposal and the costs there off have to be factored into the entire package.

Response 3:

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 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.

Comment 4:

4. Alternative energy sources:

The comparisons with alternative energy sources not adequate.

Response 4:

Please see our Response 1.

Comment 5:

5. Detailed design:

Detail lacking making projections speculative at best.

Response 5:

Your comments are noted. We assume that you are referring to detail in terms of the reactor type/manufacturer to be used as you have not defined the lack of detail in your statement above.

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 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.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'E' or similar character, located below the typed name.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J31314
Your Ref: Email received 06 August 2011

Email: Harro.VonBlottnitz@uct.ac.za

Dear Harro von Blottnitz

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:

NO PLAN FOR HIGH LEVEL NUCLEAR WASTE

I understand that comments on the revised draft EIA report for Nuclear 1 are due by 7 August. I have not registered as an interested or affected party, but have been urged by friends to consider the matter - I guess in my capacity as a serious scholar of matters of sustainable development. I have taken a look at the Executive Summary of the draft EIA report as downloadable from Eskom's website, and would like to offer just two high-level comments:

1) With respect to waste management:

The Executive Summary states:

"With regards to High-Level Waste (spent fuel), the only alternative currently available in South Africa is long-term storage of the spent fuel in the nuclear power station. Vaalputs is being considered as a disposal site for High-Level Waste, but the required authorisation processes for this will take several years, so currently the disposal of spent fuel at this facility is not a feasible option."

My comment here is that it is fundamentally unsustainable to leave a serious environmental and health risk for future generations to solve. We should not be proceeding with a project of this nature when we cannot deal adequately with its most important waste stream.

Response 1:

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 for spent fuel is long-term storage at 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.

Comment 2:

In the opening paragraph of the Executive Summary, the sentence referring to 4% demand is missing the word "growth": but this is also wrong - average demand growth over the past decade was much lower - there was a 4% bounce-back after the recession. How seriously should I take a study that has such a mistake in its opening paragraph? More importantly though, have you seriously queried Eskom's projection of needing an over 40000 MW of new generating capacity over the next 20 years? I recently examined a Masters dissertation in which this claim was made but could not be tracked back to a published calculation. A serious reference to such a claim must be attached. I am not convinced at all that this claim is true - it is rooted in an outmoded 20th century view of economic growth rooted in heavy industry (esp. electricity-intensive metallurgy) - we now know that we need sustainable development, not economic growth that focuses heavily on people, not resource consumption.

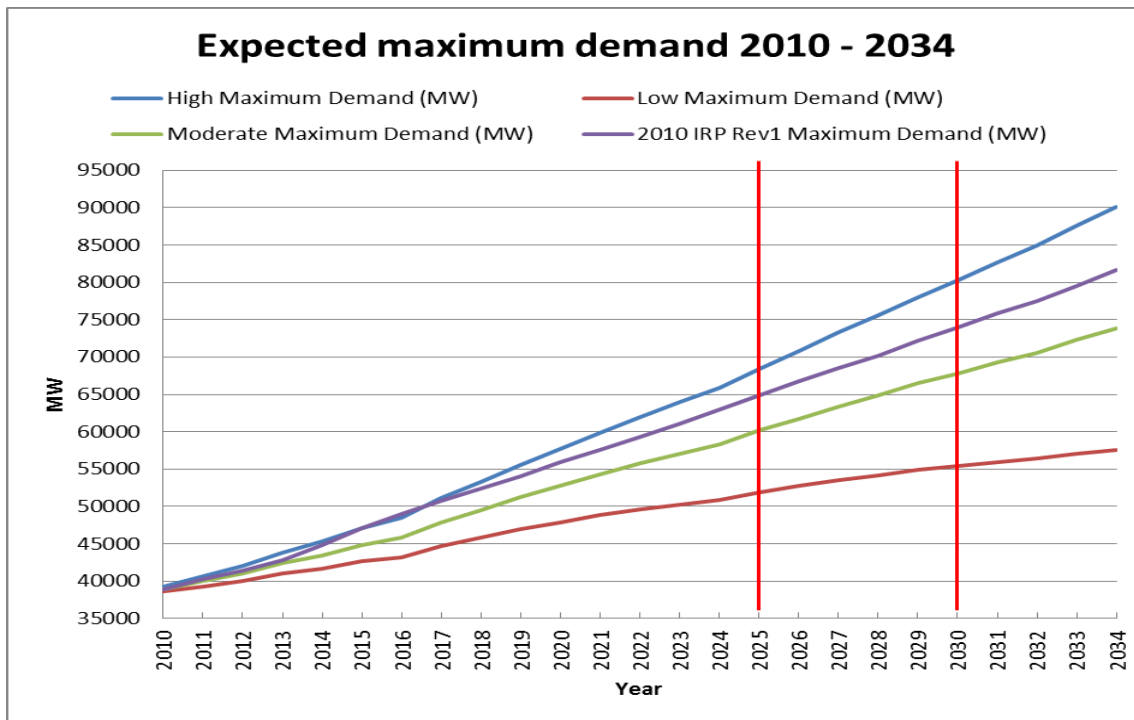
I hope that these comments can be considered.

Response 2:

Thank you for your comment. The error will be rectified.

In terms of the reference to generating capacity and demand please refer to Chapter 4 of the Revised Draft EIR Version 2, which will be made available for public comment.

Projections of demand are based on the Integrated Resource Plan (IRP) 2010, which was commissioned by the Department of Energy. The following graph is an extract from that document and is based on the "Moderate Maximum Demand" scenario investigated in the IRP. The IRP requires 52 GW of new capacity by 2030 and assumes 3.4 GW of demand-side savings.



The National Development Plan (National Planning Commission 2012) seeks an increase of Gross Domestic Product (GDP) by 2.7 in real terms by 2030, which implies GDP growth of 5.4 % per year. If this growth rate or even a more modest growth rate is realised, the growth in electricity demand can be expected to continue and it will remain necessary to provide increased electricity generating capacity in South Africa.

Yours faithfully

A handwritten signature in black ink, consisting of a large, stylized 'S' shape with a small loop at the top and a long, sweeping tail that curves back towards the start.

For GIBB (Pty) Ltd
The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 04 August 2011

Email: tableviewratpayers@gmail.com

Dear Barbara Peacock-Edwards



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:

OBJECTION TO THE PROPOSED CONSTRUCTION AND OPERATION OF A NEW NUCLEAR PLANT

I would like to submit the following objection, written by Stephen Grant Bergh, which reflects the view of the Table View Ratepayers Association.

To Whom it may concern

I would like to make my objection known, and would hope to see that the **Government does not approve Eskom's plan to build another nuclear power station.**

I strongly recommend an alternative research and project implementation into renewable energies such as windmill farms, turbines using the wave action of the sea and solar panels.

Here is my motivation:

I know of a R 10 million solar panel project set up in Touws Rivier that generates 60 kw of power. This translates to a capital outlay cost of R 166 per Kw capacity. The running costs may be quite low when factoring in maintenance and a long term payment plan. Further development of solar power in this region is proposed. Refer to link for document http://www.eeu.org.za/downloads/touwsrivier-documents/Touwsriver%20Solar_Final%20EIR_20%20April%202011.pdf

Response 1:

Your comment is noted.

It is pointed out in the Revised Draft EIR that Eskom is not pursuing nuclear electricity generation exclusively and to the detriment of renewable electricity generation. A range of different generation alternatives need to be pursued in parallel in order to meet South Africa's electricity generation challenges. It is not within the mandate of a project-specific REIA process such as that for Nuclear-1 to question the strategic decisions that have been taken in the Integrated Resource Plan for the proportions that different generation technologies should contribute to South Africa's electricity generation mix. The IRP has examined these technologies and come to the conclusion that renewable energy sources must make up around 17,800 MW of future power supply and that demand-side management can achieve a maximum saving of around 3,420 MW by 2017, but that 9,600 MW of nuclear generation is also required.

Comment 2:

Costs to build a nuclear power station can vary from R 7000 per Kw to R 49 000 per Kw. Refer to http://en.wikipedia.org/wiki/Economics_of_new_nuclear_power_plants

Refer to "Table 2" in link <http://www.greens.org/s-r/11/11-09.html> where Comparative Estimates based on Ottinger, et al. (1990). *Environmental Costs of Electricity*. Pace University Oceania Press: NY are given. NOTE THAT 'NUCLEAR' IS NOT REALLY THAT CHEAP COMPARED TO SO CALLED 'EXPENSIVE RENEWABLE ENERGY SOURCES'.

Refer to link <http://www.greentechmedia.com/articles/read/mixed-greens-ford-concocts-sounds-for-its-silent-evs-a123-in-china-and-more> where it mentions that solar power can cost R 21 000 [\$3 000] per Kw and wind power with battery reserve R 49 000 [\$ 7000] per Kw. Once the renewable energy sources are up and running the estimated charge can be calculated according to how long the capital investment will be paid off [consider amount of users in South Africa].

R 1.12 per KWh [16 American cents] has been given for solar power, although in South Africa Eskom still being a state owned asset can charge less to make it more affordable. The price can be reduced as the price of manufacturing solar power panels, windmills etc comes down.

Response 2:

Your comment is noted. Please refer to Response 1 above, where it is pointed out that Eskom is pursuing renewable electricity generation technologies in parallel to nuclear technology. Also please refer to Chapter 5 of the EIR, where levelised costs of electricity (quoted from a study for South African conditions done for the Integrated Resource Plan) are provided for a range of generation technologies.

Comment 3:

Reasons to consider renewable energies:

- Although renewable energies seem more expensive when taking Rand cost per kwh into account it is better for Eskom to build in smaller phases 'farms' like these that can pay itself off and eventually become profit generating centres in the long term. Nuclear power station will cost in the hundreds of billions and at the end of 30 years or so it will incur further cost to decommission and store waste fuel. Renewable energies only need to be maintained, no decommissioning.

Response 3:

Please refer to Response 1 and 2.

Please note that the expected life-span of the Nuclear-1 power station is 60 years, not 30 years as claimed in your comment. The high capital costs increase the cost per unit but due to the long life of a nuclear power stations, over time it becomes more cost effective. Renewable technologies also require decommissioning. Wind turbines have an expected life-span of around 20 years. At the end of its life span, a wind turbine would need to be replaced and hence the capital cost of the plant is repeated. The same applies to solar generation facilities: solar panels have a limited life span.

Comment 4:

- Renewable energies are safer and Nuclear carries with it risks. Example Fukushima where radiation leak has occurred. Other examples can be sited around the world. Nuclear is dangerous!

Response 4:

Your comment is noted. There are inherent dangers in nuclear technology but if these are responsibly managed the risk to the public is negligible. The release of radioactivity from the Fukushima Daiichi plant is a regrettable incident that could have been avoided with proper planning. Unfortunately planning for the Fukushima Daiichi plant in terms of catering for tsunami events was not adequate, in that a very low tsunami was assumed than should be the case for a country like Japan, which is prone to frequent earthquakes. 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 meteo-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.

Whilst the Fukushima Daiichi incident is without a doubt a highly undesirable event, as it could have led to loss of life, some perspective is also required on this event. The tsunami was responsible for the loss of approximately 20,000 lives, the evacuation of approximately 450,000 people and the complete destruction of several coastal towns. On the other hand, not a single death or serious injury due to the radiation release from the power station has been recorded to date. This is not mentioned to minimise the significance of the nuclear incident, but to provide some perspective regarding the public perception of what is regarded as a significant risk. In the wake of the Fukushima incident, very critical attention has been focused on the nuclear power station. However, the everyday risk of living in vulnerable low-lying coastal areas prone to flooding seems to be tacitly accepted or at least not treated with nearly the same level of concern.

Response from Independent Nuclear Specialist

There are inherent risks in all human activities and as effectively stated the nuclear industry goes to extensive effort to ensure and demonstrate that these risks are as low as reasonably achievable - against these residual risks the energy benefits must be weighed and in terms of establishing this balance point there are a host of consultative and regulatory processes adopted

Comment 5:

- Quicker to deploy smaller renewable energy farms than a large Nuclear power station that can take years to construct. Further it is easier to exceed initial budget for nuclear due to the complexities in construction.

Response 5:

Your comment is noted. It is not contested to certain technologies are quicker and easier to construct than a nuclear power station. However, a nuclear power station has a specific purpose within South Africa's energy supply system, namely to supply reliable base-load power, which is something that most renewable technologies cannot deliver.

Comment 6:

- Upfront costs to the consumer can be much less and controlled with renewable energies as Eskom builds in smaller phases instead of in one go, such as the case with a large Nuclear power plant.

Response 6:

It is acknowledge that the upfront investment capital costs for nuclear compared to renewables is high, however over the operational life, nuclear is more economical than renewables. In addition, the IRP conclusion, in Section 8, states "*A commitment to the construction of the nuclear fleet is made based*

on government policy and reduced risk exposure to future fuel and renewable costs". As indicated in the IRP, "This should provide acceptable assurance of security of supply in the event of a peak oil-type increase in fuel prices and ensure that sufficient dispatchable base-load capacity is constructed to meet demand in peak hours each year.

Comment 7:

- The manufacturing of all the equipment will provide work for 1000's of people.

Response 7:

This is no different to nuclear technologies. As indicated in the Nuclear-1 Revised Draft EIR, approximately 9,000 and 2000 employment opportunities will be created respectively during construction and operation of Nuclear-1. The Revised Draft EIR recommends that at least 25% of the employment opportunities during construction must be filled by local people. As with nuclear technology, most of the highly technical component manufacture for renewable power generation technologies occurs overseas. The South African government is also investigating all the manufacturing opportunities associated with the implementation of a nuclear fleet. This will be far more diverse when compared with wind due to the range of different components required for a nuclear power station

Comment 8:

In conclusion:

I believe Eskom's pursuit of Nuclear energy is short sighted and out of touch with the trends worldwide to invest in renewable energies.

The demand by households at peak times can be controlled and regulated through continued public awareness and educational campaigns. Greater incentives need to be given to households to encourage installation of energy saving devices.

The standby generator capacity in the private sector is more than adequate to make up for any shortfall that may occur on the grid due to peak demand. However, Eskom's phased introductions of renewable energy farms will be a wise approach to steadily increase the capacity of the national grid while implementing a 10 or 20 year financial feasibility plan where the utility will pay for itself.

Response 8:

Your opinion is noted. Eskom implements a build programme based on the Integrated Resource Plan which is developed by the South African Government in a consultative process.

Demand-side management does have a critical role to play in meeting South Africa's energy demands. This measure was considered in the Integrated Resource Plan and it was concluded that it could contribute a maximum saving of approximately 3,420 MW by 2017. Thus, additional generation capacity from a variety of sources, including renewables and non-renewables, would be necessary to meet South Africa's demand for approximately 40,000 MW of new generation capacity by 2025.

Your comment regarding the capacity of standby generators in the private sector is noted. However, it is Eskom's mandate as South Africa's electricity supplier to provide a safe and reliable electricity supply. Eskom cannot shift this responsibility of making up a shortfall in electricity supply to private individuals by expecting them to use generators. Use of generator power is in any event a practice that is very expensive in comparison to using grid-based electricity and would result in an unreasonable shifting of responsibility onto private individuals, many of whom are vulnerable and do

not have access to generators and would result in socially unjust conditions. It needs to be considered that Eskom provides power to low-income individuals at a lower rate than to high-capacity consumers. The same sliding scale of electricity costs would not apply to electricity provided by generators as all consumers would pay the same rate for fuel used to generate electricity.

Comment 9:

Private sector participation needs to be considered to provide extra capacity, however caution needs to be exercised in balancing return on investment with providing affordable energy. One way can be to pay private investors the same rate as Eskom charges for every Kwh they put onto the grid.

A financial feasibility study needs to be done on this first to see how private interests and public needs are going to be accommodated.

Response 9:

The introduction of Independent Power Suppliers (IPPs) and public / private partnerships (PPPs) are regarded as key to creating new generation capacity in South Africa.

Electricity tariffs are set by the National Electricity Regulator of South Africa (NERSA) for both Eskom and IPPs. It is important to note that the return of investment required by IPP's is significantly more than Eskom gets. It is very possible that IPP's will need to charge more for electricity per unit.

Comment 10:

Trusting this will obtain serious consideration from all key decision makers involved in the 'Nuclear-1' proposal.

In addition to the objection raised by Stephen, the Table View Ratepayers Association believes that another nuclear power station at Duinefontein would increase the risk to the residents of the area. Currently there insufficient emergency routes out of the area, so further expansion in the area is wholly unacceptable.

Response 10:

Your comment is noted.

Your assertion about insufficient emergency routes is unfounded, Every two years the NNR tests preparedness of the various organisations involved in the Koeberg emergency plan and evacuation routes. An emergency calendar is also sent to the area surrounding Koeberg every year. This calendar gives details of the emergency plan for those people living closest to the station

Yours faithfully
for GIBB (Pty) Ltd





GIBB
ENGINEERING & SCIENCE

05 August 2015

Our Ref: J27035
Your Ref: Email received 05 August 2011

Shelfline 133 (Pty) Ltr
T/A Nieuwedam Farms
PO Box 10
GORDON'S BAY
7140

Email: gafney@whalemail.co.za]

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

Dear Mike and Jann Gafney

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

Comment 1:

COMMENTS REGARDING REVIEW OF REVISED DRAFT ENVIRONMENTAL IMPACT REPORT 5TH AUGUST 2011

We remain committed to challenging the building of a nuclear power station at Bantamsklip. In view of the recent nuclear meltdown in Japan and the horrific consequences, we cannot believe that you would even consider putting your citizens at risk. This seems to be another ideal opportunity to enrich another class of "tenderpreneurs"!

No matter what we say, or what evidence we produce there is always some specialist to counter our claims!

We have lost all faith in the integrity and honesty of Eskom and its contractors. As farmers we are struggling to survive in difficult economic times, how much more difficult will it be with contaminated product?

Do you honestly believe that this is the future solution? We live in a windy, sunny area where there are many alternatives to conventional energy sources.

Response 1:

Your comments are noted. Your concerns regarding the incident in Japan are also noted and are shared by many other Interested and Affected parties commenting on the Revised Draft EIR Version1.

The main cause of the disaster at the Fukushima Plant was caused by a tsunami triggered by a magnitude 8.9 earthquake centred offshore of the city of Sendai on the eastern coast of Honshu island. 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.



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras
Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

Eskom places high importance on the safety of people – members of the public, Eskom employees and contractors. In addition the National Nuclear Regulator will not grant a nuclear installation licence if the plant design is not safe. It is worth mentioning that the safety of the KNPS has recently been reviewed considering the events at the Fukushima nuclear power plant. These checks included beyond design basis seismic ground motion and flooding as the initiating events. The evaluation by the NNR on the safety assessment done by Eskom concluded that KNPS is able to withstand these events.

Nevertheless please note that addressing site safety issues are integral to the success of the proposed development and one of the important issues which will be placed in front of both the Department of Environmental Affairs (DEA) and the National Nuclear Regulator (NNR) for their consideration. Site safety issues are therefore discussed on a high level in the Emergency Response and Site Control Reports (Appendix E26 and E27 of the Revised Draft EIR) and will also be dealt with during the NNR process.

Furthermore please note that the team of specialists appointed to conduct studies at the Duynfontein, Bantamsklip and Thyspunt sites are independent specialists tasked to describe the receiving environment, assess the significance of impacts related to the proposed development and propose mitigation measures. These are respected recognised professionals in their respective fields of study who have all signed a Declaration of Independence in terms of the work they have performed as part of this EIA and have no bias towards accepting or rejecting (countering) any additional information put forward in terms of the EIA process. As such the findings of their studies, methodology employed and limitations listed are accepted as scientifically sound.

Lastly the choice between Renewable Energy vs. Nuclear Energy and the weighting of each of these in terms of addressing South Africa's future energy needs are addressed by the Integrated Resource Plan 2010 which is related to strategic government decisions falling outside the ambit of the Nuclear-1 EIA process.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character, located below the typed name.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J31314
Your Ref: Email received 07 August 2011

Thyspunt Alliance
St Francis Bay Resident's Association
St Francis Kromme Trust

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

Dear Mr Thorpe, Thyspunt Alliance and its members, the St Francis Bay Resident's Association and the St Francis Kromme Trust

COMMENT ON THE MARINE ECOLOGY REPORT

THYSPUNT NUCLEAR 1 DRAFT ENVIRONMENTAL 2nd DRAFT IMPACT ASSESSMENT REPORT

Comment 1:

Prepared by: Trudi Malan on behalf of the Thyspunt Alliance

We are of the opinion that the Marine Ecology Report should be redone. The fact that the study does not include detailed information with regard to off-shore structures that will influence and impact the marine environment as well as the failure of the specialist to include information on species of special significance constitutes a serious flaw. The information in the DEIR is therefore incorrect and in contravention of section 81(1) of the EIA Regulations.

Response 1:

Response by the Environmental Assessment Practitioner

There is no Section 81(1) in the EIA regulations (Government Notice No. R 546 of 2010). These regulations end at Regulation 79. It is assumed that the comment refers to Section 71(1) of the EIA regulations, which deals with offences, including issues such as providing false or misleading information in reports, and that you are implying that the EIA team is guilty of such an offence.

Response by the marine specialist:

- The marine ecology report is tasked with reporting on potential impacts relating to the development in terms of the effects on the marine ecology of the area. The detailed information requested about the off-shore structures is provided in Section 3.11 of the Revised Draft EIR and in the "Intake / Outfall Structure" section of the Consistent Dataset (Appendix C of the Revised Draft EIR), (while the marine ecology report (Appendix E15 of the Revised Draft EIR) considers the implications of these structures. Please note that in Section 3 of the marine ecology report a description of the structures associated with construction, abstraction of cooling water and the release of warmed cooling water is provided.
- Assuming the comments in fact refer to section 71(1) of the EIA regulations, as specialists we have strived to base our assessment on the most complete information available. With regards to species of special significance, we assume the comment refers to the presence of abalone in the Thyspunt area. Please note that the importance of this species at this site has only recently come to light. Full attention will be given to this species at Thyspunt in the current revision of the marine ecology report.

Comment 2:

We fail to understand how in the assessment of impact tables in the Marine Ecology Report the Impact on irreplaceable resources is recorded as Medium while for Thyspunt it is reflected as low.

Our only conclusion is the failure to record certain species of special significance at Thyspunt.

Bantamsklip Table:

Refer to the table on page 1 in the attached.

Thyspunt Table:

Refer to the table on page 1 in the attached.

There seem to be a discrepancy between the impact tables in Chapter 9 of the DEIR.

The disruption during construction: Due to construction of the cooling water intake & outflow systems is recorded as HIGH for Bantamsklip but as Low-Medium for Thyspunt.

Response 2:

The assessment reflects consultation with the relevant abalone expert (Ms G. Maharaj, Inshore Resources, Fisheries Branch, DAFF). As stated above the issue of abalone at the Thyspunt site is being considered in the current revision of the report and consultation with Ms Maharaj will guide the assessment.

Please note: as detailed within the marine ecology report, the abalone populations at Bantamsklip are of particular concern as they represent the largest remaining stocks of abalone along the South African coast.

Comment 3:

1.2.1 Assumptions and limitations

The chlorination regime applied to abstracted cooling water will consist of an estimated 2 mg/kg of chlorine released on a continuous basis.

No reference is made of the 4 x daily flushing exercise

At present a technical feasibility study is underway, considering the logistics of spoil disposal at sea at the Thyspunt site. To date no technical fatal flaws have been identified (Eskom position paper 2011). As a necessity, recommendations made in this ***specialist*** report assume technical feasibility ***of the proposed disposal options at Duynefontein and Bantamsklip.***

This statement clearly indicates the bias towards the Thyspunt Site. Eskom is not awaiting the outcome of the DEIR and the document is littered with references to Eskom studies. These studies are not part of the DEIR and therefore I&AP's cannot comment on the validity of these statements.

We maintain that the specialist cannot determine impact unless they are aware of the construction methods and locations.

Response 3:

Response by the Environmental Assessment Practitioner

The chlorination rate is indicated on page 1 of the Consistent Dataset (Appendix C of the Revised Draft EIR). There is no indication in this document of four times daily flushing.

It is assumed that the proposed marine structures will be technically feasible. All indications from the technical feasibility study thus far have shown that the proposed structures are feasible. Chlorination: Information supplied to us by Eskom did not reflect that a 4 x daily flushing regime would be applied with regards to chlorination.

Comment 4:

2.3.1 General Description

No rare or endangered species are known from the site, and no sites of special biological significance occur within the designated area (Jackson and Lipschitz 1984),

We find it unacceptable that a 27 year old study can be used as a reference for an EIR of this importance.

Response 4:

The work referred to is one of the basic and important works documenting national information about our coastal zone. Exclusion of this work based on that fact that it was not completed recently would amount to ignoring important information – this would be irresponsible. The section referred to above has therefore been updated in the latest version of the report. Updated information was added based on IUCN listings and discussions with Ms G. Maharaj, Inshore Resources, Fisheries Branch, DAFF.

Comment 5:

2.3.3 The Benthic Environment

Both sandy and rocky bottoms are present in the vicinity of Thyspunt (Nuclear Site Investigation Programme; Eastern Cape 1988). Rocky shores are often steep vertical rockfaces (Figure 6). Species composition and abundance in these habitats are typical of the region. Rocky reef communities are dominated by colonial ascidians, hydroids and sponges, with coralline algae being important to a depth of about 20 m (Nuclear Power Investigations; Eastern Cape 1988). The benthic environment demonstrates medium tolerance to disturbance and as a result is rated as a medium sensitivity habitat.

We fail to understand how the specialist can so glibly brush over the benthic environment. If the description of the benthic environment for Thyspunt & Bantamsklip is compared it is clear that there has been very little done to describe or research this environment at the Thyspunt site. The specialists make no mention of the presence of abalone at the Thyspunt site but they seem to be very concerned about the abalone at Bantamsklip. They do note that abalone is a species listed as endangered in terms of CITES Appendix III (CITES 2007) in the Bantamsklip description. The CITES regulations is not limited to a specific area and the abalone present at Thyspunt has the same value as the abalone at Bantamsklip. We consider this omission as a further indication that the Marine Ecological Report should be re-done. We are of the opinion that the impacts have not been assessed due to the lack of information about the planned structures.

No mention is made of any of the review work conducted for the National Biodiversity Spatial Assessment of the benthic environment of the Agulhas Bioregion (Lombard *et al* 2004). The threat status of this biozone was defined as vulnerable, with extractive utilisation of marine resources identified as the greatest threat (Lombard *et al* 2004). Pollution, mining and climate change were listed

as additional significant threats to marine biodiversity in the Agulhas subphotic biozone (Lombard *et al*, 2004).

Response 5:

Response by the marine specialist:

- The issue of abalone at the Thyspunt site is addressed above.
- There is no difference in the way that the description of benthic environment was approached for Bantamsklip and Thyspunt. The difference in length of descriptions reflects the fact that kelpbeds are important at Bantamsklip but do not occur at Thyspunt. Discussion of abalone has also been added in the current version of the report.
- A response from the Marine specialist indicates that based on the information contained within the Consistent Dataset (Appendix C of the Revised Draft EIR Version 1) and the experience of the marine assessment team with monitoring of the marine impacts at Koeberg, that sufficient information was available to make a reasonable and accurate assessment for the purpose of the current EIA. Also keep in mind that the development will not be allowed to take place outside of the bounds set by the Consistent dataset.
- Exclusion of the publication by Lombard (2004) did not materially affect the outcome of the marine assessment. This work has now been updated by Sink *et al* 2012. This latest work has been included in the latest version of the Marine Impact Assessment which will be made available for public comment and review.

Comment 6:

2.3.5 Avifauna

The complete lack of attention to the Thyspunt site is again reflected in this point. One only has to compare the listed species to the description of the other two sites to realise that the Thyspunt site has been neglected. We believe this is in part due to the fact that the specialists are based in the Western Cape. We would like to refer the specialist to comments made by the Vertebrate (sic) Faunal Specialist in his report. It will provide more clarity on some of the threatened species occurring on the site.

Response 6:

Response by the Environmental Assessment Practitioner

Biophysical specialists on the EIA team were appointed primarily based on their knowledge and expertise in dealing with the impacts of a nuclear power station and impacts in specific biophysical environments. The marine specialist team has a wealth of knowledge of the impacts of a Pressurised Water Reactor nuclear power station, having been involved in marine monitoring at Koeberg Nuclear Power Station for a number of years. This team has worked extensively around Southern Africa and has published internationally peer-reviewed subject literature. Their professional integrity cannot be challenged based on their physical location.

The faunal specialist report was consulted and the necessary changes have been made in the current revision of the marine ecology report.

Comment 7:

3.3.1 Disruption of the marine environment during construction

As at the other sites, the construction of an intake and outfall system for cooling water will result in temporary but severe localised disruption to the marine environment.

No mention is made of the placement of pipes and pump-stations to pump the spoil 6km out to sea and the possible impacts related to this infrastructure.

There is no description or discussion of the physical damage during installation and construction.

There is no assessment of the increase in hard substrate habitat.

The presence of abalone at the site is again completely ignored.

The long discussion with regard to squid is appreciated as this issue has previously been ignored.

We still believe that the information provided is not complete and we would again state that the Marine Ecology Report should be redone in its entirety. The Scientific Squid Working Group should be afforded more time to provide comments. We find the fact that they were eventually only contacted after the second DEIR was published unacceptable.

Again no mention is made about the possible impact on abalone.

Response 7:

- Pipes and pump-stations: Conceptual descriptions of the infrastructure are available in the Consistent Dataset (Appendix C of the revised Draft EIR) and on relevant illustrations of the infrastructure layout e.g. Figure 7.13 of the Coastal Modelling Report (Appendix E16 of the Revised Draft EIR). However, your comment is noted and clarification will be included in the current revision of the marine ecology report.
- Physical damage: As explained in Section 3 of the marine ecology report, the physical damage to environment takes the form of disturbance of sediments during tunnelling and construction of the coffer dam, and smothering of the benthic habitat in the area where spoil is disposed of.
- Permanent hard substratum will only be introduced into the marine environment in the form of the ends of the two intake pipes and the ends of the outflow pipes (max 10 pipes). Note that the pipes themselves will be buried). Due to the small area of hard substratum that will be introduced the impact will be inconsequential. This point will be added to the final marine ecology report in order to make the reasons for lack of detailed discussion clear (i.e. that the impact are minimal).
- The issue of abalone at this site is addressed above.
- Squid fishery: The impact on the squid fishery has received additional consideration in the current revision of the marine ecology report. Additional information and comments by the Squid Working Group and the South African Squid Management Industrial Association are consolidated in the current revision.

Comment 8:

3.3.2 Abstraction of cooling water and subsequent entrainment of organisms

Again higher ambient water temperatures than those occurring at KNPS (i.e. maximum and minimum sea surface temperatures of 22.5 and 16.6°C respectively (Shillington 2007)) are expected to increase the toxicity of chlorination (Huggett and Cook 1991) when compared to the west coast site.

Mention is made about increased toxicity, but the possible impacts of the increased toxicity is not discussed.

However, long-term climate change induced decreases in sea-surface temperatures along this section of coast (Rouault et al.2009) may reduce this effect in the long term.

The above statement is in conflict with Coastal Engineering Report Rev 5, Appendix G, which indicates the following in Table 3.1 on page 4:

Refer to the table on page 3 in the attached.

No species of commercial value are likely to be affected by entrainment.

We fail to understand why the report will only focus on species of commercial value. We do not judge ecosystems solely on the commercial value of species. The possible impact on the biodiversity should be discussed.

The lower productivity of nearshore waters in this area is, however, expected to result in less entrainment of organisms and little effect on the marine environment at Thyspunt.

We would content that this statement is not true and not based on recent research.

The California Energy Commission commissioned a report on "Issues and environmental impacts associated with once-through cooling at California's Coastal Power Plants." (Addendum 1 to Marine Ecology Review)

The following quote is from the abstract & summary of this report:

"There is no question that the once-through cooling systems of coastal power plants cause adverse environmental impacts - the cooling systems kill vast numbers of marine plants and animals, and may alter receiving water habitats over large areas. The severity of the impact can be ecologically important - conclusions by Regional Water Quality Control Boards of "no adverse impact," based on studies done in the 1970's and early 1980's and more recent NPDES monitoring, have been shown to be wrong at all plants recently reassessed using study approaches and analyses based on present scientific knowledge."

"For example, recent studies at Moss Landing and Morro Bay have shown that power plant cooling systems previously thought to have no adverse impacts may kill 10- 30% of the larvae of particular fish species in the source water. It can be argued that while the early impact assessments were, in retrospect, of uncertain accuracy, they were acceptable given knowledge at the time. This is true relative to the ability to identify larvae and models available to evaluate impacts, but it is not true for sampling designs. Pilot studies to determine the most accurate way to sample entrained larvae and to determine putative survivorship after passing through a cooling system were poorly designed, and insufficient attention was given to sampling designs that would optimize detection of thermal and entrainment impacts."

In May 2010 Californian regulators adopted a policy requiring coastal power plants - including the state's two nuclear power plants - to phase out the use of once-through cooling systems.

Response 8:

- Impacts of chlorine toxicity: This impact is localised. A discussion has been added to the current revision of the marine ecology report to clarify this impact.
- Climate change driven changes in sea temperature: Predictions regarding climate change are notoriously difficult to make and very dependent on time scale, geographical location and input data. The marine ecology report is using the latest information available for the South African coast and a study that deals particularly with the inshore region. Offshore there is indeed predicted to be a temperature rise, as indicated in the Coastal Engineering. Discrepancies between specialist reports reflect the use of different published material or reference to different distances offshore.
- Please note: The section quoted should read "*Long-term climate change induced decreases in sea-surface temperatures along this section of coast (Rouault et al. 2009) are unlikely to offset this effect as temperatures have decreased at a rate of less than 1°C in the last two decades*". This has been corrected in the current version of the report.

- Focus on species of commercial value: The report by no means focuses only on commercial species. The report does, however, acknowledge that these species are of special concern to people who rely on them for their livelihood.
- Entrainment at Thyspunt vs. Duynefontein: The lower productivity of the south coast nearshore zone in comparison to the west coast is a very well established fact (refer, for example to Baily 1990, Bustamante *et. al.* 1995, Griffiths *et. al.* 2010). This is driven by the dominance of coastal upwelling on the west coast, which is far less prevalent on the south coast. As such, if there is less productivity in the water (i.e. plankton and larvae) then it is more than reasonable to expect that less entrainment of organisms will occur at Thyspunt than at Duynefontein. The marine specialist team does not contest that plankton taken up by the cooling system may be lost, but the lower ambient productivity will result in a lower overall impact at Thyspunt than at Duynefontein. The fact that no significant impacts have been recorded at Koeberg Nuclear Power Station (e.g. no impacts on surrounding shores have been detected and no impacts on fisheries have been reported) is a strong indication that little impact is to be expected at Thyspunt. Elaboration has been added to the marine ecology report to clarify this point.
- We thank the Thyspunt Alliance for sharing the American consultancy report on the assessment of entrainment impacts. It is important to note that the studies in this report consider power stations on the west coast of America and the plants are located in the highly productive Californian Upwelling system (analogous to the Benguela Upwelling system along our west coast). As such, the high numbers of entrained organisms recorded in the studies are to be expected. In areas of lower production, such as the Thyspunt area, lower entrainment will occur. Recent peer-reviewed work has shown that although reductions in larval supply due to entrainment occur, they generally produce only minor, localized effects on adult population density (White *et al.* 2010). This backs the findings of no significant impact at Koeberg, despite this being sited in a high productivity upwelling region.

Comment 9:

3.3.3 Release of warmed cooling water

No input of warmed water comparable to that of the proposed development exists along this section of coast. As this site lies at the warm end of the Agulhas Bioregion it could be argued that a portion of species occurring here may be near the upper end of their temperature tolerance range and hence could be particularly vulnerable to further temperature increase. Although theoretically possible, this is however, unsubstantiated.

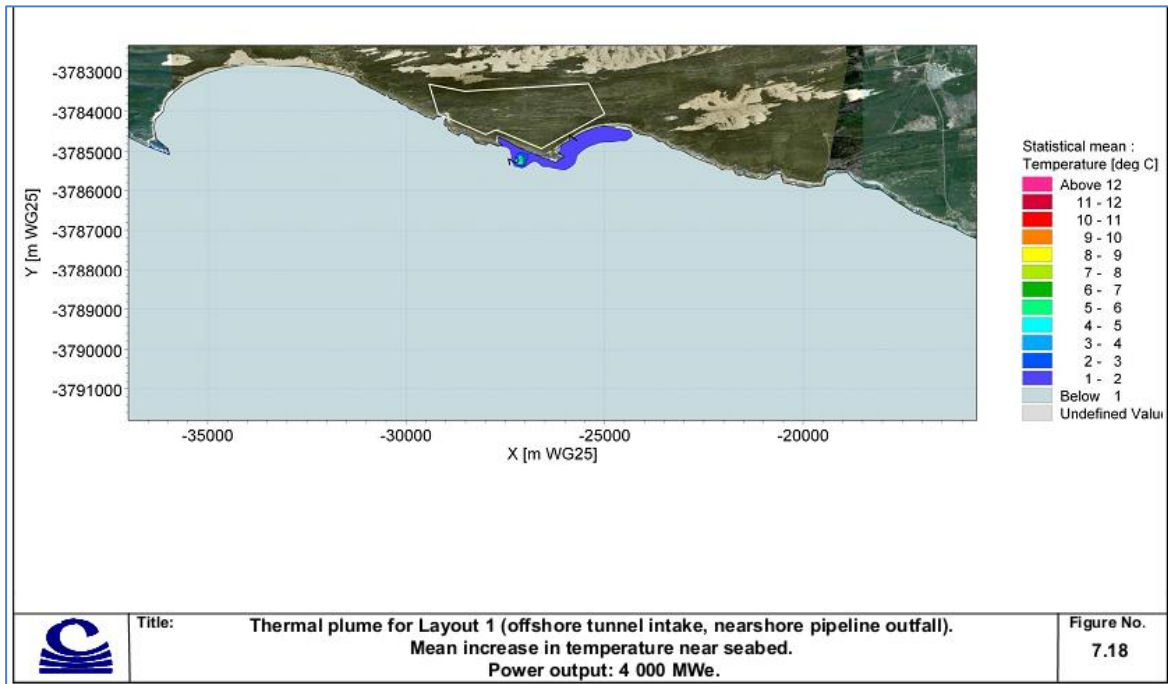
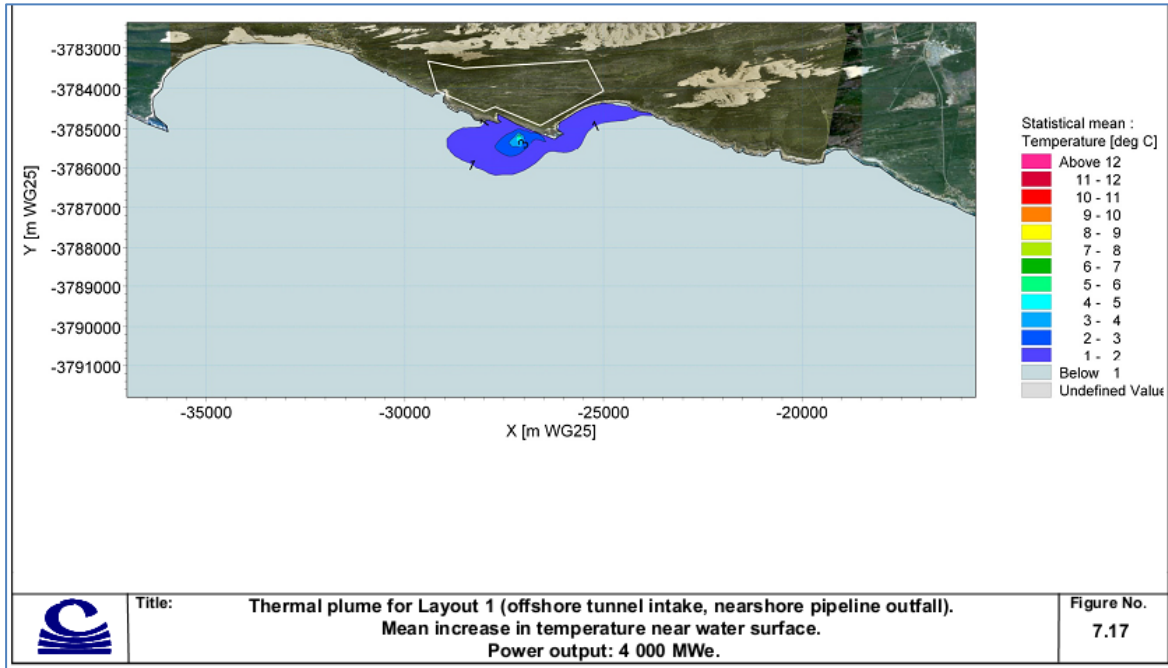
The last statement in this paragraph is cause for concern. If this is theoretically possible the specialist should either substantiate the probability or follow the precautionary principle. Either way, the report should consider all possible impacts and if this impact is possible it should be discussed.

Again the report does not discuss the impact on the abalone population found at this site.

Response 9:

Assessment of the significance of an impact is based on a number of variables, including the nature, extent, duration, intensity, etc. as indicated in Chapter 7 of the previous Revised Draft EIR and the Annexure to Chapter 10 of this RDEIR Version 2. As indicated in the Marine Ecology Assessment (Appendix E15) and in the marine specialist's response below, the extent or scale of this impact is very small. Water will be warmed over such a small area that the impact in is not considered significant.

The marine specialist's assessment of the impacts is based on detailed modeling of the impacts on temperature that have been undertaken in the Coastal Modeling Report (Appendix E16 of the Revised Draft EIR Version 1). Refer to Figures 7.17 and 7.18 below, from this report, for an illustration respectively of extent of average sea surface and seabed temperate increases for a nearshore outfall.



In terms of the thermal tolerance limit: The impacts here will be strongly dependent on which type of outfall is selected and as stated, an offshore release in which the warmed water is released in a diffused manner at 35m depth, then rising upwards due to its lower density, will have low impact and is hence preferred. An inshore outfall will have a greater impact, but given the very small area affected is still not of great concern, even if some species are eliminated from this immediate area.

Lastly the issue of abalone at this site is considered above.

Comment 10:

3.3.4 Release of desalination effluent

The South African Water Quality Guidelines for Coastal Marine Waters states a target range of 33 ppt to 36 ppt for salinity of effluents entering the sea (Department of Water Affairs and Forestry 1995). These guidelines will be met by this development during the operational phase. Although they will not be met during the construction phase, dilution will occur within 110 m of the point of release.

As the brine released during the construction phase will not meet the South African Water Quality Guidelines we believe that all possible ecological impacts should be discussed.

The statement:

“Any ecological impacts will be focused within the water column due to the high energy of the surf zone.” does not describe the possible impacts.

Response 10:

Discussion of the impacts of brine during the construction phase was added during the current revision of the marine ecology report. The revised version of the report will be made available for public comment and review as part of the Revised DEIR Version 2.

Comment 11:

3.3.5 Radiation emissions

In the improbable event of a nuclear accident affecting the marine environment, mortalities are expected to be focused in the general area of the power station. Highly mobile species, such as fish, exposed to low to intermediate levels of radiation may, however, move great distances. This could pose a threat to public health if these fish were later consumed.

As was clear from the recent events in Japan, the large discharge of radioactive water into the marine environment should be discussed in more detail. The statement: “this could pose a threat” should be changed to: “this would pose a threat”. There is no doubt in any of the scientific studies available that there will be a threat to human health in the event of an accident, the “toning down” of this threat by using semantics is unacceptable.

Response 11:

Your comment is noted. Attention was paid to the wording of this section during the current revision of the marine ecology report. The revised version of the report will be made available for public comment and review as part of the Revised DEIR Version 2.

References used by the marine specialists in their responses:

Bailey GW (1990) Organic carbon flux and development of oxygen deficiency on the modern Benguela continental shelf south of 22°S: Spatial and temporal variability, in modern and ancient continental shelf Anoxia. In: *Geol. Soc. Spec. Publ. 58* Tyson RV, Pearson TH (Eds). Bath, Geological Society UK 171– 183.

Bustamante RH, Branch GM, Eekhout S, Robertson B, Zoutendyk Z, Schleyer M, Dye A, Hanekom N, Keats D, Jurd M, McQuaid C. (1995) Gradients of intertidal primary productivity around the coast of South Africa and their relationships with consumer biomass. *Oecologia* 102: 189-201.

Griffiths, C.L., Robinson, T.B., Lange, L. & A. Mead (2010) Marine biodiversity in South Africa: an evaluation of current states of knowledge. *PLoS ONE*. Doi/10.371/journal.pone.0012008

Sink, K. Holness, S. Harris, L. Majiedt, P. Atkinson, L. Robinson, T. Kirkman, S. Hutchings, L. Leslie, R. Lamberth, S. Kerwath, S. von der Heyden, S. Lombard, A. Attwood, C. Branch, G. Fairweather, T. Taljaard, S. Weerts, S. Cowley, P. Awad, A. Halpern, B. Grantham, H. & Wolf, T. (2012) National Biodiversity Assessment 2011: Technical Report. Volume 4: Marine and Coastal Component. South African National Biodiversity Institute, Pretoria. 325 pp.

White, J.W., Nickols K.J., Clarke L., Largier J.L. (2010) Larval entrainment in cooling water intakes: spatially explicit models reveal effects on benthic metapopulations and shortcomings of traditional assessments. *Canadian Journal of Fisheries and Aquatic Sciences* 67: 2014-2031.

Yours faithfully

A handwritten signature in black ink, appearing to be 'E. J.', written in a cursive style.

For GIBB (Pty) Ltd
The Nuclear-1 EIA Team

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

05 August 2015

Our Ref: J27035

Your Ref: Email received 07 August 2011

Thyspunt Alliance
St Francis Bay Resident's Association
St Francis Kromme Trust

Dear Mr Thorpe, Thyspunt Alliance and its members, the St Francis Bay Resident's Association and the St Francis Kromme Trust

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

An estimate of the cost of the intake tunnels for the Thyspunt nuclear reactor.

Dr Michael Kilroe Charles Roberts 27/07/2011

Comment 1:

Attached as Appendix 1 are excerpts from the document "Revised DEIR Chapter 3 Project description.pdf", page 19. Namely section 3.11.1 and section 3.11.2 dealing with both the intake tunnels and the outfall tunnels

Introduction

An estimate of the cost of the intake tunnels will be approximate in that costs will be estimated at a concept level.

The intake tunnels

An indication of the volume of water that would be required to report to the reactors via the intake tunnels is given by the statement in Appendix 1 namely section 13.11.2 "It is estimated that **six pipelines** of approximately 3 m diameter will be required for the outfall." This means that the sum of the cross area sections of the intake tunnels would be required to be 42 m².

As a rough check, Koeberg draws in 80 tons of water per second for cooling purpose. A tunnel or tunnels whose cross sectional sum is 42 m^2 will require water to move at a velocity of 2 m/s thus providing 80 tons of water per second to the reactors.

These numbers look reasonable.

In order to get 42 m^2 of cross sectional tunnels there are a number of permutations some of which are shown below:

- One rectangular tunnel of dimensions of 6.5 m by 6.5 m, drill and blast, end might be too big for conventional drill and blast.
- Two rectangular tunnels of dimensions of 4.6 m by 4.6 m drill and blast.
- One circular tunnel with a 7.5 m diameter excavated by tunnel borer.

Each one of these options would have their own costs for excavation complicated by the requirement that the tunnel/s will be required to be lined.

Costs

Establishing the infrastructure

In order to access the intact rock at some depth below surface an 8 m diameter shaft will be required to be sunk. This shaft will give access to the development faces as the intact tunnel/s are developed. Once the intake tunnel/s are developed the shaft will itself be part of the intake as it is here that the water (enclosed in a pipeline) will emerge on surface on its way to the reactors. There will be two cost components namely the pre-sink civils to about 30 m and the sink to an estimated depth of 80 m to intact rock.

- Pre- sink civils - **R 50** million
- Sink to 80 m - **R 40** million (R0.8 million/m)

Developing the tunnel/s

It is assumed that the tunnel/s will be developed for 1500 m to a point where the depth of the ocean is 30 m. A cost per ton of R 2000 will be used and included in this cost is the cost of the lining.

- The number of cubic metres to be developed is $1500 \text{ m} * 42 \text{ m}^2 = 63000 \text{ m}^3$
- This represents $63000 \text{ m}^3 * 2.7 = 173200$ tons
- At R 2000 a ton the tunnel/s excavation and lining costs are
- $R 2000 * 173200 = R 346500000$ rounded off to **R 347** million

Intake tower on sea bed

This tower will stand about 10 m above the sea bed. Estimated cost **R 30** million

Geotechnical drilling

This will be required in order to geotechnically classify the rock that will be traversed and will have to be done from vessels at sea. Estimated cost **R 10** million

Total cost of the intake tunnels and related infrastructure

Summing the rand values in bold comes to a value of **R 477** Million

Response 1:

Your comments are noted.

Please note that the Consistent Dataset (Appendix C of the Revised Draft EIR), on which the project description in Chapter 3 of the Revised Draft EIR is based, states that there will be one or two intake tunnels with diameters between 5 and 10 meters each (if a single tunnel, a diameter of 10 meters and a diameter of 5 m each in case of two tunnels). This is not to be confused with the outlet tunnels, for which you have quoted the relevant specifications from the Revised Draft EIR.

Your comments regarding the estimated costs of the tunnel system is noted and your basic assumptions appear to be correct. The tunneling systems will account for a substantial portion of the overall project costs. Accurate costs for the intake and outlet systems can, however, only be confirmed once the project is put out on tender.

Yours faithfully



The Nuclear-1 EIA Team
For GIBB (PTY) Ltd

CV Dr. Michael Kilroe Charles Roberts

Dr Roberts has a PhD in mining engineering from the University of the Witwatersrand, an MSc in structural geology and rock mechanics from Imperial College London. He is a certificated rock engineering practitioner and consultant on hard rock underground mines with 34 years of experience. He was a C2 NRF rated researcher with a record of 54 publications as author or co-author in technical journals. He is a Professional Natural Scientist PrSci Nat Registration number 400117/96

Appendix 1

Excerpt from file: Revised DEIR Chapter 3 Project description.pdf, page 19

3.11.1 Intake tunnels

An undersea intake tunnel will **draw** cooling water from the sea into **the cooling water** intake basin adjacent to the cooling water pump houses. No detailed design for the intake tunnel(s) has been done, but the design will comply with the requirements of the relevant specialist recommendations, so as to minimise the impact on marine ecosystems and sediment movement. The following basic principles will, however, apply. The construction of the intake tunnel(s) will involve sinking of a shaft on land to a depth of **approximately 65 m** below mean sea level. At this point the tunnel will be driven seawards underneath the seabed. The tunnels will be lined with precast or *in-situ* poured concrete. At the other end of the tunnel, a tower extending approximately **5 m to 10 m** above the sea bed floor will be constructed to connect the intake **structure** and the tunnel. Fixed dredging may need to be installed at the base of this tower. The length of the tunnel from the onshore access shaft will be approximately 1 km to 2 km **and the depth of water in which the intake structure will be constructed is limited to 30 m.**

3.11.2 Outfall tunnels

The outfall **pipelines/tunnels** dispose the seawater used to cool the **turbo-generators and other smaller heat exchangers as well as** diluted chemical effluent into the ocean. It is estimated that **six pipelines of** approximately 3 m diameter will be required for the outfall works. The marine biologist recommends the use of multiple **discharge** points in order to facilitate dispersion of the warmed water and mixing with the relatively cooler sea water. The objective of the outfall works will be to transfer the heated water at least beyond the surf zone (estimated to be in the order of 500 m to a depth of **5 m** below mean sea level). The final depth and distance of release of the heated water will be determined by the **results** of the marine specialist study. The water released into the ocean will be 12 °C warmer than the seawater, as a result of the heat absorbed from the process. The primary objective is to ensure that the heated water **has minimal** impact on sea life. The velocity of the water in the pipes will fast enough to ensure adequate dispersion into the sea. A high velocity of the expelled water ensures an adequate rate of mixing with the sea water, which reduces thermal pollution of the benthic environment.

05 August 2015

Our Ref: J27035
Your Ref: Email received 05 August 2011

Dear Stefan Kleyn

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)

GIBB acknowledges receipt of your comments on the Revised Draft EIA report. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process. Your comments concerning the Nuclear-1 have been noted.

COMMENT ON REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

On behalf of Global Leadership Academy – Jeffreys Bay, I would like to present to the relevant parties the following information regarding the current educational environment in the Kouga Region, and more specifically Jeffreys Bay.

For a complete overview and development plan of Global Leadership Academy, please view the attached documents.

In Summary:

Comment 1:

Should the development of Eskom Nuclear-1 be approved, it will have a definite impact on social, economic conditions in and around the Kouga Region.

An already escalating and immense concern is the current state of educational services and schools infrastructure in this area. Before 2010 more than 2300 primary school pupils in Jeffreys Bay had no access to a local Secondary School. In January 2010 Global Leadership Academy was opened, it is an innovative independent high school in Jeffrey's Bay, accommodating 250 students in grades 8 – 12.

The only appropriate facility available to us back then was unused space in a local shopping mall, which we are currently still leasing. However in April 2010, 7.5ha of property was donated to GLA by the directors of Buchner Propvest.

The process to develop this land into an educational facility is already at an advanced stage.

Some of the highlights of this project include:



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras
Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

- Global Leadership Academy is already an established and fully functional secondary school inclusive of all communities – only high school in Jeffreys Bay
- Aurecon has been appointed as project managers and civil consultants
- Erf Number has been obtained
- Title deeds has been applied for
- Site Development plan has been approved
- Architect Plans to be submitted end of August
- ROD
- Geotech Report done
- Committed and experienced project team

We believe that as important as the development of Eskom Nuclear-1 is, so important it is to make ample provision for sufficient investment in social and economic instruments in this area.

***Global Leadership Academy is an already functioning and successful educational institution that could effectively use such an investment.**

Key highlights of Global Leadership Academy

- The school was established through a registered NPO
- Therefore we function on “Non Profit” principles
- The school is accessible for children from all backgrounds
- We invest vastly in the local community through service

Please see the attached document for a complete overview.

The opportunity to make a lasting impact on the Kouga Region and South Africa is not only in the hands of Global Leadership Academy, but also in the hands of Eskom and its partners.

We trust that this impact will be to the benefit of all... *without any regrets.*

Response 1:

The concern raised regarding local infrastructure and the impact of the proposed Nuclear Power Station on the social and economic conditions of the area is very relevant. Eskom will be required to engage with the local authorities prior to the start of construction to determine the allocation of responsibilities for the upgrading of infrastructure. Eskom will have to accept responsibility for some portion of the upgrading due to the influx of people into the area, as it has done for the Medupi Power Station, which is currently under construction at Lephalale in Limpopo Province. The attachment is noted.

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

Yours faithfully
For GIBB (PTY) Ltd



The Nuclear-1 EIA Team



5 August 2011

Jacqueline de Goede

GIBB Nuclear-1 Public Participation Office
PO Box 3965
Cape Town
8000

COMMENT ON REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

On behalf of Global Leadership Academy – Jeffreys Bay, I would like to present to the relevant parties the following information regarding the current educational environment in the Kouga Region, and more specifically Jeffreys Bay.

For a complete overview and development plan of Global Leadership Academy, please view the attached documents.

In Summary:

Should the development of Eskom Nuclear-1 be approved, it will have a definite impact on social, economic conditions in and around the Kouga Region.

An already escalating and immense concern is the current state of educational services and schools infrastructure in this area.

Before 2010 more than 2300 primary school pupils in Jeffreys Bay had no access to a local Secondary School.

In January 2010 Global Leadership Academy was opened, it is an innovative independent high school in Jeffrey's Bay, accommodating 250 students in grades 8 – 12.

The only appropriate facility available to us back then was unused space in a local shopping mall, which we are currently still leasing. However in April 2010, 7.5ha of property was donated to GLA by the directors of Buchner Propvest.



The process to develop this land into an educational facility is already at an advanced stage.

Some of the highlights of this project include:

- Global Leadership Academy is already an established and fully functional secondary school inclusive off all communities – only high school in Jeffreys Bay
- Aurecon has been appointed as project managers and civil consultants
- Erf Number has been obtained
- Title deeds has been applied for
- Site Development plan has been approved
- Architect Plans to be submitted end of August
- ROD
- Geotech Report done
- Committed and experienced project team

We believe that as important as the development of Eskom Nuclear-1 is, so important it is to make ample provision for sufficient investment in social and economic instruments in this area.

Global Leadership Academy is an already functioning and successful educational institution that could effectively use such an investment.

Key highlights of Global Leadership Academy

- The school was established through a registered NPO
- Therefore we function on “Non Profit” principles
- The school is accessible for children from all backgrounds
- We invest vastly in the local community through service

Please see the attached document for a complete overview.

The opportunity to make a lasting impact on the Kouga Region and South Africa is not only in the hands of Global Leadership Academy, but also in the hands of Eskom and its partners.

We pray that this impact will be to the benefit of all... without any regrets.

Kind Regards

Stefan Kleyn
Director – Global Leadership Academy

GLA ECO CAMPUS



GLA ECO CAMPUS JEFFREYS BAY BUSINESS PLAN

JUNE 2011

Compiled by:
Aurecon South Africa (Pty) Ltd
Lion Roars Office Park,
Cnr of 3rd Ave and Heugh Road,
Walmer, Port Elizabeth, South Africa

On Behalf of:

Global Challenge Expeditions

Contact Person:
Stefan Kleyn
T: +27 42 293 3053
F: +27 42 293 2964
E: stefan@gcex.org



TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	1
1.1	INTRODUCTION.....	1
1.2	OBJECTIVES.....	ERROR! BOOKMARK NOT DEFINED.
1.3	IMPLEMENTATION.....	ERROR! BOOKMARK NOT DEFINED.
2	GLA SUMMARY AND PROFILE	2
2.1	OBJECTIVES.....	2
2.2	VISION.....	2
2.3	VALUES.....	3
2.4	GLA PROFILE AND SUMMARY.....	ERROR! BOOKMARK NOT DEFINED.
2.5	GLA BOARD AND PERSONNEL.....	4
2.6	GLA FINANCIAL OVERVIEW.....	8
2.7	COURSE SYLLABUS.....	6
2.8	GLA ACHIEVEMENTS.....	6
2.9	UNIQUENESS.....	9
2.10	SUMMARY.....	9
2.11	CONTACT DETAILS.....	9
3	PROFESSIONAL TEAM	10
3.1	CONSULTING SERVICES.....	10
3.2	DETAILED ENGINEERING SCOPE OF SERVICES.....	10
3.2.1	Civil Infrastructure and Building Services.....	10
3.2.2	Electrical Engineering.....	11
3.2.3	Green Buildings.....	11
3.3	ARCHITECTURE.....	12
3.4	HEALTH AND SAFETY.....	12
3.5	QUANTITY SURVEYOR.....	12
4	IMPLEMENTATION STRATEGY	13
4.1	PHASE 1.....	13
4.2	PHASE 2.....	13
4.3	PHASE 3.....	13
4.4	PHASE 4.....	14
5	FINANCIAL PLAN	16
6	INVESTING IN GLA	20

LIST OF TABLES

Table 2-1: Full Time Teaching Staff	4
Table 2-2: Financial Overview.....	8
Table 2-3: Subjects Offered and Extra Curricular Activities	6
Table 5-1: Phase 1 Cost Estimate	16
Table 5-2: Phase 2 Cost Estimate	17
Table 5-3: Phase 3 Cost Estimate	18
Table 5-4: Phase 4 Cost Estimate	19

LIST OF FIGURES

Figure 4-1: Proposed programme for phase 1	15
--	----

1 EXECUTIVE SUMMARY

INTRODUCTION

Global Leadership Academy (GLA) is an innovative private high school in Jeffrey's Bay, South Africa, accommodating 250 students in grades 8 – 12. The school opened in January 2010.

CONTEXT

Before GLA was established in Jeffrey's Bay the more than 2300 primary school pupils had no access to a local secondary school.

Not able to ignore this need in the community we took a step of faith to establish an independent High School.

The only appropriate facility available to us was unused space in a local shopping mall which we are currently leasing. However in April 2010, 7.5ha of property was donated to GLA by the directors of Buchner Propvest.

OUR OBJECTIVE is to develop this property into a world class and environmentally friendly educational facility.

We envision Global Leadership Academy to evolve into a **movement that will establish an NGO based franchise of schools across Africa.**

We believe this model will play a significant part in solving the educational needs of the continent.

2 GLA SUMMARY AND PROFILE

2.1 THE BIRTH OF GLA

Numerous qualified teachers participated in Global Challenge Expeditions since 2006. Many of them came to us with the vision of teaching in a school where there is a dream to develop a child's character in a unique way, this coupled with the growing need in Jeffrey's Bay for a high school encouraged us to pursue that dream.

Before 2010 the only option local students had, was to attend a secondary school outside of Jeffrey's Bay. That meant that more than 2300 students either attended boarding school or used daily bus services to neighbouring towns.

The school first opened its doors on the 13 January 2010 with 63 learners. Within the first month, 31 more students were added.

The response from the public, parents and children has been overwhelming and with the addition of Grade 11 in 2011, we now have 164 full time enrolled students.

Currently we are renting space in the Equinox Mall - Jeffrey's Bay and use some of the shops for class rooms. Extracurricular activities such as Athletics, Cricket, Swimming, Golf, and so forth are played at different facilities in Jeffrey's Bay.

In April 2010, 7.5ha of property was donated to GLA by Buchner Propvest. The goal is to develop this property into a world class educational facility that will encompass all that GLA stands for and aims to achieve through the learning programme.

2.2 VISION

Global Leadership Academy aims to establish an innovative learning environment, with firm core values, where young people can grow into leaders who will impact and serve the world around them.

We envision that Global Leadership Academy will:

- Be an alternative model for accessible and affordable private education.
- Create a training ground for future leaders in education.
- Take the lead in developing a sustainable and environmental friendly educational facility.
- Be a private school who works in partnership with the Department of Education.

We envision that the students of Global Leadership Academy will:

- Become the next generation of leaders in the Kouga Region and South Africa.
- Be able to respond to the social needs in their society.
- Be emotionally and spiritually mature.
- Reach their full potential in an atmosphere that is safe, secure and positive.
- Become adults who respect and care for the environment.
- Unite different culture groups within the community.
- Be fully equipped to use and implement the latest technologies.
- Leave a lasting legacy for the generations to come.

We envision a school that will take the lead in the education and development of children and set a notable example to all.

2.3 VALUES

Our philosophy of value based education supports our vision.

These values are relevant in our relationships towards God, other people and ourselves. It also can be seen in the way we steward that which is entrusted to us.

- The staff of GLA are outspoken in their faith in Jesus Christ. The values and traditions of the school will therefore inevitably be affected by their lifestyles and teachings.
- The school's governance framework will create an atmosphere of friendliness, kindness, gentleness and humility.
- The academic environment at GLA will stimulate intellectual curiosity, analytical reasoning and problem solving.
- GLA believes in the valuable role of mentorship, and will promote relational education.
- GLA believes in experiential learning as a tool to empower students to put theory into practice and develop the life skills of their students.
- We place a high emphasis on love, loyalty and respect towards God, one another and GLA.
- At GLA we strive towards excellent academic standards and believe this does not exclude the elements of fun and adventure.
- This milieu will help shape and form students of character and integrity.

The above values can be highlighted as:

- CARE
- RESPECT
- INTEGRITY
- EXCELLENT WORK ETHICS

2.4 OBJECTIVES

Academic / Education

Facilities/ Development

Key objectives for Global Leadership Academy are to:

- Develop 7.5 hectares of property donated to Global Challenge Expeditions for the building of a world class educational facility in Jeffrey's Bay, Eastern Cape.
- Be an educational facility that implements environmentally friendly and sustainable principles.
- Create unique and positive learning environments which will educate children to act responsibly towards their environment.
- Use the facilities to initiate and host programs that will empower the community.

2.5 GLA BOARD AND PERSONNEL

As a registered school with the Eastern Cape Department of Education following the National Curriculum, the teachers attend all training conventions and seminars. Quarterly assessments of the academic standards of GLA are done by the Department of Education.

GLA stimulates and facilitates further development of teachers through:

- Teacher development programs presented by Dr. Johann McFarlane from the Nelson Mandela University.
- 50% of staff is currently enrolled in further tertiary studies.

Please refer to **Table 1** below for list of the GLA teaching staff.

Table 1: Full Time Teaching Staff

FULL TIME TEACHING STAFF	
Principal	Qualifications
Mrs. M McFarlane	MA in Social Sciences (Cum Laude) STD, ACE: ML (Cum Laude)
Deputy Principal	Qualifications
Mr. D Young	BA Humanities
Teachers	Qualifications
Ms. M Fourie	Bcom (Hons) Accounting, NOS
Mr. T Schultz	BTh
Ms. A Bos	BEd (Cum Laude), Bed hons (Cum Laude)
Mrs. H Young	Bdram, NOS
Mrs. M H Banda	Bdiac, NOS
Ms. C van Es	BA Sport Development, Exercise and Nutrition BA Hons, NOS
Ms. S V Smith	NDip: Dram, NHDip advance Performance
Ms. L Carroll	BEd
Mr. K van Rooyen	BPharm
Mr. J J Oosthuizen	BSc Chemical Engineering (First Class)
Mr. A P du Plessis	BCom (Hons) Entrepreneurship and Marketing (Cum Laude)
Ms. A Brown	BA Psychology Candidate, NOS
Ms. J Taute	BCom Communication and Tourism
Mr. S Kleyn	BEd Technika (Cum Laude)
Mr. C H Bornman	BEd
Ms. L Smit	NDip: Graphic Design and Photography

Executive Governing Body for Global Leadership Academy:

The Governing Body meets twice a term and minutes are kept.

1. Ms. Anna-Marié Franken (Director & Founder)
BA HED Diploma
26 years
2. Past. Freddie Steenkamp (Chairman)
3. Dr. Johann McFarlane (Academic Standards Officer)
4. Floyd McClung
5. Ms. Marietjie McFarlane (Director, Principal)
6. George Mwanza
7. Tostao Banda
8. Mr. Stefan Kleyn (Administrator)
9. Ms. Astrid Vos (Community Relations Officer)

2.6 COURSE SYLLABUS

Global Leadership Academy is registered with the South African Department of Education with Registration Number: EMIS 200101041, and makes full use of the National Curriculum.

Please refer to **Table 2** for a list of the various subjects taught and extracurricular activities offered:

Table 2: Subjects Offered and Extra Curricular Activities

SUBJECTS OFFERED AND EXTRA-CURRICULAR ACTIVITIES	
Subjects	Extra - Curricular Activities
English (Home Language)	Athletics
English (First Additional Language)	Cricket
Afrikaans (Home Language)	Netball
Afrikaans (First Additional Language)	Soccer
Mathematics	Golf
Mathematical Literacy	Tennis
Life Orientation	Wrestling
Physical Sciences	Swimming
Life Sciences (Biology)	Chess
Business Studies	Science Club
Engineering Graphics and Design	Computer Club
Accounting	Drama
History	Debate
Geography	Public Speaking
Dramatic Arts	CSV
Visual Arts	School Band
Tourism	School Magazine
Computer Application Technology	Photography Courses
Information Technology	Adult Literacy Courses
	Literacy Course for Disabled Persons

2.7 GLA ACHIEVEMENTS

Academic

At the end of 2010 our learners achieved excellent results with an overall pass rate of 98%.

Public Speaking

Annet Zevenbergen represented GLA on a national level at the ATKV Public Speaking Competition for Afrikaans first additional language students. She was one of only two grade 8

students who reached the national level. This is truly a once in a life time achievement for any South African school! (2010)

Drama

Charné Ferreira went through to the semi-final round in the City of Cape Town Acting Competition for high school learners. She reached the Top 60. (2010) this year Melissa Vermaas has been selected to take part in the final round of the same competition.

Olympiads

Annet Zevenbergen placed first in the Eastern Cape Olympiad for Afrikaans first additional language and then achieved a second place on national level. Annet is currently in grade 9. (2010)

Charné Ferreira achieved a gold medal for participating in the Amesa Mathematics Olimpiad in 2010 and was invited to the Prize Giving Ceremony as one of the top achievers.

Skateboarding

Damon De Clercq (currently in grade 11) received a first place in the Ball Blitz competition in Jeffrey's Bay. He also competed in the Quicksilver Ball Riders competition and is currently featured in Session Magazine. (2010 and 2011)

Athletics

GLA was represented in the Eastern Province athletics championships by three students:

Johann Lindner (grade 11) – Discus (achieved second place at the District Championships) (2011)

Charné Ferreira (grade 11) – Javelin (achieved first place at the District Championships) (2011)

Lindie-Reneé Agenbag (grade 11) – 800m and 1500m (2011)

Swimming

Amber van Wyk (grade 10) represented GLA at the Eastern Cape's Top 8 swimming gala in the fly stroke. (2011)

Surfing

Timothy Baard (grade 8) Board Riders, EP Surfing, Billabong Vic Bay, Surfer of the year, most improved surfer, night surfer.

Daniel Jeggels (grade 11) EP Surfing, Billabong Vic Bay, Rip Curl, XCEL, SA Trials, SA Champs, Studied in 2010 on a scholarship provided by Surfing SA.

2.8 GLA FINANCIAL OVERVIEW

GLA expects an increase in revenue from school fees and fundraising initiatives for 2011. Even though there will be an increase in revenue for the new financial year GLA anticipates a deficit of R66 872, 87. These costs will be covered by means of sponsorships and additional fundraising efforts.

Please refer to **Table 3** below for an overview of GLA's income and expenses for 2010 as well as estimated income and expenses for 2011:

Table 3: Financial Overview

GLODAL LEADERSHIP ACADEMY FINANCIAL OVERVIEW		
INCOME AND EXPEDITURE FOR THE YEAR ENDED 31 DECEMBER 2010		
	2010	2011
Income		
Other Income	R 72,627.50	R 15,000.00
Donations and Sponsorships received	R 186,822.00	R 50,000.00
Fundraising	R 70,675.93	R 80,000.00
Loan: GCEX	R 220,350.90	
Registration fees	R 26,500.00	R 20,000.00
School fees received	R 513,682.51	R 1,350,000.00
Total Income	R 1,090,658.84	R 1,515,000.00
Expenses		
Administration	R 28,696.33	R 25,700.00
Advertising and Marketing	R 24,859.34	R 10,000.00
Bank costs	R 5,920.69	R 9,800.00
Equipment	R 13,158.00	R 10,000.00
Insurance	R 2,073.87	R 4,240.00
IT (Equipment and Internet)	R 37,662.94	R 33,400.00
Maintenance	R 1,395.86	R 4,000.00
Other Expenses	R 17,782.70	R 16,420.00
Rent of mall	R 197,955.00	R 419,350.00
Salaries	R 662,030.00	R 887,587.00
Telephone	R 9,929.59	R 11,000.00
UIF Contribution (employer)	R 6,450.00	R 8,875.87
Water and Electricity	R 82,744.52	R 141,500.00
Total Expenses	R 1,090,658.84	R 1,581,872.87
Surplus/Deficit	R 0.00	-R 66,872.87

2.9 UNIQUENESS

The opportunity to support the development of Global Leadership Academy is a meaningful investment in the education of students in South Africa, because:

- We aim to develop one of the first secondary schools in South Africa that is fully sustainable, energy sufficient and environmentally friendly.
- For every eleven students, there is one teacher.
- Students spontaneously learn to be culturally sensitive in an environment where different cultures are evenly represented.
- Through our outreach and benefit programs, Global Leadership Academy plays an integral role in the development and upliftment of people in Jeffrey's Bay and surrounding areas.
- We are situated in a "rural area", where more than 2300 children are forced to travel 15 kilometres or more to attend a High School.
- We boast a competent and well qualified staff profile who educate from a broadened world view.
- Last year the staff and children of GLA reached out to 22 countries where they served communities and people groups in need.
- We take a distinctive and practical approach to leadership development, with an emphasis on developing servant leaders.
- We were established out of a registered NPO which has a proven record when it comes to the implementation and successful completion of significant projects.

2.10 SUMMARY

This document is intended to be the first step in initiating a conversation between potential donors and Global Leadership Academy.

We hereby take up the mandate to establish an academic facility of international standards with the intent to equip and develop future leaders.

This is your opportunity to join us.

2.11 CONTACT DETAILS

Global Challenge Expeditions
www.gcex.org

Global Challenge Expeditions
 Anna-Marie Franken – Director
ann@gcex.org
 082 5596 130

Stefan Kleyn – Project Leader
stefan@gcex.org
 082 747 0970

Global Leadership Academy
www.gla-jbay.org

Global Leadership Academy
 Marietjie Mc Farlane - Principal
mmcfarlane@gla-jbay.org
 042 293 3053

3 PROFESSIONAL TEAM

3.1 CONSULTING SERVICES

The following professional organisations was approached and agreed to provide their services to GLA:

- Aurecon – Consulting engineers responsible for all internal civil and structural work, green engineering, electrical engineering and health and safety.
- Intelligent Design Architects
- Sam van Tonder Quantity Surveyors
- Specialised solar systems
- Worley Parsons – Consulting engineers responsible for all bulk engineering services

3.2 DETAILED ENGINEERING SCOPE OF SERVICES

Aurecon will act as lead consultants on the project. Aurecon provides world-class engineering, management and specialised technical services and has more than 80 offices worldwide.

3.2.1 Civil Infrastructure and Building Services

Aurecon will be responsible for the design, documentation and implementation of all civil engineering services and building and structural work.

The civil engineering and building services will include the following:

- Earthworks and building platforms
- Grading and pavement design of internal roads, car parks and other hard surfaces including access to existing roads
- Design of building foundations and concrete structures
- Design of integrated storm water management systems for the entire site, including roof drainage
- Design of foul sewer system and connection to existing infrastructure
- Design and specification of site perimeter fencing
- Electrical reticulation for entire site including bulk connections
- Design of wet services for all buildings and hostels
- Road signage if required
- Design of potable water reticulation system and connection to existing infrastructure
- Design of sports fields and associated infrastructure
- Structural design for school, student accommodation, multipurpose hall, conference facilities and sport centre.

3.2.2 Electrical Engineering

Design and documentation of power reticulation, general purpose lighting and power infrastructure within the site boundary.

- Spatial analysis of substations, switch rooms, plant rooms, and power distribution layouts
- LV reticulation and switchboard layouts
- Assistance with reflected ceiling plan layout
- Main switchboard single line diagrams
- Earthing and lightning protection schematics and details
- Electrical sub – main reticulation schemes
- Power layouts
- General lighting layouts
- Emergency and Exit lighting system and layouts
- Cable containment

3.2.3 Green Buildings

From the outset the client has shown clear intention to develop an Eco Friendly and sustainable facility.

The aim is to:

- Create a green environment in which the values and lifestyle of teachers and students are influenced in a positive way
- Minimise the impact on the environment in all stages of development and construction
- Establish a sustainable, eco-friendly and green facility with as little as possible impact to the environment
- Implement energy and resource saving system across the entire development, including:
 - Electricity provision and usage
 - Water
 - Sewerage and storm water catchment
 - Recycling

3.3 ARCHITECTURE

Intelligent Design Architects has been appointed to conduct all architectural designs and drawings and duties include:

- Concept Designs
- Approval of drawings and documentation
- Inspections and design verifications

3.4 HEALTH AND SAFETY

Aspirata, on behalf of Aurecon, will act as the health and safety agents. This will be in accordance with the Occupational Health and Safety Act of 1993 (OHSA).

3.5 QUANTITY SURVEYOR

Quantity surveyor scope of services:

- Estimating and cost advice for building works component
- Payment valuation and certification
- Preparing variation orders
- Financial and contractual aspects of all building related work within site boundary
- Contractual administration for all building related works on site

4 IMPLEMENTATION STRATEGY

It is envisaged that this project will be implemented in the following phases:

- Phase 1: Class rooms, administrative buildings, all civil infrastructure.
- Phase 2: Multipurpose hall, conference facilities, sports facilities and associated earthworks
- Phase 3: Student Accommodation and associated infrastructure
- Phase 4: The sport centre will be constructed during phase 4 of the project.

The phases are set out in order of importance and a detailed breakdown of the each phase is described below.

4.1 PHASE 1

Phase 1 will consist of the following:

- Class rooms
- Administrative buildings
- WC's (Toilets and ablutions)
- Computer and media rooms and facilities
- Specialist installations such as electrical and telecommunications
- Engineering infrastructure (Water, sewer, roads, storm water, irrigations etc.)
- Fencing
- Landscaping
- Bulk Connections

4.2 PHASE 2

Phase 2 will consist of the following:

- Multipurpose hall
- Conference facilities
- Specialist installations
- Sports facilities (sports fields, tennis courts, swimming pool)
- Bulk earthworks associated with sports fields and building foundations

4.3 PHASE 3

Phase 3 will consist of the following:

- Student accommodation
- Kitchen and dining room

- Bulk earthworks associated with building foundations and site levelling
- Some specialist installations

4.4 PHASE 4

Phase 4 will consist of the following:

- Sport Centre
- All sport centre related equipment and infrastructure

Please refer to **Figure 4-1** below for the proposed programme for phase 1. As phase 1 is the most critical component of the project it must be done first. Phase 2, 3 and 4 will commence upon approval of funds and the aim is to roll out all these phases as soon as phase 1 is completed.

Figure 4-1: Proposed programme for phase 1

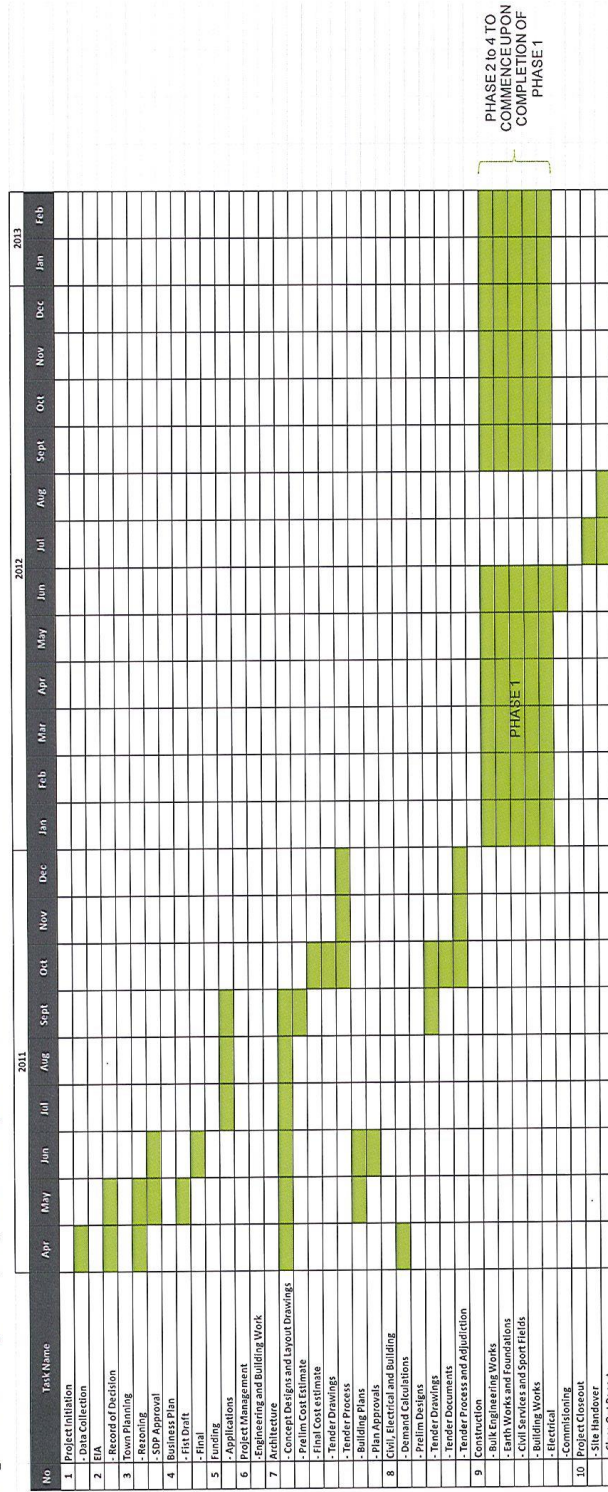
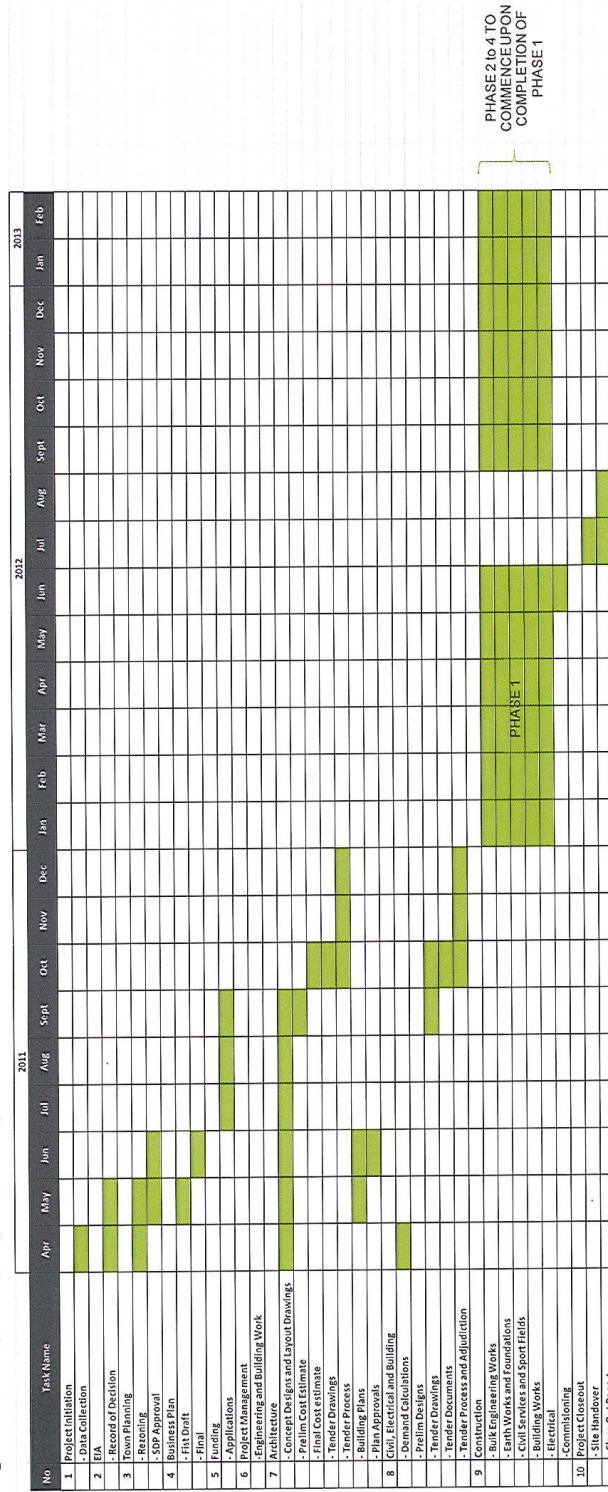


Figure 4-1: Proposed programme for phase 1



5 FINANCIAL PLAN

GLA will need funds to ensure the realisation of the school. The project will be implemented in the phases described in section 4 and a breakdown of the cost for each phase is detailed in Table 5-1 to Table 5-4 below:

The estimated cost for phase 1 is R 53 000 000 and comprises the largest and most critical component of the entire project.

Table 5-1: Phase 1 Cost Estimate

GLA ECO CAMPUS - JEFFREYS BAY: PHASE 1 COST ESTIMATE					
Item No	Description	Unit	Quantity	Rate	Amount
1	New Buildings				
1.1	Classrooms	m ²	2081	R 5,000.00	R 10,405,000.00
1.2	Administrative Buildings	m ²	853	R 6,000.00	R 5,118,000.00
1.3	WC's (Toilets)	m ²	143	R 10,000.00	R 1,430,000.00
1.4	Computer/Utility/Library	m ²	375	R 10,000.00	R 3,750,000.00
1.5	Building work Preliminaries	sum	-	15%	R 3,105,450.00
					R 23,808,450.00
2	Specialist Installations				
2.1	Electrical Installation	sum	1	R 750,000.00	R 750,000.00
2.2	Computer Installations	sum	1	R 1,125,000.00	R 1,125,000.00
2.3	Burglar Alarm Installations	sum	1	R 187,500.00	R 187,500.00
2.4	Telkom (Communications)	sum	1	R 250,000.00	R 250,000.00
					R 2,312,500.00
3	External Works and Infrastructure				
3.1	Preliminary and General	sum	1	R 763,546.74	R 763,546.74
3.2	Water reticulation	sum	1	R 389,688.75	R 389,688.75
3.3	Sewer Reticulation	sum	1	R 459,665.05	R 459,665.05
3.4	Roads	sum	1	R 1,803,656.46	R 1,803,656.46
3.5	Stormwater	sum	1	R 796,789.70	R 796,789.70
3.6	Road Signs and Markings	sum	1	R 52,957.50	R 52,957.50
3.7	Telkom/Eskom/Data Sleeves	sum	1	R 288,882.25	R 288,882.25
3.8	Irrigation Sleeves	sum	1	R 26,109.00	R 26,109.00
3.9	All paved areas (including walkways)	m ²	1000	R 450.00	R 450,000.00
3.10	Palisade Fencing (2400mm high and kerb	m	1400	R 1,350.00	R 1,890,000.00
3.11	Topsoil and Grass	m ²	5000	R 35.00	R 175,000.00
3.12	Bulk Connections (Sewer, Water)	No	2	R 5,000.00	R 10,000.00
3.13	Electrical Supply to Site	Sum	1	R 500,000.00	R 500,000.00
3.14	Bulk Earth Works	Sum	1	R 525,000.00	R 525,000.00
					R 8,131,295.45
	Sub Total (a)				R 34,252,245.45
	Contingencies		7.5%		R 2,568,918.41
	Sub Total (b)				R 36,821,163.86
	Pre Contract escalation (0.5%p.m for 6 months = 3%)		3.0%		R 1,104,634.92
	Sub Total (c)				R 37,925,798.77
	Contract Escalation (0.5%p.m for 12 months = 3%)		6.0%		R 2,275,547.93
	Sub Total (d)				R 40,201,346.70
	Professional Fees and Disbursements		15%		R 6,030,202.01
	Sub Total (e)				R 46,231,548.71
	VAT		14%		R 6,472,416.82
	Total Estimated Project Cost for Phase 1				R 52,703,965.52
				Say	R 53,000,000.00

The cost indicated in **Table 5-2** below will cover the cost of building a multipurpose hall, conference facility and all the sport facilities.

Table 5-2: Phase 2 Cost Estimate

GLA ECO CAMPUS - JEFFREYS BAY: PHASE 2 COST ESTIMATE					
Item No	Description	Unit	Quantity	Rate	Amount
1	<u>New Buildings</u>				
1.2	Conference Facilities	m ²	314	R 8,000.00	R 2,512,000.00
1.3	Multipurpose Hall	m ²	434	R 9,000.00	R 3,906,000.00
1.4	Building work Preliminaries	sum	-	15%	R 962,700.00
					R 7,380,700.00
2	<u>Specialist Installations</u>				
2.1	Electrical Installation	sum	1	R 150,000.00	R 150,000.00
2.2	Computer Installations	sum	1	R 375,000.00	R 375,000.00
2.3	Burglar Alarm Installations	sum	1	R 37,500.00	R 37,500.00
					R 562,500.00
3	<u>External Works and Infrastructure</u>				
3.1	Sports facilities	sum	1	R 6,000,000.00	R 6,000,000.00
3.2	Tennis Courts	sum	2	R 250,000.00	R 500,000.00
3.3	Landscaping	m ²	5000	R 50.00	R 250,000.00
3.4	Swimming Pool	Sum	1	R 250,000.00	R 250,000.00
3.5	Bulk Earthworks	Sum	1	R 112,500.00	R 112,500.00
					R 7,112,500.00
	Sub Total (a)				R 15,055,700.00
	Contingencies		7.5%		R 1,129,177.50
	Sub Total (b)				R 16,184,877.50
	Pre Contract escalation (0.5%p.m for 6 months = 3%)		3.0%		R 485,546.33
	Sub Total (c)				R 16,670,423.83
	Contract Escalation (0.5%p.m for 12 months = 3%)		6.0%		R 1,000,225.43
	Sub Total (d)				R 17,670,649.25
	Professional Fees and Disbursements		15%		R 2,650,597.39
	Sub Total (e)				R 20,321,246.64
	VAT		14%		R 2,844,974.53
	Total Estimated Project Cost for Phase 2				R 23,166,221.17
				Say	R 24,000,000.00

Please refer to **Table 5-3** below for a cost estimate for phase 3. During this phase student accommodation will be constructed.

Table 5-3: Phase 3 Cost Estimate

GLA ECO CAMPUS - JEFFREYS BAY: PHASE 3 COST ESTIMATE					
Item No	Description	Unit	Quantity	Rate	Amount
1	<u>New Buildings</u>				
1.1	Kitchen and Dinnig facilities	m ²	315	R 12,000.00	R 3,780,000.00
1.2	Student accomodations	m ²	2200	R 6,500.00	R 14,300,000.00
1.3	Building work Preliminaries	sum	-	15%	R 2,712,000.00
					R 20,792,000.00
2	<u>Specialist Installations</u>				
2.1	Electrical Installation	sum	1	R 50,000.00	R 50,000.00
2.3	Burglar Alarm Installations	sum	1	R 12,500.00	R 12,500.00
					R 62,500.00
3	<u>External Works and Infrastructure</u>				
3.1	Bulk Earth Works	Sum	1	R 75,000.00	R 75,000.00
					R 75,000.00
	Sub Total (a)				R 20,929,500.00
	Contingencies		7.5%		R 1,569,712.50
	Sub Total (b)				R 22,499,212.50
	Pre Contract escalation (0.5%p.m for 6 months = 3%)		3.0%		R 674,976.38
	Sub Total (c)				R 23,174,188.88
	Contract Escalation (0.5%p.m for 12 months = 3%)		6.0%		R 1,390,451.33
	Sub Total (d)				R 24,564,640.21
	Professional Fees and Disbursements		15%		R 3,684,696.03
	Sub Total (e)				R 28,249,336.24
	VAT		14%		R 3,954,907.07
	Total Estimated Project Cost for Phase 3				R 32,204,243.31
				Say	R 33,000,000.00

Please refer to Table 5-4 below for the cost estimate for phase 4 which will comprise a sport centre and associated infrastructure.

Table 5-4: Phase 4 Cost Estimate

GLA ECO CAMPUS - JEFFREYS BAY: PHASE 4 COST ESTIMATE					
Item No	Description	Unit	Quantity	Rate	Amount
1	<u>New Buildings</u>				
1.9	Sports Centre	m ²	2668	R 7,500.00	R 20,010,000.00
1.10	Building work Preliminaries	sum	-	15%	R 3,001,500.00
					R 23,011,500.00
2	<u>Specialist Installations</u>				
2.1	Electrical Installation	sum	1	R 50,000.00	R 50,000.00
2.3	Burglar Alarm Installations	sum	1	R 12,500.00	R 12,500.00
					R 62,500.00
3	<u>External Works and Infrastructure</u>				
3.16	Bulk Earth Works	Sum	1	R 37,500.00	R 37,500.00
					R 37,500.00
	Sub Total (a)				R 23,111,500.00
	Contingencies		7.5%		R 1,733,362.50
	Sub Total (b)				R 24,844,862.50
	Pre Contract escalation (0.5%p.m for 6 months = 3%)		3.0%		R 745,345.88
	Sub Total (c)				R 25,590,208.38
	Contract Escalation (0.5%p.m for 12 months = 3%)		6.0%		R 1,535,412.50
	Sub Total (d)				R 27,125,620.88
	Professional Fees and Disbursements		15%		R 4,068,843.13
	Sub Total (e)				R 31,194,464.01
	VAT		14%		R 4,367,224.96
	Total Estimated Project Cost for Phase 4				R 35,561,688.97
				Say	R 36,000,000.00

6 INVESTING IN GLA

By investing in us you will:

- Connect your company / brand with a successful High School in a world famous surfing community.
- Invest in the greater Jeffrey's Bay community and the entire Kouga District.
- Invest in the lives of the leaders of tomorrow, leaders in our community and in our country.
- Provide children from the Kouga District with a proper education.
- Provide the larger Jeffrey's Bay area with a state-of-the-art sporting centre open to the public.
- Invest in the economic growth of the greater Jeffrey's Bay area and enable us to help raise the living standards of its people.
- Invest in a project that's sustainable and eco-friendly.
- Be able to deduct taxes on all financial support, seeing as Global Challenge Expeditions are a registered NPO.

Why is partnering with us a great idea?

Global Challenge Expeditions:

- Is an established NPO with a core focus of developing leaders through real life experiences.
- Is already an effective and existing organisation with momentum and influence.
- Are good stewards of that which are entrusted to them and are able to grow ideas into working projects.
- Is committed to the cause proven by the fact that even their founders' monthly salary is less than R5000.00.

Global Leadership Academy:

- Is registered with the Department of Education and fully functional with currently 164 students enrolled from Grade 8-11.
- Already has a waiting list for 2012. The school will be at its full capacity of 250 students come 2012 and accommodate Grade 8 - 12.

You are therefore investing in a venture that is sustainable and already impacting the lives of children.

All the architects and other experts working on this project have offered their expertise and services either for free or at very low rates. This is an encouraging sign proving that this venture is worth the sacrifice and investment of those involved.

05 August 2015

Our Ref: J31314

Your Ref: Email received 07 August 2011

Thyspunt Alliance
St Francis Bay Resident's Association
St Francis Kromme Trust

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

Dear Mr Thorpe, Thyspunt Alliance and its members, the St Francis Bay Resident's Association and the St Francis Kromme Trust

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

COMMENT ON THE ECONOMIC IMPACT ASSESSMENT REPORT, THYSPUNT

NPS, 2nd Draft EIA Report.

Compiled by E.G.W.Tilders B.Sc B Eng. MBA and submitted on behalf of F.O.S.T.E.R. (Friends of St Francis Nature Areas), a member of the Thyspunt Alliance. FOSTER is a Public Benefit Organisation, registered in terms of section 18A of the income tax act No 58 of 1962.

Comment 1:

In the report below it will be shown that the Economic Impact Assessment forming part of the Draft Environmental Impact Report, as applied to the Thyspunt Nuclear Site:

- 1) Is not comprehensive, ie important facts are omitted,
- 2) Includes factual errors,
- 3) Is biased in favour or what appears to be a pre-determination to favour the Thyspunt site for erecting Nuclear 1.

Response 1:

Your comment is noted. Specific allegations in this regard will be responded to below.

Comment 2:

For easy reference comments below are raised in roughly the same sequence and under the same headings as they appear in the Economic Assessment Report.

A) EXECUTIVE SUMMARY:

The executive summary concludes that “Duinefontein would be far more able to absorb the effects of a Nuclear Power Station....”

This fact is ignored in the rest of the report. This clearly indicates bias in favour of the other sites, in this case Thyspunt.

Response 2:

The Economic Impact Assessment (Appendix E17 of the EIR) comes to the following conclusions regarding the site preference from an economic perspective (from the Executive Summary of this specialist report):

“The macroeconomic impact analysis gives mixed results for the construction and operational phases at the three sites. Macroeconomic indicators favour the Western Cape sites but household and social indicators favour Thyspunt. The cost-effectiveness analysis indicates that Thyspunt has a very slight edge over Duynfontein and a somewhat larger edge over Bantamsklip ... Thus, the order of preference (from most to least preferred) is Thyspunt, Duynfontein and Bantamsklip. However, the differences are slight, and all the sites would have large positive economic impacts both on the local area and the province in which they are situated.”

The report therefore concludes that Thyspunt is slightly preferred above the other sites, although the differences between the sites are small.

Comment 3:

B) INTRODUCTION – PROJECT DESCRIPTION:

This states that demand in the Western Cape exceeds supply by 3000MW. By the time an NPS would be completed, this figure would have risen to at least 4000MW. This is the complete output of the Nuclear 1 in question. It would make sense to construct the next NPS there. Here again, this fact is not mentioned again in this report, indicating bias, seemingly in favour of the Thyspunt option.

Response 3:

Your comment is noted but excludes other facts mentioned in the Revised Draft EIR. Even though there is an electricity deficit of around 3,000 MW in the Western Cape, there is very little generation capacity in the Eastern Cape. Section 4.3 of the Eskom Grid Planning Report (Appendix E28 of the EIR) provides the current installed capacities of the Eastern Cape and Western Cape. The Eastern Cape has a current installed capacity of 171 MW, compared to 4,300 MW in the Western Cape - a combination of base load (Koeberg) and peaking power stations (pumped storage and gas turbines). The supply deficit is therefore much more acute in the Eastern Cape than in the Western Cape.

Comment 4:

C) ASSUMPTIONS:

The Draft EIA reads: “Another limitation is that detailed information is not yet available on the capacity of the roads and bridges to carry the abnormal loads which will be involved in the transportation of imported equipment for the nuclear power station, as Level 1 assessments have been concluded thus far. Some of these loads might weigh up to 750 tons.” It is glibly assumed that roads and bridges to

the sites of NPS's will be able to carry the required (abnormal) loads. No allowance has been made in the cost model (table 3.24) for construction/alteration/re-inforcing of these. Except for the case of Duynefonteien, this could amount to significant sums that would make a major difference to the costing model. Furthermore there is a major backlog in road construction in the Eastern Cape. Again, as above, this results in a bias in favour of the Thyspunt alternative.

Response 4:

The initial assessment of the Kromme River Bridge and the Sand River culvert indicates:

Several route options were investigated in the *Eskom Nuclear 1 Project: Thyspunt Site Abnormal Load Haul Route Investigation* and the recommended route for the transportation of abnormal loads from Port Elizabeth to Thyspunt are shown in Figure 9.26. The main section of the abnormal vehicle route will be from Port Elizabeth Harbour, via the N2, interchange east of Jeffrey's Bay, along the R102 to proposed Eastern Bypass Alternative A onto Park Street, and continue down the R330 (MR381), passes St. Francis Bay and access at the Eastern Access of the Thyspunt site. The recommended route is considered the most economical and will require the least amount of road improvement.

A number of obstacles and difficulties would, however, still be present along the route and their proposed mitigation measures are as follows:

- Overhead bridges – Transport vehicles could make use of the on / off ramps at interchanges to avoid overhead bridges. Temporary ramps or detour routes would need to be constructed should there be no existing on / off ramps.
- Under bridges – Propping would be required at most under bridges to ensure stability during the transportation. Strengthening and bracing would be required at the Van Staden's gorge arch bridge.
- Turning intersections / roundabouts – Temporary upgrades would be required at the roundabouts and intersections where turning of the abnormal vehicles is involved. Examples of upgrades are upgrading of bell-mouths, removal of street furniture and road widening.
- Overhead cables – Overhead cables would be lifted or temporarily removed along the route should it interfere with the abnormal loads.

Furthermore, it is recommended that the section of the R330 south of Kromme River to Thyspunt be upgraded to a Class 2 road with passing lanes and surfaced shoulders. The section of road will also be used by general light traffic going to the Nuclear-1 site, therefore the upgrade will benefit both operations. It is also recommended that a large berm be constructed between the section of R330 and St. Francis Bay to act as a sound and vehicle headlight barrier to the area. As discussed in Chapter 9.2.3, a pedestrian crossing is currently located along the section of R330 south of St. Francis Bay, which indicates pedestrian activity is present at the location. It would, however, not be affected by the abnormal loads as the transportation will only take place during the night and on weekends.

Details of the assessment and recommendations can be obtained from the *Eskom Nuclear 1 Project: Thyspunt Site Abnormal Load Haul Route Investigation* Report undertaken by Christopher Roberts in March 2011.

The Economic Report has also taken into consideration the capital costs for the road upgrades that will be required.

Comment 5:

D) 2. DESCRIPTION OF AFFECTED ENVIRONMENT

2.1.4.FISHING.

It appears that Eskom has advised that the exclusion zone will be the length of the site by 1km in size, and that certain fishing boats may at times be allowed inside this area.

This is not a decision for Eskom to make, and is based on “Eskom successfully applying for access to be granted...” The decision to allow fishing inside the exclusion zone would fall under National Security or under the National Nuclear Regulator.

Response 5:

As indicated by Section 3.20.3 of the Revised Draft EIR, the size of the marine exclusion zone would be dependent on a decision by the National Intelligence Agency. The NNR has jurisdiction over the Emergency Planning zones, which only apply inland of the power station.

Comment 6:

2.1.4 Continued....Squid Fishing.

The report glibly states that only an area the length of the site x 1km exclusion zone will be affected and that this will reduce squid catches by 1,8%.

The report takes no notice of the fact that 2 underground pipelines will be constructed and that warmed, chlorinated water will be discharged, and the effect of this on squid catches.

The most important omission of this, Second Draft EIA report is the fact that it takes no notice of the fact that 6,37 million cu meters of sand/spoil will be discharged into the sea, probably at a depth of 50 - 80m and a distance of 1-5 km offshore. This is, despite the matter being discussed at length at meetings and highlighted in comments on the First Draft EIA. South African Squid Management Industrial Association (SASMIA) in fact drew attention to this major omission repeatedly since publication of the first Draft EIA.

It should be noted that 6,37 million cu meters of banked sand/spoil becomes 7,3 million cu meters of loose sand/spoil when removed. This second figure is the actual volume we are dealing with. Due to inshore ocean currents flowing from West to East (predominant) and also currents flowing from East to West (certain times of the year) this will spread about some 10 - 12 km in both directions. This would cover an area 2 - 3km wide, stretching from East of Cape St Francis to West of Oyster Bay. It is highly likely that this spread of spoil will destroy the squid breeding grounds of the area mentioned above. Currently, according to SASMIA figures, around 33 -38% of squid caught by boats operating in the area are caught in this location. (between Cape St Francis and Oyster Bay, up to 5km offshore). The above is the subject of a separate SASMIA study and report, and was discussed at length in a meeting of specialists recently held in Cape Town.

According to figures published in this Economic Impact Assessment Report, an average of 7000 tons of squid are caught in the Eastern Cape per annum. This is sold at an average price of about Euro 7-00. At current exchange rates this amounts to R480 million per year. A loss of 33% would amount to some R160 million per year. At the key focus group meeting held at St Francis Bay on 25th May, it was stated by the Marine “expert” that, should the squid leave this area or stop breeding there for the duration of the construction period, they are quite likely to take at least another 10 years to return, if at all. The above breeding ground would thus be barren for a MINIMUM of 20 years.

The loss to the industry and economy of the area could thus amount to some R3,2 billion, over 20 years. If calculated to a Present Value at 8%, this would amount to R1,6 billion. Nowhere in the IAR is this mentioned, nor is this allowed for in the PV cost matrix, (see table 3.24). The squid industry employs some 4000 people. A loss of 33% of squid income would probably result in the laying off of some 1300 people. The vast majority of job losses would occur in the Kouga/ St Francis/Humansdorp area. No mention is made of this in any of the specialist reports, including the social impact report. It is unbelievable that a report dealing with the effect of building the NPS at Thyspunt can simply ignore the effect of 6,3m cubic meters of spoil pumped into the premier squid breeding ground of South Africa and the huge effect this would have on the local squid industry. This is despite the fact that the consultants' attention were repeatedly drawn to this fact since publication of the first Draft EIA Report. This is a major omission.

Furthermore, under the above scenario, squid operators would be forced to work further afield. (further away from their base at Port St Francis). This would necessitate a change to larger boats. The size of boats that can use Port St Francis is limited by harbour size and (especially) the depth of the harbour entrance. A tendency towards bigger boats would result in squid boats operating out of Port Elizabeth or even Mossel Bay. This would result in a complete and permanent collapse of the local/Port St Francis based squid industry. It is estimated that the local industry employs some 2000 people in all and produces a revenue of close to R250 million per annum. This would amount R12,5 billion over the construction period and life of the NPS. If an 8% Present Value factor is applied, this would amount to R3,05billion. This would be the loss to the local squid industry and would result in some 2000 unemployed in the area. Here again the Second Draft EIA report makes no mention of this likelihood.....another major omission of the report.

SOUTH AFRICAN SQUID is one of the more sought after varieties of squid in the world, in a very competitive market. Should our squid be caught in the vicinity of a NPS, this fact is likely to be used by competitors against our product. Marketing very much depends on perception. Even though completely unjustified, our squid industry may suffer as a result of this. The report states in this connection that negative market perceptions appear to be mitigable with production and distribution of scientific evidence and advertising. Firstly, who is to pay for such advertising campaigns? We do not notice an undertaking from Eskom in this regard, nor a summary of budgeted costs. The report totally underestimates market perception, especially since the Fukushima disaster and the German halting construction of new, and decommissioning of old nuclear power stations. Here again we have bias towards an outcome seemingly preferred by Eskom.

As per the above, the report identifies the exclusion zone and negative perceptions regarding squid caught near an NPS as the MAJOR concerns in the squid industry. This is completely wrong! The major concern is in fact the effect of pumping 6,3million cubic meters of spoil into the squid breeding ground, and this is not covered in the report. A MAJOR OMISSION.

Response 6:

The Marine Ecology Assessment and the related Oceanographic Assessment (respectively Appendices E15 and E16 of the EIR) investigate the potential impacts of marine organisms in detail, taking all potential sources of impact into consideration, including temperature changes, marine release of spoil, release of brine from the desalination plant, the impacts of the marine exclusion zone on fishing, etc.

The claim of a complete disregard for the marine disposal of spoil is noted. The impacts of spoil release are extensively discussed in the Marine Ecology Assessment (see the Executive Summary and Sections 3.1.1, 3.2.1, 3.3.1, 4.1.1, 4.2.1 and 4.3.1) and in the corresponding Chapter 10 of the Revised Draft EIR Version 2.

The claims regarding the spread of spoil in the marine environment are noted. Figures 9-19 and 9-20 of the Oceanographic Assessment (Appendix E16 of the EIR) provide a visual indication of the spread of sediment respectively from a shallow disposal site and a deep disposal site. The illustrations in these figures, based on extensive and detailed modeling of the movements of marine currents accurately depicts the movement of spoil.

SASMIA's claimed figures of 33-38% of squid being caught by boats operating in the area are noted. Extensive consultations have been held between the Nuclear-1 marine ecology specialists and the Squid Working Group (SWG) of the Department of Agriculture Forestry and Fisheries (DAFF). SASMIA attended these meetings. SASMIA's claims are not supported by independent figures provided by the SWG and DAFF. The 30% figure quoted by SASMIA appears to have been calculated using only four selected vessels – a gross under-representation of the chokka squid fleet. Data for the same area provided by DAFF (i.e. the commercial database) shows that 14.7% of total catches are taken in the wider area (two quarter degree squares of approximately 22 x 27 km each) around the Thyspunt site – itself a much larger area what will in fact be impacted. In this regard, it must also be noted that the total area affected by a temperature increase of 3°C or more will be less than 1km². In the current revision of the Marine Ecology Report the area potentially lost to the fishery (based on the commercial info provided by DAFF) is presented. While still under review, this figure ranges from 2.86% (worst-case scenario) to 2.53% (least-case scenario) to the fishery in the local area under question, and between 0.42% and 0.37% for the fishery as a whole.

The reference to a separate SASMIA study and report refers. It is important to note that in spite of several indications from SASMIA over the length of the Nuclear-1 EIA process, no report has been forthcoming from SASMIA to challenge the data provided in the Marine Ecology Assessment. SASMIA has provided written representations (which have been addressed), but no report.

The comments on the economic impacts refer. The statement of a 33 % loss is unsupported by commercial data provided by the SWG and the DAFF. The recommendation provided by the Marine Ecology Assessment in the Revised Draft EIR Version 2, proposes that spoil must be disposed of at a deep site (deeper than the 50 m depth up to which chokka squid spawn) and at a medium discharge rate to limit turbidity. Given these recommendations, the likelihood of a 20 year disruption in breeding is not supported.

The comments regarding the squid fleet having to change to larger boats and having to work further afield is noted. It is acknowledged in the Marine Ecology Assessment that fishing boats would have to avoid the impacted area at the Thyspunt site. However, due to the small size of the affected area (as indicated above approximately 2.86% of the local fishing area – worst case scenario), the claim that this would result in inordinately large expenses to the fishing industry is also unsupported.

The comment about a negative perception of the squid caught in the vicinity of the proposed power station is noted. This is not borne out by the experience with fishing in the Western Cape in close proximity to Koeberg Nuclear Power Station (KNPS), where there are successful organically certified wine farms operating in close proximity to the KNPS.

Comment 7:

E) 3. IMPACT IDENTIFICATION AND ASSESSMENT

3.2.1.2.11 ACCESS ROADS.

The report reads: "In the case of Thyspunt an additional feeder road for heavy vehicles via Cape St Francis was included at a later stage and is now incorporated in the model. " The estimated cost to upgrade road is R539,39 m". This figure underestimates the costs of building and maintaining roads

through moving dune fields and wetlands, which are, at the time of writing are largely flooded. Furthermore the figure does not seem to allow for removal and re-building of flyover bridges to allow very big loads through. A route through Humansdorp has been identified for use, being Saffery Road. This is totally unacceptable for various reasons.....a new bypass road will have to be built, bypassing Humansdorp. We believe the road and access costs have been underestimated by at least R800m. We believe this constitutes a major factual error in this report. Pipelines for intake, outlet of warm/chlorinated water, spoil dispersement during construction period, and associated tunneling.

We are told by the consultants that the above pipelines may now stretch up to 5km offshore in order to reduce environmental impact, and not limited to 1 or 2 km, as previously stated. Yet this is not allowed for in the report. Laying of these undersea (and underground, below ocean floor) pipelines should be the matter for a complete feasibility and costing study, as well as an EIA. This matter is completely ignored in the report. While costing estimates cannot be made without in depth studies we believe a cost of at least R1 billion at PV prices should be allowed. According to a study instigated by the Thyspunt Alliance, the cooling water intake pipeline and associated tunnelling would cost some R477 million. (The study can be made available on request). The proposed pipeline for disposal of spoil is apparently going to be much longer and end up in deeper water. It will also involve a number of pumping stations along the way, since pumping spoil over a 5km distance from one pumping station would be impossible. We believe that the above figure of R1 billion in additional costs to be conservative – it could be much higher. This is another omission in the report.

Response 7:

The comments regarding the traffic impact are noted. The traffic impact assessment has been substantively revised, such that heavy construction traffic will completely bypass St. Francis and Humansdorp. Bypass routes to the east and west of Humansdorp is proposed to be constructed to reduce the traffic impact on central Humansdorp. The R330 is proposed to be used for only passenger vehicle traffic and abnormal load transport. The Oyster Bay bypass (in conjunction with the western access road) will be used for staff and heavy vehicle traffic. Details of this traffic proposal is included in the Draft EIR Version 2, Appendix E25.

The comments regarding the cost of the spoil pipelines are noted.

The project amount is estimated and will be confirmed upon design evaluations. However, Eskom will ensure that the envisaged project costs are not exceeded by ensuring that the specifications and designs are robust.

Comment 8:

3.2.1.2.13 TOURISM IMPACT.

GENERAL TOURISM

The impact of the Eastern access road and use of the R330 road from Humansdorp to Cape St Francis on tourism has not been assessed, since this access road was conceived of and added at a later stage. It is estimated that this road will have a major negative impact on tourism in the area. Table 3.13 shows a negative impact on tourism of 7.86% for years 1-6 only. Firstly, what happens after year 6 assuming a 10 year construction period? Secondly, how can anyone calculate with certainty the effect of a NPS on tourism to within two decimal points of a percent. This seems to be a ridiculous figure.

Table 3.20 shows 0% tourism impact on Thyspunt for years 7 – 20.

We shall assume a negative effect on tourism of 30% over a 10 year construction period until presented with clear evidence to the contrary. Using the figure of R77,45 million pa as per table 3.13, and applying a loss of 30%, the amount of R23m would be lost annually. This is roughly R17mil pa higher than the figure of R6,11m shown in figure 3.13. This amounts to R170m over the construction period. If a PV @ 8% is applied, this amounts to R114m over 10 years of construction period. The loss of tourism will be the death knell to many establishments in the St Francis Bay and Cape St Francis areas, with resulting job losses etc. This does not include SURF TOURISM, which is dealt with below.

Response 8:

Your comments are noted. With regards to the impact of the use of the R330 on tourism, please refer to Response 7.

Year 6 is the peak of construction and it is therefore assumed that the greatest impact would be experienced at that point during construction. Environmental impact assessment is a predictive science and no absolutely accurate calculations can therefore be expected. However, the calculations of tourism impact in the Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR) are based on bed nights in the study area. Application of a percentage decrease in the number of bed nights could therefore (as is the case in this instance) lead to fractional amounts in the percentages of impact.

The assumption regarding a 30% decrease in tourism is noted. Kindly provide substantiation for this figure. The Tourism Impact Assessment uses a scientific approach in the calculation of the predicted impact.

Your comment regarding the impact on surf tourism is noted. As indicated by the Surf Breaks Addendum report to the Revised Draft EIR (Appendix I of Appendix E16 of the Revised Draft EIR), there will be no impact on surf breaks at Jeffreys Bay.

Comment 9:

SURFING – PERMANENT RESIDENTS, HOLIDAY HOMES, SURF INDUSTRY AND TOURISM:

The area from Cape St Francis to Jeffrey's Bay is considered the "Mecca" of African surfing. Cape St Francis is popular as a family surfing destination. "Bruce's", the surf break at St Francis Bay is considered to be the surf break that put the Kouga area on the world surfing map in the 1960's. "Supers" at Jeffrey's Bay is considered the best right hand point break in the world. These surf breaks bring thousands of surfers and surfing holiday home owners to the Kouga area every year. Furthermore surfing is counter cyclical in tourism terms.....it draws surfers in the winter months, when normal tourism is slow. Surfing has spawned many local businesses, including some 40 surf shops, surf related clothing shops and surfboard manufacturers, and one major factory/distributor (Billabong), as well as many B+B establishments. Yet the draft EIA report merely states that the surf break at Cap St Francis "may be affected". Reference is made here to the fact that 6,37million cubic meters (7,3million loose cu meters) of sand/spoil is to be deposited in the sea, and may be transported to the surf breaks by ocean currents. The oceanographic specialist report should have made a specific study of the impact of sand /spoil on the surf breaks, as should the economic specialist report. As far as we are aware, no in depth study including any form of modelling was conducted. This is a major omission.

A further omission is the fact that no attention is paid to the possible cancellation of the annual Billabong/ Association of surfing professionals surf contest held. This contest is held at Jeffrey's Bay every year in July and is one of the big 11 contests on the world surfing calendar. It attracts some 10.000 persons per day, for an average 10 days, giving a major boost to the local economy. The media value of this event is estimated to be worth R20m each year. Money spent in the area over the 10 day period is estimated at some R30m, which can be doubled due to the "knock on effect. A total of

R60m. This amounts to R600m over the 10 year construction period. Using a PV factor of 8%, this amounts to a present value of R400m. Should the surf break be affected by the spoil pumped into the sea at the NPS building site, this will be lost. Contestants and organisers of the event have signed a number of petitions to stop the construction of the NPS at Thyspunt. They have also indicated that, should the construction go ahead, they would boycott Jeffrey's Bay and move the event elsewhere, outside of South Africa. This would be a huge loss for local businesses, yet no mention of this fact is made in the report. In a survey conducted by the Thyspunt Alliance, a number of managers stated that without the annual Billabong contest, they would "close shop". This includes the Billabong distribution and factory center, employing some 270 people.

This is another major omission. The total loss to tourism as a result of construction the NPS at Thyspunt could thus amount to some R514 m in present value terms. This is very different from the figure of R6,11 m pa referred to in table 3.13 of the report.

Response 9:

Your comments on the impacts on surf breaks are noted. As indicated in Response 8, the Surf Breaks Addendum to the Oceanographic Assessment (Appendix E16 of the Revised Draft EIR) specifically considers the impact on surf breaks due to the marine disposal of spoil. The detailed oceanographic modeling of sand movement after disposal is considered in this Addendum.

This Addendum concludes that disposal at a deep site (the recommended alternative) would result in a column of sand between 0.005 m (5 mm) and 0.010m (10mm) thick extending towards Seal Point, with another small portion of spoil settling in the bay (at approximately 10m depth) between Seal Point and Cape St Francis 5 years after the disposal has taken place. This may affect the manner in which the wave breaks, however to a far less extent than the spoil discharged at the shallow disposal site. However, the extent of the change in the breaking of the wave would be negligible.

Your comment on the staging of the Billabong surfing content is noted. As stated above, the Surf Breaks Addendum concludes that numerical modeling indicates that the sediment will not reach Jeffrey's Bay (situated 20km northeast of Cape St Francis).

Comment 10:

3.2.1.3.8 AGRICULTURE IMPACT

Table 3.21 shows a POSITIVE impact of R19m.

The Agricultural impact Specialist report of the Draft EIA incorporates a GAIN of "10 to 15%" in agricultural output due to a larger market created by the influx of people into the area (construction workers and families). This was re-iterated at the key stakeholders meeting held at St Francis Bay on 25th May 2010, and again, at a later meeting. This is, however incorrect. With the exception of one small dairy farm, all milk produced in the area is sold to national distribution/processing companies. Dairy farms are running to full capacity. According to local farmers questioned, local market growth will have no positive impact on production or sales. Diversifying into alternative crops/farming product is not possible due to climatic and soil conditions. This has been confirmed by a number of leading farmers in the area. Apparently no proper on the spot research was undertaken by the party drawing up the Agricultural specialist report. This is a major omission and is a major flaw in the 2nd draft EIA report.

A FURTHER MAJOR FLAW in the Agricultural Impact Assessment is the fact that it does not incorporate the impact assessment of transmission lines. This has been done as a separate study and is not incorporated in this Draft EIR, agriculture section. It is felt that farming land lost to transmission lines will be a major factor.

Table 3.21 shows an annual turnover of R927m and an impact of 12.5%. We believe that a NEGATIVE impact of 12,5% should be applied to an area of 30km radius, resulting in a loss of R115m per annum. This figure would allow for the effect of transmission lines, which have not been allowed for in this report. Over a 10 year construction period this would amount to R1,15 billion. Taken over the construction period as well as over the operational period and brought to Present Value at 8% say, this loss would be some R1,42 billion. While the above figures are not accurate due to lack of information they provide “ball park” estimates which show that the positive impact of R19m (or R18,7m as per text) pa, in figure 3.21 is very far off the mark. We are again dealing with more errors, resulting in a bias towards the Thyspunt site.

Response 10:

Your comment regarding the agricultural impacts of transmission lines is noted. The EIAs for the power station and the transmission lines are run separately, in accordance with the requirements of the Department of Environment Affairs (DEA). Whilst it is not the function of the Nuclear-1 EIA process to comment on the findings of the transmission line EIA or public perceptions of these studies, it is to be noted that transmission lines will not result in the total loss of affected servitudes to grazing or cultivation. There are no restrictions, apart from the construction of buildings and growing of tall trees i.e. forestry or orchards), that apply to power line servitudes. The complete loss of agricultural production to transmission lines would, therefore, be small.

With reference to the estimate of the financial value of the agricultural impact, the following rough calculation has been made for an area of 30 km radius. Based on northern and southern transmission line corridors of 165 and 110 m wide respectively¹, the transmission line servitudes would cover an area of roughly 8.25 km² (assuming they move in a straight line from the power station to the edge of the 30 km radius). Allowing for changes in the direction in the lines, an area 1.5 times this area is assumed i.e. 12.375 km². The total affected area within the 30 km radius (excluding the marine area – assuming the marine area accounts for half of a circle of 30 km radius from the power station) would be roughly 1,400 km². Thus, approximately 0.88 % of the total area (12.375 / 1,400.00) within a 30 km radius could be affected by the transmission line servitudes. To justify this affected percentage of 0.88 %, it would further need to be assumed that all areas within the servitudes are productive agricultural areas (i.e. that no subtractions need to be made for mountainous regions or other areas unsuitable for agriculture) and that the entire servitudes (i.e. not only the pylons bases) would be rendered unsuitable for agriculture. These are extremely generous assumptions, still leading to the conclusion that only approximately 0.88 % of the area potentially suitable for agriculture would be impacted. Although this calculation may be simplistic, and does not take consider that there are areas of varying agricultural productivity, the large discrepancy in percentages it brings into doubt the claim of a 12.5 % negative impact on agriculture.

The Agricultural Specialist’s response to Comment 2 applies here.

It is agreed that the impact of the transmission lines should be included in this report as they can have a significant impact especially in a dairy production area. The specialist raised the issue that many of the comments relate to detailed technical and economic operational issues of the specific farms. The scope of the study focused on doing a farm survey (type of farm) within a 16km radius of the site and a farm infrastructure audit on a 20 km radius of the site. On the economic side a general regional economic model was required to give a regional economic impact. A detailed analysis of the specific farms affected is required including a detailed soil survey and financial analysis of the farms. Once there is a preferred site then a more detailed agricultural assessment (and a more detailed market assessment) of the farms in that area should be undertaken.

Comment 11:

¹ According to Section 2.2 of the Revised Draft EIR for the Thyspunt Transmission Lines Integration Project – Northern Corridor

F) 3.2.2 COMPARISON OF THE THREE SITES.

Using the figures shown in Table 3.24, the following should be added to the Thyspunt figures, as per the various headings above:

C: ASSUMPTIONS

ROADS AND BRIDGES:

In the Case of Thyspunt a further allowance of R800m. should be made. If the Van Staden's Pass bridge has to be re-inforced, this figure could be much higher. The figure for Duynefontein will be negligible by comparison. We cannot comment on the figure for Bantamsklip without in depth studies.

Response 11:

Your comment is noted. As indicated in other responses, the Transportation Assessment (Appendix E25 of the Revised Draft EIR Version 2) has found no reason to indicate that Van Staden's River Bridge would need to be significantly upgraded to cater for the heavy loads required for Nuclear-1. Please note that the Economic Assessment does take into account the cost of upgrading of roads.

Comment 12:

PIPELINES/TUNNELLING

As per the above, at least a further allowance of R1 billion should be made.

Response 12:

Please refer to Response 7.

Comment 13:

D) FISHING

SQUID:

The negative impact on the squid industry in the Thyspunt area, at Present Values could be anywhere between R1,6 and R3,05 billion. This would depend on the level of destruction of this industry and to some extent on negative market perceptions. This would not apply to either Duynefontein or Bantamsklip.

Response 13:

Your comment on the economic impact on fishing is noted. Kindly refer to our Response 6 above, which indicates a maximum, that (as a worst case scenario) 2.86 % of the current fishing area around the Thyspunt site could be affected.

Comment 14:

E) TOURISM

The impact would amount to at least R514 million (At Present Value, calculated at 8%) over the construction period. Tourism would not be impacted at Duynefontein and positive at Bantamsklip (according to this report).

Response 14:

Your comment is noted.

Comment 15:

E)(continued) AGRICULTURE

The impact could be much more severe than shown in the Draft EIA report, more than likely around R2,1billion (Present Value at 8%) over the life of the NPS.

The Present Value Matrix in figure 3.24 does not show a true reflection. One cannot combine costs of construction and adverse economic effects (expressed purely in monetary terms) on surrounding areas in one matrix. Effects on surroundings invariably have major social and other implications, knock on effects etc.

We believe that the THYSPUNT NPS project costs have been underestimated by at least the following in Present Value figures:

Roads and Bridges additional cost.....	R800m
Pipeline/Tunnelling Costs.....	R1,0 billion
TOTAL.....	R1,8 billion

We believe that effects on the economic environment have been underestimated by at least the following in Present Value figures:

Squid Fishing loss.....	R1,6 billion to R3,05billion
Tourism loss.....	R514m
Agriculture loss.....	R1,42 billion.
TOTAL.....	R3,53 billion to 4,984 billion
TOTAL.....SAY.....	R3,5 billion to R5,0 billion

CONCLUSION FROM COST COMPARISON MATRIX:

Adding the above figures the conclusion is that the NPS would result in extra costs and severe economic/income losses in the Thyspunt/Kouga area. These are unaccounted for in the Economic Impact assessment Report of the Draft EIA study.

As a result the Thyspunt NPS does not compare favourably with the Duynefontein option and would be on a par, cost/loss wise with the Bantamsklip option.

Due to the probable complete destruction of the Squid industry as well as other factors mentioned above, (and the huge sociological impact thereof) the Thyspunt NPS option should not be pursued.

Response 15:

Your comment is noted. As indicated by Response 10, your claim of a 12.5 % negative impact on agriculture is not supported by an analysis of the areas that would be affected by the transmission lines.

Comment 16:

FURTHER FACTORS TO BE TAKEN INTO ACCOUNT:

The scoring system in the report is severely flawed.

Transmission lines are subject to a separate report, but are included in the scoring process. They are then AGAIN included in the Economic report, thereby being considered twice. The 4-3-2 weighting applied is highly questionable and should have been replaced by a more appropriate weighting, possibly 3-2-1.

If the Eskom participants attending the scoring workshop also voted or had any input, the integrity of this whole EIA process is compromised. We herewith demand confirmation, in writing, from the consultants to the effect that the EIA process has not been compromised in this fashion.

The local Kouga Municipality is stretched beyond its limits of effective operation.

Roads are badly maintained. Sewage spills are frequent. Current rubbish dumps are operated unhygienically and illegally. There has been a severe water shortage and water restrictions have been in force since December 2009. These are likely to continue. The Kouga municipality would not be able to cope with the influx of staff and their dependents during the construction phase. (In the vicinity of 25.000 people in all, if families and dependents are included).

The report mentions, in table 3.30, the "positive impact of the NPS".

This states that, with the additional taxes flowing from the NPS, the following can be paid for:

Additional number of educators...2842
Additional number of hospital beds.....612
Additional number of doctors.....64
Additional construction of 2968 houses.

These are wonderful theoretical figures when confronted with a municipality that can barely cope. Who is going to establish schools to house the 2842 educators? Where do they come from, given that the area has a severe shortage of teachers? The same applies to the 612 extra hospital beds and 64 doctors. (What about nurses, without whom hospitals cannot operate?) There is a huge backlog of hospitals, beds and doctors in the Eastern Cape as it is. People queue for days to be attended at the Livingstone hospital in Port Elizabeth. Yet magically the NPS will provide the above? Are we to assume that Eskom will construct and establish schools and hospitals? If so, there is no sign of a cost allowance made for these hospitals and schools and training of teachers etc. in any of the cost matrixes. This section of the report seems to have been included as a sales gimmick to convince the local municipality to support Eskom's plans for the NPS at Thyspunt.

These figures have no relevance insurance: Home insurance policies in South Africa specifically exclude nuclear accidents/disasters. Who will insure residents in the Kouga area against a nuclear disaster? Will Eskom do so? Nowhere in this report is this fact mentioned.

The above clearly demonstrates that the economic report is badly flawed with factual errors, omissions, and arguable conclusions. The report is not un-biased, given that it is based on figures largely supplied by the contractor, Eskom. The objectivity of this report must be queried.

Response 16:

Your comments are noted. The strategic positioning of the power station in the National Grid relative to areas of demand ("transmission integration") is considered as one of the major decision factors. The length and costs of the transmission lines and the ease of obtaining servitudes along the transmission

corridors are only some of the factors considered in the overall transmission integration considerations.

Eskom played no part in the determining the weighting criteria for decision factors in the Nuclear-1 EIA process. Guidelines on the assessment methodology and significance ratings are provided by NEMA and have been adhered to throughout the process.

Your comment in the inability of Kouga Municipality to deal with the expected influx of people into the Kouga municipal area is noted. It is also acknowledged in the Revised Draft EIR there are severe service provision backlogs and that the Kouga Municipality does not have sufficient funds of its own for the necessary upgrades. Thus, the following is recommended in Chapter 11, Section 11.3.1 of the revised Draft EIR Version 2:

“Eskom must enter into negotiations with local authorities and other relevant authorities well before the start of construction to identify how it can be ensured that municipal services are capable of providing sufficient capacity for the expected influx of people into the affected area. Agreement must be reached between Eskom and these bodies on the apportionment of financial responsibility for infrastructure upgrades.”

Eskom cannot, however, be expected to be solely responsible for infrastructure upgrades, as current infrastructure backlogs are the responsibility of the municipality. It is for this reason that it has been recommended that agreement must be reached between Eskom and the other role players regarding apportionment of responsibility.

Your comment regarding lack of health and educational services refers. This comment may also be applied to most other geographical areas in South Africa (with the exception of a few very well developed areas in South Africa). Even in the regions of South Africa that have concentrations of high quality services, most of the good quality services remain out of reach to the majority of the low-income population, since they rely on relatively poorly run government services. Thus, application of that argument that poor services should disqualify an area from consideration would effectively mean that the majority of South Africa would, from a service provision perspective, be unsuitable for development of any large scale infrastructure project. Effectively, it would also mean that any large scale economic development that would bring the potential for jobs to poorer area of the country should by definition be excluded from consideration and that only the more affluent, well-resourced regions should be considered for further economic development.

The issue of insurance has repeatedly been dealt with in public meetings and in Issues and Response Reports. Eskom is required by the NNR Act to make financial provision through insurance obtained from international nuclear insurance pools. Eskom makes the financial provision through insurance obtained from the international nuclear insurance pools, which is in dollar denomination, resulting in a financial provision in excess of R3 billion for Koeberg Nuclear Power Station. Every year Eskom has to provide proof that the financial provision (insurance) has been obtained.

Yours faithfully

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

For GIBB (Pty) Ltd
The Nuclear-1 EIA Team

05 August 2015

Our Ref: J31314

Your Ref: Email received 07 August 2011

Hermanus Lagoon Property Owners Association (HLPOA)
Chairperson
PO Box 235
STANFORD
7210

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Email: revey@iafrica.com

Dear Elspeth Ivey

RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No: 12/12/20/944)**Comment 1:****COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT** (*Please refer to page numbers where possible*)

1 *My comments refer to the Bantamsklip site because the HLPOA lies within 50 km of the site.*

I understand that the Bantamsklip site is the least preferred because of the high costs to ESKOM

(Page 11). In addition to high costs being a reason for rejecting Bantamsklip, further environmental aspects and economic impact on the Overberg should be considered for future planning.

Response 1:

Your comments are noted.

It is acknowledged in the Revised Draft EIR that the potential cumulative environmental impacts of the proposed power station and the transmission lines will be significant.

With regards to the economic impact of the Bantamsklip site in relation to the other alternative sites, it is stated in the Economic Impact Assessment that this site will be several billion Rand more expensive than the other sites, due to the additional expenses associated with transport of materials to Bantamsklip.

Comment 2:

Page 2 Brazil and Schulpfontein were excluded from consideration in the EIA because of "limited local demand and the lack of existing electricity transmission corridors associated with these sites". Bantamsklip is sited at the southernmost tip of South Africa and therefore, apart from being isolated, it is the furthest point from demand for electricity. The key sources of income in the Overberg are farming, fishing and tourism. Hermanus, Gansbaai and Kleinmond have been identified for light industry. The local demand for electricity is therefore minimal and the power produced at Bantamsklip will be for use in regions distant from the site. The impact of transmission lines has not been discussed in this EIA but it is not possible to separate the power station from the transmission lines –

the transmission and distribution lines will have a extremely negative impact on farming and tourism and if they are rejected in a separate EIA, Nuclear1 at Bantamsklip will be useless. This is a further reason for rejecting the proposed nuclear power station at Bantamsklip.

Response 2:

Your comment is noted. As indicated in Response 1, it is expected that the potential cumulative impacts of the power station and transmission lines at Bantamsklip would be significant.

Comment 3:

Page 7 Location of the sites – Impacts on Flora. Impacts on flora I quote from the Botanical Society's series of Wild Flower guides - Southern Overberg, S African Wild Flower Guide 8 *“Like most areas of the Cape Floristic Region, the southern Overberg has a rich flora....Rare and endemic species are often clustered in so-called hotspots. One such hot-spot is the Groot Hagelkraal area near Pearly Beach----such a concentration of endemic plants is without parallel, not only elsewhere in the Cape Floristic Region, but in the world.”*

Fire is a key ecological process for the healthy survival of most plant communities. It is unlikely fires will be permitted in the region of the nuclear station therefore the impact of the proposed nuclear station will not be only on the 31ha but on the surrounding communities.

For the same reason search and rescue and the relocation of rare plant species is rarely successful because fynbos needs fire and wind and is very sensitive to soils, gradients and nutrients in the soils. The proposed mitigation measures may well fail.

Response 3:

Your comments are noted.

The wider area is indeed recognised as being sensitive in terms of botanical biodiversity. A comprehensive study of the vegetation of the site was carried out (Appendix E11) and it was found that the majority of the site does not have highly sensitive flora, but that there are pockets of limestone fynbos that have high botanical sensitivity. These pockets are one a number of sensitive features that have been avoided in the recommended position of the proposed power station.

Planned fire control burns are part of the present EMP for the three sites and will be used as a management tool in future as part of conserving the natural vegetation. The fact that Eskom will have a nuclear plant on the property does not stop this controlled burning process, However, they need to ensure that they have certain mitigation factors in place before burning close to a nuclear plant. In this case, wind direction as an example , plays a crucial role.

Comment 4:

Page 8 Oceanographic impacts The sea and coastline at the Southern tip of Africa is notoriously stormy and dangerous and will make the building of any infrastructure or mitigation measures costly and difficult. High winds and strong currents are experienced.

Response 4:

Your comment is noted. A comprehensive oceanographic assessment was included in the Nuclear-1 EIA (Appendix E16 of the Revised Draft EIR) and it was found that the construction of a nuclear power station would be technically feasible.

Comment 5:

Page 10 Tourism impacts Income is derived from tourism, farming and fishing. Whale watching, shark diving, and the flora kingdom are all key components in attracting tourists. Added to these components is the spectacular scenery, mountains and sea, of this region. This area provides unique experiences not found elsewhere in the world and although mitigating measures are proposed the negative impact of Nuclear1 cannot be underestimated. Tourism provides employment at many different levels and is an economic benefit to the local community. International tourism to this area has a benefit to greater South Africa because tourists will travel to other areas in the nation from the Overberg. There will be a national, provincial and local sustainable economic benefit from the tourists, particularly overseas tourists, which cannot be provided by employees at Nuclear1 either in the construction or maintenance phases.

Page 10 Impact on transportation systems

It is stated that Bantamsklip has a significant impact on the transport network with upgrades required to the public transport system, heavy load routes and road upgrades required for emergency evacuation purposes. Due to the Bantamsklip site's isolated location, transporting heavy loads by road will require significant infrastructure upgrades, which will have a high financial cost. We are particularly affected by this aspect because all the properties of the HLPOA adjoin the R43 which is a major route from Cape Town via Hermanus to Bantamsklip. Not only are we personally affected but the R43 is a major scenic route passing through important fynbos flora and beautiful scenery. The impact of necessary road works will have an extremely negative impact on the environment and again on tourism in the Overberg.

Response 5:

Your comments regarding tourism around the Bantamsklip site are noted. Due to the currently small size of the tourism market in the Bantamsklip area, the Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR) concluded that business tourism associated with the construction and operational phases of Nuclear-1 has the potential to increase tourism income in the affected area by 5% and 8.5% during the construction and operational phases respectively.

Your comments regarding transportation systems around the Bantamsklip site and the potential impacts on the HLPOA are noted.

Comment 6:

Page 14 The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding at any of the alternative sites, provided that the recommended mitigation and management measures are implemented. No mention of the cost of these measures is given. When cost is considered mitigation measures are frequently minimised with negative impact. Monitoring and controlling mitigation measures is also costly and there is no guarantee this will take place.

Response 6:

When environmental authorities authorise developments such as these, authorisations are issued subject to strict adherence to mitigation measures. These authorities may also impose stricter conditions than are recommended in the Environmental Impact Report and Environmental Management Plan (EMP).

It has been recommended that an Environmental Management Committee (EMC) should be appointed to monitor the implementation of the EMP during construction of the power station. The EMC will report directly to the environmental authority and have representation from local residents. In addition to this, it is customary for large projects such as this to be authorised subject to the appointment of an independent Environmental Control Officer, who reports to the authority. The environmental authority has the authority to stop construction in the event of the mitigation measures not being adhered to.

Comment 7:

Page 11 It is stated that the Bantamsklip alternative would be costly because its location would require longer and larger transmission lines than either of the other two sites (900 km of combined 765 kV and 400 kV transmission lines at Bantamsklip vs. 500 km and 190 km of 400 kV lines at Thyspunt and Duynefontein respectively). The road and bridge upgrades that would have to take place to transport extra heavy loads from Cape Town harbour to Bantamsklip also contribute to the high costs of this site. The Bantamsklip alternative would be R 8 billion less costs effective than either of the other two sites. Mention is made of distance but no mention is made here of mountains and rivers and the impact on farming and the natural environment and in particular the important and world unique floristic kingdom.

The possible benefits of the conservation of the northern portion of the site should not be seen in isolation to the environment as a whole.

Response 7:

Your comment is noted. The impact on mountains and rivers are not directly considered in the Nuclear-1 EIA because they will be impacted by the transmission lines. The transmission lines are the subject of a separate EIA process. However, the cumulative impacts of the transmission lines and the power station are considered at a strategic level.

Comment 8:

2. **Any other Comments:**

We are grateful and appreciate the fact that, for the reasons of cost, Bantamsklip has been removed as alternative site for Nuclear1,

We further recommend that it be rated a “no-go” alternative for the reasons given in the comment sheet. The negative impact on farming, fishing and tourism in the Overberg will outweigh any positive benefit that the shortterm (9 years) construction phase will bring to the region.

Thank you for this opportunity to comment on the Revised Draft Environmental Impact Assessment Report for the Eskom Nuclear Power Station and Associated Infrastructure (Nuclear-1)

Response 8:

Your comment is noted.

Yours faithfully



For GIBB (Pty) Ltd
The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 06 August 2011

Mike Kantey
National Chairman Coalition Against Nuclear Energy
PO box 82
Plettenbergbay
6600

Email: mike.kantey@gmail.com

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

Dear Mike Kantey

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

RE: REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED ESKOM NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (NUCLEAR 1)

As the elected Chairperson of the Coalition Against Nuclear Energy, I have been privileged to attend all three of the proposed sites which were examined with regard to the Revised Draft Environmental Impact Report (RDEIR) for Nulcear-1: Koeberg (City of Cape Town), Bantamsklip (Overstrand Municipality), and Thyspunt (Kouga Municipality).

Comment 1:

Although these sites were meant to be examined collectively with regard to the intended purchase of a "nuclear fleet" of six reactors, evidence may be lead that the proponent (namely Eskom), through their surrogate Environmental Practitioner, namely Arcus Gibb, was forced by the failure of Parliament to approve certain amendments to the relevant legislation to propose an allegedly "preferred site", namely Thyspunt.

In no document presented among the 18.6 kg of papers presented before us for final comment in August 2011 is there clear and scientifically testable evidence as to why Thyspunt was preferred over the other two sites, whose very choice in the very first instance in the 1980s may be proven once again to have been more the product of a besieged Apartheid State, than a rational and administratively just one. Indeed, when Mr Reuben Heydenrych of Arcus Gibb was challenged at the Public Meeting at Atlantic Beach in Cape Town on May 2011 as to the matrix which had been developed to determine the suitability of the Thyspunt site over the other two options, he was hard-pressed to provide any mathematical or even scientific, peer-reviewed justification for that matrix at all.

Assuming for the purposes of illustration only, then, that ONLY THYSPUNT, and no other site is worthy of discussion, we may proceed to discover whether the current Revised Draft Environmental Impact Report for Nuclear-1 has any merit as a document fit for the Minister to apply her mind rationally and in an administratively just manner with regard granting her approval for the erection of a 1600 MW nuclear power station ONLY AT THE THYSPUNT SITE and that site alone.

Response 1:

Your comments are noted.

It is made clear in Section 1.2.1 of the Revised Draft EIR that it was Eskom's intention to apply for three nuclear power stations, based on the expected amendment of the EIA Regulations. Should these expected amendments have been carried through, it may have been possible for Eskom to pursue such an Application. It is stating the obvious that this was not possible when the anticipated amendments were not made, as the available options for application are dictated by the law. The Application therefore remains (as it originally was) for a single nuclear power station.

GIBB takes exception to the suggestion in the words "surrogate environmental practitioner". GIBB is an independent consultancy.

The recommendation in favour of Thyspunt is explained in detail in Chapter 10 of the Revised Draft EIR Version 2.

Your reference to the choice of the Thyspunt site through Apartheid era planning refers. Project planning for large construction projects typically includes a pre-feasibility and feasibility assessment prior to detail planning and environmental impact assessment. Considering that the Nuclear Site Investigation Programme (NSIP) was focused on initial identification of potential nuclear power station sites, it should be regarded as an initial feasibility or even pre-feasibility study. It therefore stands to reason that not all impacts would have been investigated in detail and that these impacts can only be investigated in the EIA process or in other processes such as the nuclear licensing process. The socio-economic realities have not changed to such an extent since the NSIP was undertaken, that the major load centres in the Eastern and Western Cape (Port Elizabeth and the Cape Metropole) have changed, and therefore the location of power station sites in each of these regions (close to the Cape Metropole and close to Port Elizabeth) therefore remains as valid today as it was when the NSIP was undertaken.

The freezing and/or re-evaluation of all planning that had been undertaken prior to 1994 would result in an untenable situation as all planning and delivery processes would necessarily have been in limbo for the time it took to review planning priorities in view of the new political dispensation. In the case of the NSIP, planning would have been delayed by many years, since the NSIP process took in excess of a decade to complete. It can be questioned whether the freezing of all power supply planning for a full review of planning undertaken over a period of two decades (and the resultant delay in rolling out of power supply) would be of benefit to South African society. Apartheid era planning did not serve all the people of South Africa, yet planning for the development of a power station does in fact serve the entire population, no matter where it is planned, as it provides for security of supply across the country, whilst a power station in either the Western Cape or Eastern Cape helps to balance power supply and demand across the national grid.

Your reference to the matrix used for selection of the preferred site refers.

Every discipline has different method and approaches to evaluating data and information. In the field of environmental management, the assessment and evaluation of environmental impacts has developed over the last three decades and includes a number of criteria that are applied almost universally in EIAs. These criteria typically include nature (is the impact negative or positive?), extent (or scale), duration, intensity (degree of change), consequence (seriousness), reversibility, probability (how certain is it that the impact will occur?) and significance (overall importance of the potential impact).

Although there is general agreement about the nature of the criteria for assessment and there are local and international guidelines on this, there is no single agreed method. It is up to the discretion of the environmental assessment practitioner (EAP) to apply his or her mind to determine the most appropriate combination of criteria, as well as any requirements that the environmental authority might have regarding the criteria. In the case of the Nuclear-1 EIA the EAP sought assistance from other senior EAPs, namely Mr. Neal Carter and Mr. Reuben Heydenrych, as well as an advisor on EIA process, Mr. Sean O'Beirne.

Furthermore, based on comments received from the DEA during the review of the RDEIR Version 1, The National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. This updated assessment no longer utilises the ranking / scoring system for the sites, but rather considers the residual risks associated with the proposed Nuclear power station at the proposed sites. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site. Please refer to Chapter 10 for the updated assessment approach.

Comment 2:

The True Environmental Impacts of a Pressurised Water Reactor (PWR)

Given the history of the technology being considered – namely, the Pressurised Water (PWR) – it would seem logical to study its nearest equivalent in “Generation II” format: the existing Koeberg Nuclear Power Station, 28 km north of Cape Town. Here the exact same proponent, namely Eskom, has been operating a power station of similar design to the one hinted at as “Generation III+”. Moreover, evidence can very easily be led that the technology held uppermost in mind by the proponents (even to the point of being mentioned by name both in the Integrated Resource Plan 2010 and in the current Revised Draft Environmental Impact Report on several occasions) is the European Pressurised Reactor (EPR) offered by France’s AREVA, and which is currently in the process of being built in Finland.

Although vague and unsubstantiated claims have been made of the “safety” of this new, untested technology, Eskom itself has already declined to purchase this technology at its Board Meeting of December 2008 on the grounds of its unaffordable price. Rumour has it that the bid has been “reopened” for China and South Korea to get a look in, but – as far as this irrelevant and mischievous RDEIR is concerned – a globally unprecedented step has been taken by the proponent through its surrogate Environmental Practitioner to introduce by legislative sleight-of-hand an “envelope of criteria” which somehow, miraculously, makes the necessity for scientific rigour to be posted to a distant address, there to fall foul of the local sorting department.

Response 2:

The EPR is one of a number of Generation III technologies available commercially but it is not the only one enveloped by the consistent data set for the Nuclear-1 EIA.

In 2009, Eskom abandoned the procurement process due to funding constraints particularly in the context of the global financial crisis. At that stage Government supported this decision to ensure that Eskom does not over-extend its balance sheet and that Eskom’s ability to provide the economy with competitively priced energy is not jeopardized. The procurement process will now be led by Government

We request you to refrain from your reference to GIBB as a “surrogate environmental practitioner”.

Your reference to the “envelope of environmental criteria” refers.

It may be appropriate to explain the envelope of criteria in colloquial terms, as has been done in most public meetings held 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 efficiency, type of tyres and wheels, fuel tank size, 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 is not 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 would not qualify for consideration.

In this respect, 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, it is not necessary to know the brand name of the technology.

Comment 3:

When one is therefore obliged to fall back on hard evidence from the Koeberg Nuclear Power Station (KNPS), a number of environmental impacts become self-evident, but I shall merely touch on a small selection.

Ever since the first reactor was switched on at KNPS, Eskom's own Environmental Science Laboratory at Koeberg has been obliged by law to report first to the old Council for Nuclear Safety and later to the National Nuclear Regulator (NNR). Having studied all of these reports in fine detail from 1982 (before start-up) to 2002, I can honestly say that the two problematic, long-lived radioactive isotopes that accumulate in the environment over 200 years are Strontium-90 and Cesium-137, which may be released through airborne emissions and liquid effluents.

In 2010 Professor Chris Busby and colleagues published *The Health Effects of Exposure to Low Doses of Ionizing Radiation* (Regulators' Edition), on behalf of the European Committee on Radiation Risk. In their Executive Summary on page 241, they state at Point 6:

The Committee argues that recent discoveries in biology, genetics and cancer research suggest that the ICRP target model of cellular DNA is not a good basis for the analysis of risk and that such physical models of radiation action cannot take precedence over epidemiological studies of exposed populations.

What is been said here is that the existing models propagated by the International Atomic Energy Agency (the IAEA) are insufficient to actively describe the risks posed by ionising radiation emanating from civilian nuclear power stations. Only a thorough health assessment of all citizens living within 50 km of such stations will suffice.

Yet, in Appendix E24, the specialist blithely glosses over this kind of scientific and testable evidence in favour of rhetoric and obfuscatory blather. Dissection of his theoretical corpse will therefore be left to another occasion, should it prove necessary to do so.

Response 3:

Your comment is noted. We need to point out that whilst some "Site Safety Reports" prepared as part of the authorisation process for nuclear licensing have been included as appendices in this draft EIA Report (Appendices E24, E26 and E27), radiological issues was not be assessed in detail in the RDEIR Version 1 since qualitative assessment of radiological safety is the mandate of the NNR. It is therefore important to note that The Emergency Response (Appendix E26) and Site Access Control Report (Appendix E27) and Human Health Risk Assessment (Appendix E24), which have been prepared on a high level,, are appended to this EIR for information only. Further details on these reports will be prepared as part of the NNR nuclear licensing process, as their findings will be evaluated by the NNR

However, in recognition of requirements in the NEMA, associated legislation such as the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000) and other legal precedents that require the consideration of all relevant socio-economic factors in an EIA process, an assessment of radiological impacts of the proposed power station is included in the current version of the EIR. Although this approach of including an assessment of the radiological impacts of the proposed power station results in a risk of duplication between the EIA and the NNR licensing processes, the risk to the EIA in terms of possible appeals, based on the exclusion of substantive issues such as health issues from the EIA process, is regarded as greater than the risk of duplication. The current version of the EIR therefore departs substantially from the approach in the previous versions of the EIR in terms of the consideration of radiological impacts.

In this context, it must be mentioned that the approaches of the EIA process and the NNR licensing process differ substantially. The focus of the EIA process is to assess the potential impacts of radiological releases (including normal operational releases and upset conditions). However, the focus of the NNR licensing process is to demonstrate beyond reasonable doubt that defence-in-depth

measures (multiple, redundant, and independent layers of safety systems) employed in the proposed power station design and operation are sufficient to reduce the probability of a failure leading to core meltdown or a failure of reactor containment to acceptable and highly-unlikely levels. Thus, the EIA process focuses on the consequences of radioactive releases. The NNR licensing process also focuses on consequences but is also designed to reduce the probability of such releases. Please refer to Appendix E32 of the RDEIR Version 2 for the Radiological Impact Assessment report.

As responded before to CANE and to other interested and affected parties, the exact source of radiation (i.e. the isotopes that give rise to radiation) is not material to health effects. Rather, the effective cumulative dose of radiation from all possible sources determines whether or not health effects can be expected to occur. To isolate specific isotopes of Strontium-90 and Cesium-137 is therefore immaterial to the questions of whether or not health impacts could be expected.

The public dose limit (1 mSv per annum) is a legal limit applied internationally for the protection of human health from exposure to ionizing radiation. This is regulated in South Africa by Regulation 388 of April 2006 under the NNR Act, 1999 (Act No. 47 of 1999). Koeberg Nuclear Power Station maintains all radiation exposures to the public as low as reasonably achievable, well below this dose limit.

Both Strontium-90 and Cesium-137 isotopes were detected in environmental samples which were collected in the vicinity of the Koeberg Nuclear Power Station before 1984 (before start-up of the Koeberg Nuclear Power Station). Operation of the Koeberg Nuclear Power Station has not increased the levels of Strontium-90 in the environment and the Strontium-90 activity is decreasing in the environment with time.

Response from Nuclear Specialist:

I agree with the response above. In addition radiological protection standards and practices are based on the best consensus scientific evidence.

Comment 4:

As to the marine impacts, I refer the interested reader to the submission of my learned colleague and marine biologist, Katja Vinding Petersen, but would like particular attention to be drawn to the precise impact on filter feeders, such as black mussels and abalone, as attested by the data from Koeberg Nuclear Power Station. For the “specialist” Professor Charles Griffiths to suggest at Slide 5 of his presentation to the Key Stakeholder Workshop held at St Francis on May 2010 that there is **no effluent** to the marine environment is a sad reflection on the state of scientific inquiry at a proud and noble institution with a long history of academic distinction. *O tempore, o mores!*

Furthermore, the recorded data from the Koeberg Nuclear Power Station show measurable impacts on edible and potable marine and agricultural foodstuffs, such as wheat, barley, fruit, dairy and meat products, none of which is reflected in the current DREIR, rendering it fatally flawed. Given the massive dairy industry surrounding Thyspunt, as well as the nearby presence of the Gamtoos River Valley Fruitgrowers Association, it would seem logical to take the cumulative negative impact of Strontium-90 and Cesium-137 on the farmlands of the South-Western (sic) into consideration at the very least.

Assuming, then, that human beings also are part and parcel of the landscape, as well as of the sea-going variety of anthropods, one would expect a thoroughgoing analysis of those projected impacts on human health, however miniscule, so that a proper “assessment” may be made.

Alas! This is not the case with Appendix E24, as has already been mentioned above, but we will reserve comment until another day, since one feels that the various, previous submissions, public comments and other evidence are more than sufficient to claim that “all remedies have been exhausted”. We would also refer the reader to the current submission by Greenpeace, which we heartily endorse.

Response 4:

Your reference to presentation of the marine impact assessment provided at the 2010 Key Stakeholder Workshop refers. The correct statement made in this presentation is that “*Release of radio-isotopes into the sea is not considered a threat, as cooling water never comes into contact with the reactor.*”

This is borne out by the more than two decades worth of monitoring of radiation in marine organisms near the Koeberg Nuclear Power Station. As indicated in the Marine Biology Assessment (Appendix E15 of the Revised Draft EIR, the following conclusions can be drawn from this monitoring:

“West Coast rock lobster, sediment and seawater samples have been found to be free of non-naturally occurring radionuclides (Alard 2005). Activation and fission products have, however, been detected in abalone, black mussel, fish and White sand mussel (Alard 2005). The levels detected at the KNPS have been below the levels at which further investigations or compulsory reporting to the NNR is required (Alard 2005). Importantly, due to radionuclides having been recorded in very few individual organisms at KNPS, the low concentrations at which they have been recorded and the fact that compounds at equivalent levels of radioactivity have previously been recorded in these species under natural conditions, these findings are not considered indicative of any significant effect resulting from the power station on the surrounding marine environment (Griffiths and Robinson 2005).”

Your claim of “*measurable impacts on edible and potable marine and agricultural foodstuffs ...*” refers. Kindly provide a scientifically verifiable motivation for this statement. It is also to be noted, as stated in the quotation from the Marine Ecology Assessment, that the presence of radioactivity in foodstuffs *per se* does not imply that there are actual health impacts: a distinction needs to be made between the presence of radioactivity (meaning the capability of isotopes in the environment to emit radiation) and the impact (i.e. a change in a person’s health status, which may be expected only if the radioactivity results in a dose which exceeds a certain threshold). The fact that some radioactivity in foods can be detected and measured (in units of Becquerel) is not necessarily an indication of potential health impacts. Only if the radioactivity results in a radiation dose which exceeds a certain threshold it may be regarded as a cause for concern.

A comparison could be drawn with other forms of radiation to illustrate this point. Radiation in the visible spectrum (sunlight) cannot be said to be a health risk under all circumstances and to argue that no one must be exposed to sunlight at any time because sunlight is a major cause of cancer would be unreasonable. It is only in circumstances where people are exposed to it for too long periods without sun protection (i.e. if they receive too high doses of sunlight) that the risk of skin cancer becomes significant. Similarly, it cannot be argued that any radiation in the environment will necessarily result in health impacts. It would only result in health impacts if a certain dose threshold is exceeded.

With regards to the issue of Strontium-90 and Cesium-137, please refer to Response 3.

Response from Nuclear Specialist:

The penultimate paragraph is not strictly the basis for radiation protection standards - it assumes a linear no threshold risk model for late effects (i.e. stochastic) but also accepts that below a certain de-minimis level these potential risks are so low as to be of no concern and therefore societally acceptable.

Comment 5:

A Skyscraper Without Toilets: the Avoidance of the High-Level Waste Problem

It is estimated that around 200 000 tonnes of spent fuel has accumulated worldwide since nuclear power production began in the 1950s. The world’s stockpiles of spent fuel and high-level waste are currently stored either on-site at the reactors themselves, or in off-site storage facilities. Countries such as Finland and the US have sited areas for the final disposal of their spent fuel in deep, underground repositories. However, as yet, no civilian spent fuel wastes are in a final repository.

Now, one of the man-made elements that never existed in such dangerous above-ground concentrations before World War II is plutonium-239, an atom of the naturally occurring Uranium-238, which has absorbed one extra neutron and is therefore highly unstable. It is a prolific alpha-emitter and the bad news is that its half-life is 24 000 years. This means that it takes 24 000 years to reduce its mass by decay to one half of the original. If you start with 10 grams of plutonium today, therefore,

you will still have 5 grams of plutonium 24 000 years from now. If Neanderthal Man had invented nuclear power we would still be dealing with the waste today. As Nobel Prize-winning chemist Hannes Alfvén put it, we cannot determine the exact effect of man-made radioactivity on the environment because we do not have enough experience over such a long period of time. To speak of background radioactivity, then, is a complete and dangerous obfuscation, designed to lull us into a false sense of security or to engineer our “perceptions” not by lying but by making us look in the wrong direction for the truth.

We thus need to examine very closely the existing policy on radioactive waste management and then determine whether the existing nuclear industry has shown any competence in carrying out policy in the last ten years of democratic rule.

South African National Radioactive Waste Policy

On 15 May 1997 Sapa reported that then Mineral and Energy Affairs Minister Penuell Maduna had said that a new deep geological nuclear waste dump had to be constructed early in the Twenty-First Century, most likely at Vaalputs in the Northern Cape. Writing in the *Saturday Argus* of 31 May 1997, Paul Olivier also noted that there was growing concern that South Africa could become a dumping ground for high-level radioactive waste from around the world. At that time Marlene Laros of the Wildlife and Environmental Society of South Africa said that WESSA would keep a close watch on waste imported from abroad. “While nuclear energy supporters highlight the safety of Vaalputs, we believe the long-term environmental costs have never been considered,” she said.

Then Springbok Town Council secretary Jaco Victor had also said that the council would insist that a feasibility study of the project to determine the viability of Vaalputs as a high-level storage area would have to take the community’s opinion into account. Vaalputs could have a detrimental effect on the growth of the town and for tourism in general in Namaqualand, Mr Victor said. “We do not have a problem with the way the site is managed at the moment, but when the study is being done for storing high-level nuclear waste the community will have to be consulted.”

Brian Hambleton-Jones, then senior manager nuclear waste management of the Atomic Energy Corporation (AEC - later the Nuclear Corporation of South Africa, or NECSA), said that a national policy for radioactive waste under the Council for Nuclear Safety (CNS) was currently being developed (later replaced by the National Nuclear Regulator, or NNR). Hambleton-Jones stated that the planning would include talks between national stakeholders such as the nuclear industry, mining, the building industry, the medical fraternity, trade unions, civic groups, NGOs and government departments such as the Department of Environmental Affairs and Tourism, and the Department of Water Affairs and Forestry.

No such talks ever took place that I am aware of. CNS spokesman Tienie Fourie had told *Saturday Argus* that the council had been given a mandate to draft such a policy during the previous year, and that “the way we are doing it is to meet with all interested parties and to discuss issues during workshops”. At no stage, however, in the intervening eight years, however, has any NGO, CBO or trade union been consulted, let alone the Namaqua community.

After much restructuring and legislation with regard to the nuclear industry, in a briefing was given by NECSA and the NNR to the Minerals and Energy Portfolio Committee of Parliament on 16 May 2001. Mr M. Damane, Acting Chief Executive Officer of NECSA stated that it was his organisation that had the statutory responsibility for exercising control over the management of radioactive waste, while the NNR exercised an oversight function (The Parliamentary Monitoring Group <http://www.pmg.org.za/>) Mr Damane had reiterated that the Department had “finalised the nuclear waste policy but that it still has to follow process”.

Mr Tseliso Maqhubela, Chief Director: Nuclear at the Department of Minerals and Energy had further noted that the issue of waste management policy was urgent but that “they also acknowledged the fact that they had a capacity problem”. In the year 2000 a team of specialists from NECSA, ESKOM and the NNR had been formed to develop a draft policy document.

The Draft Radioactive Waste Management Policy was finally released in 2003, two years after the first (aborted) Environmental Impact Assessment was conducted on the new Pebble Bed Modular Reactor (PBMR). In this Draft Policy Document, three options were mooted for spent fuel management: deep

burial, above-ground storage and reprocessing to remove the weapons-grade plutonium. Mr Maqubela later ruled out the possibility of importing nuclear waste and of reprocessing locally (*Cape Times* 27 May 2005).

Since then, no tangible policy for spent fuel as such has seen the light of day, which in the light of recent events at Fukushima is unacceptable.

Response 5:

Your statements about background radiation refer. Should you have a body of verifiable and peer-reviewed scientific evidence to support your claim that background radiation does not exist, kindly supply this. Reference to background radiation is in no way meant to divert attention from the risks of nuclear waste. However, there is a commonly held and incorrect perception (unsupported by academic and scientific literature on radiation) that human-made radiation is the only radiation that exists and that no natural radiation existed prior to the advent of nuclear science.

Neither the EIA team nor Eskom deny the existence of Plutonium-239 in nuclear fuel or the length of its half-life. The question of importance, however, is whether it can be responsibly managed so that radiation is contained and does not result in an impact on human health. Given the safeguards that are applied to management of nuclear fuel, it can be used safely without health impacts.

Your statements regarding the Vaalputs nuclear waste disposal site refer. Should the site be considered for the disposal of High-Level Waste (HLW) then appropriate applications in terms of the EIA legislation and the National Nuclear Regulator legislations would need to be made. In terms of such applications, consultation with all relevant interested and affected parties would be required.

Your statements about the development of a policy for nuclear waste management are noted. The Nuclear-1 EIA team cannot speak for the development of nuclear waste management policy in the past.

The disposal of nuclear waste is the remit of the National Radioactive Waste Disposal Institute (NRWDI), which has been established by the National Radioactive Waste Disposal Institute Act, 2008 (Act No. 53 of 2008). It is the policy of the Department of Energy to establish a central interim spent fuel store (under the auspices of the NRWDI) for South Africa by 2025. Therefore spent fuel would be shipped to this store from the power station.

The question on Fukushima waste is not clear. Are you referring to the spent fuel that will be cooled in spent fuel pools or the high level dry waste? Please can you rephrase your comment?

Comment 6:

The difficulties of managing spent fuel, vitrification technology and underground deposition

Given the volatility of spent fuel, the high-levels of radioactivity and the corrosive nature of the chemical compounds, it is understandable that few proven solutions have been put forward in the last sixty years of nuclear weapons and nuclear fuel production.

Much was made in the 1970s of the use of vitrification technology, whereby the waste would be mixed with glass and boron (a neutron absorber) to create borosilicate glass. During an experiment with borosilicate glass, conducted by the State University of Pennsylvania in 1978, it was discovered that glassified waste was extremely vulnerable under the kind of high temperature and pressure to be found underground in deep geological strata. The glass actually shattered into pieces after only two weeks ("Nuclear Fuel Cycle in Japan" Japanese Federation of Bar Associations, cyclostyle, April, 1992, p.21) It was also noted in the United States that - even if the leak were to occur in granite rock strata - a geological phenomenon known as "creep" would occur, whereby radioactivity would advance through the fine crystal lattice of solid rock formations over time and eventually make its way into underground water supplies. If long-lived radionuclides were stored underground in Namaqualand,

therefore, they would pose a direct threat to the community, whose agrarian economy is directly dependent on underground water sources.

Response 6:

Your comment is noted. It is not contested that the management of spent nuclear fuel requires controlled and well managed processes. It is a highly technical task that requires skilled operators, as with the rest of the nuclear fuel cycle. However, you have noted only selected alternative methods that were investigated for the storage of spent fuel but have neglected to mention a range of other safe technologies that are for the safe storage of spent nuclear fuel. Current treatment and management of used fuel (spent fuel) are through interim storage at the reactor site (wet and dry), reprocessing (in France/Japan) and direct geological disposal (Finland and Sweden). These are global practises and comply with regulatory requirements with the prime objective of protecting people and the environment. If Vaalputs is to be considered as a possible site for used fuel, the EIA and NNR licensing process will have to be carried out in future.

Comment 7:

A short history of “incidents” at Pelindaba and Vaalputs

On March 3 1996 a report by journalist Newton Kanhema in the *Sunday Independent* newspaper revealed that a “nuclear occurrence” had taken place outside Pelindaba in the North-West Province at a location with the unfortunate name of “Radiation Hill”. Radiation Hill has been used by the then Atomic Energy Corporation (now NECSA) as a disposal site for radioactive waste and was, up until the establishment of a waste storage facility at Vaalputs in the Northern Cape, the only national storage facility for radioactive waste. It is situated only 2 km away from Flora Park, a residential area, and a mere 10 km away from the densely populated Atteridgeville township. The report revealed the presence of background radiation 100 times greater than the required safety limit.

In 1990 condenser tubes of the research reactor at Pelindaba had leaked into that part of the plant where the product and the waste are separated. Some of the contents of the nuclear condenser had then reacted with the coolant. Most of the condensers had then been removed decontaminated and their tube-bundles replaced, but for one condenser, whose reactivity was so uncontrollable that it was impossible to dismantle without causing a serious nuclear crisis. The AEC reported that all the openings to the condenser had been sealed before it was buried at Radiation Hill.

During the early part of 1995, the AEC discovered the possibility that the stored condenser contained more uranium hexafluoride than had previously been thought and decided to retrieve and decontaminate the condenser. Excavation began in April 1995 at trench 7 on Radiation Hill, but was stopped shortly afterwards because the AEC had not acquired the proper authority and due to the depth of the trench some undisclosed safety problems occurred.

In an interview with Newton Kanhema, Bennie Masomola, one of those employed to work on the excavation said that they had started to work on Radiation Hill in January 1995. They had been told that they would be digging up waste and doing other clean-up jobs. They were also told to look for three condensers and were issued with a pick axe, a shovel, a pair of boots, an overall, and a paper mask to cover their mouths and noses.

Very soon we unearthed mountains and mountains of drums, many of them were rusty and full of cracks. I remember the dust and the smell, and when I went home the smell would still hang around me. It was very bad. As we dug deeper, we were covered with blue, red and green dust, said Masomola. An AEC senior manager glibly admitted: Look we screwed up, made several mistakes, infringed on many of our license conditions and no waste disposal records were kept for Radiation Hill.

In late 1995, the CNS decided to conduct an investigation into the activities at Radiation Hill. The council uncovered a series of violations and contraventions of the AEC’s nuclear licence. The investigation concluded that a number of drums containing radioactive waste had been excavated by a mechanical digger, and then dropped, rupturing and damaging some of them. Pieces of yellow cake (uranium) could be seen lying around as well as a bottled liquid, including a bottle marked C14 (for Carbon-14).

In 1997 the AEC issued a statement by Brian Hambleton-Jones, Senior Manager: Nuclear Waste Management of the AEC, with regard to some cracks which had appeared in some drums of intermediate level radioactive waste (ILW) delivered to Vaalputs in the Northern Cape from Koeberg Nuclear Power Station in May 1997. High values of Cesium-137 radioactivity were found in the vicinity of the drums.

According to Namaqualand workers Gert Joseph, Samuel van der Westhuizen, Jan Gouws, Dirk Links and Petrus Stewe, one of the containers had been accidentally dropped by the overhead crane on to another container below and they had been contracted as casual labourers to clean up the mess without benefit of training, overalls, masks, dosimeters or any other form of protection.

What these brief descriptions reveal is a blatant disregard for safety standards and occupational health on the part of the existing nuclear authorities and a tremendous reluctance to be generous with the facts.

Response 7:

Your comments are noted.

Comment 8:

It follows, therefore, that the Coalition Against Nuclear Energy has absolutely no faith in the current Draft (Revised) Environmental Impact Report for Nuclwar-1 (*sic*) whatsoever and supports the August 2011 submissions elsewhere of Greenpeace Africa, Janda Macdonald, Earthlife Africa (both branches), The Dyer Island Conservation Trust, the Thyspunt Alliance, and the Koeberg Alert Alliance, to name a few.

All of these submissions by these worthy organisations, who enjoy the full support of their relevant communities and have been ably supported by first-rate academic research and legal counsel, deserve to be read diligently and carefully – without adulteration or amendment by the proponent and their paid consultants – by the relevant case officer, the Deputy Director-General, the Director-General and the current Minister of the Environment, the Honourable Ms Edna Molewa, MP.

In the old language of successful challenges to the Apartheid ministers, they need severally and collectively to “apply their minds” to the submissions mentioned above and to come to a Record of Decision unhindered by ANC Policy, National Energy Policy, Cabinet decisions, international pressure, secret agreements with foreign governments, or lurid and paid advertising by Eskom, masquerading before unsuspecting taxpayers and domestic electricity users as “a warning” at the bottom of *Isidingo* screens.

Using the elegant mathematical and scientifically attested tool of “Ockham’s Razor” the Minister must ask herself whether the current Draft (Revised) Environment Impact Report (and no other document, yet to be revealed in court by discovery and an application under PAIA) – that this document confirms **in every single respect** with the stringent requirements of the National Environment Management Act, read together with Section 24 of our noble Constitution.

Response 8:

Your comment is noted.

Comment 9:

I am more than pleased to say that I am very grateful to the members of the African National Congress and those parties in Opposition who were instrumental in drawing up our Constitution. It has been tested many times since 1995 and never found wanting.

Let us hope and pray that the current Minister of Environment is not asked to defend her Record of Decision in that august court for a singular oversight in the 18.6 kg of documents which the exhausted public has been asked to peruse. I am not even sure that the Treasury would find enough gold in its

vaults to match the funds that would be required to conduct an exhaustive enquiry into the merits or otherwise of the matter in question.

Consider the time and effort which both the IAPs and the State would have to spend in examining and debating the merits.

Consider the invoices, the bills, and the expenses claims of the legal counsel, the expert witnesses and the research teams employed to both attack and defend the matter.

Then Consider Your Verdict, Madam Minister, and make your Record of Decision known before the blessed peace of Christmas descends.

Response 9:

Your comment is noted.

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

05 August 2015

Our Ref: J31314

Your Ref: Email received 21 July 2011



People • Expertise • Excellence

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100

Fax: +27 21 424 5571

Web: www.gibb.co.za

Air Traffic and Navigation Services Company Limited
Private Bag X15
KEMPTON PARK1620

Email: ThysH@atns.co.za

Dear Matthys Horak

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

PROPOSED "THYSPUNT" NUCLEAR POWER STATION

1. E-mail correspondence between ATNS AND SiVEST dated 19 May 2011 regarding the proposed "Thyspunt" nuclear power station refers.
2. After evaluating your application ATNS wishes to record its position as:

Comment 1:

- 2.1 From the perspective of Air Traffic Management (ATM), Communications, navigation and Surveillance (CNS) the establishment of said Nuclear power station conforming to the specifications provided, and located at the site identified will have no negative operational impact on ATNS service delivery.
3. A copy of this letter will be provided to ACSA and the South African Civil Aviation Authority (SACAA).

Response 1:

Thank you. Your comments are noted. Please forward a copy of said letter provided to ACSA to the Nuclear-1 Public Participation Office.

Yours faithfully

For GIBB (Pty) Ltd
Nuclear-1 EIA Team

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

05 August 2015

Our Ref: J27035
Your Ref: Email received 05 August 2011

The Managing Director
Fountains Estate
Buchner Propvest – Garden Route
PO Box 50
Jeffreys Bay
6330

Email: dries@fountainsestate.co.za

Dear Mr du Preez

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

RE: COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT FOR ESKOM NUCLEAR- 1

(Read with attachments: Kouga Coastal Region: Technical Services Capital Programme; Capital Electricity programme; Capital Community and Social Development)

We have been developers in the Kouga region since the mid-60's with developments including Aston Bay, Marina Martinique and more recently, Fountains Estate. We therefore have a significant vested interest in this part of the world. The parties we represent in the comments below include the following:

- Buchner Property Investments Garden Route (Pty.) Ltd
- Fountains Estate
- Savuti Wildlife Properties (Pty.) Ltd
- Savuti Wildlife Holdings (Pty.) Ltd
- Several Buchner and Paterson Trusts
- Dolphin Bay Trust
- Buchner Property Investments 28 (Pty.) Ltd
- A.G.I. du Preez Family Trust

1. Thyspunt Project in General

We want to make it absolutely clear that we are 100% behind the project for the following reasons:

1.1 Although there are still a few minor issues, we take note of and appreciate the extent of the specialist studies.

1.2 The capital investment into the surrounding areas that go with a project of this nature will be of great help to repair and upgrade our deteriorating infrastructure

1.3 The Kouga is in desperate need of an economic and industrial growth generator which will be provided by this project.

1.4 The availability of ample electricity in the Eastern Cape will give new life to the Coega industrial precinct.

Comment 1:

2. The Environmental Impact and Risk Control

Although we cannot fault any of the specialist studies, we nonetheless request that the utmost importance be attached to keeping the impact on the environment to a minimum.

Furthermore, while we take note of the safety standards of Koeberg, we nonetheless request that the highest possible standards of safety precautions be imposed to ensure a risk free environment for the residents of Kouga

Response 1:

Thank you for your comments. With regards to safety as is the case with Koeberg, Eskom places high importance on the safety of people – members of the public, Eskom employees and contractors. In addition the National Nuclear Regulator will not grant a nuclear installation licence on a reactor that is not safe. Site safety issues are considered in the Emergency Response and Site Control Reports (Appendix E26 and E27 of the Revised Draft EIR). However, the assessment of nuclear safety risks is outside the scope of the EIA process and will be considered in the National Nuclear Regulator’s licensing process. Please refer in this regard to the Co-operative Governance Agreement included in Appendix B4 of the Revised Draft EIR.

Comment 2:

3. The Threat posed by the activists of the Thyspunt Alliance

These people are fanatically set against the Thyspunt development for personal reasons and will try every trick in the book to cast doubt on specialist reports and spread questionable information in order to strike fear into the hearts and minds of the local communities. In this regard we have the following comments:

3.1 Although they are very active on different fronts and sometimes sound like the only voice coming from the Kouga, they represent a small portion of the residents in this area.

3.2 The Business Community is scared to openly support the project because of intimidation by the “Green’s” and fear that their businesses will be boycotted.

3.3 One positive element however, is that they have kept the Arcus Gibb specialists on their toes.

Response 2:

Your comments are noted.

Comment 3:

4. Request for a “Special Condition” to be imposed on ESKOM in the ROD

If we assume a positive ROD on this project, we request that the following special condition be included in this ROD.

“That ESKOM be obliged to allocate an amount equal to 2% of the project value for the investment in Social Upliftment and the Upgrading of Infrastructure in the Kouga Region. This to be done in consultation with the local Municipality and Business leaders in the area –

similar to what has been done at Medupi power station. The attached detailed assessment of projects (marked Annexure A) will form the basis of this consultation.”

4.1 Background to this Request:

Coupled with the impact of the recession, the Kouga Region has recently suffered under one of the worst-performing municipalities in South-Africa (rated as 2nd worst in S.A. for operational and financial management by an April 2011 Business Day survey) resulting in a deteriorating infrastructure, massive capital projects backlogs and a current bankrupt status.

Kouga is therefore badly positioned in this regard and needs massive assistance from Government to be up and running again.

4.2 Motivation for this Request

4.2.1 ESKOM is obviously aware that its personnel and contractors will potentially be moving in to communities where the infrastructure is already not coping with the current demand and must have some idea of the infrastructure upgrade and social support projects which will have to be undertaken in these communities to support the additional demand.

4.2.2 In general, the infrastructure will have to be upgraded for the Kouga region to benefit from the economical growth following the Thyspunt development.

4.2.3 Local sentiment suggest that ESKOM “will have to bring a lot of goodwill into the Kouga Region to show their appreciation for the fact that local residents will soon have to contend with a nuclear power station in their back yard – something which is ultimately for the benefit of the whole country.” It is then argued that ESKOM (and for that matter, Government) should “compensate this region in some meaningful way for bringing the nuclear power station here”

4.3 Compilation of Infrastructure support requirements

Using local government information in the public domain, together with input from the chambers of business and resident associations in the area, we have assembled a fairly comprehensive assessment of the investment which we believe would firstly be necessary to support the ESKOM project in this region and secondly, which could be used effectively for negotiating a truce with those who oppose the power station.

The attached detailed assessment (marked Annexure A) of Capital Projects constitutes the combined input from the Kouga Municipality, St. Francis Bay Residents, the Black Business Forum, Kouga Business Forum. We are requesting that this must form part of the conditions imposed on ESKOM by the ROD.

Response 3:

Your comments are noted. As reported in recent public meetings Eskom is engaging with local municipalities on the upgrading of certain infrastructure, including roads and other facilities. It is acknowledged that there is an infrastructure backlog and that the Kouga Municipality does not have sufficient funds of its own for the necessary upgrades. Thus, the following is recommended in Section 10.3.1 of the revised Draft EIR:

“Eskom must enter into negotiations with local authorities and other relevant authorities well before the start of construction to identify how it can be ensured that municipal services are capable of providing sufficient capacity for the expected influx of people into the affected area. Agreement must be reached between Eskom and these bodies on the apportionment of financial responsibility for infrastructure upgrades.”

Eskom cannot, however, be expected to be solely responsible for infrastructure upgrades, as current infrastructure backlogs are the responsibility of the municipality. It is for this reason that it

has been recommended that agreement must be reached between Eskom and the other role players regarding apportionment of responsibility.

Thus, with regards to your suggestion of a contribution of 2% of the project value, no fixed percentage can be calculated at this stage. However, the example of Eskom's contribution to infrastructure development for the Mepudi Power Station is appropriate and is recommended as a model for Nuclear-1.

Comment 4:

5. Conclusion

You might think that this is a strange request, however, the reality is that Kouga finds itself in a desperate situation which requires extraordinary action. By imposing this condition on ESKOM and by implication, Government, this will ensure that all the residents of the affected communities will derive benefit from the project.

In the bigger scheme of things, by investing 2% of the contract value for this purpose is absolutely minimal for Government, compared to what the country will gain from being able to commence with this project on schedule.

We trust that you will give favourable consideration to this request and we are more than willing to be involved in future discussions and negotiations.

Please feel free to contact us at any time in this regard.

Response 4:

Your comments are noted.

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

Yours faithfully
for GIBB (Pty) Ltd



Nuclear-1 EIA Team

ASSESSMENT OF THE INVESTMENT NEEDED IN SOCIAL UPLIFTMENT AND INFRASTRUCTURE INITIATIVES IN THE KOUGA REGION



**COMPILED BY A DELEGATION OF LOCAL BUSINESS
LEADERS
JULY 2011**

Annexure A

**SUMMARY OF THE PROPOSED INVESTMENT BY ESKOM IN THE SOCIAL
UPLIFTMENT AND INFRASTRUCTURE OF THE KOUGA REGION**

- | | |
|--|----------------|
| 1. Roads directly related to the power station | R 500,00 mil |
| 2. Supporting infrastructure (Roads, Water, Sewage, etc) | R 1 509,00 mil |

3. Supporting Electrical Infrastructure R 420,00 mil

4. Community and Social Upliftment R 536,00 mil

TOTAL R 2 965,00 mil

NOTES

1. The investment summary includes high-profile projects aimed specifically at segments of the community who oppose the power station, including:
 - Solving the sewage problem that cost Jeffreys Bay's main beach its Blue Flag status
 - Providing a coastal link road to give St Francis Bay's and Oyster Bay's residents easy access to the infrastructure and amenities of Jeffreys Bay
 - To restore the deteriorating roads infrastructure of St Francis Bay's
 - Assisting St Francis Bay to find a solution for their main beach erosion problem
2. A significant proportion of the total investment has been allocated for social upliftment of previously disadvantaged communities
3. It is anticipated that many of the projects that have been identified by us will already be part of Eskom's planned investment into this region

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

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

Email: john@savebantamsklip.org

Dear John Williams

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

RE: COMMENTS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT FOR ESKOM NUCLEAR- 1

Comment 1:

Dear Jaana-Maria Thank you for all your communications.

I would like to refer to 2 issues

1. The below document (can be found at http://www.savebantamsklip.org/docs/NSIP%20REPORT_0001.pdf) of 1988 and 1993.

Entitled: NG18/TAC/ea/scapREP
NUCLEAR SITING INVESTIGATION PROGRAMME (NSIP)
SOUTHERN CAPE
SUMMARY REPORT

2. Nuclear-1_Bantamsklip_sensitivity map_rec area_31072010 COM

Response 1:

Your comments are noted.

Comment 2:

Dealing with 1.

After eighteen years having relapsed, the recommendations stipulated in your own report (shown below) for the purchase of the Bantamsklip site have still not been fulfilled on all three counts Motivation, Warm Water Effects and Compensation. We believe the EIA procedure is Fatally Flawed on this count alone.

Response 2:

Your comment is noted and is responded to in Response 4 below.

Comment 3:

Dealing with 2.

No protected areas are shown on the map Agulhas National Park, Pearly Beach Nature Reserve, Soetfontein Nature Reserve and Groot Hagelkraal itself. The locality of Buffelsjagt is also not indicated on any of your mapping for the Bantamsklip site.

Response 3:

Your comments are noted and a map explicitly illustrating these areas will be included in the Revised EIR Version 2.

Comment 4:

5 RECOMMENDATION OF SITE SPECIFIC SENSITIVITY
(acc 1162516)

6. 5. 2 Recommendation : Bantamsklip

The Bantamsklip site should not be purchased for later development for a nuclear power station unless certain criteria are met.

6.5.4 Criteria for purchase of Bantamsklip or Buffelsjagt

The following three major criteria should be met before either the Bantamsklip or Buffelsjagt sites and re purchased:

Motivation

A clear and publicly motivated need is shown for the specific site compared to other national sites.

Warm water effects

The effects of the maximum release of warm water on the local marine resources are quantified and carefully assessed.

Compensation

Fair compensation (as determined in negotiations) is made to the affected parties.

Response 4:

Your comments are noted and responded to as follows:

Motivation:

The motivation for the specific site selection and the site selection process is discussed in the Revised Draft EIR Version 2 and in previous versions of the EIR and Scoping Reports. Eskom's focus is to provide power as close as possible to the areas where there is the greatest need for power. The sites identified for assessment are located near growth areas where the greatest increases in electricity demand occurs and is due to continue for the foreseeable future.

Warm water effects

Warm water effects are discussed in detailed in Sections 3 and 5 of the Marine Ecology Impact Assessment. This report has recently been revised in response to comments received from Interested and Affected Parties and additional Key Stakeholder consultation and will be made available for public comment and review and as an addendum to Revised Draft EIR Version 2.

Compensation

It is normal practise to purchase land at market related conditions, hence Eskom will do the same.

Comment 5:

It is our contention that the Bantamsklip site EIA (and EIR) is fatally flawed and the site should be removed from the list of proposed nuclear sites. We are prepared to elaborate on this submission when you have had time to consider the contents thereof.

Response 5:

Your comment is noted and GIBB invites the writer to elaborate further.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

The Nuclear-1 EIA Team

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

Email: hendry.eugene@gmail.com

Dear Mr Eugene and Ms Louise Hendry

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

We attended your Gansbaai Public Participation meeting and submit the following comments.

Comment 1:

The faulty sound system you used meant that a lot that was said was not heard clearly causing confusion and frustration to some of the audience.

Response 1:

Your comments are noted and GIBB apologises for any confusion or frustration caused. All attendees of the meeting who signed the register and provided contact details were provided with a copy of the minutes for their comment. Draft and Final copies of the minutes of the meetings are also available on the GIBB and Eskom websites at <http://projects.gibb.co.za/> and http://www.eskom.co.za/OurCompany/SustainableDevelopment/EnvironmentalImpactAssessments/Pages/Nuclear_1_EIA_Documentation.aspx respectively.

Comment 2:

We are concerned that the community at Buffeljags, who are your neighbours at Bantamsklip have apparently little or no knowledge of your processes.

Response 2:

As stated at the meeting GIBB is aware of the Buffelsjag community and has met with members of this community during the Bantamsklip Transmission Lines EIA public meetings. The community is considered within the Nuclear-1 EIA and as further stated at the meeting no recommendations to move any of the communities situated within the vicinity of any of the three sites.

Also, as part of the comprehensive Public Participation process undertaken in terms of the EIA process, the progress on the project, the availability of reports for public comment and review as well as the dates of public meetings have been advertised not only in local papers in the vicinity of the community but also regional and national newspapers. As such please see Appendix D1 of the Revised Draft EIR Version 1 for proof of advertisements sent during the last round of public participation and Chapter 7 of the same report for a full description of the public participation process throughout the history of the project. Bantamsklip is not the preferred site for the first nuclear power station. If under any circumstance it becomes the preferred site the local authorities and communities

would be further engaged during the planning phase of the project to ensure that any outstanding concerns are addressed. The community did attend this meeting and have an opportunity to raise any of the concerns they may have.

Comment 3:

The presentation on the latest Nuclear Power disaster was enlightening but a pity so few people stayed on afterwards to see it. The presenters spin on underplaying the severity of the disaster had it occurred here with different technology etc. was not convincing.

Response 3:

Your comments are noted. However it should be noted that the presentation was not to convince anyone but to put facts forward about what happened at Fukushima.

Comment 4:

The Fukushima nuclear disaster in Japan has left 20000 dead - 80000 people have been evacuated from a 20km exclusion zone. This exclusion zone has been extended in certain areas because of heightened radiation levels. Many livestock and pets were abandoned and have died from hunger. There is a no fishing ban within 30km of the affected area. The disaster is ongoing and the area will probably be lost to generations of Japanese people. Twenty five (25) years ago the Chernobyl Nuclear Power accident created a sterile 4500sq km exclusion zone. Is it not the Department of Environmental Affairs of our Government and the National Nuclear Regulator's duty to protect the Environment and the citizens of South Africa and their future generations, against the myriad of impacts and possible disasters created by granting Eskom a license for Nuclear 1?

Response 4:

Whilst the Fukushima Daiichi incident is without a doubt a highly undesirable event, as it could have led to loss of life, some perspective is also required on this event. The tsunami was responsible for the loss of approximately 20,000 lives, the evacuation of approximately 450,000 people and the complete destruction of several coastal towns. On the other hand, not a single death or serious injury due to the radiation release from the power station has been recorded to date. You are correct, it is the duty of the Department of Environmental Affairs, as a government department and Competent Authority in terms of the EIA, to evaluate and disseminate all information placed before it in terms of the provisions of the National Environmental Act and the principles of Integrated Environmental Assessment and Sustainable Development within the South African context. The National Nuclear Regulator on the other hand is the Competent Authority for ensuring that individuals, society and the environment are adequately protected against radiological hazards associated with the use of nuclear technology in South Africa.

Comment 5:

The Environmental impact studies have highlighted a host of impacts a Nuclear Power Station built on the coast will have on people and the environment, and the process you have adopted of mitigating factors which lessens the impact due to costs, less populated, convenient location, or weather factors etc. does not in fact lessen the impact that has been identified by your experts. The impact is real and the dangers therein will remain for generations to come e.g. storing used nuclear fuel rods on site.

The judges of the constitutional court must make this call for the benefit of our children.

We applaud Eskom for its Integrated Resource Plan, in including Renewables opportunities in South Africa and sourcing from outside our borders and viewing an African solution to the demand challenge, but leave Nuclear Power generation out of the equation! With proper negotiation and leadership and a

more flexible vision from Eskom this can be achieved. Carbon emissions can be capped at a cost less than the cost of a Nuclear Power Station.

We say that the DEA should not authorize the Thyspunt site for the Eskom Nuclear 1 Power Station and should rather consider the bigger picture of an African solution for the power generation for sub Saharan Africa.

Response 5:

Your comments are noted. The Environmental Impact Assessment process has never denied the existence or "realness" of impacts or their significance as the author implies. As such please refer to Chapter 9 of the Revised EIR Version 1 for a comprehensive list of impacts identified by the Nuclear-1 specialist team.

Mitigation measures included in the Draft EIR, Revised Draft EIR Version 1 and Draft Environmental Management Plan have been proposed by the Nuclear-1 specialist team, who based their recommendations upon their professional experience and scientific investigation of the proposed Thyspunt, Bantamsklip and Duynefontein sites.

Lastly please note that the Integrated Resource Plan is not an Eskom initiative. The recommendations made in the Integrated Resource Plan 2010 are strategic government decisions outside the ambit of the Nuclear-1 EIA process. Neither the Nuclear-1 EIA process nor any other EIA for a power generation project has any mandate to revisit the recommendations of the IRP 2010, whose recommendations have been adopted as government policy through acceptance by cabinet. Government thus has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa's future electricity needs for the next two decades. The conclusion of the IRP 2010 process is that 9,600 MW of nuclear generation must form a part of the mix of generation technologies. In terms of carbon emissions, please provide GIBB with a reference to your statement.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 04 August 2011

Hermanus Ratepayers
PO Box 134
HERMANUS
7200

Email: ratepayers@hermanus.co.za

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Rodney Anderson

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

Comment 1:

SUBMISSIONS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT “DEIAR” FOR THE PROPOSED POWER STATION (NUCLEAR-1): COMPILED BY: RODNEY ANDERSON ON BEHALF OF THE HERMANUS RATEPAYERS’ ASSOCIATION (“HRA”) EXCO

1. The following comments are based on a mandate granted unanimously by the members of the HRA at their Annual General Meeting on 24 March 2010.
2. In addition, the HRA reiterates its reliance on the submissions it made to the DEIAR, dated 27 June 2010. Though a response was prepared by Arcus Gibb (“the Response”), it fails to properly address the relevant issues. We say so for the following reasons:

Tourism

- 2.1 Tourism is the only long-term industry underpinning the value of the Overstrand. The Tourism Assessment correctly acknowledges the importance of tourism to the region. The Response correctly acknowledges that the tourism market in this area is still developing. The potential for its growth is exponential, provided that its pristine natural assets are preserved. The HRA stands by what is set out in relation to the importance of tourism as the basic economic-driver of the region. The HRA is aware that numerous submissions have been sent to Arcus Gibb highlighting the inestimable environmental value of the area. The HRA allies itself, in particular, with the submissions made by Sue Leber and Storm Kreuzsch (both of whom are experienced in the tourism industry) in relation to the Nuclear 1 DEIA. Research and experience in this industry reveal the Tourism Impact Assessment to be incorrect and misleading. For instance, the Tourism Bureau’s information is inaccurate and incomplete – it cannot be accepted as a reliable source of tourism information.
- 2.2 Though whale-watching and shark-cage diving are important, there are numerous terrestrial recreational activities that attract tourists. In this regard, Overstrand has been registered by Birdlife International as an important birding area – it is one of the very few municipal areas in

the world to have achieved this distinction. Avian and botanical tourism are massive international industries and will continue to grow.

- 2.2 A nuclear power station (“NPS”) will only have a negative effect on such growth. The implication that visitors would come to an area such as Bantamsklip – renowned for its natural beauty – for the purpose of visiting a NPS is, at best, unlikely. In this regard, the HRA calls upon Arcus Gibb to make available a quantifiable impact assessment with visitation numbers supporting this argument.
- 2.3 The 20 kilometre radius used to evaluate tourism value and size is arbitrary and completely inappropriate for this purpose. In order to make an accurate and fair assessment of the tourism value of the region, it is necessary to consider settlements within a wider radius, so that important tourism and commercial entities are taken into account. 50 kilometres is a more logical and reasonable radius to consider this type of activity. The exclusion zones used in the EIA are also completely inappropriate and unsupported by international evidence or experience. We elaborate on this below.

Response 1:

Your comments are noted.

Your comment regarding inaccuracy of tourism figures obtained from the Tourism Bureau refers. The Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR Version 1) acknowledges the poor quality of tourism data and the makes a point about the disparate and haphazard nature of the data that are available. Tourism statistics were therefore obtained from a number of sources, including Stats SA Western Cape Tourism, Cape Town Routes Unlimited, etc. as complete data sets were not available from a single source. All stakeholders with whom the Nuclear-1 tourism specialist consulted were unified in their admission that tourism statistics are insufficient and indicated that quantifiable data for specific geographic areas such as those for the Nuclear-1 project are lacking. This is acknowledged as a limitation in the Tourism Impact Assessment.

Your comments regarding visitation to a nuclear power station is noted. Koeberg Nature Reserve around Koeberg Nuclear Power Station (KNPS) provides an example of a nature conservation asset that is frequently visited by tourists approximately (15 000 per year).

Apart from the direct benefits that Koeberg Nature Reserve provides for recreation and tourism, the operation of the KNPS provides opportunity for numerous accommodation establishments, which host business tourists who come to the KNPS for work. A similar nature conservation initiative around a power station in which Eskom is involved is the establishment of a large conservation area around Ingula Pumped Storage Scheme. This area contains a wetland of very high conservation value for water birds, which will provide an important asset for bird-related tourism once it is fully developed. Birdlife SA has declared the upper Bedford wetlands in this conservation area as an Important Bird Area (www.birdlife.org.za/conservation/iba - accessed on 29 November 2012).

Your comments regarding the size of the area considered are noted. The “exclusion zones” for the power station are completely unrelated to the size of the area selected for impacts assessment. GIBB did not specify a particular radius for specialists to consider, but left it up to the judgement of the particular specialist to define their area of study.

Comment 2:

Design of reactor

2.4 The HRA notes that the Response does not address its concerns (and those of countless other organisations) regarding the fact that the type, specification and number of reactors have not been determined. The HRA reiterates these concerns, which are also identified in other submissions set out above. This is a fatal flaw – without the choice of design (which has an integral impact on numerous other issues) – it is simply not possible to properly assess all of the impacts of the NPS.

Response 2:

Your comment is noted. GIBB maintains that an acceptably accurate assessment of the potential environmental impacts is possible with the use of 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, and other specifications like footprint and processes/functionality, of the proposed technology are known and the environmental impacts can be predicted or deduced from these data 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 is not 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 3:

Transmission lines

2.5 Any difficulties that may have been experienced in having to consider the impacts of the transmission corridors in the DEIA are irrelevant – considering this issue is a crucial component and inseparable from this EIA process. This is also a fatal flaw and legally impermissible.

2.6 In any event, there *is* no feasible route for these lines in relation to the Bantamsklip site – it will therefore not assist to defer this determination to a separate EIA process.

2.7 Significantly, at a public participation meeting in Bredasdorp, when this issue was raised by a member of the public, Arcus Gibb responded that the public should suggest a suitable route for

the transmission lines to Bantamsklip. This highlights the extent of the difficulty that had been experienced in this regard, before the process was stalled and deferred to another EIA process.

Response 3:

Your comments are noted.

The impacts associated with the transmission lines have been considered as far as possible during this EIA process. Whilst it might be ideal to consider the potential impacts of the power station and all three transmission corridors in a single document, this is not practically possible and would result in an unmanageable process and in all likelihood a set of documentation that would make understanding of the key issues impossible. At this stage the EIR for the power station includes 35 different specialist studies and is a very lengthy documentation. This amount of information is already difficult to manage and digest by the public and quadrupling the volume of this documentation by including all three power line corridors (most of which include a number of different corridors in widely dispersed areas) is not practical. It is in recognition of these facts that the DEA has approved the approach of one EIA process for the nuclear power station site and three separate EIA processes for the transmission lines.

The difficulty in finding a feasible route for the Bantamsklip transmission lines is acknowledged. This is one of the reasons why the Bantamsklip site was recommended as the least suitable of the three alternative sites in the Revised Draft EIR.

Comment 4:

Release of radioactive substances

- 2.8 The HRA reiterates its submissions and relies also on the other submissions set out below, including those submissions that question the independence and reliability of the NNR.
- 2.9 One of the major concerns of the HRA and other organisations is that the whole life cycle of the NPS is not considered. Especially given the lack of a plan in relation to long-term waste, and its effect on future generations, this is also a fatal flaw.
- 2.10 Whilst it may be so that it is not practical to address “more than 30 different other authorisations that need to be obtained”, there is no doubt that issues of radiological safety fall squarely within the ambit of an EIA process. It is unacceptable and legally impermissible for this responsibility to have been deferred to the NNR.

Response 4:

Your comment on the independence and reliability of the NNR is noted. GIBB, as the environmental assessment practitioner, has no mandate to question the independence and competence of a regulatory body.

Your comment regarding the life cycle impacts of the power station are noted. Environmental Impact Assessment (EIA), by its very nature, is a project-specific tool of environmental management dealing with the impacts of construction and operation, among others, of a particular facility. As such, an EIA is not focused on assessing the impacts of the entire life cycle of a project proposal. It is therefore not possible within the scope of the Nuclear-1 EIA to consider all the life cycle impacts of a nuclear power station, or of alternative electricity generation technologies.

Your comment regarding the exclusion of certain radiological matters from the EIA refers. Our previous response remains valid.

Comment 5:

Renewables and costs

- 2.11 Installing renewables has been shown to be both cheaper and faster than NPSs; particularly when the life cycle of renewables is compared to the whole life cycle of NPSs. In addition, it is not true that “base-load” power cannot be achieved without nuclear or coal - alternatives to base-load coal or nuclear power can be provided by efficient energy use, solar hot water, bio energy, large-scale wind power, solar thermal electricity with thermal storage, and geothermal, with gas power playing a transitional role. In particular, large-scale wind power from geographically distributed sites is partially reliable and can be made more so by installing a little additional low-cost peak-load back-up from gas/diesel turbines. Renewable energy will certainly make a much bigger impact than nuclear power in reducing greenhouse gas emissions. It also creates more jobs, and unlike nuclear power, these can be broadcast wherever the power is required.
- 2.12 Design parameters for all future power plants are currently being reconsidered in the light of the Fukushima disaster. This will escalate the already enormous costs, delays, and difficulties associated with the building of NPSs worldwide. Many countries have now decided to abandon and/or phase out nuclear power. Nuclear power has also become politically unpopular in first-world countries. For all of these reasons, a NPS would have a negative impact on much-needed external independent capital investment in South Africa.

Response 5:

Your comments in favour of renewable energy are noted and shared. The value of renewable energy sources is not contested and they have a vital and increasingly important role to play in energy supply in South Africa. However, the legislated EIA process for Nuclear-1 does not intend to, nor is it equipped to assess the merits in principle of nuclear generation vs. other forms of generation.

The environmental application for Nuclear-1 is for a nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal fired power stations currently under construction. In all these previous instances, the scope of the EIA was restricted to a specific power station on a specific site or sites within a defined geographical area. Execution of the EIA process towards a technology is fed from the strategic planning processes. Thus, it cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa’s electricity needs. This is especially the case in the instance of the Nuclear-1 application, where the government has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa’s future electricity needs for the next two decades.

Please refer to Appendix E33 for the Beyond Design Accident Report for further details on the Fukushima incident. The report also elaborates on the design specifications that Nuclear-1 has in place to avoid similar situation.

There are some countries such as Japan and Germany that have put on hold plans for future nuclear power station development. However, there are others such as China that are currently constructing

several nuclear power stations and planning several future ones. Therefore each countries decision and plans on Nuclear energy must be seen within the context of that country and not generalised.

Comment 6:

Exclusion zones

- 2.13 The emergency zones of 800 metres and 3 kilometres are wholly inappropriate and inadequate. They are not supported by international evidence or experience. The impacts of nuclear accidents have been shown to extend very much further than those proposed. The Greenpeace submission of August 2011 addresses this in some detail.
- 2.14 In the light of the Fukushima disaster, the world is reassessing the nuclear risks and impacts of nuclear accidents, as the Fukushima disaster casts serious doubts on current nuclear safety levels. Therefore, all nuclear expansion plans, including this EIA process, should be put on hold awaiting the outcomes of the industry's reassessment. As a basic minimum, the Revised DEIR should be adapted to incorporate lessons learned from Fukushima.

Response 6:

The 800 m and 3 km are as per the EUR standards. Please refer to Chapter 3 of the RDEIR Version 2, for further information.

Your comments on the lessons learnt from Fukushima are noted. Please refer to Appendix E33 of the RDEIR Version 2 for information on Fukushima and the design measures put in place for Nuclear-1. Furthermore the NNR had re-assessed Koeberg's emergency plan and determined that they were adequate in light of Fukushima.

Comment 07:**COMMENT ON EIA****RE: ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED POWER STATION (NUCLEAR-1): COMMENTS RELATING TO BANTAMSKLIP.**

Compiled by: Rodney Anderson on behalf of the HRA Exco.

The following comments are based on a mandate granted unanimously by the members of the Hermanus Ratepayers Association at their Annual General Meeting on the 24 March 2010. Our comments, therefore, will be largely based on but not limited to our concerns with regard to eco-tourism, agricultural production, marine harvesting and environmental conservation.

The Overberg District Municipality, encompassing the L'Agulhas and Overstrand regions, is of major importance to tourism in the Western Cape. It thus forms part and parcel of the wider attractions of the Wine Routes, the Garden Route and South Africa as a tourist destination as a whole. The natural assets of the Overstrand-Agulhas region are its single biggest tourism and eco-tourist draw-card and are responsible for sustaining the economy and for generating and sustaining employment.

In the Tourism speech for the department of economic development and Tourism's budget vote speech 2008/2009, delivered by Ms Lynne Brown, Provincial Minister of Finance and Tourism, Western Cape Legislature, 28 May 2008 <http://www.whalecoast.info/news.php?section=view&id=10> She said: "I would like to briefly reflect on NEW research commissioned by Cape Town Routes Unlimited (CTRU) which was completed by the Cape Peninsula University of Technology.

- *The research findings show that the tourism sector of the Western Cape contributed 14.08% to the Gross Geographic Product (GPP) to the Province in 2005.*
- *AND in fact that 29 tourists are required to create one direct job in the industry while 20 tourists create one indirect job.*
- *That the Demand generated by tourism in other sectors is valued at:*
- *R2.5-billion for Manufacturing;*
- *R2-billion for Transport, Storage & Communication; and*
- *R1.5-billion for Wholesale/Retail Trade, Hotel & Restaurant.*
- *That the total impact of Travel and Tourism consumption (this means travel and tourism industry supply) on the Western Cape economy in 2005 was R 25.2-billion. It can only be concluded that the true impact of tourism extend far beyond the core of the tourism industry and that the current tourism statistics understate the real contribution of tourism to the Western Cape economy."*

The above informative speech dramatically defines the scope and connectedness of potential areas impacted by the ripple effect of the disruption of tourism attraction and should give pause for thought.

Rapport, announced South Africa's Whale Capital Hermanus as its Town of the Year (2009) in an SMS competition. Routes Unlimited, the tourism destination marketing organisation for Cape Town and the Western Cape supports this competition. A previous winner was Struisbaai in 2007.

"Hermanus is one of the towns which epitomises the Western Cape tourism experience. It has that one defining, unforgettable feature - the best land-based whale watching spot in the world – while at the same time offering the visitor a distinct mix of tourism options such as glorious beaches, its Hemel-en-Aarde wine route, adventure sport, and restaurant and accommodation choices to suit

every taste and pocket. Winning this title will definitely assist the town even further in growing into a top-of-mind domestic tourism destination,” says Calvyn Gilfellan, Chief Executive of Cape Town Routes Unlimited.

Response 07:

Your comment on the value of the tourism industry is noted.

Comment 08:

Extract from the Executive summary of the Draft Environmental Impact Report

1. *Perceptions regarding a nuclear power station are frequently based on lack of scientific information about perceived impacts*
2. *Public concern is also relatively low at Bantamsklip*
3. *In general the business sector around all three sites see opportunities arising from the establishment of a nuclear power station, quite apart from the importance of stabilising the electricity supply*
4. *The two most sensitive industries in terms of their perceptions about the impacts of Nuclear 1 on their activities are fishing and tourism. However the analysis shows that any negative impacts are likely to be slight and that in fact there would be overall positive impacts on tourism.*

Ignoring, for the moment the blatant bias implicit in the wording of the above remarks, we declare that these statements are only made possible by scoping out the economic powerhouse of Hermanus with a population over 100 000 (speech by Mayor Theo Byleveldt Overstrand Municipality, IDP meeting, 2010).

Response 08:

Your comment is noted. The extracts above are from the economic impact assessment and therefore need to be answered in the context in which these statements were made. The approach of the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR Version 1) was to assess the impact on the regional and provincial economies. Bearing this approach in mind, there are no specific areas such as Hermanus that were scoped out of the study.

Comment 09:

Hermanus is the eco-tourism centre of the Overberg District Municipality. Although this important resort town lies within the 50km radius designated internationally as an emergency-evacuation zone in the case of a nuclear accident, it is nevertheless presumed in the Draft Environmental Impact Report to lie beyond the biophysical, social, and economic impact zone. This is both illogical and nonsensical in the extreme. This viewpoint holds good for Stanford, Gaansbaai (sic), Stuisbaai (sic), and all the many smaller towns within the 50 km radius.

Such businesses that are included in the artificially and illogically truncated ‘impact zones’, moreover, would tend to count short term improvements during construction and would therefore think more in terms of these short-term gains rather than the overall, and negative, long term regional economic impacts. The specialist studies are silent on this.

In the event that the overall long-term impacts on eco-tourism and other tourism and all other local terrestrial and marine commercial activities were properly researched using the whole life-cycle of the proposed nuclear power station at Bantamsklip, a completely different picture would undoubtedly emerge.

Response 09:

Your comment is noted.

The radius of the affected environment assessed by each specialist study was independently determined by each specialist. Whilst you may argue that a 50 km radius is not sufficient, other commentators may argue that 100 km or 200 km is not large enough. Ultimately, however, an objectively determined zone, which is the same for each alternative site (to allow for comparison) needs to be defined. In this instance, the relevant specialists regarded 50 km as appropriate.

Comment 10:**Assessment of impacts on tourism**

With reference to the Tourism Specialist Study, bed nights are a ludicrously inadequate tool to account for the overall income from tourism, while the sum of R340 per bed-night is grossly understated. This basis also implies that all visitors to the Overberg visit for the sole purpose of sleeping and fasting, which is obviously also nonsense.

The choice of two of the “most sensitive” industries given as “fishing and tourism”, while excluding all other agriculture, viticulture, indigenous plant products, aquaculture and commerce generally in the broader context, ignores their inter-relatedness. Even the real estate and construction industries are glossed over, when we avoid scoping out the heart of the Overberg by limiting the impact zone to 20 km for a huge nuclear-industrial complex with a lifespan stated as lasting 60 years.

Response 10:

Your comments are noted. Bed nights are the only recognised objective criterion for measuring tourism impacts.

It is assumed that your statement regarding the focus on the most sensitive industries, namely fishing and tourism, relates to the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). The statement is made specifically regarding perceptions, since the fishing and tourism sectors are the ones that have expressed the greatest concern about Nuclear-1. Few if any comments have been received from other sectors such as agriculture, viticulture, aquaculture and commerce. A specific statement has therefore been made about the potential impact on those sectors that expressed the greatest concern.

Comment 11:

To then make the claim – “*that in fact there would be overall positive impacts on tourism*” – beggars belief

In the almost total absence of current well researched, reliable and focused data on the commercial value of Tourism in the Overstrand-L’Agulhas region it is impossible to make accurate statements as to the value of this primary economic driver.

Here is one example of the differing opinions of the value of shark-cage and whale-watching tourism industries between the Gibb’s specialists and a conservation group:

Tourism Impact Assessment Study: Table 4.4 Approximate Annual Value of Shark-cage and whale-watching tourism industries in the Greater Gansbaai area.

Approximate value of shark and whale tourism industry per annum

R 56,400.000

Weekend Argus Saturday 1 May 2010 Helen Bamford

*Lesley Rochat, director of the AfriOceans Conservation Alliance said that:
Great white shark cage diving in Gansbaai alone generates per annum*

R289, 000,000

Tourism Impact Assessment Study: 4.1 Assessment of Impacts on Tourism

"For all three sites there are no "no-go" areas and no preferred siting of the facility from a tourism point of view"

This statement is certain proof of bias and or incompetence.

Response 11:

Your comment is noted. Each specialist was required to identify, from a spatial point of view, whether there are any sensitive areas on the alternative sites from their perspective i.e. to determine whether there are areas on the site where the power station and associated infrastructure should not be placed. The statement in the tourism impact assessment is made in this context, as there are no tourism assets on any of the three alternative sites that would be affected by the proposed power station.

The difference in the estimates of the economic value of the shark cage diving industry is noted. For these estimates to be directly compared, the assumptions, inclusions and exclusions of the respective studies would have to be examined. One source may, for instance, only have considered the direct income of shark cage diving operators, whilst another may also have included the indirect value of accommodation. With the information you have provided above, it cannot be confirmed whether the data are directly comparable.

Comment 12:

The insertion of a vast nuclear facility into a pristine ecological terrestrial and marine biodiversity "hot spot" of international importance makes no sense from any logical point of view.

With regard to the socio-economic impact on the Overberg District Municipality, and the Overstrand-L'Agulhas region in particular, the magnitude of impact that such a nuclear industrial complex might impose on the region is downplayed, given that up to three or four reactors might be required to produce the planned 4 000 MW output required from each of the three sites.

The consistent success of tourism/eco-tourism and the overall growth of the whole of the Overstrand economy have remained dependent on, and inseparable from, the broader terrestrial and marine ecology and bio-diversity of the region.

This is why logically the concept of any major industrial development which disrupts the natural fabric of the Overstrand-L'Agulhas region is of deep concern to the Hermanus Ratepayers and all persons in the Overstrand economy.

Eco-tourism has been identified in the Integrated Development Plan of the Overstrand Municipal Authority as the mainstay of the economic and social development strategy for the area with growth calculated at over 6 percent per annum over the last 10 years (Long term traffic counts R43). A wide range of tourism-based recreational activities and facilities have been developed over the last decades and these multi-million rand investments have served to drive the economy, which in turn, have in turn led to rapid wealth and job-creation.

Tourism Impact Assessment Study: 4.5 Assessment

The claim that there has been “*rapid growth of the tourism sector in the area near Koeberg...a similar state of affairs should obtain around Bantamsklip*” is not based on any cohesive scientific basis at all.

Response 12:

Your comments are noted.

The number of reactors is immaterial to the scale of the impact. The application for Nuclear-1 is for a total power generation capacity of up to 4,000 MW. This could be made up of a number of smaller reactors or two relatively large reactors. In any event, the total physical footprint of the power station would not change significantly if different numbers of reactors are used.

Your comment on the dependence of tourism on the natural resource base is noted. In this instance, although the broader region is known to contain many unique biodiversity assets, the proposed Bantamsklip site itself has highly localized sensitive botanical features such as patches of limestone fynbos, as well as wetlands that occur on the northern portion of the property, which portion is not to be developed. It was therefore possible, on the Bantamsklip site, to position the power station so that none of the sensitive ecosystems would be affected. Given this, as well as the physical footprint of the power station being less than 300 ha, the overall biophysical impact on the region will be small. Provided that the EIR’s recommendations in terms of disposal of spoil and warmed cooling water are implemented, marine impacts are also predicted to be acceptable.

Your comment regarding the tourism experience at Koeberg Nuclear Power Station not being applicable to Bantamsklip is noted. Other examples such as the experience with the Medupi Power Station in Limpopo are also referenced in the Tourism Impact Assessment.

Comment 13:

General

It is our contention that such scientific information that has been made available throughout the specialist reports and in the summary are largely incomplete, often times biased, misleading and generally inaccurate.

Our focus on the tourism sector particularly should not be construed as acceptance of all or any of the information or conclusions drawn in any of the specialist studies in the balance of the draft report.

The type, specification and number of reactors intended have not been made known and have illogically been separated from the impact of the power lines. As each cannot function without the other, sensible, informed consideration of neither can be made.

This fact alone constitutes a fatal flaw and makes the exercise of our constitutional right to informed public participation impossible.

Response 13:

Your comments regarding the number and types of reactors and the separation of the EIAs for the transmission lines and power station are noted.

Whilst it might be ideal to consider the potential impacts of the power station and all three transmission corridors in a single document, this is not practically possible and would result in an unmanageable process and in all likelihood a set of documentation that would make understanding of the key issues impossible. At this stage the EIR for the power station includes 28 different

specialist studies and is a very lengthy document. This amount of information is already difficult to manage and digest by the public and quadrupling the volume of this documentation by including all three power line corridors (most of which include a number of different corridors in widely dispersed areas) is not practical. It is in recognition of these facts that the DEA has approved the approach of one EIA process for the nuclear power station site and three separate EIA processes for the transmission.

Whilst no specific technology supplier or type of reactor 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 these specifications 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.

Comment 14:

We are also particularly concerned that the most compelling and important issues appear to have been deliberately scoped out of the report.

1. Routine operational releases of radioactive isotopes by gaseous emissions and liquid effluents have not been adequately addressed but rather deferred to an “envelope” of nebulous quantities, the regulation of which has been deferred to the licensing process of the National Nuclear Regulator (NNR).

Response 14:

Your comment is noted.

Routine gaseous emissions of radionuclides isotopes are assessed in the Air Quality Assessment (Appendix E10 of the Revised Draft EIR) and their levels are found to be far below legal limits at all three of the alternative sites. Based on more than 20 years of sampling of the marine environment at Koeberg Nuclear Power Station (KNPS), the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR Version 1) concludes that routine emissions of radionuclides do not result in significantly elevated levels of radioactivity in marine organisms. Due to radionuclides having been recorded in very few individual organisms at KNPS, the low concentrations at which they have been recorded and the fact that compounds at equivalent levels of radioactivity have previously been recorded in these species under natural conditions, these findings are not considered indicative of any significant effect resulting from the power station on the surrounding marine environment.

Comment 15:

2. Since the two most vital isotopes – carcinogenic Strontium-90 and Cesium-137 – which have half-lives exceeding 25 years, means they tend to accumulate over many decades, and so add to the burden of disease. These important substances and their potential radiobiological impacts have been equally deferred to the NNR.

Response 15:

Your comments regarding Strontium-90 and Cesium-137 are noted.

The exact source of radiation (i.e. the isotopes that give rise to radiation) is not material to health effects. Rather, the effective cumulative **dose** of radiation from all possible sources determines whether or not health effects can be expected to occur. To isolate specific isotopes of Strontium-90 and Cesium-137 is therefore immaterial to the questions of whether or not health impacts could be expected.

The public dose limit (1 mSv per annum) is a legal limit applied internationally for the protection of human health from exposure to ionizing radiation. This is regulated in South Africa by Regulation 388 of April 2006 under the NNR Act, 1999 (Act No. 47 of 1999). Koeberg Nuclear Power Station maintains all radiation exposures to the public as low as reasonably achievable, well below this dose limit.

Both Strontium-90 and Cesium-137 isotopes were detected in environmental samples which were collected in the vicinity of the Koeberg Nuclear Power Station before 1984 (before start-up of the Koeberg Nuclear Power Station). Operation of the Koeberg Nuclear Power Station has not increased the levels of Strontium-90 in the environment and the Strontium-90 activity is decreasing in the environment with time.

Response from Independent Nuclear Specialist

In addition to what is said these shorter lived radionuclides will tend to reach an equilibrium value over time as the amount of radioactive decay is balanced by the radioactivity entering the system - clearly this is highly complicated and any reductions in emissions would tend to upset the steady state

Specialist assessments such as the Air Quality Assessment (Appendix E10 of the Revised Draft EIR Version 2) and the Radiological Assessment (Appendix E32) examine the potential health impacts of the power station refer to the dose.

Comment 16:

3. The routine release of the above-mentioned isotopes also logically leads to the contamination of both of terrestrial and marine food resources, a scientifically testable fact that has also been deferred to the NNR. <http://www.care2.com/greenliving/radioactive-fish-found-in-vermont.html>

Response 16:

Your comment is noted. As indicated in Response 14 (based on monitoring data reference in the Marine Ecology Assessment), the presence of Strontium in marine food sources could either be a result of background levels of Strontium that have occurred in the atmosphere since nuclear testing started in the 20th century, or from specific sources such as a nuclear power station. The fact that it has been found in fish does not imply that:

- The nuclear power station is the source;

- That it could result in health effects in the organisms in which it is found. It would only result in health effects if it is found in a high enough doses.

Comment 17:

4. The further negative impact on human health through ingestion of contaminated foodstuff and the direct threat to marine harvesting and agriculture is further glossed over in the report.

<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>

Response 17:

Your comment is noted. There are no conclusive, peer reviewed studies that links normal operation of nuclear power stations to leukaemia or to contamination of foodstuffs.

Comment 18:

5. The radio-toxic legacy of the nuclear process from uranium mining through to spent fuel – its storage, containment and the concomitant risks including transportation, security risks – has also been scoped out.

<http://www.greenpeace.org/international/en/news/features/AREVAS-dirty-little-secrets060510/>

Response 18:

Your comment is noted. As indicated in Response 4, the life cycle impacts of nuclear power generation, from mining through to ultimate disposal, are beyond the scope of an EIA and an EIA is not the appropriate vehicle for the assessment of such potential impacts.

Comment 19:

From a macro-economic perspective, however, it is our considered opinion that the pursuit of a nuclear energy path would serve to bankrupt the fiscus and would not be in the best interests of the ecology or country as a whole. This has been borne out by cost overruns and opportunity costs in Finland where costs have run on from USD 3 billion to USD 6.66 billion and it's not yet complete. <http://www.reuters.com/article/idUSLS56745220080828>

1. WE RATHER PERCEIVE THE POTENTIAL FOR A MASSIVE TRANSFER OF WEALTH FROM THE SOUTH AFRICAN PEOPLE TO THE G8 COUNTRIES AND POSSIBLY CHINA AND THE CONCOMITANT OPPORTUNITIES FOR LARGE-SCALE CORRUPTION AND THE ABUSE OF PARASTATAL AND STATE POWER. IF, FOR EXAMPLE, THE CONSTRUCTION OF FOOTBALL STADIUMS MIGHT BE PERCEIVED AS AN OPPORTUNITY COST WITH REGARD TO PROPER EXPENDITURE ON BASIC SERVICES AND COMBATING CRIME, HOW MUCH MORE SO WOULD BE THE ENORMOUS COST – IN EXCESS OF R1.3 TRILLION TO PURSUE A NUCLEAR POWER INDUSTRY IN SOUTH AFRICA? PLEASE READ FOLLOWING RELATED ARTICLES: HOW MUCH WILL NEW NUCLEAR POWER PLANTS COST
2. HTTP://SCITIZEN.COM/FUTURE-ENERGIES/HOW-MUCH-WILL-NEW-NUCLEAR-POWER-PLANTS-COST-_A-14-2287.HTML
3. BUSINESS RISKS AND COSTS OF NEW NUCLEAR POWER
4. <HTTP://CLIMATEPROGRESS.ORG/WP-CONTENT/UPLOADS/2009/01/NUCLEAR-COSTS-2009.PDF>

Also see Annexure A appended hereto.

Response 19:

Your comment is noted.

There have indeed been significant cost overruns on construction of nuclear power stations. However, it must be borne in mind that the Finland site (Olkiluoto) was the first site where the new European Pressurised Reactor (EPR) unit was constructed. The French site (Flamanville) was the second and a considerable number of lessons learnt at Olkiluoto were implemented at Flamanville – hence much reduced delays were experienced. The Chinese plants used these lessons and are on time and within cost. Eskom has never intended to build a first of a kind plant type, which will reduce the risk of overruns in both construction time and cost.

Comment 20:**Nuclear 1 Draft EIA Part 3: 9.23.5 Conclusion P9-220**

If the real endeavor is, in fact, to balance the paradox quoted: *“This paradox begs for a need to attempt to balance the interests and welfare of neighbouring communities with the national interests of a secure electricity network. To this end, it is important to select a suitable site and to find compromises to maintain the sense of place of the affected area or at least ensure that the potential impacts on the sense of place are effectively mitigated to the lowest possible level”.*

Then it is anathema that renewable energy production systems, which are being rolled out effectively across the planet, here in South Africa are currently restricted to 8.75 MW until 2013. http://ae-africa.com/read_article.php?NID=1885

Cape Times, 25 January 2010, Wind is cheapest by Ingi Salgado. Quote : *“Eddie O’Connor, the chief executive of Mainsream Renewable Energy that is planning to invest R9.1 billion in wind farms in South Africa has taken on Eskom executive and said that Eskom’s record in exploiting wind or any other renewable energy source are amongst the worse in the world”.*

It cannot been (sic) seen as good news that Brain Dames has been installed as head of Eskom. He said in the same Cape Times article: *“renewable are expensive, we all know that.” O’Connor said: “I suspect the ‘we’ refer to people at Eskom because those of us not included in the ‘we’ know the opposite.”*

“Doug Kuni, MD of SA independent power producers association said Dames (ESKOM) was not comparing apples with apples, if you look at the life of (nuclear) plant a renewable energy project output over time is cheaper because there are no primary fuel costs and carbon taxes”. O’Connor also said: “There is no price risk with wind. What you see on day one is the cost you see at day 1000... or day 1 million.”

South Africa's wind energy potential alone has been [estimated at more than 50 000 MW](#) and [its solar energy capacity lies at well over 500 000 MW](#).

The potential of concentrating solar power in SA by Thomas P. Fluri

<http://www.crses.sun.ac.za/UNEP/Additional%20-%20TP%20Fluri%20The%20potential%20o%20concentrating%20solar%20power%20in%20South%20Africa.pdf>

The potential contribution of renewable energy in South Africa: Draft Update Report (includes cost information) prepared by Douglas Banks and Jason Schäffler February 2006

<http://www.earthlife.org.za/wordpress/wp-content/uploads/2009/04/potential-of-re-in-sa-feb06.pdf>

As can be seen we have unequalled opportunity in terms of our natural assets, our access to free sources of natural energy, especially solar and wind energy, in this country. It is also a well-known fact that many Independent Power Producers are beating down the doors to make renewable energy available, but are hamstrung by the lack of enthusiasm on the part of Eskom.

Clearly, the State-Owned Enterprise desires to maintain their hegemony at all costs, including political.

Cape Times 15 January 2010, Cosatu calls for end to nuke power by Melanie Gosling.

Quote: COSATU has said the nuclear option must be taken out of South Africa's future energy mix and instead of building more coal-fired power station there was an urgent need for more renewable energy. They also said that Eskom must scrap the nuclear option because "there were still a lot of question marks around nuclear plant safety, radioactive waste disposal and possible usage of uranium for weapons". COSATU also said "... renewable sources of energy will be relatively expensive at first but cheaper in the long term. Up scaling investment in renewable energy will not only address the challenge of climate change but will create all-important jobs".

At the same time, the Department of Energy and of Eskom continue to pay mere lip service to the value, development and accommodation of renewable energy sources. No account is apparently taken of the obvious benefits of decentralization that could be achieved by producing different types of power as is appropriate where it is needed most thus saving the massive line losses inherent in the National Grid.

Response 21:

Your comments are noted. It is not contested that renewable electricity generation has an increasingly important role to play in South Africa. However, a decision on the proportions that different power generation technologies contribute to South Africa's supply is outside the scope of the Nuclear-1 EIA. These decisions were taken in the Integrated Resource Plan, which has been accepted as government policy.

Comment 22:

Nuclear 1 Draft EIA part 3: P9-220

"The most controversial potential impact relates to the perceived risks associated with nuclear incidents. From a social point of view, risk is a "subjective experience" which is felt by, and is different, for everyone. Perceived risks could lead to a change in attitude which, in turn, could change behaviour. It is therefore important to ensure a reliable flow of relevant and correct information in order for communities to differentiate between perceived and real risks."

How nicely put. Perhaps the "subjective experience" of risk of those in the ivory towers at Eskom would change if they took off their rose-colored nuclear glasses, and took real cognizance of balanced scientific and financial information pertaining to the inherent short and long-term risk/benefit profile of nuclear energy. They should also recognise the fallacy, in particular, of the supposed inability of renewable energy to provide for so(-) called "base-load" energy needs. South Africans would all be better off.

Response 22:

Your comment is noted.

Comment 23:

Executive summary of the Draft Environmental Impact Report: 1.1 Project Background:

"identified renewable forms of energy, for example, solar, cannot supply base load power stations"
The above quote also applies to all the specialists who are not immune to perceptions, they select and wittingly regurgitate information and falsehoods that support what their employer wants to hear, manipulating information in an endeavor to change the attitudes and behavior of the public at large.

We could instead make real progress as a country, using long-term thinking, if we focused on becoming global leaders in the field of renewable power. We should forget about the so called 'base-load' fallacy and place ourselves at the forefront of these increasingly competitive technologies. Hereby creating an export industry, attracting fresh Foreign Direct Investment capital, and creating widespread employment opportunities, for the good of all our people. There is a concomitant advantage of broadcasting infrastructure and thus spreading greater diversity of employment countrywide. <http://www.aph.gov.au/library/pubs/rp/2008-09/09rp09.htm.power>

Response 23:

Your comment is noted.

Comment 24:

Nuclear 1 Draft EIA part 3: P9-246 Impact significance for the three alternative sites:

Technical factors (geological and geotechnical suitability and seismological risk);

Water-related factors (fresh water supply, geo-hydrology and surface water hydrology);

Social factors (traffic and transportation, noise, social impacts, economic impact, agriculture, tourism, human health risk, emergency response and site control, and safety and visual impact); and

Biophysical factors (heritage and / archaeology, air quality, freshwater ecology, vertebrate fauna, invertebrate fauna, oceanography, marine biology, botanical and dune geomorphology).

In spite of their numbers, diverse specialties and the obvious differences between the significance of the impacts at the three alternative sites, all specialists agreed that there are **no** fatal flaws at any of the sites (provided appropriate mitigation is implemented) and that all three alternative sites are suitable for development of a nuclear power station, given sufficient mitigation of impacts.

Notwithstanding the hugely controversial nature of the nuclear debate Eskom is able to locate and employ a large number of specialists in many diverse fields who are universally of like mind on this subject.

Executive summary of the Draft Environmental Impact Report p11

Quote: "all specialists agreed there are no fatal flaws at any of the sites (provided appropriate mitigation is implemented)"

We take issue with the above statement, in that, we understand from the text that among the large number of specialist studies fatal flaws were indeed found that required "mitigation", and yet nowhere are these fatal flaws listed or drawn attention to. Mitigation is the panacea of all evils, we are led to believe.

Since all the specialists are paid by Eskom (through the agency of Arcus Gibb), it is not at all surprising that the above statement could be made. **He who pays the piper calls the tune.**

Government and appointed officials in concert with the pro-nuclear lobby, who are out to sell us goods we don't want at prices we cannot afford are attempting to thwart the very real and concerted opposition to the ill-considered and poorly researched concept to impose a nuclear power station at Bantamsklip.

Examples of poor research would be the invisibility on maps or elsewhere of the 300 strong Koi San community at Buffeljags within 4 km of the site or, for that matter, Tesselaarsdal in the path of the power lines.

These are the same officials who are thwarting the positive roll-out of alternative renewable energy resources, and are instead repeating the fallacy that Concentrated Solar Power, Geothermal, solar, wind, wave energy and others can't do it.

Response 24:

The specialists employed on the Nuclear-1 EIA are required to provide objective reports substantiated by data and information collected by them. If they found that there are no fatal flaws on any of the sites, this is a conclusion that they reached of their own accord. Most of these specialists approached the EIA process in a very conservative manner, i.e. in the absence of evidence to the contrary they assumed a worst case scenario in terms of impacts caused by the proposed power station. Furthermore, these specialists all signed declarations (as required by the National Environmental Management Act) declaring their independence.

Your statement with regards to payment and how this may affect the outcome of the EIA is noted. The EIA regulations (Government Notice No. 543 of 2010) provides for fair compensation of the Environmental Assessment Practitioner (EAP) as well as the specialists that provide advice to the EAP.

As indicated in Responses above, the EIAs of the power lines and the power station are separate. Therefore, settlements such as Tesselaarsdal are outside the scope of the Nuclear-1 power station EIA.

Your comments on opposition by officials to the roll out of alternative energy refers. GIBB, as the independent EAP, is unable to comment on such a claim. As indicated above, the Integrated Resource Plan provides government's official policy on the role that renewable energy must play in South Africa's energy future.

Comment 25:

Mitigation Measures

Nuclear 1 Draft EIA part 1: 5.1 Introduction

Quote: *"the minority, nevertheless are often vociferous and sometimes militant, which has serious implications for development as they frequently engage in litigation"*

We could say that the majority are distant, uninvolved, disinterested, apathetic and or uneducated, and thus *"favour"* nuclear power in a study by the Nuclear Energy Institute.

We could say that the minority were educated, informed, critical, involved, exercised judgment and were concerned about the health of the future generations, their fellow beings, their environment and their planet to the point of litigation, their refuge of last resort.

Response 25:

Your opinion is noted.

Comment 26:

Nuclear 1 Draft EIA part 1: 5.2.1 Community Public Information Campaign

Quote: *"the lack of information and overwhelming amount of misinformation regarding nuclear power as a whole, and specifically Nuclear-1 plans, has generated all manner of popular myth, and worse-case scenarios, skepticism, and particularly doubt regarding the intentions and trustworthiness of Eskom."...*

"Specifically the impacts of nuclear power generation on the sea, the immediate environment and the sense of place."

"The above myths will be mitigated by "an aggressive community-orientated and comprehensive public information campaign".

Although the above impacts specifically mentioned are very important even more so is the following list:

It is a fact the NPS is no answer to global warming.
 It is a fact that it is not clean.
 It is a fact that it is not cheaper than renewable energy.
 It is a fact that it is negative to human health.
 It is a fact that there is no solution to nuclear waste.
 It is a fact that it is vulnerable and open to attack.
 It is a fact that the industry feeds weapon proliferation.
 It is a fact that every aspect requires high levels of security.
 It is a fact that radioactive materials are dangerous.
 It is a fact that nuclear sites contaminate their surroundings.
 It is a fact that uranium mining sites contaminate their surroundings.
 It is a fact that in the nuclear fuel processing cycle is costly.
 It is a fact that nuclear fuel and nuclear waste requires major transporting.
 It is a fact that humans are irradiated in these cycles.
 It is a fact that the nuclear industry increases the burden of disease in humans.

Links supporting these points can be found below article attached hereto: Annexure A

Response 26:

Your comments are noted. The EIA team stands by its statement that there remain many misconceptions about nuclear energy. Common misconceptions include such beliefs as all radioactivity being man-made (i.e. that there are no natural sources of background radioactivity in the environment) and that a nuclear power station can explode. There are also misconceptions that even medical nuclear science is harmful to humans, even if managed responsibly.

Comment 27:

The Hermanus Ratepayers Association Exco have read and considered the following submissions and identify fully with their contents. We support the opinions and concerns expressed and include these comments as if they were our own *mutatis mutandis*.

- Submission on Appendix E10: Air Quality Report - Mike Kantey, Watercourse cc
- **Comment on Draft EIA for Nuclear 1: Nuclear reactor planned for Thyspunt, Bantamsklip, or Duynefontein.**
Ingela Richardson
- Environmental Impact Assessment for the Proposed Nuclear Power Station ("Nuclear-1):
A comment on the Economic Impact Assessment Report - Rod Gurzynski

- Eskom- Environmental impact assessment (EIA: 12/12/20/944) for a proposed nuclear Power station and associated infrastructure. - *Strandveld Tourism & Conservation Association*
- Assessment of the potential impacts on human health environmental impact report. – Janda Macdonald

Response 27:

Your comment is noted.

Comment 28:

Conclusions and Recommendations

It will take more than promises of mitigation, reduction and compensation to convince the people of the L'Agulhas/Overburg region to surrender the Bantamsklip World Heritage Site for the purpose of the construction of any Nuclear Power Stations.

Response 28:

Your comment is noted.

Please note that the Bantamsklip site proposed for Nuclear-1 is not a World Heritage Site.

Comment 29:

Threats of “*aggressive*” Propaganda campaigns, will do no better, as it is resolved that we will oppose this concept on behalf of our ratepayers and the population as a whole with all the means at our disposal.

Response 29:

Your comment is noted.

Comment 30:

We hope and trust that the broad coalition of justifiably concerned citizens allied with political pressure from alliance partners and the broad church will persuade those in authority to take nuclear off the agenda and out of Africa. The Pebble Bed Modular Reactor (PMBR) program has already been shut down after costing the South African taxpayers almost 10 billion and counting with some 2.7 billion apparently unaccounted for. Perhaps they finally noticed that none of the “smart money” is backing nuclear. This debacle has wasted 10 years that could have been profitably spend on renewable energy initiatives. By now we could be using green power.

<http://www.timeslive.co.za/business/article513806.ece/PBMR-on-the-rocks-retrenches-800>
<http://www.engineeringnews.co.za/article/pbmr-company-could-shed-75-of-its-staff-after-slashes-its-budget-2010-02-18>

Response 30:

Your comment is noted.

Comment 40:

Our recommendation would be, put simply, to concentrate and focus our considerable financial, scientific and natural resources as a country on the emerging renewable energy industry. Fast track the selection, licensing and accommodation of independent power producers and connect them to the grid. Treat electricity as the expensive scarce resource that it is and avoid giving it away to our neighbours and to attract the wrong investment. **“Charity begins at home.”** Redefine our efforts and statutes to reduce consumption and the waste of electricity, while educating our population in the conservation and care of all our scarce ecological resources. Continue with the roll-out of solar water heaters and energy saving luminaries. Make energy saving mandatory for all new construction and encourage retro fitting of existing structures. Set up and fund decentralized infrastructure to support and monitor all of the above.

Given 10 years and 10 Billion Rands wasted on the PMBR. We feel sure that we will be able to look back on a success story for a country that has taken bold steps to secure our energy future, our environment and that of generations to follow. We will hold our heads high in the knowledge that we can lead instead of just following the nuclear proponents on the road to ruin.

Response 40:

Your comments are noted.

Comment 41:**Annexure A****Business Risks and Costs of New Nuclear Power
Craig A. Severance**

<http://climateprogress.org/wp-content/uploads/2009/01/nuclear-costs-2009.pdf>

“Several U.S. utilities are now advancing proposals for a new generation of nuclear power plants. Though massive cost overruns and construction delays in the 1970's and 1980's caused U.S. utilities to cancel over 130 nuclear plant orders¹, the nuclear industry is now hoping to ride a wave of concern over global warming. Can new nuclear power help the U.S. electric power industry cut greenhouse gas emissions, at a reasonable cost?”

Response 41:

Your comment is noted.

There have indeed been significant cost overruns with regard to the construction of nuclear power stations. However, it must be borne in mind that the nuclear power stations such as Olkiluoto in Finland were the first sites where the new European Pressurised Reactor (EPR) was constructed. The French site (Flamanville) was the second and a considerable number of lessons learned at Finland site were implemented at Flamanville – hence much reduced delays were experienced. The Chinese plants used these lessons and are on time and within cost. Eskom has never intended to build a first of a kind plant type, which obviously will reduce the risk of overruns in both construction time and cost.

Comment 42:***EXECUTIVE SUMMARY***

It has been an entire generation since nuclear power was seriously considered as an energy option in the U.S. It seems to have been forgotten that the reason U.S. utilities stopped ordering nuclear power plants was their conclusion that nuclear power's business risks and costs proved excessive.

With global warming concerns now taking traditional coal plants off the table, U.S. utilities are risk averse to rely solely on natural gas for new generation. Many U.S. utilities are diversifying through a combination of aggressive load reduction incentives to customers, better grid management, and a mixture of renewable energy sources supplying zero-fuelcost kWh's, backed by the KW capacity of natural gas turbines where needed. Some U.S. utilities, primarily in the South, often have less aggressive load reduction programs, and view their region as deficient in renewable energy resources. These utilities are now exploring new nuclear power.

Estimates for new nuclear power place these facilities among the costliest private projects ever undertaken. Utilities promoting new nuclear power assert it is their least costly option. However, independent studies have concluded new nuclear power is not economically competitive. Given this discrepancy, nuclear's history of cost overruns, and the fact new generation designs have never been constructed anywhere, there is a major business risk nuclear power will be more costly than projected. Recent construction cost estimates imply capital costs/kWh (not counting operation or fuel costs) from 17-22 cents/kWh when the nuclear facilities come on-line. Another major business risk is nuclear's history of construction delays. Delays would run costs higher, risking funding shortfalls. The strain on cash flow is expected to degrade credit ratings.

Generation costs/kWh for new nuclear (including fuel & O&M but not distribution to customers) are likely to be from 25 - 30 cents/kWh. This high cost may destroy the very demand the plant was built to serve. High electric rates may seriously impact utility customers and make nuclear utilities' service areas non competitive with other regions of the U.S. which are developing lower-cost electricity.

Craig A. Severance, CPA is co-author of *The Economics of Nuclear and Coal Power* (Praeger 1976)"

<http://www.greenpeace.org/international/en/news/features/AREVAS-dirty-littlesecrets060510/>
<http://climateprogress.org/2009/03/08/ponzi-scheme-madoff-friedman-natural-capitalrenewable-resources/>
<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>
<http://www.globalresearch.ca/index.php?context=va&aid=13825>
<http://www.countercurrents.org/cc-green110405.htm>
<http://www.scientificamerican.com/article.cfm?id=nuclear-cannot-solve-climate-change>
<http://www.greenpeace.org/international/en/news/features/activists-raid-south-african-p/>
<http://www.fin24.com/Economy/Eskom-fingered-in-Koeberg-report-20060813>
<http://www.energyscience.org.au/BP16%20BaseLoad.pdf>
<http://www.aph.gov.au/library/pubs/rp/2008-09/09rp09.htm>
<http://repairyourworld.blogspot.com/2008/12/nuclear-vs-renewables-debate-in-south.html>
<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>

Response 42:

Please refer to Chapter 4 and 5 of the RDEIR Version 2 for further information on the costs of nuclear energy.

With regard the costs overruns on nuclear power projects, please refer to Response 41.

Your claims of the operational cost of nuclear power are noted and will be considered within the EIR.

Your claim that newer generation nuclear power stations have not been constructed anywhere is noted. This claim is not correct. As indicated in responses above, the EPR (a Generation III plant) is under construction in Finland and France.

Comment 43:**Moody's Nuclear sector investment analysis**

<http://www.greens-efa.org/cms/topics/dokbin/206/206749.pdf>

"October 2007 "Special Comment" the capital market service company Moody's delivers a stunning U.S. nuclear sector analysis:

"Moody's does not believe the sector will bring more than one or two new nuclear plants on line by 2015, a date cited by a majority of the companies currently highlighting their nuclear ambitions. The complexity associated with the permitting process as well as the execution risks associated with construction projects of this nature should not be underestimated. (...) Moody's believes that many of the current expectations regarding new nuclear generation are overly ambitious. In fact, the timing associated with commencing construction and making the next nuclear unit commercially available could be well beyond 2015 and the costs associated with the next generation of nuclear build could be significantly higher than the approximately \$3,500/kW estimates cited by many industry participants."26 "nuclear competence alliance" between the four major research centres with links to academic institutions, utilities and the industry has been established in 2000 but, so far, has not been able to stop the erosion of well educated young people able to replace the rapidly aging current workforce. As Lothar Hahn, managing director of the German company GRS (Society for Reactor Safety), points out, the consequences could be extremely serious:

"First studies indicate that deficiencies in maintaining knowledge at state-of-the-art levels and a subsequent degradation in education and training of operating personnel may endanger the safe operation of nuclear installations. Furthermore, knowledge deficits at authorities and expert organisations due to a lack of qualified successors to retired experts have been depicted as an imminent threat to the qualified supervision of reactor plants and thereby to safe plant operation."41

Response 43:

Your comment is noted.

As part of the inter-governmental agreements signed by South Africa, students and professionals in training (PIT) have gone abroad to the counterpart countries to gain more knowledge and experience on nuclear energy. These students and PIT's will return to South Africa with this knowledge and significantly contribute to the skills base within this sector in South Africa.

Comment 44:

Former NRC Commissioner Peter Bradford, who was involved in the licensing of some 25 nuclear reactors, comes to a severe judgement on the prospects of nuclear power: "Those who tell you things like "It could save the earth" 54 or "Clean, green atomic energy can stop global warming" 55 or "Nuclear energy just may be the energy source that can save our planet from catastrophic climate change"56 are inviting you into a dangerous la-la land in which nuclear power will be over subsidised and under-scrutinized while other more promising and more rapid responses to climate change are neglected and the greenhouse gases that they could have averted continue to pollute the skies at dangerous rates."57 Former NRC Commissioner Peter Bradford, who was involved in the licensing of some 25 nuclear reactors, comes to a severe judgement on the prospects of nuclear power:

"Those who tell you things like "It could save the earth"54 or "Clean, green atomic energy can stop global warming" 55 or "Nuclear energy just may be the energy source that can save our planet from catastrophic climate change"56 are inviting you into a dangerous la-la land in which nuclear power will be over-subsidised and under-scrutinised while other more promising and more rapid responses to climate change are neglected and the greenhouse gases that they could have averted continue to pollute the skies at dangerous rates."57 "Those suffering from nuclear amnesia have forgotten

why nuclear power faded from the energy scene in the first place, how many times it has failed to deliver, how often it has disappointed its most determined advocates, how extravagantly it has squandered unparalleled, unstinting support from taxpayers around the world, leaving them with burdens that may last for millennia.”⁵⁸

Response 44:

Your comments are noted.

It is not the intention of the Nuclear-1 EIA process to consider the merits of nuclear power generation vs. other forms of power generation in principles. Environmental Impact Assessment as a tool of environmental management is not the appropriate tool to consider this question, since it is a project-specific tool that investigates a particular project on a defined site or sites.

Your comments about the inability of nuclear power to “save the earth” are also noted. It is not contended in the Nuclear-1 EIA that nuclear electricity generation should be regarded as a panacea to combat climate change. It is but one of a combination of solutions, which must include renewables and other sources. Renewables on their own are also not, however, a panacea for power generation. Renewables must make up a larger proportion of South African power generation (the current goal in the Integrated Resource Plan is 17.8 GW), but as far as wind generation is concerned, the potential in South Africa is limited. It must also be borne in mind that a mixture of base load and other supply alternatives are required.

Comment 45:

In June 2005, the trade journal Nuclear Engineering International published the analysis of the 2004 Edition of the World Nuclear Industry Status Report under *their* headline. “On the way out - In sharp contrast to multiple reporting of a potential ‘nuclear revival’, the atomic age is in the dusk rather than in the dawn”. At the end of 2007, we have nothing to add” Sen. McCain keeps saying, “If France can produce 80 percent of its electricity with nuclear power, why can't we?” Wrong question, Senator. The right question is: Why would we? Energy efficiency and renewables are the key to affordable, carbon-free electricity. They should be a focus of national energy and climate policy. Not nukes.

The HRA has read and allies itself with the following submissions, which should be regarded as having been incorporated into this submission:

1. Earthlife Africa, Johannesburg
2. Greenpeace Africa
3. Janda Macdonald
4. Dyer Island Conservation Trust
5. Teslaarsdal Action Group
6. Rod Kurzynski
7. Dr Yvette Abrahams Commissioner for Gender Equality
8. Koeberg Action Alliance (KAA)
9. Strandveld Tourism and Conservation Association (STCA)

Response 45:

Your comment is noted.

Yours faithfully

for GIBB (Pty) Ltd

A handwritten signature in black ink, consisting of a large, stylized 'G' followed by a smaller 'B' and a long horizontal stroke.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

CANE (Coalition Against Nuclear Energy)
P O Box 515
LANSERIA
1748
Gauteng

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

E mail: nuclear@prisk.co.za and profav@iafrica.com

Dear R C H Garbett

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

SUBMISSION ON NUCLEAR 1 REVISED DRAFT EIA

- 1 NNR should not determine the suitability nor the radiological & safety impacts of Nuclear 1 nor has the EIA given the NNR the information required to conduct such investigations.**

The reliance on the NNR to provide DEAT with an assessment of the technical issues and risks that may arise from the operation of a nuclear plant of unidentified design, even if the design is within certain known parameters, creates the following problems for the valid outcome Nuclear 1 EIA

Comment 1:

- 1.1 The NNR does not have the capacity to address these matters and relies largely upon the nuclear industry to advise the NNR on technical issues.

Response 1:

The capacity of the National Nuclear Regulator (NNR) to deal effectively with its legal mandate is beyond the scope of this EIA process. It is not the purpose of this EIA process to provide the NNR with the information required for its decision. The information that the NNR requires for decision-making will be provided through the nuclear licensing process in terms of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

Response from Independent Nuclear Specialist:

The NNR is an independent body established and mandated by an act of parliament. It does not rely on industry to advise it on technical issues - its decisions are based on technical data and supporting evidence provided by licence applicant and verified by it through various means including third party verifications.

Comment 2:

- 1.2 Public meetings with the NNR is not an adequate substitute for proposed nuclear activities being examined in the EIA process

Response 2:

Public meetings with the NNR are not meant to be a substitute for the meetings within the EIA process. The NNR's mandate is different in that it is focused on nuclear safety and therefore does not consider the broader environmental issues being assessed in the EIA process.

Comment 3:

1.3 The NNR is not an objective body to conduct such investigations.

Response 3:

Your comment is noted. Kindly refer to Response 1.

Comment 4:

1.4 The NNR does not act in the best interests of the public but serves the interests of the nuclear industry, in spite of its written mandate to the contrary. The NNR is paid by the nuclear industry.

Response 4:

Your comment is noted. Kindly refer to Response 1.

Comment 5:

1.5 We call upon DEAT to review their decision to use the services of the NNR to advise DEAT on the advisability of building and operating a nuclear plant. Other credible, objective advisors are available to DEAT.

1.6 We consider that the decision of DEAT and the NNR to enter into an agreement renders the EIA lacking in objectivity, credibility and flawed.

1.7 Certain nuclear plants may be technically preferable and/or may be safer than others, but without the EIA identifying the manufacturer, no in depth analysis or assessment is possible. Therefore the NNR are not in a position to advise DEAT in respect of this EIA even if the foregoing issues are disregarded, until such times as the EIA provides the full specifications of the PWR are disclosed.

1.8 The worst case nuclear accident scenario does not form part of this EIA which is in contravention of the laws governing this EIA.

Response 5:

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 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. 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.

In this regard you are also referred to the then DEAT's approval of the Scoping Report, dated 19 November 2008, where the following is stated:

2.21 All radiological issues raised during the EIA process, which are not comprehensively addressed, must be explicitly referred to the NNR to be addressed as part of their process.

This response by the DEAT clearly acknowledges that there are some radiological issues that cannot be comprehensively addressed in the EIA process and can only be addressed in the NNR's nuclear licensing process.

However, in recognition of requirements in the NEMA, associated legislation such as the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000) and other legal precedents that require the consideration of all relevant socio-economic factors in an EIA process, an assessment of radiological impacts of the proposed power station is included in the current version of the EIR. Although this approach of including an assessment of the radiological impacts of the proposed power station results in a risk of duplication between the EIA and the NNR licensing processes, the risk to the EIA in terms of possible appeals, based on the exclusion of substantive issues such as health issues from the EIA process, is regarded as greater than the risk of duplication. The current version of the EIR therefore departs substantially from the approach in the previous versions of the EIR in terms of the consideration of radiological impacts.

In this context, it must be mentioned that the approaches of the EIA process and the NNR licensing process differ substantially. The focus of the EIA process is to assess the potential impacts of radiological releases (including normal operational releases and upset conditions). However, the focus of the NNR licensing process is to demonstrate beyond reasonable doubt that defence-in-depth measures (multiple, redundant, and independent layers of safety systems) employed in the proposed power station design and operation are sufficient to reduce the probability of a failure leading to core meltdown or a failure of reactor containment to acceptable and highly-unlikely levels. Thus, the EIA process focuses on the consequences of radioactive releases. The NNR licensing process also focuses on consequences but is also designed to reduce the probability of such releases. Please refer to Appendix E32 of the RDEIR Version 2 for the Radiological Impact Assessment report.

As indicated in the EIR, the assessment of the impacts of the proposed power station is based on a Consistent Dataset (Appendix C of the Revised Draft EIR), which represents a worst case scenario of potential inputs and outputs from a number of different Generation III nuclear power stations operating under normal conditions. This dataset has been based on the commercially available nuclear power station designs currently available.

Planning for nuclear emergencies is within the scope of the NNR's nuclear licensing process and falls outside the scope of this EIA process.

Comment 6:

1.9 The NNR fails to demand that nuclear operators carry adequate liability insurance for existing nuclear installations at both Koeberg (sic) and Pelindaba. This lack of fiduciary duty towards the public is unacceptable and will once again place the burden of uninsurable risk against nuclear accidents due to failure of the nuclear plant for technical reasons or terrorist activities, upon the public.

Response 6:

Your comment is noted. Kindly refer to Response 1.

Section 29 of the National Nuclear Regulator Act, 1999 requires Eskom to make financial provision for insurance purposes. Regulations issued by the Minister of Energy stipulate how much financial provision must be made (Government Notice 581 of 2004). The current figure stipulated is approximately R3 billion. Eskom makes the financial provision through insurance obtained from the international nuclear insurance pools, which is in dollar denomination resulting in a financial provision in excess of R3 billion. Every year Eskom has to provide proof that the financial provision (insurance) has been obtained.

It is outside the mandate of this EIA process to question the regulations governing financial provision that have been defined by NNR legislation.

Comment 7:

1.10 Eskom are currently grossly underinsured for liability that the public would suffer should Koeberg suffer a catastrophic accident. In an event similar to Fukushima where 80 000 people were evacuated from their homes, Eskom clearly will not be able to compensate the victims, which could well involve the entire population of the city and suburbs of Cape Town.

Response 7:

Your comment is noted. Please refer to Response 6 above.

Comment 8:

1.11 Nuclear-1 if approved would therefore merely add to the currently untenable position of increasing the public's uninsured risks that are currently not covered by Eskom or the state, neither of which have the economic capacity to compensate victims at fair market value.

Response 8:

Your comment is noted. Please refer to Response 6 above.

Comment 9:

1.12 In the event that Nuclear 1 is authorised it is incumbent on DEAT to make maximum potentially liability cover a condition of the ROD.

Response 9:

Your comment is noted. The DEA has a wide mandate to specify conditions of authorisation. However, GIBB does believe, that this may be outside of the DEA's mandate.

Comment 10:

2. EIA process fatally flawed due to lack of objectivity.

The EIA has been designed to promote the case of Nuclear Power in the first instance, making this process fatally flawed due to patent lack of objectivity.

The use of clumsy ploys to manoeuvre the decision making process into a falsified weighting of the sites is unacceptable and is a further fatal flaw in this process. One example of inappropriate

logic is that the strong recommendations made by SAHRA, that Thyspunt should not be developed have been ignored in the site selection process.

Clearly this decision has been taken on the basis that **the cost of the proposed Nuclear 1 is paramount in this EIA, not the environment or any other public or national interest.** In particular what is clear is that the containment buildings and other structural safety requirements of Nuclear 1 will be lower in Thyspunt; the studies show the lowest level of seismic threat at that site, therefore the structures will be cheaper as less robust building designs are required.

There is no other significant and valid reason to prefer Thyspunt – the EIA manoeuvres facts to claim that more land will be formally conserved *because of the presence of a nuclear power station*. Formal conservation of areas near nuclear power plants is to avoid risks of accidents to populated areas, if these risks become reality the so called “conserved” areas are effectively destroyed.

What sort of convoluted reasoning is that? Certainly not reasoning that can readily pass the “red face test” of independence of the consultants as required by laws governing this EIA.

Clearly if the sites are not independently assessed in a clear and equitable manner, the process is fatally flawed.

Response 10:

Your comments are noted.

This EIA process is neither for nor against nuclear power. However, the Nuclear-1 EIA process is focused on a single application for a nuclear power station and is not a high-level investigation of the pros or cons of nuclear power vs. other forms of power generation. The mix of power generation sources is determined on a strategic level by the Integrated Resource Plan, which has been adopted by Cabinet and is therefore government policy. The IRP II advocates a mixture of generation options, including 9600 MW of nuclear generation. No single generation technology will be sufficient to cater for the expected increase in electricity demand. The Department of Environmental Affairs, the decision-making authority for this application, has accepted the reasonable and feasible alternatives that were identified for further assessment at the end of the Scoping Phase. These alternatives exclude other forms of power generation.

The EIA team has taken note of SAHRA’s comments on the Thyspunt site. However, at the time that SAHRA commented on the Thyspunt site, no formal application had been submitted to SAHRA for the excavation of selected archaeological sites at Thyspunt. Furthermore, excavations had not yet been undertaken within the central portion of the proposed power station footprint to confirm the significance of potential impacts on heritage resources. These test excavations were undertaken in late 2011 and confirmed that there are very few sites (of low quality) within the recommended power station footprint. Cost is only one of a number of factors that was brought to bear on the choice of a recommended site. The difference between a “standard” Generation III nuclear power station at Thyspunt and a similar power station at another site like Duynefontein with a higher Peak Ground Acceleration (PGA) value, is that a power station at the latter site would need special measures such as a “seismic raft” to protect it against the risk of earthquakes. The risk of earthquakes is inherently significantly less at Thyspunt than at Bantamsklip and Duynefontein, which eliminates the need for a seismic raft at Thyspunt. This does not mean that the design of a nuclear power station at Thyspunt is less stringent than a design for either of the other two sites. A “standard” design nuclear power station designed for a PGA of 0.3g would still be able to withstand an earthquake of Magnitude 7 on the Richter Scale (*pers.comm.* David Nicholls, Eskom).

Your comment regarding a *de facto* conservation area around the power station refers. In this regard, all the terrestrial biophysical specialists recommended the creation of a conservation area around the power station to optimise on the restrictions on development. There are a number of biophysical

resources at all the sites that would benefit from a conservation area, but more so at Thyspunt and Bantamsklip than at Duynefontein, because there is an existing conservation area around Koeberg.

Comment 11:

3. Desirability of Nuclear 1 compared to other options is not addressed

South Africa is in dire need of sustainable job creation. Renewable power and subsequent creation of small local industries that supply, manufacture and/or install renewable forms of electricity generation to local consumers will create hundreds of thousands of jobs. The majority of employees will not require a high level of skills as a prerequisite for employment.

Nuclear power generates very few unskilled jobs after the construction phase. The EIA consultants argument that construction workers will move on to Nuclear 2 after the Nuclear 1 is finished is not valid as there is no Nuclear 2 on the table for consideration and the consultants make it plain that only potential negative impacts of Nuclear 1 can be considered. The so called "benefits" of Nuclear 2 are therefore spurious and only serve to demonstrate again the clear lack of objectivity of the consultants.

Response 11:

This EIA does not contest the value of power generation based on renewable sources. However, the environmental application for Nuclear-1 is for a single nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal-fired power stations. In all these previous instances, the scopes of the EIAs were restricted to a specific technology, , on a specific site or sites and within a defined geographical area. Furthermore, as stated in the Revised Draft EIR and in other responses to I&AP comments, Eskom is developing renewable generation technologies in parallel to nuclear generation and the different forms of generation cannot be seen as alternatives to one another. A mix of renewable and non-renewable technologies will be required to meet South Africa's energy needs in the next two decades.

It cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies. This is especially the case in the instance of the Nuclear-1 application. Government has, through a consultative process, taken a decision on the mix of generation technologies required to supply South Africa's electricity needs in the Integrated Resource Plan II (IRP). The conclusion of the IRP II process is that nuclear technology must form a part of the generation mix.

Comment 12:

4. Affordability of Nuclear 1 is not adequately addressed. The costs of a variety of renewable power option are currently below the costs of nuclear power. Renewable can supply base load power when operated in concert contrary to some claims by nuclear proponents and must be considered in the nuclear no-go options.

By 2020 and beyond, even if nuclear power costs do not escalate further, the capital costs of renewables are estimated to be less than 50% of the costs of nuclear power. Operational costs are higher, state subsidies are required for an indefinite period to deal with regulation and waste. **Decommissioning costs in South Africa are vastly underestimated leaving future generations to bear the burden.** Decommissioning costs equal capital costs according to current UK requirements and these costs do not allow for any future escalation in costs

Response 12:

As indicated in Response 10, it is not the purpose of this EIA process to enter a debate regarding the pros and cons of different forms of electricity generation. However, for comparative purposes, Chapter 3 of the Revised Draft EIR has provided reference to two studies that have compared the financial costs of different forms of power generation, including nuclear and various other forms of renewables.

The IRP II decision is to commit to a fleet of nuclear power stations generating 9 600 MW. The IRP II, indicates that *"This should provide acceptable assurance of security of supply in the event of a peak oil-type increase in fuel prices and ensure that sufficient dispatchable base-load capacity is constructed to meet demand in peak hours each year"*. IRP (Summary, page 6) further concludes that a nuclear fleet of 9600 MW is necessary to account for the uncertainties associated with the costs of renewables and fuels. The IRP conclusion, in Section 8, is *"A commitment to the construction of the nuclear fleet is made based on government policy and reduced risk exposure to future fuel and renewable costs"*.

Decommissioning costs are evaluated on an ongoing basis during operation to ensure the correct provisions have been made.

Comment 13:

5. Safety.

Reference 7.2.2 of the revised draft EIA

The EIA refers only to perceived risks which again lacks objectivity by disingenuously seeking to transform "real risks" into "perceived risks" and how to use taxpayers funds to further this myth that nuclear power is "inherently safe"

The actual risk of a significant nuclear disaster during the lifetime of a nuclear power station is over 5.5%.

This is calculated from the numbers of civilian accidents worldwide based on the criteria stipulated below, assuming that of the 442 civilian reactors that currently operate worldwide, plus 80 that have been decommissioned and/or destroyed, a total of 29 nuclear accidents occurred that involved the following serious criteria:

1. There must be well-attested and substantial health damage, property damage or contamination.
2. The damage must be related directly to radioactive material, not merely (for example) at a nuclear power plant.
3. To qualify as "civilian", the nuclear operation/material must be principally for non-military purposes.
4. The event should involve fissile material or a reactor.

These numbers equate to a risk in excess of 5%, which is certainly not, as suggested in the EIA, a risk that is acceptable or capable of any mitigation.

On this basis alone Nuclear 1 should be rejected out of hand, when there are safe, less costly alternatives, that provide many thousands more sustainable jobs

Response 13:

Your comment is noted, Please refer to response 6 and 12.

Comment 14:

6. **The only significant fact we are given about the largest proposed purchase made by any SA government to date is that the reactor is a PWR design.**

Please comment on the following **flaws and dangers in the operation of PWR reactors:**

An advantage of the PWR is that it can passively scram the reactor in the event that offsite power is lost to immediately stop the primary nuclear reaction. The control rods are held by electromagnets and fall by gravity when current is lost; full insertion safely shuts down the primary nuclear reaction.

However, nuclear reactions of the fission products continue to generate decay heat at initially roughly 7% of full power level, **which requires 1 to 3 years of water pumped cooling. If cooling fails during this post-shutdown period, the reactor can still overheat and meltdown.**

Upon loss of coolant the decay heat can raise the rods above 2200 degrees Celsius, where upon the hot Zirconium alloy metal used for casing the nuclear fuel rods spontaneously explodes in contact with the cooling water or steam, which leads to the separation of water into its constituent elements (hydrogen and oxygen).

In this event there is a high danger of hydrogen explosions, threatening structural damage and/or the exposure of highly radioactive stored fuel rods in the vicinity outside the plant in pools (approximately 15 tons of fuel is replenished each year to maintain normal PWR operation).

The coolant water must be highly pressurized to remain liquid at high temperatures. This requires high strength piping and a heavy pressure vessel and hence increases construction costs. The higher pressure can increase the consequences of a **loss-of-coolant accident.** (Tong 1988, pp. 216–217) The reactor pressure vessel is manufactured from ductile steel but, as the plant is operated, neutron flux from the reactor causes this steel to become less ductile.

Eventually the **ductility of the steel will reach limits** determined by the applicable boiler and pressure vessel standards, and the pressure vessel must be repaired or replaced. This might not be practical or economic, and so determines the life of the plant.

Additional high pressure components such as reactor coolant pumps, pressurizer, steam generators, etc. are also needed. This also increases the capital cost and complexity of a PWR power plant.

1. **The high temperature water coolant with boric acid dissolved in it is corrosive to carbon steel (but not stainless steel); this can cause radioactive corrosion products to circulate in the primary coolant loop. This not only limits the lifetime of the reactor, but the systems that filter out the corrosion products and adjust the boric acid concentration add significantly to the overall cost of the reactor and to radiation exposure.** Occasionally, this has resulted in severe corrosion to control rod drive mechanisms when the boric acid solution leaked through the seal between the mechanism itself and the primary system. (References *"Davis-Besse: The Reactor with a Hole in its Head"* (PDF). UCS -- Aging Nuclear Plants. *Union of Concerned Scientists*. http://www.ucsusa.org/assets/documents/nuclear_power/acfnx8tzc.pdf. Retrieved 2008-07-01.

Wald, Matthew (May 1, 2003). *"Extraordinary Reactor Leak Gets the Industry's Attention"*. *New York Times*. <http://www.nytimes.com/2003/05/01/us/extraordinary-reactor-leak-gets-the-industry-s-attention.html>. Retrieved 2009-09-10.)

Natural uranium is only 0.7% uranium-235, the isotope necessary for thermal reactors. This makes it necessary to enrich the uranium fuel, **which increases the costs of fuel production**. If **heavy water** is used, it is possible to operate the reactor with natural uranium, **but the production of heavy water requires large amounts of energy and is hence expensive**.

Response 14:

- Loss of off-site power and pumping – The Loss of Off-Site Power is an analysed event and is mitigated by the design and installation of the on-site diesel generators. These generators are aimed at ensuring that there is no loss of pumping power as this is needed to circulate cooling water. The primary water has neutron absorbers (like boron and control rods) that prevent the possibility of criticality. The plant is also designed with some passive water injection systems, like the accumulators. These can inject water without the need for pumping mechanisms. These mechanisms prevent the heating up of the fuel rods, and as such their integrity is maintained.
- Loss of Coolant Accident – The reactor vessels and piping is always designed to specific design codes. These allow for the system to be able to sustain the operating temperatures and pressures. Associated with the design codes are inspection and testing codes. These inspection codes allow for the monitoring of the vessel embrittlement from radiation through the plant life, as well as for the possible corrosion of the system components. The empirical results are also compared with the predicted vessel and pipe lives, and also is used to update the plant status. To date all the PWR plants in operation will run to the end of their predicted plant lives, and some are being extended due partly due to the vessel current and projected integrity. In conclusion, the design is robust due to the sound design, inspection and testing codes.
- Enrichment – PWRs use enrichment, and this cost is incorporated into the plant life-cycle costs. Current studies are not showing drastic differences between light and heavy reactors due to the fact that the fuel costs contribute a small amount to the overall plant life-cycle costs.

Comment 15:

7. Impacts on other industries and loss of forex earnings. The potential loss of tourism, direct & indirect losses to the fishing industry, both during and post construction and during operations is significant and will impact adversely on jobs.

Response 15:

The Marine Ecology Assessment, Tourism Impact Assessment and Economic Impact Assessment (respectively Appendices E15, E22 and E17 of the Revised Draft EIR) collectively assessed the economic impacts on existing industries, including the hospitality and fishing industries. The conclusion of these studies is that although tourism may be negatively impacted initially, the increase in business-related tourism during the construction and operational phases of the power station would compensate for an initial loss of tourism. This has been the experience both with Koeberg Nuclear Power Station and with the Medupi Power Station, which is currently under construction near Lephalale in Limpopo Province. The conclusion of the Marine Ecology Assessment, based on the marine condition at Thyspunt and on extensive monitoring that the marine specialist team has undertaken at Koeberg Nuclear Power Station, is that the potential negative impact of Nuclear-1 on the fishing industry would be insignificant.

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. It is predicted that adults will avoid an area of about 0.2 km² if cooling water is released nearshore. It is further been concluded that due to the temporal and spatial limitations of elevated turbidity associated with marine spoil disposal and the restricted area that will be covered by sediment, when taken within the context of the extensive area over which chokka squid species spawns, that while chokka will be locally affected, this impact will not be of high significance for the species as a whole. Additionally, the inshore jig fishery is unlikely to be greatly affected by the disposal of spoil, as only a small proportion of catches are taken in the area expected to be impacted.

Comment 16:

8. There are the following legal difficulties and failures with the EIA
 - 8.1 Failure to assess socio-economic impacts of the proposed project violates NEMA and the EIA Regulations, read together with PAJA 6(2)(b).
 - 8.2 Failure to assess worst-case scenario impacts violates NEMA and the EIA Regulations, read together with PAJA 6(2)(b).
 - 8.3 Failure to assess all potential impacts of nuclear waste violates NEMA and the EIA Regulations, read together with PAJA 6(2)(b).
 - 8.4 Failure to adequately assess project alternatives and a no-go option violates NEMA and the EIA Regulations, read together with PAJA 6(2)(b), and places false information in front of the decision maker in violation of PAJA 6(2)(e)(iii)
 - 8.5 General failure to place relevant considerations in front of the decision maker violates PAJA 6(2)(e)(iii)
 - 8.6 Approving the NPS [nuclear power station] in the absence of a long-term solution to the problem of high level nuclear waste is unlawful.
 - 8.7 Approving the NPS in the absence of a final project design is unlawful
 - 8.8 The Thyspunt site is not a viable one for the Nuclear-1 project

Response 16:

- 8.1 Social impacts are assessed in the Social Impact Assessment (Appendix E18 of the Revised Draft EIR). Economic impacts are assessed in the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR).
- 8.2 "Worst case scenario" impacts of nuclear safety are outside the scope of the EIA as they are within the scope of nuclear emergency planning to be dealt within in terms of the NNR's nuclear licensing process.
- 8.3 The Revised Draft EIR includes a Waste Assessment (Appendix E 29), which assesses the impacts of nuclear waste management.
- 8.4 Your comment is noted. Please refer to Response 10 regarding the feasible and reasonable alternatives dealt with in the Nuclear-1 EIA process.
- 8.5 Your comment is noted. The EIA process has provided all information that has been requested by the Department of Environment Affairs for the purpose of the environmental decision-making. As with many different forms of development, construction is dependent on authorisations by

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 the EIR.

8.6 Your comment is noted. It is internationally accepted practice to deal with high-level nuclear waste through permanent storage. The internationally recognised method of disposing of high level nuclear waste is in a national deep repository, which would be placed in a geologically stable area of the country, and normally away from high population areas. It is not normal at the power station site, although in Finland they are putting their repository at one of their sites – with strong local support.

8.7 As indicated in Response 5 the assessment of the impacts of the proposed power station is based on a Consistent Dataset (Appendix C of the Revised Draft EIR), which represents a worst case scenario of potential inputs and outputs from a number of different Generation III nuclear power stations operating under normal conditions. This dataset has been based on the commercially available nuclear power station designs currently available. It is comment practice in many EIA processes for the assessment to be based on conceptual designs, but for detailed placement of infrastructure to be confirmed through a “walkdown assessment” after environmental authorisation.

8.8 Your opinion is noted.

Comment 17:

This submission is made on behalf of the following I&APS R C H Garbett

CANE (Coalition Against Nuclear Energy) in the following regions
NWP
Limpopo
Gauteng
Mpumalanga
Free State
Sylva Lilly Properties Pty Ltd

Response 17:

Comment noted.

Yours faithfully
For GIBB (PTY) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

Nuclear-1 EIA Team

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

05 August 2015

Our Ref: J27035
Your Ref: Email received 04 August 2011

Email: sally@mail.ngo.za

Dear Ms Andrew and Mr Boshier

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

Comment 1:

I would like to refer to 2 issues

1. The below document (can be found at http://www.savebantamsklip.org/docs/NSIP%20REPORT_0001.pdf) of 1988 and 1993.

Entitled: NG18/TAC/ea/scapREP
NUCLEAR SITING INVESTIGATION PROGRAMME (NSIP)
SOUTHERN CAPE
SUMMARY REPORT

2. Nuclear-1_Bantamsklip_sensitivity map_rec area_31072010 COM

Response 1:

Your comments are noted.

Comment 2:

Dealing with 1.

After eighteen years having relapsed, the recommendations stipulated in your own report (shown below) for the purchase of the Bantamsklip site have still not been fulfilled on all three counts Motivation, Warm Water Effects and Compensation. We believe the EIA procedure is Fatally Flawed on this count alone.

Response 2:

Your comment is noted and is responded to in Response 4 below.

Comment 3:

Dealing with 2.

No protected areas are shown on the map Agulhas National Park, Pearly Beach Nature Reserve, Soetfontein Nature Reserve and Groot Hagelkraal itself. The locality of Buffelsjagt is also not indicated on any of your mapping for the Bantamsklip site.

Response 3:

Your comments are noted and a map explicitly illustrating these areas will be included in the Revised EIR Version 2.

Comment 4:

5 RECOMMENDATION OF SITE SPECIFIC SENSITIVITY

(acc 1162516)

6.5.2 Recommendation : Bantamsklip

The Bantamsklip site should not be purchased for later development for a nuclear power station unless certain criteria are met.

6.5.4 Criteria for purchase of Bantamsklip or Buffelsjagt

The following three major criteria should be met before either the Bantamsklip or Buffelsjagt sites are purchased:

Motivation

A clear and publicly motivated need is shown for the specific site compared to other national sites.

Warm water effects

The effects of the maximum release of warm water on the local marine resources are quantified and carefully assessed.

Compensation

Fair compensation (as determined in negotiations) is made to the affected parties.

Response 4:

Your comments are noted.

Motivation:

The motivation for the specific site selection and the site selection process is discussed in the Revised Draft EIR Version 1 and in previous versions of the EIR and Scoping Reports.

Warm water effects

Warm water effects are discussed in detail in Sections 3 and 5 of the Marine Ecology Impact Assessment. This report has recently been revised in response to comments received from Interested

and Affected Parties and additional Key Stakeholder consultation, and will be made available for public comment and review and as an addendum to Revised Draft EIR Version 2.

Compensation

It is normal practise to purchase land at market related prices and to consider any relevant compensation which may be applicable.

Comment 5:

It is our contention that the Bantamsklip site EIA (and EIR) is fatally flawed and the site should be removed from the list of proposed nuclear sites. We are prepared to elaborate on this submission when you have had time to consider the contents thereof.

Response 5:

In terms of the EIA and specialist opinion there are no fatal flaws which exclude any of the sites from development of a nuclear power station. GIBB therefore invites the writer to elaborate further on this issue.

Yours faithfully
for Arcus GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'E' or similar character, located below the typed name.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

The Chairman: Rodney Anderson
Save Bantamsklip

Email: info@savebantamsklip.org

Dear Mr Anderson and Save Bantamsklip



Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
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:

Dear Ms Ball

On behalf of the Save Bantamsklip Campaign, an NPO representing a range of communities and groupings, we would like to register our final and undiluted opposition to the proposed nuclear power station at Thyspunt, (and/or either of the two alternative sites – Bantamsklip and Duynefontein).

We understand from an article published on page 2 of “The Herald” in Port Elizabeth on Hiroshima Day, 6 August 2011 that an Eskom spokesperson is on record as having said that the Thyspunt Nuclear Power Station will go ahead, regardless of public opinion and recorded opposition. Eskom further stated on the record that “construction would start at Thyspunt next year” (i.e. in 2012) and that there would be two reactors built every two years for another four years.

Statements like these are not only indicative of bad faith in terms of the ongoing process, but also the “roll out” timing suggested is highly unlikely. The choice of date to make such statements was also insensitive.

Response 1:

Your comment is noted.

An article under the heading “*Thyspunt saga heats up*” that appeared in The Herald’s edition of 5 August 2011 (see attached) (6 August was a Saturday and the Herald does not appear on a Saturday) quotes a member of the Thyspunt Alliance, Mr Hilton Thorpe. The quote from Mr Thorpe is as follows:

“Thorpe said the alliance had been disturbed by the statement by one senior Eskom official at the St Francis meeting to the effect that ‘the development is going ahead no matter what’. “He stood up and said they would be going ahead with Thyspunt next year and thereafter every two years they would be building the rest of the nuclear plants that they need”.

This is Mr Thorpe’s interpretation of what was said at a meeting but is not Eskom’s policy on Nuclear-1. No such statement by an Eskom official is apparent in any of the minutes of the public and focus group meetings for the Nuclear-1 EIA held in St. Francis and surrounding areas. The inference that Eskom would start construction in 2012 and that it would continue to build a nuclear reactor every two years is Mr Thorpe’s interpretation.

Eskom did say that they intend to develop additional nuclear power stations after Nuclear-1. The intended time frame for the start of construction of Nuclear-1 was also discussed, but it was made clear in these meetings that construction was subject to the environmental authorisation process, as well as a range of other authorisations, and that the environmental authorisation was only the first authorisation that Eskom needed to obtain.

Minutes of these meetings are available on the Eskom and GIBB websites.

Comment 2:

We place on record that the Environmental Impact Assessment (“EIA”) process has been flawed, in a multiplicity of ways. There is also a clear lack of bona fides on the part of both Eskom and Arcus Gibb.

Response 2:

Your comment is noted.

Comment 3:

We also place on record that there has been a failure to comply with the necessary legislation, including the National Environmental Management Act, the EIA Regulations published there under, the Promotion of Administrative Justice Act, as well as the Constitution.

Response 3:

Your comment is noted. Should you believe that there is proof of specific instances of non-conformance with the quoted legislation; GIBB would welcome the opportunity to consider this.

Comment 4:

We therefore heartily endorse the current submissions of our constituent members and those of our colleagues and associates in civil society, namely the Hermanus Ratepayers Association, The Overstrand Conservation Foundation t/a Whale Coast Conservation, The Dyer Island Conservation Trust, The Strandveld Conservation and Tourism Association and the Buffeljags Community, to name a few.

Response 4:

Your comment is noted.

Comment 5:

We trust that the Minister, the Honourable Ms Edna Molewa, MP, in applying her mind to these and many other submissions from around the country, will reject the EIA report and issue a negative ROD.

Response 5:

Your comment is noted.

Comment 6:

Given the circumstances set out above, we hereby reserve our right to take such legal action as we may be advised.

Response 6:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, consisting of a large, stylized 'G' followed by a smaller 'B' and a trailing flourish.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 09 August 2011

National Union of Mineworkers
2nd Floor
56 Spin Street
Cape Town
8001

Email: smimi@num.org.za



Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Madoda Sambatha and the National Union of Mineworkers

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

Comment 1:

1. Background

NUM appreciates this opportunity to comment on this important process to review the Revised Draft Environmental Impact Report for Eskom proposed Nuclear 1 power station and associated infrastructure. NUM organises and is representative union within the Cosatu federation in Construction, Mining and Energy sectors of our economy.

“One of the main tasks that will henceforth confront the trade unions is to protect in every way the class interests of the proletariat in its struggle against capital. This task should be openly put in the forefront, and the machinery of the trade unions must be recognised, changed or supplemented accordingly” Vladimir Lenin

In this spirit and since our formation in 1982, the National Union of Mineworkers has been on the forefront of the struggle waged by the working class against the oppression of man by man and to defend the dignity and rights of workers in the workplace. In this regard we not only fought against poor working conditions in the workplace and sectors that we organise but have vigorously raised concerns against poor working conditions and unnecessary exposure of our members and their communities to health risks caused by the industries they're employed.

Our role in Energy Policy development

As a progressive union, we view our role in the energy policy context as that of ensuring that social contracts must not be at the expense of the working class – the ultimate price is paid by workers and their communities such as declining real wages, environmental impacts and degradation, and unemployment crisis.

Our engagement of the Report will also be guided by section 24 of Act 108 of 1996 – the Constitution of the Republic of South Africa which assures the citizenry of the Republic to a right: (a) to an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras
Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

for the benefit of the present and future generation through reasonable legislative and other measures that:

- (i) prevent pollution and ecological degradation;
- (ii) promote conservation; and
- (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development

Response 1:

Your comment is noted.

Comment 2:

2. Introduction

South Africa relies on coal for its energy needs. More than 90% of electricity is generated through coal and this makes us one of the highest greenhouse gasses emitters in the world – number 12th in the world.

In its 52nd congress the African National Congress asserted that “there is now a general agreement that the world is rapidly moving towards the point where rising temperatures will result in dramatic and irreversible climate related impacts that will have dramatic effects on human society and on our natural environment. The polar ice caps are melting; changes are taking place in sea currents and sea levels. The hottest temperatures in recorded history have measured in the last decade, as have the most intensive storms, the most destructive floods and the longest lasting droughts”. Furthermore, the ANC stated that “poor communities will bore the brunt of the costs resulting from climate change and direct inverse to their contribution to the phenomenon of global warming. Scientific research predicts that in all of this the African continent is likely to be the most affected parts of the world (ANC 52nd National Conference 2007)¹”.

We are witnesses to the impact and destruction that was caused by an Earthquake in New Zealand southern city – Christchurch. According to the CNN (online) of February 23, 2011 the death toll had risen to 147 in the southern part of the country – Christchurch city. At the time more than 300 people were reported missing which fuelled fears that the death toll could rise. This 7.1 magnitude tremor left a trail of destruction and dead bodies throughout the city.

We also saw the destruction that was caused by the floods in Australia. Brisbane recorded 2010 as the rainiest year in 150 years. Mining operations had to shut down – coking coal exports and many other minerals had to halt responding to transportation delays. Australia exports two thirds of its coking coal. All mines in Queensland district had to close down due to the flooding.

Here at home in January we experienced unprecedented flash floods across the country. The floods were reported to have killed 120 people, left about 20 000 people without shelter and areas in eight provinces were declared as disaster areas. The estimates were at \$211 flood damage. South Africa is still plagued by disease such as HIV/AIDS, mass unemployment, poverty etc – we cannot afford the damages of unpredictable weather patterns, the onus is on the State to ensure an adequate legislation that will deter the worst effects of climate change.

All these disasters have left a trail of costly destruction which meant loss of life for some, loss of production to farmers and business owners and loss of income to workers – all of this we cannot afford. However, it is in the best interest of the working class communities not to opt for energy generation technologies that will be safe for generations to come. The radioactive which remain a

¹ ANC 52nd National Conference – Polokwane, Limpopo Province, 2007.

hazard to human life and the environment for thousands of years, the dodgy costs and financing of nuclear energy and the safety hazards which are inherent with nuclear energy are not convincing for the uptake of a large nuclear plant.

Can nuclear energy creates (sic) the necessary and much needed decent jobs for the growing number of unemployed workers? This industry is yet to convince workers that it has potential to create jobs for the South African labour market which is shedding jobs in the economy.

Response 2:

As indicated in the Revised Draft EIR, the construction phase of the proposed Nuclear-1 power station will create approximately 7,500 temporary employment opportunities and the operational phase will create approximately 1,400 permanent employment opportunities.

Koeberg power station has been operating for over three decades. The power station has continued to provide not only the permanent positions and contributed to the local economy in many ways it also provides at least 1000 temporary positions during major outages.

Comment 3:

3. Description of the project

3.1 Timeframes for construction and power station life cycle

Reputable sources inform us that it is in the nature of the nuclear industry to experience construction delays. February 2011 would have been an end of a 36-year construction programme of the Bushehr nuclear reactor in Iran had the reactor builders' not experienced new technical problems during commissioning. The recent delays to this program are reported to be problems with one of the coolant pumps which have rendered the commissioning of this plant uncertain. This project began in 1974 with the Shah ordering a fleet to be built by a German electronic company, Siemens. A number of factors contributed to the failure to complete this programme including the Islamic revolution in Iran, the Iran-Iraq war – with the Iraqi aircraft striking the plants a number of times including 1985, 1986, two times in 1987 and finally in 1988.

Turkey has also attempted to build nuclear power plants since the early 1970s. Only in May 2010 did the Turkish government signed (sic) an intergovernmental agreement for Rosatom, a Russian company, to build, own, and operate the Akkuyu plant with 1200 MW AES-2006 units – a US\$20 billion project. The reactors are expected to be operational in yearly intervals in the period of 2018 – 21.

In Finland, the Olkiluoto nuclear plant is another example of costs overruns and delays. After 4 years of construction, this nuclear project experienced thousands of defects and deficiencies. Originally, the project was budgeted for about US \$4 billion and due to delays, has ran budget overruns of more than 50% the original price by 2009 and this continues to sky-rocket unabated as further delays due to various reasons including safety concerns continues to affect the project². The construction of the plant started in May 2005 and the commercial operation envisaged in 2009 – this was not realised. It is now envisaged that the plant will be able to produce electricity in 2013, which means the project is effectively 4 years behind schedule and this has an impact on the budget.

² New York Times online, May 2009 – James Kanter

The French, with extensive experience in nuclear energy construction – 80% electricity generated from nuclear energy, has experienced similar problems to Finland. Their Flamville nuclear project has experienced budget overruns and construction delays. In 20th July 2011, Reuters reported that EDF has delayed the completion of its first French next-generation EPR nuclear reactor by another two years to 2016, saying it expects the project's costs to rise to 6 billion euros (\$8.52 billion). The same thing happened in July 2010, the state-controlled utility delayed the commercial start of the 1,600 megawatt nuclear reactor by two years to 2014. At the time, it had also raised its cost estimate for the project in northern France from 4 to 5 billion euros.

All these indications point out to the fact that nuclear energy is inherently dodgy when it comes to financing and predicting the completion period. South Africa has urgent energy needs – a crisis of energy reserves deficit. The country is in an energy crisis and cannot afford tempering with expensive energy generation technologies which would be of no help if they remain deep, dark holes where the country would throw in its limited resources and precious time.

It is reported that currently there's 14 countries building nuclear power plants, and most of these projects are experiencing costly and substantial delays. As of April 1, the International Atomic Energy Agency (IAEA) listed 64 reactors which are currently under construction – this makes up a capacity of about 62.5GW. A staggering twelve of these reactors have been listed as under construction for the past 20 years including the Iranian Bushehr plant, three Russian units, two Belen units in Bulgaria, two Mochovce units in Slovakia, the Atucha-2 reactor in Argentina started 30 years ago including two Taiwanese units which have been under construction for the past 10 years; Thirty five projects do not have an official (IAEA) planned start-up date, including six of the 11 Russian projects, the 24 of the 27 Chinese units under construction and the two Bulgarian reactors; and many of the units listed by the IAEA as under construction have experienced delays, most of them significant. The remaining units were started within the last five years and have not reached projected start-up dates yet and this makes it difficult to assess whether they are running on schedule³.

Response 3:

There have indeed been programme and budget overruns on a number of nuclear power station construction projects. The Iranian example is extreme as this country is subject to international sanctions due to its nuclear armaments programme. The Iranian example therefore cannot be compared on par to nuclear power station construction projects in countries where there is a free flow of goods and services.

Delays on other nuclear projects have been primarily based on quality and regulatory issues. As Nuclear-1 is not at the beginning of the nuclear renaissance, key lessons from international examples are being integrated into the planning for Nuclear-1. This should therefore minimise any perceived delays into the future. As an example, delays on the EPR project are currently reducing as Areva is getting into the build exercise at an increased pace (Olkiluoto experienced more delays, Flammanville less and Taishan is on schedule) from a period of not building. As most credible nuclear vendors are constructing elsewhere to date, Nuclear-1 will benefit from their experience. Eskom has been responsible for building two of the world's largest coal fired power stations, there have been delays with this construction and initial cost estimates were not as accurate as desired. However, it was more than 20 years after the previous coal fired power stations were built. Eskom has gained much experience from these two projects and will use these to ensure that the nuclear projects is a success.

³ M Schneider, A frogatt, S Thomas – 2011 – World Nuclear Industry Status Report 2010 - 2011

Comment 4:

3.1 Human Resources

Nuclear 1 and associated infrastructure will comprise of up to a 4000 MW nuclear reactor and will employ in all and based on the Revised Draft Environmental Impact Assessment Report (revised DEIR), 5000 vendor construction, 2200 vendor staff, 140 Eskom project staff and 40 Eskom consultants, including to this will be 1385 Eskom operations staff which will be comprised of people with various engineering, technical and scientific skills. However, it is not clear as to first, whether these jobs will be permanent and how many, if any, of these jobs will be blue collar jobs and how permanent are these jobs.

South Africa has more than 25% unemployment rate – this is a crisis, as 70% of this is youth. In our view, the Revised DEIR fails to deal with employment -- the provision of decent jobs forms a critical element of our energy generation technology choice.

Response 4:

As indicated in Response 3 approximately 7,500 temporary jobs will be created in the construction phase and approximately 1,400 permanent jobs will be created during the operational phase. The majority of the job opportunities during the operational phase will be skilled jobs, but the majority of the jobs during the construction phase will be for unskilled and semi-skilled workers.

Professional people that will be employed during operations will cover all disciplines necessary at a power station viz. physicists, chemists, accountants, engineers, human resources practitioners, environmentalists, thus mostly people at university and technikon graduate level. Previous recruitment experience shows that these people are available in South Africa.

In addition to graduates a large percentage of staff are artisans at various trade levels viz. fitters, electricians, mechanics, welders etc. as well as semi-skilled trades like scaffolders, ladders, riggers and others.

Comment 5:

4. Need and Desirability

4.1 Balancing Electricity Supply and Demand

The problems which have led to Eskom being unable to meet the country energy demand is that the state-owned company failed to plan or convince the government of the day to provide legislative and policy measures which would assist them in planning to build more capacity. Historically, South Africa has had excess energy reserves to an extent that Eskom failed to realise that power station have a lifespan. The rash to increase electricity tariffs (sic), the rolling black-outs and power shedding is hurting the poor more that depends on electricity to run their small business and for daily living purposes.

Nuclear energy cannot, therefore, be an easy-way out of the energy crisis. There are far too many challenges with nuclear energy than opportunities. Other possibilities such as renewable energy must be explored.

Response 5:

Nuclear energy is one of several technologies which will contribute to meeting the electricity demand in South Africa not the only one. The fact that Eskom intends to develop a nuclear power station does not imply that it opposes renewable technologies. However, the conclusion of the IRP process is that 9,600 MW of nuclear generation must, in parallel to renewable technologies, form a part of the mix generation technologies. The EIA process, which is a project-specific environmental management tool, does not have any mandate to revisit the strategic analysis of power generation alternatives that was completed in the IRP.

The environmental application for Nuclear-1 is for a single nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal fired power stations currently under construction. In all these previous instances, the scope of the EIA was restricted to a specific technology within a defined geographical area. It cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa's electricity needs. This is especially the case in the instance of the Nuclear-1 application, where the government has, through a consultative process (the Integrated Resource Plan – IRP) taken a decision on the mix of generation technologies required to supply South Africa's future electricity needs for the next two decades. This mix of technologies includes a balance of a number of different technologies, including a substantial portion of renewable technologies.

Comment 6:

5. Project Alternatives

This Revised DEIR does not consider clean coal technology as an appropriate source of base-load energy required to meet the increasing electricity demand. This exclusion is not explained and can only be viewed in the light of vested interest and the large amounts of resources required by the sector. There are other energy generation technologies including solar, bioenergy, geothermal and energy efficiency, which together in our view would make-up a reliable source of base-load energy required to meet the energy demand.

Despite the technical potential of renewable energy and clean-coal technology, the report fails to deal with costs of each eligible alternative technology compared to nuclear energy. However, the World Nuclear Industry Status Report asserts that atrophied skills, overstretched supply chains, sheer complexity keep nuclear capital costs soaring. Furthermore in relation to costs, the report states that renewable electricity rule the market place, providing half of the world's new generation capacity in 2008-09. The cost of nuclear energy and risks associated dissuades investors. The report states that innovation and mass production, not giant units, are making nuclear power's renewable competitors inexorably cheaper – wind turbines by one fifth since 2007, they now beat nuclear power by two to threefold; solar by half. In 2009, a standard crystallised-silicon photovoltaic (PV) module costs \$4.20 per peak watt, today it is \$1.70; its forward pricing is \$1.35 for the end of 2011 and \$1.00 for mid-2012.

In terms of investments, in 2010 all renewables excluding large hydro received \$151 billion of global private investments and surpassed nuclear power's total global installed capacity. In the same year nuclear got none. The report further project that, within few years, renewable energy will exceed nuclear power total global electricity output and soon will outproduce and outcompete all 64 reactors which are listed to be under construction by the IAEA.

The investor confidence in renewable energy indicates that renewable energy is a reliable source of energy and indeed base-load energy. The exclusion of renewable energy as alternatives and the selection of wind as an unreliable source of power is rejected by NUM and we have reason to think this can only be that the nuclear industry is yet to wake-up and realise that renewables makes-up a source of energy that the nuclear fails to recognise its contribution to climate change mitigation and environmental sustainability.

Response 6:

As indicated by Response 6, a project-specific EIA for a specific power station based on specific technology does not have a mandate to question strategic decisions on the mix of power generation technologies recommended in the IRP.

Your statement that the Revised Draft EIR does not deal with the comparative costs of generation technologies is not factually correct. Chapter 5 of the revised Draft EIR refers to two studies that compare a wide number of electricity generation technologies, including coal-fired, nuclear, wind and gas. Figures 5.5 and 5.6 in the Revised Draft EIR, which were obtained from the study by the International Energy Agency (IEA) and the OECD Nuclear Energy Agency (NEA), provide levelised cost of electricity (LCOE) for nuclear, coal, gas and onshore wind power generation. The Electric Power Research Institute (EPRI) report referred to in the Revised Draft EIR provides data on renewable resource technologies (e.g. wind, solar thermal, solar photovoltaic and biomass), fossil fuel technologies and nuclear technologies.

Whilst direct comparison of costs may seem to indicate that renewable technologies are far cheaper than nuclear, it must be remembered that many renewable technologies (especially solar and wind) have a far lower capacity factor (percentage of time that full capacity can be supplied) than nuclear, which is regarded as baseload power supply. For instance, in the EPRI report (2010) quoted above, wind turbines at an unspecified coastal location are regarded to have a capacity factor of 29.1 to 40.6 %, whilst that of nuclear generation is around 80%.

There is no doubt that renewable technologies will represent larger and larger proportions of total generation capacity. However, this does not negate the need for baseload generation such as can be supplied by nuclear generation.

Comment 7:

6. Conclusions

“...the renewable revolution already happened—yet the nuclear industry still doesn’t even acknowledge renewables as a realistic competitor, claiming that wind and solar power’s variability disqualify these burgeoning sources as unreliable. Just the opposite is true: they actually improve security and reliability more than nuclear power ever could⁴.”

Analysing the trends in developing nuclear energy throughout the world, you find-out that delays in construction, budget overruns and lack of investor appetite into the sector is inherent to the industry. The uptake of nuclear energy remains artificial, while on the other hand renewable energy continues to receive public support. Of the 64 nuclear reactors which are currently under construction in the world, more than a third of that has been in this situation for the past twenty years, another significant number for the past ten years and the rest have no official start-up date. This informs us that Nuclear Renaissance is but a myth!

We reject Nuclear 1 and appeal to Eskom’s logic to re-invest its resources in clean coal, renewable energy and energy efficiency.

⁴ World Nuclear Industry Status Report 2010-2011

Response 7:

Nuclear specialist to respond to claimed extended construction time frames for nuclear power stations.

As indicated in Response 6, the development of nuclear energy generation does not imply opposition to the development of nuclear generation capacity. A variety of different forms of power generation technology are required in parallel to meet South Africa's electricity needs.

Eskom is indeed investing in renewable technologies, will build clean coal if required to do so by government. Electricity efficiency and demand-side measures are regarded as a key component of the Integrated Resource Plan's recommended way forward. However, the IRP's assessment is that demand side management can contribute a saving of 3,420 MW at most.

See response 3 for further information.

Yours faithfully
for Arcus GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 19 August 2011

St Francis Links
PO Box 159
St Francis Bay
6312

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Email: j.clause@stfrancislinks.com

Dear Mr Clause

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

We would like to thank you for extending the period in which we as St Francis Links may submit comments as it relates to Nuclear-1.

St Francis Links (SFL) is registered as an Interested and Affected Party. We have not previously tendered any written comments on the proposed Nuclear Power Station at Thyspunt, but would like to table the following matters of concern for consideration and possible inclusion in your Issues and Response Report. For purposes of this letter and the concerns raised in it, "SFL" shall represent the three entities involved at St Francis Links namely The St Francis Links Home Owners Association, Links Golf Club Limited and St Francis Golf Links (Pty) Ltd.

Whilst SFL recognises the urgent demand for power in South Africa, our concerns lie with the direct impact which the proposed Nuclear Power Station might have on our estate, our home owners and our community and apply purely to us as the largest landowners and developers in St Francis Bay.

We therefore submit as follows:

Comment 1:

1. Access Road – R330

- 1.1 The R330 road between Humansdorp and Cape St Francis passes by our front entrance gates. The SFL developers funded the building of the traffic circle and the SFL Home Owners Association maintains it at our cost. We understand that the possibility is there that the abnormal loads (amongst others) during the construction period would utilise this route, past our entrance gate. Our concern is what plans will be set in place to upgrade / protect this road and how this might affect the traffic circle, lighting of this area (which we also maintain), security in this area and very importantly the water run-off and drainage systems supporting the road (given how it was affected by the November 2007 floods).

- 1.2 St Francis Bay, like many towns in South Africa, struggles with security and criminal activity. It has long been suggested that surveillance of the only entrance and exit to the town (in the region of the Sand River area), might lessen crime in the area. We would also like to suggest that your client, as a goodwill community contribution, considers the installation of security surveillance cameras at the entrance to St Francis Bay, and more specifically in this high-traffic area at the circle. SFL would offer our services in the monitoring of the cameras installed as such, by way of our security team at our front entrance gate.

Response 1:

Impact on the R330

Since the release of the Revised Draft EIR, the The Transport Impact Assessment (TIA) has been substantially revised so that construction traffic will avoid Humansdorp and St. Francis completely (with the exception of less than 30 extra heavy loads that will have to use the Eastern Access Road to the Nuclear-1 site over the 9 year construction period). The revised TIA recommends the construction of a new interchange on the N2 to the west of Humansdorp that will bring construction traffic to the site via the Oyster Bay road and the Western Access Road to the Nuclear-1 site. In terms of the revised TIA, only personnel traffic would use the R330.

There is the potential that changes are required to the circle. If this is the case Eskom would be required to engage with the local authorities and yourselves during the planning stages.

Security surveillance

Social infrastructural issues e.g. crime requires further discussions with local authorities, communities and entities such as yourselves. In the case of other Eskom projects Eskom engaged with the South African Police and other relevant stakeholders to ensure that security issues are addressed. The specific detail regarding camera's would need to be discussed further with Eskom.

Comment 2:

2. Kouga Municipality (KM)

SFL is concerned about KM's current ability to deliver its services in the town of St Francis Bay. It is evident from recent events that KM cannot cope, financially or otherwise, with maintaining this town's roads and infrastructure. St Francis Bay is immensely affected by recent rains and as at today's date and to the best of our knowledge, no clear action plan has been made public by KM as to how the Provincial Department or that of the KM itself, plans on repairing and then maintaining the roads, collapsed Sand River culvert, services and infrastructure in this town. SFL is concerned about the influx of potential renters and home owners as a result of the construction of Nuclear-1 and that the demand on KM will merely increase, when it is clearly stretched beyond its limits and unable to cope with its current responsibilities. Your client's contribution to upgrades and / or repairs in this regard would certainly assist.

Response 2:

If and when the project is approved, Eskom will be engaging local municipalities on the upgrading of certain infrastructure, including roads and other facilities. It is acknowledged that there is an infrastructure backlog and that the Kouga Municipality does not have sufficient funds of its own for the

necessary upgrades. Thus, the following is recommended in Chapter 11, Section 11.3.1 of the revised Draft EIR version 2:

“Eskom must enter into negotiations with local authorities and other relevant authorities well before the start of construction to identify how it can be ensured that municipal services are capable of providing sufficient capacity for the expected influx of people into the affected area. Agreement must be reached between Eskom and these bodies on the apportionment of financial responsibility for infrastructure upgrades.”

Eskom cannot, however, be expected to be solely responsible for infrastructure upgrades, as current infrastructure backlogs are the responsibility of the municipality. It is for this reason that it has been recommended that agreement must be reached between Eskom and the other role players regarding apportionment of financial responsibility for infrastructure upgrades.

Comment 3:

3. Groundwater Table

Whilst the increase in groundwater levels in and around the Thyspunt site has been addressed in the Revised Draft EIR, we wish to voice our concerns but also offer to open direct discussions surrounding our experiences specifically with the recent rainfalls in the area and the effect which it had on the dune systems to our west and the flow of water through our estate and the village of St Francis Bay to the ocean. We have noted an exceptional rise in the water table through the eradication of alien vegetation whilst SFL was under development and also due to the recent high rainfalls. SFL would be interested in seeing the stormwater system designs proposed for the Thyspunt site with a view to minimise any chances of another flood as was experienced in November 2007.

Response 3:

Eskom would welcome the opportunity to engage with the SFL regarding its experience with groundwater, but it should be noted that such details are not on the table as yet. If and when the project is approved, the eventual site terrace design will consider storm water movement and experience from the area will be very much valuable to incorporate in the design.

Comment 4:

4. Eastern Access Road to Thyspunt

It is our understanding that the proposed access road off of the R330 will border directly onto SFL developer-owned property (erf 220 commonly known as the St Francis Links Eco Estate and potentially further SFL properties). Erf 220 property is earmarked for potential further subdivision and development by SFL's developers with a view to residential properties.

4.1 Noise and Lights

SFL is concerned about the noise pollution and what impact road lighting and headlights might have on the access road bordering erf 220 (and other SFL property) during and following the construction of the access road and would ask that your client, at its expense, includes a mutually agreed upon solution (to be included in the ROD) to minimise the impact as such, to erf 220 (and other SFL property) or its subdivided components. It is also our understanding that your client will engage the use of

helicopters for the power line pylon construction and this will impact the day-to-day core business of SFL, being that of golf and leisurely enjoyment / living. SFL needs to understand the flight path and timing of this exercise and what impact it might have.

4.2 Dust

SFL, now officially ranked in the Top 10 golf courses in South Africa (Golf Digest) and officially ranked as the number 1 Club Reception Venue for Weddings in South Africa (SA Bridal Industry Academy) is one of St Francis Bay's largest tourist attractions. Further to 4.1 above, SFL is concerned about the impact of dust on our estate, golf course and clubhouse and especially to the residential property privately owned by each of our homes owners. SFL would ask that your client, at its expense, includes a mutually-agreed upon solution (for inclusion in the ROD) to minimise the impact as such to the entire estate and that your client also commits to the tarring of the Eastern access road, as well as the long term maintenance thereof.

Response 4:

As indicated in Response 1, it is no longer proposed to use the R330 for construction traffic. Nevertheless, Eskom will engage with the SFL specifically regarding the issue of a solution to prevent vehicle lights intruding on the SFL.

The construction of pylons and the stringing of power lines by helicopter will take place over a very short period of time during construction. Eskom will engage with the SFL to ensure that the flights paths to the construction site result in minimum disruption to SFL's activities.

Your concern regarding dust generation from the Eastern Access Road is noted. The tarring of this proposed access road is part and parcel of the Nuclear-1 development proposal. Eskom would furthermore continue to maintain the Eastern Access Road since it would be the primary access road to the site during the operational phase, considering that the majority of the employees would be located in Jeffreys Bay and Humansdorp during the operation of the power station.

Comment 5:

5. **Eastern Access Road**

SFL would ask that your client ensures that proper stormwater drainage solutions are put in place to ensure sustainable and effective run-off from the newly constructed roads. Referring to Point 2 above, we believe that it would furthermore be in your client's interest to possibly propose a long-term and sustainable solution to the water run-off problems currently faced throughout the village of St Francis Bay and the peninsula.

Response 5:

From an operational point of view, it is critical for Eskom to put in place effective drainage for the Eastern Access Road to ensure accessibility of the Thyspunt site during construction and operation. Eskom will engage with the relevant roads authority to ensure that drainage issues underneath the R330 at the crossing of the Sand River are addressed. However, the drainage problems currently being experienced in the rest of St. Francis Bay and the peninsula are an historical function unrelated to the proposed construction of Nuclear-1 and as such, it is the Kouga Municipality's responsibility to address this issue.

Comment 6:

6. Excavated Sand

It is our understanding that the sand excavated during the Thyspunt construction would be disposed of offshore. A possible, and we are certain very welcome solution to the eroding beach problems currently faced in St Francis Bay, might be to consider disposing of the excavated sand to the main St Francis Bay beach in order to rehabilitate it. SFL would be in support of this measure.

Response 6:

Your comment is noted. The Kouga Municipality has informed the EIA team that it has found a solution to the eroding beach at St. Francis. Incidentally the root cause of the eroding beach is the development that has taken place on the eastern portion of the headland bypass dune system, and the consequent stabilisation of the dunes, which used to be a source of sand for the St. Francis Bay beach.

Comment 7:

7. Workers Access and Sea Vista School

SFL would support strict security controls at the Eastern road access point in order to avert temporary and permanent workers from settling in the already crowded Sea Vista township in St Francis Bay. Once again referring to Point 2 above, this township, besides severely lacking in basic services, is also subject to criminal activity and is largely under-developed. The local school is severely in need of upgrades and would be best situated east from where it is now so as to eliminate the need for learners to have to cross the R330 on foot, especially in light of the fact that the vehicle count will increase as a result of the establishment of the Nuclear Power Station. SFL would be in support of your client's potential contributions in this regard and would like to take discussions further.

Response 7:

Your comment is noted. Eskom has indicating its willingness to explore solutions to ensure the safety of school-going children.

Comment 8:

8. Meteorological Mast

SFL would request that SODAR technology be used (as has been suggested) so as to eliminate the need for the mast with the red light at the top. It is our understanding that this red light might be visible from our estate.

Response 8:

Your comment is noted.

Comment 9:

9. Transmission of Electricity

Please outline where the proposed network of high voltage transmission and distribution lines might run and what perceived effect it would have on SFL.

Response 9:

The routes of the transmission lines are indicated in the environmental impact assessments for the transmission lines, which is a separate EIA to the Nuclear-1 EIA process. The reports for the transmission line EIA process are available from: <http://www.eskom.co.za> or <http://www.sivest.co.za>

Comment 10:

10. Fresh Water and Electricity

Please outline where your client plans on obtaining fresh water as well as electrical supply from during the construction period.

Response 10:

As indicated in the Project Description (Section 3.1.8 of the Revised Draft EIR), fresh water will be obtained from a desalination plant during construction and operation. Please refer to Section 3.8.4 of the Revised Draft EIR for information regarding power supply to the site during the construction phase.

Comment 11:

In closing, **SFL requests a workshop between yourselves / your client and our representatives as soon as possible** with a view to discuss the issues raised above, but to also open communications between the parties in order to furnish ourselves with reliable and correct information to pass on to our home owners on our estate.

We trust that satisfactory solutions may be found between your client and SFL on the points above and we reserve our rights in this regard.

Thank you for your consideration and we look forward to hearing from you.

Response 11:

Your request is noted. Please refer to the schedule below for the list of public meetings that will be held during the review of the RDEIR Version 2. Please attend the meeting which is the most convenient for you.

VENUE	DATE	TIME
Atlantic Beach Golf Club, Melkbosstrand	12 October 2015	18:00 to 20:00
Kenilworth Community Presbyterian Church, Kenilworth	13 October 2015	18:00 to 20:00
Gansbaai Tourism Bureau, Gansbaai	15 October 2015	18:00 to 20:00

Oyster Bay Hall, Oyster Bay	19 October 2015	18:00 to 20:00
St. Francis Links Golf Club, St. Francis Bay	20 October 2015	18:00 to 20:00
Sea Vista Community Hall, Sea Vista	21 October 2015	18:00 to 20:00
Newton Hall, Jeffrey's Bay	22 October 2015	18:00 to 20:00
Humansdorp Golf Club, Humansdorp	23 October 2015	18:00 to 20:00

Yours faithfully
for GIBB (Pty) Ltd



The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035

Your Ref: Email received 19 August 2011



City of Cape Town
Strategy and Planning

Email: keith.wiseman@capetown.gov.za

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Mr Wiseman

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

Comment 1:

From: Godfrey Josephs [mailto:Godfrey.Josephs@capetown.gov.za]

Sent: Friday, August 19, 2011 11:09 AM

To: Keith Wiseman

Cc: Ivan Bromfield; Lorraine Gerrans; Rehana Razack

Subject: PROPOSED ESKOM NUCLEAR-1 POWER STATION AND ASSOCIATED INFRASTRUCTURE: CITY'S COMMENT

Hi Keith

Herewith the Mayco resolution on the PROPOSED ESKOM NUCLEAR-1 POWER STATION AND ASSOCIATED INFRASTRUCTURE report submitted to Mayco on 16 August 2011, as requested:

**MC 19/08/11 PROPOSED ESKOM NUCLEAR-1 POWER STATION AND ASSOCIATED INFRASTRUCTURE: CITY COMMENT ON THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT
RESOLVED that:**

- (a) the report on the agenda for this meeting and the resolutions of the previous Planning and Environment Portfolio Committee (PEPCO) and Mayoral Committee taken in 2010 be submitted as the City's comment on the revised draft Environmental Impact report (EIR) for the Nuclear-1 project, and that these be addressed in the final Environmental Impact Report (EIR) and communicated to the Department of Environmental Affairs
- (b) the City's concern be expressed that the strategic issues raised by the City of Cape Town have been either overlooked or inadequately investigated in the Nuclear-1 Environmental Impact Assessment (EIA), with the result that the EIA process may be substantially flawed and subject to an appeal



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras
Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

- (c) it be noted that the City disagrees with the conclusion of the Nuclear-1 EIA that Duynefontein (Koeberg) is a potentially suitable site, since the Nuclear-1 EIA has not provided sufficient information on population, health and spatial planning implications to support such a conclusion.

ACTION: K WISEMAN; I BROMFIELD

Regards

Godfrey Josephs
Executive Committee Services
5th Floor, Podium Block
Civic Centre, CAPE TOWN
Tel. 021-4005265
Fax. 021-4189009
Godfrey.Josephs@capetown.gov.za

Response 1:

Strategic Issues previously raised by the City of Cape Town have been addressed in previous Issues and Response Reports, specifically Long Submissions dated 21 December 2010 and 21 December 2011.

Your disagreement with the conclusions of the Nuclear-1 EIA that Duynefontein is a suitable site for Nuclear-1 is noted. GIBB is confident that sufficient information has been supplied in the Revised Draft EIR revision 1 (and its associated specialist studies) to come to a conclusion regarding the feasibility of this site.

Comment 2:

(Refer to Annexures at the end of the report in the attachment)

REPORT TO ECONOMIC, ENVIRONMENTAL & SPATIAL PLANNING PORTFOLIO COMMITTEE

1. ITEM NUMBER :

2. SUBJECT

**PROPOSED ESKOM NUCLEAR-1 POWER STATION AND ASSOCIATED
INFRASTRUCTURE: CITY COMMENT ON THE REVISED DRAFT ENVIRONMENTAL
IMPACT REPORT**

ISIHLOKO

**ISIPHAKAMISO SESIKHULULO SAMANDLA OMBANE INYUKLERI-1 SAKWA-ESKOM
NESIXHOBO ESISISISEKO ESINXULUMENENE NOKO: ULUVO LWESIXEKO
KWINGXELO ELUYILO EHLAZIYIWEYO ENGEMPEMBELELO YOKUSINGQONGILEYO**

ONDERWERP

VOORGESTELDE ESKOM-KERNKRAGSTASIE (NUCLEAR-1) EN VERWANTE INFRASTRUKTUUR: STAD SE KOMMENTAAR OOR DIE HERSIENE KONSEP-OMGEWINGSIMPAKVERSLAG

LSUB2191

3. PURPOSE

This report is intended to inform the Economic, Environmental & Spatial Planning Portfolio Committee, Executive Mayor and Mayoral Committee of progress by Eskom with the Environmental Impact Assessment (EIA) process for the development of a Nuclear Power Station. City comment was submitted in 2008 on the draft Scoping Report and identified a number of strategic issues for the City of Cape Town. A revised Plan of Study for the EIA was published and City comment submitted on that document. A draft Environmental Impact Report was published for comment and the City commented on that report in June 2010. A revised draft Environmental Impact Report (EIR) has now been published for comment. The deadline for comment is 7 August 2011.

4. FOR DECISION BY

Council's System of Delegations (Delegation 12(2)) authorises the Executive Mayor in consultation with the Mayoral Committee to submit City comments on applications for environmental authorisation outside the urban edge when requested to do so by the Minister or MEC or Minister of Minerals and Energy in terms of Section 240(2) of NEMA.

Response 2:

Your comment is noted.

Comment 3:

5. EXECUTIVE SUMMARY

5.1 Background

Eskom Holdings Limited (Eskom) proposes to construct a conventional nuclear power station in South Africa in order to meet part of the growing total demand for electricity. This project has been named "Nuclear-1" and that name is utilised in this report. Eskom have indicated that future Nuclear-2 and Nuclear – 3 projects may follow.

South Africa is reportedly experiencing increasing electricity demand in excess of 4 %. Based on Eskom's projections, there is a requirement for more than 40 000 Megawatts (MW) of new electricity generating capacity over the next 20 years. It is Eskom's intention to investigate the feasibility of pursuing up to 20 000 MW of nuclear power generating capacity.

Nuclear-1 would therefore be the first of a series of new nuclear power stations to be constructed and would generate 4 000 MW of electricity. The area of the power station footprint assessed in the EIA however makes provision for a total capacity of 10 000 MW.

Eskom’s Nuclear Site Investigation Programme in the mid-1980s investigated the technical feasibility of five alternative sites, namely Thyspunt (Eastern Cape), Bantamsklip and Duynefontein (Koeberg, Western Cape), Brazil and Schulpfontein (Northern Cape). All these alternative sites were found to be technically feasible for the construction, operation and decommissioning of a conventional nuclear power station.

As a result of the difficulty to integrate with the electricity transmission system and the lower economic benefits and higher costs (amongst other reasons) the Northern Cape sites were removed from further consideration at the end of the Scoping Phase of this EIA.

The Nuclear-1 EIA therefore identifies and evaluates three alternative sites: Thyspunt (near Cape St Francis), Bantamsklip (Between Danger and Quoin Points in the Southern Cape) and Duynefontein (Koeberg, Western Cape). The location of these alternative sites is shown on the map below.



Response 3:

Your comment is noted.

The area that Eskom wants for a power station, as stated in the Revised Draft EIR, is between 200 and 280 ha for a nuclear power station with a maximum generation capacity of 4,000 MW (the maximum that could be authorised by the Department of Environmental Affairs). However, the alternative sites considered makes provision for future expansion and development in line with the IRP (2010).

Comment 4:

5.2 History of City engagement with the Nuclear-1 EIA process

City comment was submitted on the Draft Scoping Report for the Nuclear-1 Environmental Impact Assessment in May 2008, following a report to the Mayoral Committee at that time. In November 2008 the national Department of Environmental Affairs and Tourism (DEAT) approved the final Scoping Report, but requested that the Plan of Study for the EIA be amended. A revised Plan of Study for the EIA was published for comment and City comment was submitted in July 2009. Responses were received from the consultants undertaking the EIA in October 2009 and these responses were submitted to the Mayoral Committee on 17 November 2009. A draft Environmental Impact Report for Nuclear-1 was published and City comment was submitted following a report to the Planning and Environment Portfolio Committee and the Mayoral Committee in June 2010.

A revised draft Environmental Impact Report (EIR) has now been published for further comment. The deadline for comment is 23 June 2011.

Response 4:

Your comment is noted. Please note that the deadline for comment on the Revised Draft EIR (revision 1) was extended to 7 August 2011.

Comment 5:

5.3 Key changes in the 2011 revised draft Environmental Impact Report (EIR)

This report to the Executive Mayor focuses on the possible implications of Nuclear-1 for the City Of Cape Town. It is acknowledged that other significant issues and implications exist for the other alternative sites, but those issues are not discussed here.

The 2010 draft EIR was revised to incorporate additional specialist findings and address comments that were received by the EIA consultants. These additions and changes address mostly the Thyspunt alternative site, which remains the recommended alternative. There is little or no new information on the environmental impacts that would result from the location of Nuclear-1 at Duynefontein (Koeberg). As will be seen elsewhere in this report, the revised draft EIR has not addressed the City's previous comments. The key changes to the previous draft EIR include:

- The completion of groundwater monitoring studies at all three sites.
- Detailed studies of roads near Thyspunt.
- Completion of a waste specialist assessment covering general, hazardous and radioactive waste.
- A Heritage Impact Assessment of the Thyspunt site.
- Assessment of cooling water disposal options at Thyspunt.
- Assessment of spoil disposal to the surf zone at Thyspunt.

Many of the issues raised in the City's previous comments on the draft EIR (June 2010) have not been addressed in the revised draft EIR (2011). These issues were first raised by the City during the Scoping stage and in comments on the Plan of Study for Impact Assessment. The EIA consultant's response to the City's 2010 comments on the draft EIR is discussed in Section 5.5 below.

Response 5:

Please see response 7 to your Section 5.5 (Comment 7)

Comment 6:

5.4 Conclusions and recommendations of the 2011 revised draft EIR

The EIA has identified Thyspunt as the preferred site for Nuclear-1. This is based on a ranked comparison of the three alternatives as discussed below. The decision factors employed by the EIA consultants, Arcus Gibb, were as follows:

- Transmission integration factors for electricity
- Seismic suitability of the sites
- Impacts on dune geomorphology
- Impacts on wetlands
- Potential conservation benefits
- Impacts on heritage resources
- Economic impacts
- Impacts on vertebrate and invertebrate fauna.

The 2011 revised draft EIR concludes that all three alternative sites could be suitable for Nuclear-1 and ranks them in order of preference according to the above decision criteria. However, The Spatial Planning and Urban Design Department does not support the conclusion of the Nuclear-1 EIA that the Duynfontein site is suitable for the construction, operation and decommissioning of a new Nuclear installation. Sufficient information on the possible future outcomes of the proposed Nuclear-1 nuclear reactor has not been made available. Serious potential impacts have been omitted from the EIA and disregarded from the site selection decision making criteria. The revised draft EIR fails to address the address the key issues pertaining to:

- (1) Potential impacts of the N1 Nuclear installation on current and future land uses
- (2) Assumptions regarding future NNR regulations on development surrounding nuclear power stations
- (3) International safety guidelines established by the International Atomic Energy Agency (IAEA) relating to the siting of nuclear installations in proximity to densely populated urban areas
- (4) The responsibility for costs of emergency and other infrastructure required to plan and implement the Koeberg Nuclear Evacuation Plan, which are carried by the City.

The decision making criteria that have been selected to evaluate the alternative sites appear to reflect the best option for the applicant, Eskom, but not necessarily the best alternative for the receiving environment. Potentially adverse impacts are a secondary consideration and the spatial implications and potential incidence of a nuclear emergency have been disregarded from the EIA decision making process. The Spatial Planning and Urban Design department recommends that the Nuclear-1 EIA decision making criteria be amended to include a comparative assessment of the possible impacts of

the abovementioned criteria. This assessment could yield a different recommendation regarding the suitability of the Duynefontein site.

It is understood that the Brazil and Schulpfontein sites were removed from the list of identified alternatives on the basis of (1) a lack of existing electricity transmission corridors, (2) limited local power demand and (3) time frames for acquisition that could not meet Eskom's commitment to bring Nuclear-1 on-line. Whilst the urgency to secure alternative energy production sources is recognised, The Spatial Planning and Urban Design Department comment does not agree that this should be addressed at the expense of society and the general degradation of the environment. The Spatial Planning and Urban Design Department comment recommends that remote sites located sufficiently far away from areas of high population distribution and density should be reintroduced as alternatives to the N1-EIA process.

It is therefore recommended that the Executive Mayor advise the Environmental Assessment practitioner and the Department of Environment Affairs that the City disagrees with the conclusion of the Nuclear-1 EIA that Duynefontein (Koeberg) is a potentially suitable site, since the Nuclear-1 EIA has not provided sufficient information on population, health and spatial planning implications to support such a conclusion.

The omission of population and health issues from the EIA site selection criteria is a consequence of the separation of the EIA from the nuclear licensing process, which is the responsibility of the National Nuclear Regulator (NNR). Emergency services, emergency planning and exclusion zones, and radiological issues and assessments will form part of the NNR decision on a nuclear license application, once the site of the proposed nuclear facility has been determined by the EIA decision.

The Spatial Planning and Urban Design Department comment recommends that the National Nuclear Regulator (NNR) assessment must be reported on in the Nuclear-1 EIA and that all stakeholders must have adequate access to the inputs and the findings of the NNR. The Spatial Planning and Urban Design Department comment recommends that the NNR's assessment form part of the competent authority's decision making & site selection process.

The Spatial Planning and Urban Design Department comment also highlights the omission of a specialist town planning investigation into the potential impacts of the N1 Nuclear installation may have on current and future land uses. A specialist town planning investigation was requested by the City during the Scoping stage of the EIA and in the City's comments on the Plan of Study for the EIA.

The 2011 revised draft EIA includes a limited assessment of health and radiological issues based on assumptions of the emergency planning zones which would be needed and of the emissions from the reactor during normal operations. High level radioactive waste would be stored on site, as is the case for the existing Koeberg Nuclear Power Station.

Thyspunt is identified in the revised draft EIR as the preferred site for Nuclear-1, using the decision criteria listed above. The most important arguments in favour of Thyspunt are the conservation benefits that are predicted to be realised at Thyspunt through access control and active management of the site; the lower seismic risk profile of Thyspunt; and that it is favourably located in terms of Eskom's requirements for integration with the transmission system. The Thyspunt site is therefore recommended for authorisation by the EIA consultants. However, all three sites were found to be suitable for the future development of a nuclear power station and could be selected in future to meet the generation needs reported by Eskom.

Response 6:

Please find our responses (grouped per issue for ease of reference) to the key issues you mention below.

Potential impacts on current and future land uses

The impact on spatial planning does not form part of the scope of the current application and was therefore not assessed as part of the Revised Draft EIR Version 1. As indicated in previous responses, the Emergency Planning Zones (EPZs) that will be applied to Nuclear-1 are significantly smaller than the zones currently applied for the Koeberg Nuclear Power Station (KNPS). Therefore, implications for spatial planning will continue to be governed by the KNPS rather than by Nuclear-1. However, please refer to Appendix E34 for the Town Planning assessment report. This assessment considers the impacts on spatial planning and land use on areas surrounding each site.

Assumptions regarding NNR regulations on development surrounding nuclear power stations

Eskom has been in communication with the NNR regarding the issue of emergency planning zones and will justify from a safety assessment of the specific design to the NNR that the emergency planning zones will be smaller for Nuclear-1 than for older generation nuclear power stations such as the KNPS. Initial indications provided by the NNR are that it is likely that the EPZ will even be reduced for the KNPS. 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 ...”*.

International safety guidelines established by the International Atomic Energy Agency (IAEA) relating to the siting of nuclear installations in proximity to densely populated urban areas

The current siting regulations from the NNR (published by the Department of Energy in 2011) stipulates various factors that need to be considered when evaluating sites for nuclear installations, this includes: probability of postulated events that could result in release of radioactive materials, risk of public exposure, cumulative impact, the identification and determination of emergency planning zones. The siting regulations does not specify the population density required per site as this is depended on various factors, however, the risk to public exposure and the requirement to demonstrate that risk to the public and environment will be within prescribed regulatory requirements. These principles are in line with the IAEA requirements. All this information will be addressed in the Site Safety Report in accordance with the requirements contained in the siting regulations.

The responsibility for costs of emergency and other infrastructure required to plan and implement the Koeberg Nuclear Evacuation Plan

The current environmental application is with respect to the proposed Nuclear-1 power station and does not cover the existing KNPS. Thus GIBB as the Environmental Assessment Practitioner is unable to respond to issues with respect to existing financial responsibilities for the KNPS.

Decision-making criteria

GIBB stands by the criteria it has applied in the Revised Draft EIR. The impact significance rating system has been substantially revised in consultation with the team of specialists. The revised impact assessment rating system was indicated in Chapter 7 of the Revised Draft EIR (Version 1).

Furthermore, based on comments received from the DEA during the review of the RDEIR Version 1, The National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an

approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site. Please refer to Chapter 10 of the RDEIR Version 2, for the updated assessment approach.

Removal of Brazil and Schulpfontein from consideration

The exclusion of the Brazil and Schulpfontein sites at the end of the scoping phase was accepted by the then Department of Environmental Affairs and Tourism (now the Department of Environmental Affairs – DEA). Your comment is based on the assumption that placing Nuclear-1 in the Northern Cape would necessarily lead to lesser degradation of the environment. This assumption can be challenged. The Northern Cape (not only the location of the power station but also the areas that the transmission lines will traverse) is home to some of the most endangered and endemic succulent plant species on earth, since the Succulent Karoo Centre of Endemism, with critical biodiversity areas like the Knersvlakte, lies between the proposed Northern Cape sites and the Western Cape. Furthermore the transmission lines would have to traverse the Namaqua National Park. On the other hand the Cape Metropole is already largely developed, and the areas that would be affected by the development of the Duynefontein site are therefore already degraded from a biodiversity perspective. Therefore, your argument that the Northern Cape sites would result in less environmental degradation than the Duynefontein site is not supported.

NNR and radiological impacts

Your comments regarding access to the information in the NNR licensing process are noted. The NNR has a separate legal mandate to the DEA, under whom the EIA process is managed. However, the NNR's nuclear licensing process is also governed by relevant administrative justice legislation and is therefore required to be an open and transparent process, subject to public participation.

Assessment of radiological and health impacts and related matters such as emergency planning are 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 by 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 the EIR.

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 and radiological safety (See Appendix B4 of the Revised Draft EIR). The agreement 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.

In this regard you are also referred to the then DEAT's approval of the Scoping Report, dated 19 November 2008, where the following is stated:

2.21 All radiological issues raised during the EIA process, which are not comprehensively addressed, must be explicitly referred to the NNR to be addressed as part of their process.

This response by the DEAT acknowledges that radiological issues cannot be comprehensively addressed in the EIA process and can only be addressed in the NNR's nuclear licensing process.

However, in recognition of requirements in the NEMA, associated legislation such as the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000) and other legal precedents that require the consideration of all relevant socio-economic factors in an EIA process, an assessment of radiological impacts of the proposed power station is included in the current version of the EIR. Although this approach of including an assessment of the radiological impacts of the proposed power station results in a risk of duplication between the EIA and the NNR licensing processes, the risk to the EIA in terms of possible appeals, based on the exclusion of substantive issues such as health issues from the EIA process, is regarded as greater than the risk of duplication. The current version of the EIR therefore departs substantially from the approach in the previous versions of the EIR in terms of the consideration of radiological impacts.

In this context, it must be mentioned that the approaches of the EIA process and the NNR licensing process differ substantially. The focus of the EIA process is to assess the potential impacts of radiological releases (including normal operational releases and upset conditions). However, the focus of the NNR licensing process is to demonstrate beyond reasonable doubt that defence-in-depth measures (multiple, redundant, and independent layers of safety systems) employed in the proposed power station design and operation are sufficient to reduce the probability of a failure leading to core meltdown or a failure of reactor containment to acceptable and highly-unlikely levels. Thus, the EIA process focuses on the consequences of radioactive releases. The NNR licensing process also focuses on consequences but is also designed to reduce the probability of such releases. Please refer to Appendix E32 of the RDEIR Version 2 for the Radiological Impact Assessment report.

As indicated in the EIR, the assessment of the impacts of the proposed power station is based on a Consistent Dataset (Appendix C of the Revised Draft EIR), which represents a worst case scenario of potential inputs and outputs from a number of different Generation III nuclear power stations operating under normal conditions. This dataset has been based on the commercially available nuclear power station designs currently available.

Planning for nuclear emergencies is within the scope of the NNR's nuclear licensing process and falls outside the scope of this EIA process.

Comment 7:

5.5 Previous City comments and responses in the revised draft EIR

City of Cape Town comments have been submitted to the Nuclear-1EIA at each stage of the process, with high level political input.

The June 2010 report to the Planning and Environment Portfolio Committee (PEPCO) and the Mayoral Committee highlighted the fact that the City's comment was not included in the draft EIR and many of the strategic issues identified by the City at the Scoping stage had been omitted from the assessment. The report together with the resolution of PEPCO, which was adopted by the Mayoral Committee, was submitted as the City's comment in June 2010.

The responses from the Environmental Assessment Practitioner are summarised in section 5.6 below. Arcus Gibb report that the City's comments were addressed in the Issues and Response Report. That report extends to some 966 pages.

The June 2010 resolution of the Mayoral Committee is attached to this report (Annexure A), together with the responses from the EIA consultants to the issues raised by PEPCO (Annexure B) and the Mayoral Committee (Annexure C). These responses were located in an Annexure to the revised draft EIR and were not submitted directly to the City.

In commenting on the Scoping Report in 2007 at the commencement of the Nuclear-1 EIA, the City requested that it be considered a "Key stakeholder" in the EIA process. The Issues and Response Report for the scoping stage stated that "It has been confirmed that the City of Cape Town is a key stakeholder...". The City also raised issues of spatial planning, land use management and the availability of land for housing, amongst other issues, during the Scoping phase of the EIA. None of these issues has been satisfactorily addressed in the 2010 draft EIR or the 2011 revised draft EIR. Further detail of the relevant comments from City service units is included in Section 7 of this report.

A summary of the issues previously identified by the City, and the response from the EIA consultants, is shown in Section 5.6 of this report. Comments from relevant service departments are included in section 5.6.

5.6 Summary of responses from the EIA consultant, Arcus Gibb to City comments on the 2010 draft EIR

The key issues raised by the City in its previous comment, and the responses contained in the Annexures, are briefly summarised below:

<i>City comment (2010 draft EIR)</i>	<i>Response from Arcus Gibb in the revised draft EIR (Annexures B and C of this report)</i>
The City's previous comments were not included in the 2010 draft EIR	It is not a requirement of the (EIA) regulations or the accompanying guidelines that copies of the actual comments must be included. GIBB includes all written comments received verbatim in the Issues and response Reports that accompany the Environmental Impact report. As such the response to the City of Cape Town is attached in the Issues and Response Report as was received during the Scoping Phase.
The decision evaluation criteria be amended to include impact on population, emergency planning and disaster risk management costs	Population and emergency planning (are) not considered as decision factors of high significance (for the EIA). Since the probability of a disaster was assessed as low, the increase in the costs related to disaster management was not considered significant. Eskom and the local authority are to agree on the apportionment of these costs.
Impact on the future spatial expansion of Cape Town along the west Coast growth corridor in terms of exclusion and emergency	The impact on spatial planning does not form part of the scope of the current application and was therefore not assessed as part of the draft EIR. Emergency planning zones for new generation reactors are significantly smaller

planning zones	than those for older reactors.
Impact of housing, facilities and transport for construction workers	The scope of the current EIA application for nuclear power does not include these developments. It is Eskom's preference to use existing accommodation. However, where necessary an employee village will be established close to existing towns to cater for the greater part of the 7000 to 8000 construction works. The employee village for construction workers would be the subject of a separate EIA.
Storage of nuclear waste at Koeberg	A nuclear waste management study has been included in the revised draft EIR. This matter is the responsibility of the National Nuclear Regulator (NNR) and the newly established National Radioactive Waste Disposal Institute.
Responsibility for insurance for surrounding residents / business in the case of an incident at Koeberg	Eskom is required by the NNR Act to make financial provision through insurance obtained from international nuclear insurance pools. The amount of insurance is stipulated by the Minister of Energy and is currently R2.4 billion.
Impact on biodiversity	The City's comments on biodiversity have not been addressed by Gibb and no new information is included in the revised draft Nuclear-1 EIR.

Response 7:

Your comments are noted.

Please note that, GIBB's response to the long submission submitted by the City of Cape Town was responded to and recorded in the Revised Draft EIR (revision 1). The City of Cape Town was invited to public meetings held during the RDEIR version 1. A Focus group meeting will be held with the City during the review of the DEIR Version 2.

Please refer to Appendix E for the biodiversity assessments conducted for the project.

In terms of housing infrastructure, no specific details are available at this stage, however it is Eskom's intention that staff required for the project be housed in current available or upcoming accommodation.

With regards to the impact on spatial planning of the EPZ's, please refer to Appendix E34 of the RDEIR Version 2, for the Town Planning assessment report.

Comment 8:

5.7 The way forward

Following the comment period on the revised draft EIR, a final EIR would be produced and would include an Issues and Response Report which must, according to the 2010 NEMA EIA regulations, respond to all the comment received. When the final EIR is submitted to the decision-maker, the

Department of Environment Affairs, the EIA consultant must include all the written submissions received.

The final EIR will include a recommendation of the preferred site from the Environmental Assessment Practitioner, Arcus Gibb. Thyspunt has been identified as the preferred site in the revised draft EIR (section 5.4 above). However, each of the three alternative sites was found to be potentially suitable and could be approved by the Department of Environment Affairs. An appeal period will follow the announcement of the EIA decision.

The City of Cape Town could submit an appeal against the EIA decision if it chooses to do so. An appeal could potentially address the EIA process and stakeholder participation, the EIA assessment and technical information, or the reasons for the EIA decision. A decision on whether or not to appeal would be needed once the outcome of the EIA application is known. However, the City must also consider that, even if Nuclear-1 is sited elsewhere, the Duynefontein (Koeberg) site has been found by the Nuclear-1 EIA to be potentially suitable for the development of additional nuclear facilities.

It is therefore recommended that the Executive Mayor submit this report and the previous PEPCO and Mayoral Committee reports and resolutions as the City's comment on the revised draft EIR, and request that they be addressed in the final EIR and communicated to the competent environmental authority, the Department of Environmental Affairs.

It is further recommended that the Executive Mayor express the City's concern that the strategic issues raised by the City have been either overlooked or inadequately investigated in the Nuclear-1 EIA, with the result that the EIA process may be substantially flawed and subject to an appeal.

Response 8:

Your recommendations are noted. Please refer to Appendix D of the RDEIR version 2, for a record of comments received and responses sent.

Comment 9:

6. RECOMMENDATIONS

It is recommended that the Economic, Environment and Spatial Planning Portfolio Committee:

- 6.1 Endorse this report and the comments from relevant service units for consideration by the Mayoral Committee as the City's comment on the Nuclear-1 draft Environmental Impact Report, to be submitted to the Department of Environment Affairs and the National Nuclear Regulator.

6. AANBEVELINGS

Daar word aanbeveel dat die portefeuljekomitee oor ekonomiese, omgewings- en ruimtelike beplanning:

- 6.1 Hierdie verslag en kommentaar van verskeie dienseenhede steun vir oorweging deur die burgemeesterskomitee as die Stad se kommentaar oor die konsep-omgewingsimpakverslag oor Nuclear-1, wat aan die departement omgewingsake en die nasionale energiereguleerder voorgelê moet word.

6. IZINDULULO

Kundululwe ukuba iKomiti yeMicimbi yeSebe lezoQoqosho, okusiNgqongileyo noCwangciso lwamaBala:

- 6.1 Mayiqinisekise le ngxelo yaye mayivakalise izimvo zayo zamacandelo ohlukeneyo onikezelo ngeenkono ukuze ziqwalaselwe yiKomiti yesiGqeba sikaSodolophu/i-MAYCO njengezimvo zesiXeko kuyilo lweNgxelo yeNukleri- 1 neMpembelelo kokusiNgqongileyo, ukuze zingeniswe kwiSebe leMicimbiyokusiNgqongileyo neZiphatha-mandla zeNukleri kuZwelonke.

Response 9:

Your recommendations are noted.

Comment 10:

Delegated: for Decision by the Executive Mayor:

It is recommended that the Executive Mayor:

- 6.2 Submit this report and the previous 2010 Planning and Environment Portfolio Committee (PEPCO) and Mayoral Committee resolutions as the City's comment on the revised draft Environmental Impact report (EIR) for the Nuclear-1 project, and request that these be addressed in the final Environmental Impact Report (EIR) and communicated to the Department of Environmental Affairs.
- 6.3 Express the City's concern that the strategic issues raised by the City of Cape Town have been either overlooked or inadequately investigated in the Nuclear-1 Environmental Impact Assessment (EIA), with the result that the EIA process may be substantially flawed and subject to an appeal.
- 6.4 Note that the City disagrees with the conclusion of the Nuclear-1 EIA that Duynfontein (Koeberg) is a potentially suitable site, since the Nuclear-1 EIA has not provided sufficient information on population, health and spatial planning implications to support such a conclusion.

IZINDULULO

Zigungazisiwe: isiGqibo sesikaSodolophu wesiGqeba ecebisana ne-MAYCO:

Kundululwe ukuba uSodolophu wesiGqeba ecebisana ne-MAYCO:

- 6.2 Makangenise le ngxelo kunye nezisombululo zangaphambili zango-2010 zeKomiti yeMicimbi yezoCwangciso nokusiNgqongileyo (PEPCO) neKomiti yoLawulo lukaSodolophu njengoluvo lwesiXeko kwingxelo eluyilo ehlaziyiweyo engeMpembelelo yokusiNgqongileyo (EIR) ngokujoliswe kwiprojekthi engeNyukleri-1, kwakhona enze isicelo sokuba olu luvo kufuneka luphendulwe kwiNgxelo yokugqibela engeMpembelelo yokusiNgqongileyo (EIR) kwaye lugqithiselwe kwiSebe leMicimbi yokusiNgqongileyo.
- 6.3 Makavakalise inkxalabo yesiXeko yokuba imibandela engesicwangciso-buchule ethe yaphakanyiswa sisiXeko saseKapa iye ayathathelwa ingqalelo okanye iye ayaphandwa ngokufanelekileyo kuVavanyo engeMpembelelo yokusiNgqongileyo

engeNuykleri-1 (EIA), oko ke kunganesiphumo sokuba kwenzeke umonakalo kwinkqubo ye-EIA kwakhona ixhomekeke kwisibheni.

- 6.4 Aqaphele ukuba isiXeko asivumelani nesigqibo esingaNyukleri-1 EIA sokuba i-Duynfontein (Koeberg) sisiza esinokukulungela oku, njengoko iNyukleri-1 EIA ingakhangela ize nengcaciso eyaneleyo ngokumalunga nemiphumela yenani labantu, yezempilo neyozocwangciso lwamabala ukuxhasa isigqibo esilolo hlobo.

AANBEVELINGS

Gedelegeer: vir besluitneming deur die uitvoerende burgemeester in oorlegpleging met die burgemeesterskomitee:

Daar word aanbeveel dat die uitvoerende burgemeester:

6.1 Hierdie verslag en die vorige 2010-resolusies van die portefeuljekomitee oor beplanning en die omgewing (PEPCO) en die burgemeesterskomitee as die Stad se kommentaar oor die hersiene konsep-omgewingsimpakverslag oor Nuclear-1 voorlê, en versoek dat dit saam met die finale omgewingsimpakverslag oorweeg word en aan die departement omgewingsake voorgelê moet word

6.2 Die Stad se kommer uitspreek dat die strategiese kwessies wat deur die Stad Kaapstad geopper is, in die omgewingsimpakbepaling van Nuclear-1 of deur die vingers gesien is of ontoereikend ondersoek is, met die gevolg dat die omgewingsimpakbepaling-proses wesenlike foute kan bevat en aan 'n appèl onderworpe kan wees

Kennis neem dat die Stad nie met die gevolgtrekking van die Nuclear-1-omgewingsimpakbepalingsbesluit saamstem dat Duynfontein (Koeberg) potensieel 'n geskikte terrein is nie, aangesien die Nuclear-1-omgewingsimpakbepaling nie genoeg inligting oor die implikasies vir die bevolking, gesondheid en ruimtelike beplanning verskaf het om so 'n gevolgtrekking te staaf nie.

Response 10:

Your comments are noted.

Comment 11:

7. DISCUSSION

7.1. Constitutional and Policy Implications

In terms of the Constitution of the Republic of South Africa, and the National Environmental Management Act 107 of 1998, the Department of Environmental Affairs (DEA) is responsible for assessing the impacts of the proposed Nuclear-1 power station on the environment. However, the National Nuclear regulator (NNR) is mandated by the National Nuclear Regulator Act to provide for the protection of persons, property and the environment against nuclear damage through the establishment of safety standards and regulatory practices.

Response 11:

Your comment is noted.

Comment 12:

7.2. Environmental implications

Does your report have any environmental implications	No:	Yes:
--	-----	------

Does your report result in any of the following: (indicate with a cross (x) where applicable)			
Loss of or negative impact on natural space and/or natural vegetation, rivers, vleis or wetlands?	x	Loss of or negative impact on the City's heritage, cultural and scenic resources?	x
An increase in waste production, or concentration, pollution or water usage?	x	Development or any construction within 500m of the coastline?	x
Does your activity comply with the National Environmental Management Act?		Yes	
Does your report complement and contribute to meeting the City's IMEP Environmental Agenda 2009-2014 environmental targets?			No

The NEMA EIA Regulations state that an Interested and Affected party, such as the City, "is entitled to comment, in writing, on all written submissions made to the competent authority... and to bring to the attention of the competent authority any issues which (it) believes may be of significance to the consideration of the application for environmental authorisation". The City's comment on the Nuclear-1EIA therefore precedes any consideration of subsequent applications, for which the City may be the decision-maker, and does not bind the City to any future position or decision on such applications.

Response 12:

Your comment is noted.

Comment 13:

7.3. Legal Implications

The proposed Eskom Nuclear Power Station requires three key approvals, in addition to the overall approval of Cabinet to proceed with the project. The three authorizations required are:

- An authorisation under the Environmental Impact Assessment (EIA) regulations in terms of the National Environmental Management Act 107 of 1998 and Environmental Conservation Act 83 of 1989.
- A nuclear installation license from the National Nuclear Regulator (NNR) in terms of the National Nuclear Regulator Act 47 of 1999.

- Rezoning of the proposed site at Koeberg from rural to an appropriate zoning to allow electricity generation in terms of the Land Use Planning Ordinance (LUPO) 15 of 1985.

The EIA process is the first of these legal requirements to be addressed and must include a comprehensive assessment of the impacts and benefits of the proposal to society as a whole, in order to decide whether or not to proceed.

The Department of Environment Affairs and the National Nuclear Regulator have signed an agreement limiting the scope of the EIA decision in terms of nuclear radiation issues and safety, which are the mandate of the NNR. In terms of that agreement, the issues of radiological safety and emergency planning zones will be determined by the NNR, once the EIA decision has been made.

In terms of the National Environmental Management Act (NEMA), the EIA is required to address the full range of social, economic and environmental costs and benefits to society and to address the national environmental management principles contained in section 2 of NEMA. In that regard, the City would highlight the following principles and their possible implications for the City's comment on the Nuclear-1 EIA:

<i>National Environmental Management Principles</i>	<i>City comments on the Nuclear-1 EIA</i>
<p>Environmental Management must place people and their needs at the forefront of its concern... (Section 2(2) of NEMA)</p> <p>Development must be socially, environmentally and economically sustainable (section 2(3) of NEMA).</p>	<p>Impacts on population, spatial planning, health and emergency services have not been considered in the evaluation of alternatives or selection of the preferred alternative.</p>
<p>Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (Section 4(b) of NEMA)</p>	<p>Relevant site section considerations have not been integrated with the Nuclear-1 EIA, including population and spatial planning, emergency services and related infrastructure, workers' housing during construction, the alignment of transmission lines and health monitoring. Separate rather than integrated decisions will be made for the Nuclear-1 EIA, the transmission line EIA, the workers' housing EIA and by the National Nuclear Regulator in terms of the safety assessment.</p>

Response 13:

With regards to your comment that Cabinet approval of the project is required, please note that the Integrated Resource Plan (IRP) 2010, which outlines strategic government policy with regards to the supply of electricity, requires the development of 9,600 MW of nuclear power generation to be included in the mix of generation technologies over the next 20 years. Cabinet has accepted the IRP 2010 and therefore nuclear generation is in principle accepted by Cabinet. The commercial process for appointment of a vendor for the supply of the nuclear generation technology will be led by government through the National Nuclear Energy Executive Coordination Committee (NNEECC) established by the DoE and chaired by the deputy president

Eskom to respond to the claim that Duynefontein needs to be rezoned through LUPO to allow for a nuclear power station – GIBB can recall that Eskom was busy with this process All land at Duynefontein is zoned “Rural” (according to Eskom information supplied to GIBB in 2009). However, note that the City of Cape Town says in comment 29 that the zoning of Duynefontein was changed to “Noxious Industry, General Industry and Commercial”. [The nuclear-1 site will have to go through a rezoning process once an environmental authorisation is received. This is done by the local municipality and in the Duynefontein case it is going to be the City of Cape Town.](#)

Your comments on compliance with the NEMA principles are noted. As indicated in responses above, the exclusion of issues of radiological safety from the Nuclear-1 EIA process is based on the DEA-NNR co-operative governance agreement. GIBB, as the Environmental Assessment Practitioner, has no mandate or authority to question the validity of this agreement.

Comment 14:

7.4. Staff Implications

Does your report impact on staff resources, budget, grading, remuneration, allowances, designation, job description, location or your organisational structure?

No: ?

Yes:?

Response 14:

Your comment is noted.

Comment 15:

7.5. Risk Implications

This report and its recommendations do not expose the City to any risk.

Response 15:

Your comment is noted.

Comment 16:

7.6. Other Services Consulted

The revised draft EIR for Nuclear-1 was made available to City staff via the “EIA Forum” site on Share Point:

<http://cityapps.capetown.gov.za/sites/EIAForum>

All the relevant services who have commented previous were invited to submit comment. In many cases, staff responded that there were no new comments and the previous comments (June 2010) remained valid. This includes, for example, comments on biodiversity (Dr Pat Holmes, Biodiversity Management Branch). Previous comments are not repeated here but would be included in the City's comment on the revised draft EIR according to recommendation 6.1 to the Executive Mayor.

Comments on the revised draft EIR were received from the following:

Spatial Planning and Urban Design	Peter Grey
City Health	Ian Gildenhuis
Environmental Resource Management	Keith Wiseman
Biodiversity Management Branch	Pat Holmes
Disaster Risk Management	Greg Pillay
Planning and Building Development	Colin Lovember

Response 16:

Your comment is noted.

Comment 17:

7.6.1 Impact of nuclear development at Koeberg on urban growth management and the future spatial growth of Cape Town

Comments from Spatial Planning and Urban Design – Peter Grey

Cape Town Spatial development Framework (CTSDF)

Under direction from the Planning and Environment Portfolio Committee (PEPCO), a policy statement was introduced into the City's draft Spatial Development Framework (SDF): *'...in the medium to long term, the City would like to remove the development impediments imposed by Koeberg Nuclear Power Station (KNPS), and will therefore not support proposals to upgrade KNPS's generative capacity, or, the construction of new nuclear installations'*.

The inclusion of this policy statement was based primarily on concerns relating to (1) safety in the event of a nuclear disaster, (2) the potential sterilisation of development opportunities on the West Coast Growth corridor (3) the abrogation for any responsibility relating to disaster management and infrastructure required to implement the KNEP by the nuclear operator.

Eskom objected to the draft policy statement and a meeting was then coordinated to discuss the policy wording (refer attached minutes). Based on the outcome of a meeting with Eskom, a compromise statement was introduced into the SDF. The suggested final wording of the policy statement is as follows:

P26.5 For any new nuclear power station being developed within the city's administrative boundary, the exclusion zone(s) should be ≤ 5km

If the assumptions of the Nuclear-1 1 EIA are incorrect with regard to the 800m and 3km emergency planning zones, Eskom would have to apply to amend the CTSDF (once approved as a 4(6) policy document i.t.o. LUPO) as part of a future land use approval process. This provides a further level of 'restriction' to the growth limiting the potential of the proposed new nuclear power station.

Response 17:

Your comment is noted. Management of the Emergency Planning Zones (EPZs) of the current KNPS falls outside the scope of the Nuclear-1 EIA process. Your comments regarding the assumptions in the Nuclear-1 EIA about the size of the Nuclear-1 EPZs are also noted.

Comment 18:

Future development of the West Coast Corridor

With specific relevance to Duynfontein, population restrictions which may be imposed by the proposed Nuclear-1 on development surrounding the proposed N1 site may sterilise the long term development potential of the West Coast Corridor for future development and housing purposes at planned requisite densities / distribution (following decommissioning of Koeberg Nuclear Power Station, KNPS). The long term spatial expansion of Cape Town in a northerly direction up the West Coast Corridor has been identified as a desirable location for future development because of the following reasons:

- The spatial expansion of Cape Town is generally restricted by topographical features, environmental sensitivities and agricultural land use constraints. There is an increasing shortage of available developable land. However, the West Coast is physically suitable for development with few natural constraints (with the exception of critical biodiversity areas) and no high yield agricultural soil.
- Land available for development on the West coast is strategically located within direct proximity to the economic, civic and social opportunities of Cape Town CBD.
- In the long term, the potential was identified to integrate Atlantis, a dormitory apartheid settlement of > 60 000 people into Cape Town's urban fabric.

The City is currently assessing its long term growth options along the West Coast corridor. The provisional findings of this multidisciplinary study indicate that approximately 9500 ha within 16km from the proposed Nuclear-1 site is suitable for urban development purposes. At a gross density of 25 du/ha, this could provide 237 500 housing opportunities. At an average of 3.8 people per household, the potential exists to accommodate a total population of 902 500. The planned population distribution and density could be significantly reduced to ensure compliance with the KNPS emergency plan – or, there may be a significant cost implication in order to provide infrastructure over-and-above the normal provision.

Response 18:

Your comments are noted. The implications of the KNPS's EPZs for spatial planning falls outside the ambit of this EIA process, as the EIA is focused on the proposed Nuclear-1 power station.

As stated in previous responses to the City of Cape Town (and as acknowledged in your Comment 19 above), the proposed Nuclear-1 power station will have smaller emergency planning zones (EPZs) than the KNPS. This assumption is supported by statements by the NNR. 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 ...”

Should the existing EPZs of the KNPS continue to exist, the EPZs for Nuclear-1 would, therefore, have no impact on spatial planning or expansion of the city of Cape Town along the West Coast Corridor.

However, with the above in mind, please refer to Appendix E34 for the Town Planning Assessment which considers the impacts of the EPZ's on spatial planning to an extent.

Comment 19:

Spatial Planning comments on the Social Impact Assessment specialist study

It is our view that the Social Impact Assessment (SIA) remains an inadequate assessment of the potential social impacts of the Nuclear-1 proposal. The Nuclear-1 facility is used by the applicant to motivate support for the West Coast Growth Corridor (hence the positive impact). We disagree with the identification of the new nuclear power station as solely a positive 'motivational' benefit. The negative social impacts which could result from a potential nuclear incident are not given adequate consideration. The analysis of the Duynfontein site in section 3.15 of the specialist study is a cut and paste exercise from the draft Blaauwberg District Plan (2010) which bears no relevance to the potential sterilisation of land and the potentially negative social impacts that could arise in the event of a nuclear incident. In the application of a 16km exclusion zone, the categorisation of a 'medium' impact is regarded as inappropriate and misleading for the Duynfontein site.

The reduced exclusion zone assumptions in the Nuclear-1 EIA have diminished the relative importance of the consideration of land use restrictions and the implications for the future development surrounding the proposed N1 Nuclear sites. For example, based on the above assumption, the Social Impact Assessment (SIA) allocates a 'medium' rating to the impact of the proposed Nuclear-1 on future development. This categorisation of impact ('medium') is applied to each of the identified sites. As a result, the process of site selection undertaken in the EIR failed to comparatively consider the real implications of population restrictions which may be imposed by the proposed N1 NPS. It is contended that had these implications been properly investigated, the process of site selection would show that the proposed siting of a new Nuclear installation at Duynfontein would have a far greater negative impact on the receiving environment, possibly influencing the recommendation of Duynfontein as a site suitable for accommodating the long term cumulative impacts associated with the construction and operation of a new Nuclear Power Station.

Response 19:

Nuclear incidents do have the potential to cause negative social impacts. It is also true that a nuclear incident have the potential to cause negative impacts on a number of related fields e.g. agriculture, economy, tourism etc. The negative social impacts that can be expected will depend on the nature and scale of any nuclear incident and will therefore vary from incident to incident.

Point 3.16 of the Social Impact Assessment clearly recognises the risks associated with nuclear incidents. In summary the SIA stated clearly the following:

“From the above it is clear that a nuclear accident will definitely impact negatively on health and safety, and the way people live their lives. The degree of an accident may not be the same as Chernobyl, but the consequences may be similar. Due to the fact that Chernobyl did happen, individuals, families and communities are influenced by the possibility that it can happen again.”

One of the optimisation measures suggested by the SIA regarding future development stated clearly: “More detailed Spatial Development Plans should be developed as soon as the location has been finalised.”

From the SIA a “medium” rating is the correct rating for each of the sites. It is logic that there will be more future development around the Duynefontein site than the Bantamsklip site, with or without Nuclear1.

The exclusion zone assumption is applicable to all three alternative sites, which implies that the 800 m Proactive Action Zone (PAZ) will lie completely within the Eskom-owned property at all three of the sites. Furthermore. The 3 km Urgent Protective Zone (UPZ) would not affect existing residential areas at either the Thyspunt or Bantamsklip sites. At Duynefontein, the only existing residential area that would be affected by a 3 km UPZ is the Duynefontein residential area and as stated before, the Emergency Planning Zones of Nuclear-1 are far smaller than those of the existing KNPS. There is, therefore, no motivation for Nuclear-1 creating any additional restrictions on urban expansion apart from the restrictions that are already imposed by the Emergency Planning Zones of the KNPS.

Comment 20:

Conclusions

The Spatial Planning and Urban Design Department does not support the conclusion of the Nuclear-1 EIA that the Duynefontein site is suitable for the construction, operation and decommissioning of a new Nuclear installation. Sufficient information on the possible future outcomes of the proposed Nuclear-1 nuclear reactor has not been made available. Serious potential impacts have been omitted from the EIA and disregarded from the site selection decision making criteria. The revised draft EIR fails to address the key issues pertaining to:

- (1) Potential impacts of the N1 Nuclear installation on current and future land uses
- (2) The assumptions regarding future NNR regulations on development surrounding nuclear power stations
- (3) Ignoring international safety guidelines relating to densely populated urban areas established by the International Atomic Energy Agency (IAEA)
- (4) the responsibility for costs of emergency and other infrastructure required to plan and implement the Koeberg Nuclear Evacuation Plan

The Spatial Planning and Urban Design department recommends that remote sites located sufficiently far away from areas of high population distribution and density should be reintroduced as alternatives to the N1-EIA process

Response 20:

Your comments are noted. Kindly refer to our responses above related to the 1st two issues.

For point 3, please refer to our response 6.

Comment 21:

7.6.2 Health issues

Comments from City Health, Specialised Environmental Health Services: Ian Gildenhuys

The City Health Directorates, Specialised Environmental Health Section would like to offer the following comment on the Revised EIA report for Nuclear 1:

All comments are applicable for the Duynfontein site under consideration, adjacent to the existing Koeberg Nuclear Generator.

Response 21:

Your comment is noted.

Comment 22:

General Comment:

As an Interested and affected Party, the City of Cape Town has submitted numerous comments on the various EIA's for expansion to the Duynfontein Site.

It is noted that in a number of responses to issues raised in the public participation process, reference is made to a co-operative agreement between the National Nuclear Regulator (NNR) and the Department of Environmental Affairs in relation to addressing health issues and the licensing of the proposed Nuclear-1 power station in terms of the NNR Act.

We believe this separation of issues creates an environment which does not lend itself to transparency nor does it allow for a fully integrated process. The result is that issues that have a bearing on the Environmental Authorisation are excluded from the process and left to the licensing process administered by the NNR, which has a less onerous/prescriptive consultative process.

As the City of Cape Town, we would consider ourselves as more than just an interested and affected party, as a significant portion of the burden for ensuring public safety in the event of a nuclear disaster would rest on the City and its Citizens.

City Health thus recommends that the following issues be addressed in the EIR:

Response 22:

Please refer to Response 6 regarding the separation between the NNR's nuclear licensing process and the EIA process.

Comment 23:

Air Quality Study

Whilst we concur with the Specialist Air Quality Study regarding air quality impacts during the day to day operations would be minimal, the question is raised about what the impacts would be during a catastrophic nuclear event? In this regard it is noted that this vital issue has been placed at the door of the NNR for consideration during licensing. City Health feels that this is simply not good enough.

In this regard we thus feel that the Air Quality Study should be expanded to include radiation plume dispersion and deposition modeling for a worst case scenario catastrophic nuclear event and taking cognisance of prevailing seasonal climatology.

In terms of mitigation measures for day to day operations during the construction and operational phase, we require an air quality management plan to be developed for the site to the satisfaction of City Health's Specialised Environmental Health Unit.

The air quality management plan must address ambient air quality monitoring during the construction and operation phase as well as identify mitigation measures for the control of atmospheric emissions of fugitive dusts and other identified emissions.

Response 23:

Your comments are noted.

Air quality management in terms of monitoring will be addressed in detail in the NNR's licensing process. Furthermore it is common practice in EIA processes for a generic Environmental Management Plan to be submitted with an Environmental Impact Report, but for site-specific tailoring of such plans to be conducted after an authorisation has been issued.

Emergency response planning falls within the ambit of the NNR's nuclear licensing process. However, Design Basis Accidents (DBAs) have been assessed on a high level in the Air Quality Assessment (Appendix E10 of the Revised Draft EIR) on the basis of prevailing meteorological conditions.

Comment 24:

Ambient Radiation Monitoring

An ambient radiation monitoring network must be established at all of the main compass points where land based monitoring would be able to be undertaken of Nuclear 1, in the 5 – 20 Km zone surrounding the site. A further point should be established on Robben Island. Such Radiation Monitors must be funded by Eskom and must be linked to the City's Disaster Risk Management Centre. The monitoring network must be maintained by Eskom and replaced as and when equipment becomes obsolete. All costs in connection with the monitoring network are to be borne by Eskom. The technical specification of the monitors must in accordance with internationally recognised standards for such equipment. In this regard it should be noted that the National Nuclear Regulator (NNR) has previously denied a request from the City to impose a similar condition on ESKOM for the original Koeberg Nuclear Power Station as part of a licensing condition, in favour of two mobile monitors.

The recent Fukushima Incident in Japan has highlighted the valuable role that fixed monitors played in early warning and monitoring the radiation plume dispersion and deposition. We should implement the lessons learnt from this incident so as to better protect the Citizens of Cape Town.

Response 24:

Radiation monitoring must be undertaken in terms of the requirements of the NNR license, as radiological safety is within their legal mandate.

Comment 25:

Community Based Epidemiological monitoring for radiation

City Health is concerned about the absence of a Community based epidemiological health impact study in the Nuclear-1 EIA. City Health feels strongly that such a study should form part of the EIA process and should be carried out on an ongoing and periodic basis with the aid of a competent

specialist Epidemiologist. This especially in the light of the fact that National Government has included nuclear power in its energy supply mix for the foreseeable future and that in all likelihood further Nuclear Power Stations will be developed at this site.

Response 25

A scoping report and an environmental scan was performed for an epidemiology study in the vicinity of the KNPS as part of the PBMR EIA process for the Duynefontein Site and concluded that the data available insufficient to draw meaningful conclusions on cancer or cancer risks.

Comment 26:

Noise Management:

A comprehensive Noise Management Plan must be developed to the satisfaction of City Health's Senior Mechanical Engineer, taking into consideration all noise sources and the appropriate mitigation and control measures in accordance with the Noise Control Regulations PN 627.

Response 26:

Your comment is noted. Such a plan will be drawn up according to the requirements of the applicable noise control legislation in consultation with the City of Cape Town, should authorisation be granted for the Duynefontein Site.

Comment 27:

7.6.3 Town Planning Comments

Comments from Colin Lovember, Planning and Building Development Management, Blaauwberg District

Both the existing site for Koeberg Nuclear Power Station (Cape Farm 34 Duynefontein) and the abutting Cape Farm 33 Kleine Springfontein are located within the jurisdiction of the Atlantis and Environs Guide Plan deemed to be an Urban Structure Plan (A&ESP 1981) in 1996 and thus has statutory status; where the recommendation of the A&ESP designates the future land use as "Nuclear Installation". Furthermore, the development proposal is consistent with the underlying spatial framework that requires no formal amendment of the Structure Plan for the area and is compliant with Western Cape Provincial Spatial Development Framework (WCPSDF).

One of the provisions of the guide plan is a restriction on further development unless such development is truly "*place-bound*". *Place-bound* development is defined as "*any development which forms an integral part of or support to the process of the generation of electricity through the use of nuclear energy as carried out by Eskom on the site of Koeberg Nuclear Power Station.*"

The earlier rezoning applications to (i) regularise the zoning of the existing Koeberg Nuclear Facility was approved by the Koeberg Subcouncil (No.7) 15 June 2009 and (ii) to allow the development of an administrative complex and training centre for the nuclear power station was approved by SPELUM on the 13 April 2011. The zonings allocated are Noxious Industry, General Industry and Commercial.

The construction of a new nuclear facility (and/or an additional reactor) will require a formal rezoning application in terms of LUPO (1985) following a successful EIA, where the City is the decision maker in the rezoning process. Public participation in accordance the Notification Policy for Land Use

Development Applications would include notification of IAAP, Civics and Ward Councillors by means of registered notification and press adverts for the rezoning.

Response 27:

It is noted that Comment 29 raises objection to the proposed development of Nuclear-1 at the Duynfontein site and notes that the existing spatial planning policies and structure plans, which are compliant with the Western Cape Spatial Development Framework, provide specifically for the development of “place-bound” activities relating to the generation of electricity. In terms of these spatial development policies, an activity such as Nuclear-1 would be entirely compatible with Cape Town’s land use planning legislation.

The rezoning of Koeberg Power Station and support buildings have been completed. The entire Duynfontein site was not rezoned, only the footprints of the existing buildings. The balance of the open space on the farm Duynfontein and Kleine Springfontein is zoned rural. All of Kleine Springfontein is a designated nature reserve.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

Nuclear-1 EIA Manager

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

05 August 2015

Our Ref: J27035
Your Ref: Email received 15 August 2011

Hutton & Cook
30 Voortrekker Road
Humansdorp
6300

Email: jacquil@huttco.co.za
Dear Mr Webb

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

**RESPONSE TO G C WEBB / ATTORNEYS HUTTON & COOK / MASCADOR 193 (PTY) LTD
NUCLEAR A IRR REVISED EIR REPORT RDEIR IRR 11 FINAL**

Further to the above matter and your above response of the 20th of July 2011 I wish to comment as follows:

Comment 1:

(Response 3)

The response to our comment is noted with great concern. The suggestion by the consultants that Saffrey Street was a viable alternative route "around Humansdorp" is clearly factually totally incorrect. This must have been within the knowledge of the consultants. One questions what other submissions as contained in the report and having potentially more serious consequences are simply not factual!

Response 1:

Your comments are noted. Please note that the Transport specialist report has been amended in terms of alternative access routes to the Thyspunt site and in particular access through Humansdorp. . The report proposes that the R330 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. This has resulted in the identification of a route that will bypass Humansdorp CBD (central business district) completely. The updated Transport Impact Assessment Report is included in the Revised Draft EIR Version 2 (Appendix E25) and will be made available for public review.

Comment 2:

(Response 5)

It is noted with concern that the original 5 sites were based on an investigative programme undertaken during the 1980's. Clearly what was then identified as suitable sites for the location of a Nuclear Power Station has changed dramatically over the past 30 odd years. It is reiterated that the current EIA process is clearly still simply determining which of sites identified some 30 years ago would be the most viable.

Response 2:

Your comments are noted. As previously stated GIBB is satisfied that the sites identified within the National Site Investigation Programme (NSIP) are still viable. As such the current application for Environmental Authorisation indeed assesses the potential impact of the construction and operation of a Nuclear Power Station at predetermined sites, as identified in the NSIP.

Comment 3:

I wish to record that despite you having advised that a revised EIA report would be forthcoming at the end of July same has not been received by my offices.

Response 3:

Your comment is noted. The Revised Draft EIR was made available for public comment and review on 09 May 2011 at the following public venues:

No	Area	Venue	Street Address
EASTERN CAPE			
1	Humansdorp	Humansdorp Public Library	9 Vureau Street
2	Jeffrey's Bay	Jeffrey's Bay Public Library	33 Da Gama Road
3	Kareedouw	Kareedouw Public Library	5 Keet Street
4	Kruisfontein	Kruisfontein Public Library	Cucido Street, Kruisfontein
5	Oyster Bay	Oesterbaai Eiendomme	6 Tornyn Street, Oyster Bay
6	Plettenberg Bay	Plettenberg Bay Public Library	Building No 29, Spar Centre, Marine Drive
7	Sea Vista	Sea Vista Community Hall Office	Steenbras Street, Sea Vista
8	Sea Vista	Drop Inn Mini Market	Makriel Street, Sea Vista
9	Sea Vista	Sea Vista Clinic	Steenbras Street, Sea Vista
10	St. Francis Bay	St. Francis Bay Public Library	No 1 Assissi Drive, St. Francis Bay
WESTERN CAPE			
11	Atlantis	Atlantis Public Library	Civic Centre, Grosvenor Avenue
12	Bredasdorp	Bredasdorp Public Library	Church Street, Bredasdorp
13	Baardskeerderbos	Baardskeerderbos Winkel	22km from Gansbaai on Elim Road
14	Caldon	Caldon Public Library	Church Street (Next to the Court House)
15	Cape Town	GIBB Cape Town Offices	14 Kloof Street, Cape Town
16	Cape Town	Table View Public Library	Birkenhead Road, Table View
17	Elim	Elim Library Depot	3 Waterkant Street, Elim
18	Gansbaai	Gansbaai Public Library	Main Road, Municipal Buildings
19	Hermanus	Hermanus Public Library	Civic Centre, Magnolia Street
20	Koeberg	Koeberg Public Library	Merchant Walk, Duynefontein
21	Milnerton	Milnerton Public Library	Pienaar Road
22	Welverdiend	Welverdiend Public Library	Ou Meule Street, Bredasdorp

23	Wolvengat	Jenny's Handelaar	Main Road, Wolvengat
GAUTENG			
24	Johannesburg	GIBB Sunninghill Office	14 Eglin Road, Sunninghill, Johannesburg

The Revised Draft Environmental Impact Report, Version 2 and selected specialist studies is available for public review from **Monday, 21 September 2015 to Monday 23 November 2015** and is available at the following venues:

No	Area	Venue	Street Address
EASTERN CAPE			
1	Humansdorp	Humansdorp Public Library	9 Vureau Street
2	Jeffrey's Bay	Jeffrey's Bay Public Library	33 Da Gama Road
3	Kareedouw	Kareedouw Public Library	5 Keet Street
4	Kruisfontein	Kruisfontein Public Library	Cucido Street, Kruisfontein
5	Oyster Bay	Oesterbaai Eiendomme	6 Tornyn Street, Oyster Bay
6	Sea Vista	Sea Vista Community Hall Office	Steenbras Street, Sea Vista
7	Sea Vista	Sea Vista Clinic	Steenbras Street, Sea Vista
8	St. Francis Bay	St. Francis Bay Public Library	No 1 Assissi Drive, St. Francis Bay
9	St. Francis Bay	St. Francis Bay Municipal Office	Assissi Drive, St. Francis Bay
WESTERN CAPE			
10	Atlantis	Avondale Public Library	Civic Centre, Grosvenor Avenue
11	Bredasdorp	Bredasdorp Public Library	Church Street, Bredasdorp
12	Caldon	Caledon Public Library	Church Street (Next to the Court House)
13	Cape Town	GIBB Cape Town Offices	14 Kloof Street, Cape Town
14	Cape Town	Table View Public Library	Birkenhead Road, Table View
15	Gansbaai	Gansbaai Public Library	Main Road, Municipal Buildings
16	Hermanus	Hermanus Public Library	Civic Centre, Magnolia Street
17	Koeberg	Koeberg Public Library	Merchant Walk, Duynfontein
18	Milnerton	Milnerton Public Library	Pienaar Road
19	Wolverdiend	Wolverdiend Public Library	Ou Meule Street, Bredasdorp
20	Wolvengat	Jenny's Handelaar	Main Road, Wolvengat
GAUTENG			
21	Pretoria	GIBB Pretoria Office	Lynnwood Corporate Park, Block A, First Floor, East Wing, 36 Alkantrank Street, Lynnwood Manor, 0081

Yours faithfully
for GIBB (Pty) Ltd

Nuclear-1 EIA Team

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

05 August 2015

Our Ref: J27035
Your Ref: Email received 06 August 2011

Email: sudent@lantic.net

Dear Denton Francis

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

My comments on the above, and the meeting held on 31 May 2011 are as follows: -

Comment 1:

If Eskom feel that the Eastern Cape must have a nuclear power station, have the vast stretches of coastline that were excluded because they were in, or too close to the Ciskei / Transkei been re-evaluated for possible suitable sites? If not, why not? I know nothing about the required geology for nuclear power station but from a practical point of view, I can think of two areas that should be looked at. The first is 20 kilometres north east of the Sunday's River. A new access road would be required which would join the N2 near Kinkelbos. The railway line from Port Elizabeth to Alexandria (not in use) passes within about 5 kilometres of this stretch of coast. The second is between Coega and the Sundays River. This would be the cheaper option and much closer to the required labour force and to where the power is required. I am sure that there are other areas nearer East London that could also be considered.

Response 1:

Thank you for your comments and suggestions. The motivation for the construction of the Nuclear-1 Power Station (as per Chapter 4 of the Revised Draft EIR Version1) is not based on a feeling but the very real fact that South Africa is experiencing an electricity baseload-capacity deficit and as such Eskom needs to increase its generation capacity to improve the reserve margin back to within acceptable limits. An additional complexity is that demand for electricity in South Africa varies spatially (geographic) and temporally (with time) and areas of high electricity demand (such as the Eastern Cape) are not correlated with current power generation centres. Thus although the choice of the original five and later three sites are based on the Nuclear Site Investigation Programme (NSIP) study undertaken by independent consultants during the 1980s, the outcome of the NSIP is still applicable to the complexities described above.

The NSIP aimed at identifying the most suitable sites for location of nuclear power stations in South Africa and included a wide range of specialist studies, such as engineering, social science, geology, ecology and town planning. The primary objective was to identify sites along the coastline of South

Africa, suitable for the construction and operation of future nuclear power stations. It cannot reasonably be expected from the Environmental Impact Assessment (EIA) process to duplicate the work of the NSIP, as the EIA process is seen as an Integrated Environmental Management tool used to assess the specific significance of the impact of the proposed development of the Nuclear-1 Power Station on the Duynfontein, Bantamsklip and Thyspunt sites. The site selection process and the assessment of alternative sites therefore do not include the consideration of Coega as an alternative site and does not fall within the scope of the current EIA process. When the Environmental Application for Nuclear-1 was submitted in 2007 GIBB was informed by the IDZ that there was no space available on the Coega site for the development of a Nuclear Power Station.

Furthermore the presence of the Coega fault, which runs across the southern part of the Algoa basin before extending into Algoa Bay near the Coega harbour, means that the Coega IDZ should be considered carefully before proceeding with geological investigations for nuclear siting. In terms of the NNR requirements it is necessary to develop a comprehensive geological data base for the Coega IDZ prior to considering the site for a nuclear power plant, these studies are estimated to take up to 5-6 years. The currently available geological data, indicates that the Coega fault, which represents the easternmost component of a fault line with known Holocene (i.e. the last 11,700 years) reactivation, should be considered to pose a risk with regard to future seismicity. It would therefore be appropriate to include Coega IDZ into the next site screening process which will be initiated for future nuclear sites but for this EIA Coega cannot be regarded as a feasible and reasonable site.)

Comment 2:

If Japan was unable to prevent a nuclear catastrophe, how on earth will Eskom? Their record / performance at Koeberg is far from perfect.

Response 2:

Thank you for your comment. It is well known that the main cause of the disaster at the Fukushima Plant was caused by a tsunami triggered by a magnitude 9 earthquake centred offshore of the city of Sendai on the eastern coast of Honshu island. 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.

Also please note that site safety issues are considered in the Emergency Response and Site Control Reports, Radiological Assessment and Beyond Design Accident Report (Appendix E26, E27, E32 & E33 of the Revised Draft EIR Version 2) on a high level and will also be dealt with in detail within the NNR process, which includes nuclear safety and ensuring appropriate designs are implemented.

Comment 3:

The proposed route for the "heavy load" road traffic (R330) just boggles the mind. Saffery Street in Humansdorp runs through a residential area. Will the owners of property in this area be compensated? The north end of the street is lined on both sides with beautiful trees that will have to be cut back to accommodate the large trucks and their loads, and living conditions for residents in Saffery Street will be unbearable. The bridge over the Sand River has washed away twice since the meeting, where we were told that no upgrades to the road were envisaged. It appears that the St Francis Bay area has now had at least 4 "one thousand year floods" since November 2007. The route through St Francis Bay goes through the middle of a residential area, with the Links residential / golf

estate on one side and the original St Francis Bay on the other. If Thyspunt "happens", and this is the approved route, then people will, as a result, be killed in road accidents on this road. Those responsible for approving this route must then be held accountable. Hilton Thorpe's proposal that the chosen route from the N2 should not pass within 1 kilometre of a built-up or urban area is far too accommodating. A distance of at least 10 kilometres would be more appropriate. The minutes of the meeting indicate that once again an attempt will be made to find an alternative route.

The proposed route for "light traffic" is currently a gravel road. No mention was made of this road being tarred. If it is not, then all the traffic will obviously use the proposed "heavy traffic" tarred route through St Francis Bay.

Response 3:

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 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 further 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.



P:\J27035 - Nuclear Power Station (NPS)\Task\Review of Transport Specialist Study\m_2012\Images\Cart\Township\Figure 9.5_2012_Eastern Bypass Alternatives.dwg | ROADMS | 06/07/2012 10:43:04 AM

Comment 4:

The study on wind directions at the Thyspunt site was conducted over a period of less than 2 years. In the case of Cape St Francis it was 4 years. The results are, therefore, absolutely meaningless and scientists should know better. Weather patterns for a seven year period could even be misleading, and a period of at least 14 years would be more appropriate.

Response 4:

Your comments are noted. However the team of independent specialists appointed to describe the receiving environment, assess the significance of impacts related to the proposed development and propose mitigation measures are respected recognised professionals in their respective fields of study who have all signed a Declaration of Independence in terms of the work they have performed as part of this EIA. As such the findings of their studies, methodology employed and limitations listed are accepted as scientifically sound. Please provide GIBB with scientifically verified data on which the above statement is based in order to present to the specialist for comment.

Comment 5

Most of the 7700 workforce and their families will be brought in from other areas. We know that the current infrastructure cannot handle this influx, not to mention the additional ones that will not get jobs.

What will happen to this workforce after they are no longer required? The Kouga area will be saddled with many thousands of jobless people and we all know what this will lead to.

Response 5:

Your comments are noted. The concern raised regarding local infrastructure is very relevant. Eskom will be required to engage with the local authorities prior to construction to determine and document responsibilities for this. The Social Impact Assessment is also clear about the additional pressure placed on social and community services to address growth in population numbers. Clear mitigation measures are recommended to address these inadequate services and facilities. Different role players must take responsibility for the challenges including Eskom as stated in the report.

It is recognised that the nature of employment within the construction sector is often not permanent and that there is generally an influx of job seekers into areas with active construction opportunities. Eskom however intends, subject to project approval, proceeding with a study to determine the current level of skills of the unemployed in the area to plan for training of these people. As far as possible Eskom intends to use as much local labour as possible - this will be achieved by working with local communities and the voters roll. The Social Impact Assessment further recommends:

- Introducing training initiatives aimed at up-skilling, particularly unskilled and semiskilled workers, during construction;
- Absorbing as many workers into the operational phase of the project as is feasible;
- Transferring as many workers as possible to other related projects available. Eskom's declared policy is to transfer construction workers from Nuclear-1 to Nuclear 2 as the construction phases are likely to overlap. Such transfers might not always be possible, depending on the location of Nuclear 2, but should nevertheless be maximised wherever possible in order to mitigate the perceived adverse impacts of unemployment once the construction phase of Nuclear-1 is completed; and

- Introducing community self-help projects as part of the corporate social investment programme.

Comment 6:

With regard to the Arcus Gibb representatives, they certainly did not come across as "honest brokers" and deserved more flack than they got. From the minutes of the meeting it is clear that many of the so-called "specialists" they appointed for the EIA did not know what they were talking about. It is hard to believe that they were, or are going to be paid for their input, and one would have to be forgiven for thinking that they were all paid to say what Eskom had told them to say. At a meeting held in St Francis Bay this past week a senior Eskom official made a statement to the effect that "development is going ahead no matter what". If this is the case, then why has money been wasted on an EIA. Irresponsible and idiotic statements like this makes one wonder why the public have been given an opportunity to comment and / or object. Whether our input even gets looked at is debateable, as two errors in the attendance register that I brought to your attention in an e-mail dated 5 July 2011 have not as yet been corrected.

The bottom line is that "Thyspunt" must NOT happen. Only someone with no social conscience could condone and agree with what Eskom are trying to impose on the whole Kouga area.

I trust that in the end good sense will prevail and that the Thyspunt site will be abandoned in favour of a more suitable site, of which there must be quite a few along our coast. First prize would, however, be the use of renewable energy sources instead of nuclear power. Eskom have proved beyond doubt that they have not got the required expertise in nuclear power when one considers the billions of Rand they wasted on trying to develop the Pebble Bed Modular Reactor. South Africa cannot afford this continual waste of money.

Response 6:

Your comments are noted. As is always the case, perceptions, as those mentioned above, are difficult to address. However, as per our Response 4, the team of independent specialists appointed to describe the receiving environment, assess the significance of impacts related to the proposed development and propose mitigation measures are respected recognised professionals in their respective fields of study. They have all signed a Declaration of Independence for the work they have performed as part of this EIA. It cannot be expected from any organisation or individual to work without fair compensation. The author is advised that some of the statements above border on slander and have no place in a rational scientific debate.

The development of the Nuclear-1 Power Station at the Duynefontein, Bantamsklip or Thyspunt sites is not a foregone conclusion and the decision in terms of the Environmental Authorisation falls within the ambit of the Competent Authority (the Department of Environmental Affairs), with input from a number of commenting authorities. The choice between the use of renewable energy vs. nuclear energy is addressed by the Integrated Resource Plan 2010, which is related to strategic government decisions outside the ambit of the Nuclear-1 EIA.

Lastly GIBB has investigated its records and only received one correspondence from yourself via e-mail dated 05 July 2011, the contents of which has been captured in this document. No other mail referring to the errors in the attendance register was received on 05 July 2011. As such please forward to GIBB for a response.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, consisting of a large, stylized 'G' followed by a smaller 'B' and a trailing flourish.

Nuclear-1 EIA Team

05 August 2015

Our Ref: J31314

Your Ref: Email received 19 August 2011

Cape West Coast Biosphere
PO Box 283
Darling
7345Email: rsmart@capebiosphere.co.za

Dear Ms Smart

Cape Town14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000Tel: +27 21 469 9100
Fax: +27 21 424 5571
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:**

Thank you for providing us with the opportunity to comment on the revised EIA for the above proposed development.

The Cape West Coast Biosphere Reserve (CWCBR) extends from the Diep River in the south to the Berg River in the north and inland to Malmesbury and therefore the proposed development is located within the CWCBR. One of the primary aims of the CWCBR is to implement sustainable development principles along the West Coast, in addition to integrating rapid growth with biodiversity and heritage conservation. In this regard, the CWCBR would like to comment as follows:

The revised EIA indicates that the preferred location of the three alternative sites for the proposed nuclear power station is Thyspunt and that only one new power station will be built. The only location alternative located within or near to the CWCBR is the Duynfontein alternative; therefore this is the only site to which these comments refer. Should the proposal change to include the Duynfontein site, the CWCBR reserves the right to submit a revised comment.

Response 1:

Your comment is noted.

Comment 2:

The CWCBR acknowledges that the EIA is related to the development proposal; however the CWCBR has several issues with the current operations at Koeberg Power Station, particularly with regard to nuclear waste storage and disposal. The CWCBR requests that a meeting is set up with Eskom to discuss these current issues.

Response 2:

Thank you. Your comments are noted. It is acknowledged that the issues of radioactive waste management are important and integral to debate surrounding nuclear energy. The current global practice is long-term storage of the spent fuel at the nuclear power station. However please note that

a Radioactive Waste Management Institute has been legislated by the DoE and one of the functions of this institute will be to identify a repository for high level waste in South Africa.

In terms of your request for a meeting with Eskom to discuss current operations on site, you are invited to attend the Koeberg Public Safety Forums. These meetings normally take place four times per year. The Koeberg visitors centre is also open Mon-Thus from 07:30.- 16:30 and Fri : 07:30 – 13:00. The contact number is (021) 550-4667 during office hours....

Comment 3:

The Koeberg property is currently declared as a private nature reserve. There were proposals to deproclaim the private nature reserve (related to development proposals) which is not supported by the CWCBR. The CWCBR also proposes that the current status of private nature reserve be upgraded to contract nature reserve in accordance with the updated legislation (Protected Areas Act 57 of 2003). The site is located adjacent to the designated southern core of the CWCBR and forms part of one of the highest priority conservation corridors in the Western Cape. The Koeberg Nature Reserve is also a popular and important ecotourism and recreational facility for residents from the surrounding area. The CWCBR proposes that a contract nature reserve also be established at the site for the preferred location.

Response 3:

Your comments are noted. The Koeberg Power Station Nature Reserve was established and is managed in a responsible manner as a result of Eskom's due diligence and commitment to responsible environmental management and will be continued to be run in this manner in the future. However please keep in mind that when the site was originally purchased it took into consideration the possibility that additional units may be constructed and operated. The conservation activity on site would continue albeit less than 10% of the current area would be impacted. Your proposal in terms of upgrading the current nature reserve to a contract nature reserve is also noted and will be forwarded to Eskom for their consideration.

Comment 4:

The Cape West Coast Biosphere Reserve reserves the right to submit further comments

Response 4:

Your comment is noted.

Yours faithfully

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

For GIBB (Pty) Ltd
The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035 / J31314
Your Ref: Email received 04 August 2011

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Email: sally@mail.ngo.za Dear Ms Andrew and Mr Boshier

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

Here is some of the correspondence we have sent previously.(copied from emails we've sent to this address over the last few years) It still applies!

Comment 1:

We are delighted when Nuclear 1 was shelved.

We hope that you will do a fair and thorough EIA, and that good sense will prevail, and that ultimately all Nuclear energy will be shelved and replaced with the wiser, safer, cost-effective, job-creating, environment and people-friendly Renewable Energy.

Response 1:

Your comments are noted.

Comment 2:

Please keep all our objections and arguments that we have previously given you as part of your ongoing EIA process.

Response 2:

Your comment is noted. All previous correspondence has been captured as part of the Issues and Response Reports of the Draft and Final Scoping Reports as well as the Draft and Revised Draft EIA Reports.

Comment 3:

We have been re-researching the nuclear issue internationally. (with consideration for the climate change crisis)

I paste below the preface to a long and rigorous research report by the Austrian government.

I found that the below perspective correlates with the majority of the international, independent (non-vested) studies of the facts...

We are in support of the below perspective and on this ground reject any nuclear plants in SA (pbmr or otherwise). Instead we advocate Renewable Energy and Energy Efficient practices please see all the points raised in Austrian Gvt report preface. (pasted below – apologies to those who have received it before)

Full report www.lebensministerium.at/articleview/566781/1/7031
(go to bottom of page for English version)

1. NUCLEAR POWER: AN UNVIABLE RESPONSE TO CLIMATE CHANGE

Promoters of nuclear power have used climate change to try to resurrect this technology. In the panic of the climate crisis, there are even cases of environmentalists arguing we may have to resort to nuclear power as an emergency measure.

However, we should not let a crisis blind us to the truth about nuclear power. Although there have been developments in nuclear technology and spin-doctoring, it remains an expensive and dangerous option. There is damage and risk to people and environment involved in the mining, processing and transport of uranium. There is the unsolved problem of nuclear waste – which remains toxic for tens of thousands of years. There is the risk of nuclear weapons proliferation as well as the potential hazard of serious accidents.

The process of producing nuclear energy is itself energy-intensive and inefficient. Nuclear fuel is also finite (unlike renewable resources) – so is not a sustainable energy source.

The Austrian government commissioned a detailed and rigorous scientific study into the advantages and disadvantages of nuclear power in the context of the climate crisis. It concluded that nuclear power was not the solution. It stated that, “even if one were to overlook all (the) drawbacks, a nuclear power scale-up would come too late to contribute significantly towards the solution of the challenges of climate change”. The report also showed that “renewable energy sources are superior both ecologically and economically.”

This document can be accessed at:

www.lebensministerium.at/article/articleview/566781/1/7031 (go to bottom of page, ‘Assessment English’). [Tony Blair – please go have a look, old bean!] I’ve also listed a few nuclear websites later in this book, under ‘References and Resources’, for those who need further convincing, or who would like to get involved in anti-nuclear campaigns.

It remains something of a mystery to me why people (apart from those with vested interests such as nuclear scientists, investors and the military) continue to advocate nuclear power. To me the choice between coal and nuclear is like asking, ‘Would you rather be poked in the eye with a hot stick or hit on the head with a brick?’

My answer is: ‘Neither, thanks!’

(below is extract from AUSTRIAN GOVERNMENT REPORT: ‘Preface:
(see full report -link above)

“Preface

For many years Austria has followed a policy of exit from nuclear power. In the population and across all political parties there is wide-spread consensus that nuclear power is too risky an energy technology and that the use of nuclear energy burdens future generations irresponsibly with nuclear waste.

Meantime climate change has made the need to reduce green house gas emissions apparent. The foreseeable end of cheap oil and – somewhat later – of gas also requires a rethinking of energy policies.

Consequently I am frequently confronted with the question whether in the light of these developments a policy critical of nuclear energy was still legitimate, whether nuclear energy was not the lesser evil. Policy, just like science, sometimes must pause and check its premises. In this spirit I have asked the Austrian Nuclear Advisory Board, the pertinent scientific advisory body of the Austrian Government, to take up this question. Have advances in science and technology made a revision of the Austrian energy policy regarding nuclear necessary, especially in view of climate change and “Peak Oil”? Has the nuclear option become sustainable?

The assessment has now been completed and the message is an inconvenient one: in spite of nominal safety improvements in nuclear power plants a long list of “near-misses” documents that severe accidents can never be excluded; nuclear installations can only marginally be protected against terrorist attacks; proliferation continues to be a serious problem and a sustainable solution of the radioactive waste problem is not in sight. But even if one were to overlook all these drawbacks a nuclear power scale-up would come too late to contribute significantly towards the solution of the challenges of climate change and “Peak Oil”. Nuclear power is not even a cheap solution: energy efficiency measures and alternative energies are superior ecologically and economically. Maybe surprising for many: should nuclear be significantly up-scaled fissionable uranium would become scarce within a few decades, just like oil. The nuclear solution then leads to a plutonium economy – and fourth generation reactor concepts point in this direction – with all the associated dangers and significantly higher proliferation risks.

*Thus nuclear power is not **the** convincing solution some claim; rather it is no solution at all. There is no reason to change the Austrian policy. Our focus on energy efficiency and alternative energies is far sighted and the right way to go. We are convinced that in following this path we also contribute to the awareness building that is necessary to achieve a sustainable and more responsible use of energy.*

*Josef Pröll
Minister for Environment”*

Response 3:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd



Nuclear-1 EIA Team

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume 132 RDEIR IRR 08 September 2011)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Unathi Ploms	ANC – deputy Chairperson of ANCYL
2	Nontsikelelo Florence Nenene	Interested and Affected Party
3	Angelina Sisusa	Interested and Affected Party
4	Unathi Raqa	Interested and Affected Party
5	Andile Mtambo	Interested and Affected Party
6	Samakelo Noyla	Interested and Affected Party
7	Simon Moses	Interested and Affected Party
8	Mnuyisi Ntshota	Kouga Municipality
9	Edward Busakwe	Interested and Affected Party
10	Kmanyana Laduma	Interested and Affected Party
11	Thembinkosi Shadrack Grootboom	Interested and Affected Party

NO	DATE	NAME & ORGANISATION		
1	06 September 2011 Fax	Unathi Ploms] ANCYL Deputy Chairperson	We like as community people to get something at the end of the day e.g. jobs. Better future like training. So no matter the job is finish, we can use our skills. (<i>sic</i>)	Thank you, your comments are noted. As indicated in the Revised Draft EIR Version 2, the construction phase of the proposed Nuclear-1 power station will create approximately 9000 temporary employment opportunities (at peak of construction) and the operational phase will create approximately 2000 permanent employment opportunities.
2	06 September 2011 Fax	Nontsikelelo Florence Nenene Interested and Affected Party	According to report it is clear that there are no danger to the environment. The report is clear to everyone. We therefore encourage Eskom to build the Nuclear Power Station. To consider our people and take our people to the training so that can get better opportunity.	Thank you for your comment. The recommendation of this EIA is that 25% of all employment needs to go to local people. Eskom will also have to do training for the local people like has been done at Medupi Power Station.
3	06 September 2011 Fax	Angelina Sisusa Interested and Affected Party	According to the report it is clear there is no danger to the environment. To consider our people and take our people to the training so that can get better opportunity.	Thank you for your comment. The recommendation of this EIA is that 25% of all employment needs to go to local people. Eskom will also have to do training for the local people like has been done at Medupi Power Station.
4	06 September 2011 Fax	Unathi Reqa Interested and Affected Party	According to the Report it is clear there is no danger to the environment.	Your comment is noted.
5	06 September 2011 Fax	Andile Mtambo Interested and Affected Party	According to the Report it is clear there is no danger to the environment.	Your comment is noted.
6	06 September 2011 Fax	Somakelo Noyola Interested and Affected Party	According to the Report it is clear there is no danger to the environment.	Your comment is noted.
7	06 September 2011	Simon Moses Interested and	The power plant is a good opportunity for us all as long as there will be no	Your comment is noted. Thank you your comments are noted. As indicated in the Revised Draft EIR Version 1, the

NO	DATE	NAME & ORGANISATION		
	Fax	Affected Party	<p>damage to some of us and I hope there is going to be work for us local residence. It is good to see some of you trying to create jobs.</p> <p>Some of us don't have the experience but with training we will work hard.</p> <p>We all need jobs so go ahead with the plan you have.</p>	<p>construction phase of the proposed Nuclear-1 power station will create approximately 7,500 temporary employment opportunities and the operational phase will create approximately 1,400 permanent employment opportunities. The recommendation of the EIA is that 25% of all employment needs to go to local people.</p> <p>The recommendation of this EIA is that 25% of all employment needs to go to local people. Eskom will also have to do training for the local people like has been done at Medupi Power Station.</p>
8	06 September 2011 Fax	Mnyisi Ntshota Interested and Affected Party	<p>According to the report it is clear that there are no dangers to the environment.</p> <p>The report is clear and understandable.</p> <p>We encourage Eskom to continue with the building of the power station.</p> <p>To consider to take our children to training in order to get better opportunity.</p> <p>Our people to get employment.</p>	<p>Your comment is noted. Thank you your comments are noted. As indicated in the Revised Draft EIR Version 1, the construction phase of the proposed Nuclear-1 power station will create approximately 7,500 temporary employment opportunities and the operational phase will create approximately 1,400 permanent employment opportunities. The recommendation of the EIA is that 25% of all employment needs to go to local people.</p> <p>The recommendation of this EIA is that 25% of all employment needs to go to local people. Eskom will also have to do training for the local people like has been done at Medupi Power Station.</p>
9	06 September 2011 Fax	Edward Busakwe Interested and Affected Party	<p>The report was clear and very helpful to solve our problems.</p> <p>Eskom must go ahead and build this Nuclear Plant at Thyspunt.</p>	<p>Your comment is noted.</p>
10	06 September 2011 Fax	Kmany Laduma Interested and Affected Party	<p>The draft is very fair and transparent to the public. We engaged in all the public meetings and they were informative.</p>	<p>Your comment is noted., Eskom will enter into negotiations with local authorities and other relevant authorities well before the start of construction in order to reach an agreement between Eskom and these bodies on the</p>

NO	DATE	NAME & ORGANISATION		
			<p>The only plea that I have to Eskom is to keep to their promise of building schools, hospitals and train local children so that they can be employed by the plant.</p> <p>We believe you will bring sustainable jobs and therefore we want Nuclear-1 at Thyspunt.</p>	<p>apportionment of financial responsibility for infrastructure upgrades.</p> <p>In terms of training Eskom will have to do training for the local people like has been done at Medupi Power Station.</p>
11	<p>06 September 2011 Fax</p>	<p>Thembinkosi Shadrack Grootboom Interested and Affected Party</p>	<p>I think the draft explained everything that needed to be explained.</p>	<p>Your comment is noted.</p>

Yours faithfully
 for GIBB (Pty) Ltd



 Nuclear-1 EIA Team

Cape Town14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

05 August 2015

Our Ref: J31314
Your Ref: E12/2/3/5-A2/15-WJ140/07
Fax received 02 September 2011The Department of Environmental Affairs and Development Planning
Private Bag X 9086
CAPE TOWN
8000Email: zaahir.toefy@pgwc.co.za
tammy.christie@pgwc.gov.za
taryn.maart@pgwc.gov.za

Dear Mr Theo Gildenhuys, Mr Toefy, Ms Christie, Ms Maart and the Department of Environmental Affairs and Development Planning

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

The above-mentioned document dated April 2011 and received by the Department on 03 May 2011 refers. The Department of Environmental Affairs ("DEA") reference number is: 12/12/20/944.

The Department's comments on the revised EIR which follow below are presented as follows: Comments which pertain to aspects of assessment for the two alternative sites located in the Western Cape namely Duynfontein and Bantamsklip will firstly be discussed followed by general concerns. As the preferred site alternative for the proposed development is the Thyspunt site, which is located in the Eastern Cape (which falls outside of this Department's jurisdiction), this Department will not provide detailed comment on this site.

Comment 1:**1. General Comment:**

- 1.1 The Department's concern with respect to the omission of all nuclear-related studies, e.g. emergency preparedness, the disposal of nuclear radioactive waste etc., as these fall within the ambit of the NNR process, remains a concern to this Department as the outcomes of these studies will directly relate to potential environmental impacts (social, biophysical and economic).

Response 1:

Your comment is noted. The social, environmental and economic impacts associated with Nuclear-1 have been considered in this Environmental Impact Report and relevant information required for this such as the estimated cost, access to the site, seismic stability of the site, etc. has been considered. In terms of considering the safety case for the nuclear power station it would not be appropriate for the EIA to go into this depth of detail. South African legislation mandates nuclear and radiological safety considerations to the National Nuclear Regulator (NNR) and environmental considerations to the relevant Environmental Authorities. There is some overlap in responsibilities and hence the NNR and the Environmental Authorities signed a cooperative agreement to govern their respective responsibilities with regard to radiological impacts on the environment. The exclusion of the detailed

assessment of nuclear safety aspects from the EIA is thus in keeping with South African legislation. , Nuclear safety aspects will be considered in detail in the NNR licensing process. The final decision for South Africa to proceed with a nuclear power station will not only have to obtain approval from the NNR from a safety perspective but would also require approval from the National Electricity Regulator of South Africa, which is compelled to consider the economic and socio-economic aspects of such a project. Both the NNR and NERSA process require public hearings and provide an opportunity for the country to consider all relevant aspects.

Comment 2:

- 1.2 Since this project has been referred to as Nuclear-1, which represents the next generation of reactors, to be utilized and installed for all new nuclear projects in the future, it is of concern that this application is in its final stage without any knowledge of the vendor to be used.

Response 2:

As indicated in the Revised Draft EIR, the assessment of the impacts of the proposed power station is based on a Consistent Dataset (Appendix C of the Revised Draft EIR), which represents a worst case scenario of potential inputs and outputs from a Generation III nuclear power station operating under normal conditions. This dataset has been based on the commercially available nuclear power station designs currently on the market.

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 efficiency, type of tyres and wheels, fuel tank size, 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 would not qualify for consideration.

Comment 3:

- 1.3 Comprehensive details on the associated infrastructure (i.e. transmission line corridors, access roads, sewage treatment plant, intake and outlet tunnels, desalination plant, HV Yard, etc.) required for the proposed nuclear facility is unavailable in the EIR. This information is vital in concluding on a number of specialist assessments and therefore poses limitations on the assessment of the EIA conducted.

Response 3:

Inputs and outputs of all key associated infrastructure such as the desalination plant and sewage treatment plant for the power station have been provided in the Consistent Dataset (Appendix C of the Revised Draft EIR). Lengths, diameters and numbers of intake and outlet tunnels for cooling water have been conceptually defined in this dataset. Transmission line corridors are assessed in separate EIA processes.

Comment 4:

- 1.4 The Limitations Section of the EIR (Page 9-2, Volume 2), the first bullet point, discusses potential confusion that might have arisen from the applicant's shift from applying for one nuclear plant site to the application for all three. This paragraph does not make it clear that the applicant has again changed to an application for one of the three sites, which was communicated in the previous EIR that was circulated for comment. This is clarified on Page 1-8 (Volume 1) of the EIR, but it should perhaps be included in the Limitations paragraph for clarity.

Response 4:

Thank you for your suggestion, GIBB will ensure clarity is provided in the EIR.

Comment 5:

- 1.5 Under the heading 1.10 Floral Assessment as indicated on page 18 as well as the heading 1.18 Visual Impact Assessment on page 43 of the Executive Summary of the Specialist Studies Report, it is indicated that Eskom intends applying for approval to erect a power station on each of the three sites. This must be amended accordingly since it creates confusion among all interested and affected parties.

Response 5:

Thank you for your comment, an appropriate correction will be made.

Comment 6:

- 1.6 With reference to the cumulative impacts associated with the botanical assessment as contained on page 18 (Point 1.10) of the Executive Summary of the Specialist Studies Report, the following is stated: "Impacts from the possible construction of a PBMR facility should also be factored in." This statement must be removed since Eskom has indicated that the PBMR facility will no longer be implemented.

Response 6:

Thank you for your comment. All specialists were requested to remove reference to the PBMR after the project was shelved. Reference to the PBMR will be removed.

Comment 7:

- 1.7 The Department has previously raised its concern regarding the separation of the Environmental Impact Assessments for the power plant and the transmission lines, particularly due to the anticipated high negative biophysical impact of the transmission lines at the Bantamsklip site. The lines would have to pass through highly sensitive areas. The Department notes the paragraph at the top of Page 9-329 of the EIR (Volume 2) which states that in view of the more significant potential cumulative environmental impacts at Bantamsklip (including marine impacts, oceanographic impacts, tourism and heritage impacts), as well as cost and potential timing delays associated with Bantamsklip, it is the least preferred alternative site for Nuclear-1. The Department does not support the development of the Bantamsklip site given the results of the EIR and the absence of a full assessment of the impacts of the transmission lines which would have to be constructed for a power plant on this site.

With reference to the Duynefontein site, the failure to include the transmission lines in this EIA fails to provide the extent of the impacts on the nature conservation as well as the surrounding critical biodiversity areas ("CBAs") in the general area.

Further, the exclusion of the transmission lines from this application defeats the purpose of mitigation measures such as the establishment of the proposed nuclear power station plant on low conservation value areas.

Response 7:

The impacts associated with the transmission lines have been considered as far as possible during this EIA process. Whilst it might be ideal to consider the potential impacts of the power station and all three transmission corridors in a single document, this is not practically possible and would result in an unmanageable process and in all likelihood a set of documentation that would make understanding of the key issues impossible. At this stage the EIR for the power station includes 28 different specialist

studies and is a very lengthy document (six volumes). This amount of information is already difficult to manage and digest by the public and quadrupling the volume of this documentation by including all three power line corridors (most of which include a number of different corridors in widely dispersed areas) is not practical. It is in recognition of these facts that the DEA has approved the approach of one EIA process for the nuclear power station site and three separate EIA processes for the transmission.

The EIA process for the Bantamsklip transmission lines is still in the scoping phase and at the time of writing, has been suspended. The EIA processes for both the Thyspunt and Duynefontein transmission lines (so-called integration projects) was, at the time of writing this response in October 2012, still subject to draft EIRs, which were available for public comment. The DEA will be in a position to evaluate the cumulative impacts of the transmission lines and power station when they receive the EIR documents for both the power station and the transmission lines.

The DEA has also requested an assessment of the cumulative impacts of the power station and the transmission lines within the immediate vicinity of the power station. This will be addressed in the Revised Draft EIR Version 2.

Comment 8:

- 1.8 The Department previously raised concerns regarding the required construction phase staff village and the impacts of this on the towns closest to the proposed sites. It is noted that, in your response to the Department's comment dated 14 May 2010, it is stated that, apart from Bantamsklip, the current development around Humansdorp, Jeffrey's Bay and the greater Cape Town would accommodate housing needs. This leaves great uncertainty with regard to the Bantamsklip site. The towns closest to the proposed Bantamsklip site are the small coastal towns of Pearly Beach and Gansbaai, neither of which are currently equipped for the number of people that will require housing during the construction, and even the operational, phase. The infrastructural requirements of the staff village would require the existing towns to multiply themselves in size and the associated impacts of this on the current society, service infrastructure and surrounding natural environment has not yet been fully assessed. The Department remains concerned about the impacts of the proposed staff villages on the nearby towns. As with the transmission lines, the approval of any one site for the power plant will necessitate approvals for the other infrastructure (the staff village and the transmission lines) at that site, and yet the impacts of this infrastructure are not yet assessed.

Response 8:

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 Social Impact Assessment (Appendix E18 of the Revised Draft EIR) noted the following with respect to the establishment of construction villages close to the Bantamsklip site: "*The establishment of a Construction Village (where construction workers will reside), will have a major impact on the social environment, especially in Pearly Beach and Gansbaai. These towns are situated in fairly rural and remote areas with a limited number of permanent residences and a large number of tourists and holiday makers, especially in season.*" As such, the potential impact at the Bantamsklip site is expected to be more significant than at either of the other two alternative sites, since these alternative sites are close to larger established settlements that would be better able to cope with an influx of employees.

Comment 9:

- 1.9 In the Department's previous comment dated 14 May 2010, copies of written comments from the Eastern Cape environmental authority, the Department of Economic Development and Environmental Affairs ("DEDEA"), Heritage Western Cape and the South Africa Heritage Resources Agency ("SAHRA") were requested to be included in the EIR for the same reasons that the Department requested that its comments be included, i.e. transparency and adherence to the public participation process. The Department has noted that its comments have been included in the EIR but comments from the abovementioned authorities could not be found in Appendix B (Authority Correspondence). It is noted that meetings were held with these authorities and minutes have been included. It is, however, assumed that these authorities would wish to submit formal written comments on the application, as they do for other EIA processes. The EAP's response to the Department's previous comment stated that a request would be made to SAHRA for their formal comments. If these have been received, they should be included in the report along with any other authority comments.

Response 9:

The Eastern Cape authority [now called the Eastern Cape Department of Economic Affairs, Environment and Tourism (DEAET)] has not submitted any written comments on Nuclear-1 at the time of preparation of this response. Should they submit comments, these comments will be included in Appendix B together with all other authority comments. However they have been engaged as a key stakeholder and have provided extensive input during the various meetings held with them throughout this process.

SAHRA's comments have been included in Appendix B3 of the Revised Draft EIR. Furthermore, minutes of a meeting held with SAHRA on 24 May 2011 are included on the Nuclear-1 EIA website (<http://projects.gibb.co.za/en-us/projects/eskomnuclear1reviseddrafteir.aspx>).

Comment 10:

- 1.10 The Department notes the EAP's response to the previous concern that the specialist peer reviews of the specialist studies were not included in the EIR. The response stated that the reviews were used for internal quality control purposes only. If these reviews were independent reviews conducted by companies other than those who prepared the specialist reports being reviewed, then the findings of these independent studies should have been included in the interest of transparency.

Response 10:

Your comment is noted. The peer reviews undertaken during the scoping phase were done in order to provide guidance to the specialists and have been taken into account in the compilation and revision of the specialist studies. However, these peer reviews were prepared to internal quality control purposes only and are not suitable to be released into the public domain.

GIBB has requested clarity from the Department of Environmental Affairs regarding the need for review of all specialist reports during the EIA phase. DEA has confirmed that independent reviews of all specialist reports must be included in the EIR. Independent review of all specialist reports has therefore be included in the Revised Draft EIR Version 2 (Appendix E37).

Comment 11:

- 1.11 The response to the Department's previous confusion regarding the size of the proposed Nuclear-1 footprint, including HV Yard, was not adequately answered in the EAP's response dated 22 June 2010. The different sizes stipulated in the Department's comment were not explained.

Response 11:

For ease of reference, we refer to the following relevant extract from your submission of 14 May 2010 regarding the size of the power station footprint.

There is some confusion about the anticipated footprint size of the proposed Nuclear-1. Page 9-34 of the EIR mentions that the extent of the proposed EIA corridor and HV Yard comprises some 322 and 207 hectares respectively, with the nuclear power station likely to be in the order of 230 hectares. On Page 9-275 of the EIR, the proposed size of the Nuclear-1 footprint is indicated as 31 hectares. Please explain the great discrepancy in sizes. Please explain if the HV Yard will form yet another EIA application and if so, where will this be accommodated in relation to the Nuclear-1 site. Clearly if other massive footprints are required at the proposed sites, and these have not been considered by the specialists, then the significance and assessment of all the impacts will be greatly underestimated and invalid. Assumptions that the rest of the site will be conserved would be inaccurate. Please provide a list of all separate EIA applications that are required before the Nuclear-1 plant could be operational.

'EIA corridors' and 'HV Yard Corridors' were defined within the EIA for Nuclear-1 so that investigations for the specialist studies for the Nuclear-1 EIA could be focused, although the specialist studies included the entire proposed sites. These corridors were defined based on initial site investigations and therefore reflect the most likely place where the power station would be located to cause minimum environmental impact. The EIA corridors were respectively 454, 322 and 443 ha in size at Duynefontein, Bantamsklip and Thyspunt. The HV Yard corridors were respectively 254, 207 and 110 ha at Duynefontein, Bantamsklip and Thyspunt.

The total footprint of the power station, which will be placed within the EIA corridor, may be anything between 200 and 280 ha, but most probably in the region of 250 ha, depending on the site conditions. The footprint may vary due to the topography, detailed placement of infrastructure on the site and the resultant volumes of spoil that need to be removed for the excavation of the power station foundations. The size of the power station itself would be approximately a third of this 250 ha. The remainder of the footprint would include the associated infrastructure (e.g. sewerage treatment plant, desalination plant, laydown areas, contractor yards and temporary soil stockpiles). Most of this area will be rehabilitated with indigenous vegetation once construction has been completed.

Reference to a 31 ha power station footprint on page 9-275 of the first draft EIR included only the size of the nuclear island. This is erroneous and has been corrected in the Revised Draft EIR (EIR Version 2).

The application for Nuclear-1 includes the power station and all associated infrastructure mentioned above. The EIA team has assessed the cumulative impact of all these elements of infrastructure, which are all included in the estimated power station footprint of 200-280 ha.

There are no other on-site elements of infrastructure directly associated with the proposed Nuclear-1 power station that would require separate EIA authorisations. However, there are a number of other authorisations (e.g. waste licensing, town planning applications, permits for removal or moving of protected species, permits for excavation of heritage sites, etc.) that will be required prior to construction of the proposed power station.

Comment 12:

2. Environment:

2.1 Biodiversity

2.1.1 Duynefontein Site:

- 1.12 Although the EIR indicates the Duynefontein site as the least sensitive site from a botanical perspective, it must be noted that the proposed nuclear plant will result in the loss of approximately 300 hectares of land north of the existing Koeberg Nuclear Power Station ("KNPS"), which is currently part of the Koeberg Nature Reserve. It is this Departments' understanding that the area was an offset to the current KNPS. As such, clarity must be provided as to why this specific location is deemed appropriate from a

botanical perspective in light of the fact that the site can be considered to be part of a botanical offset. The proposed development therefore poses negative impacts on the loss of habitat and high impacts on a rare/endemic transverse mobile dune system by the construction of the power station, transmission lines and associated infrastructure.

Response 12:

The Koeberg nature reserve was established and is managed in a responsible manner due to Eskom's due diligence and commitment to responsible environmental management. It was not established as an offset for Koeberg. When the site was originally purchased it took into consideration the possibility that additional units may be constructed and operated. The conservation activity on the site would continue, albeit 10% of the current area would be impacted.

As correctly stated, the impact on the botanical community in the transverse mobile dune system has been highlighted as an impact of potentially high significance. The footprint recommended for the power station at the end of Chapter 9 of the Revised Draft EIR avoids this sensitive area.

Comment 13:

- 2.1.1.1 During the operational phase of the proposed development, it must also be noted that the impacts on the transverse mobile dune system will be high since any infrastructure placed on or near the dune system poses a major impact on the dune functioning and structure. Excessive maintenance will therefore be required on these areas, which will continually require funds. Importantly, it must also be noted that the potential impacts on the transverse mobile dune system at the Duynefontein site must be comparatively assessed with that of the current impacts on the mobile dunes at the KNPS. Despite the mitigation measures provided in the Botanical Assessment, it is not evident that the impacts on the transverse dune systems will be minimal. As such, the assessment is deemed as incomplete at this stage until the final preferred layout is available and all alternative sites for the power station and HV yard have been assessed.

Response 13:

As indicated above, the recommended footprint for Nuclear-1 avoids the most sensitive areas associated with the transverse mobile dune system at the Duynefontein site.

The specialist studies for the Duynefontein site have taken into account the current ecological state of the site, including the fact that the Koeberg Nuclear Power Station (KNPS) has already impacted on a substantial portion of this dune system through stabilisation of the dunes. It is to be noted that the recommended position of Nuclear-1 avoids the transverse dune system so as to avoid any further impacts on the dunes. Alternative layouts on the Duynefontein site are being considered to minimise or avoid potential impacts on the mobile dune system (Appendix A of the RDEIR Version 2).

Comment 14:

- 2.1.1.2 Therefore from a botanical perspective, although the Duynefontein site was assessed as the least sensitive site, the site is highly sensitive and should be assessed as such based on its own merit as opposed to being compared with two highly sensitive botanical sites.

Response 14:

It is concluded that Duynefontein is the 2nd most preferred site after Thyspunt. It does not necessarily imply that Duynefontein is least sensitive site, since a number of decision factors, including technical factors, were taken into account to identify the preferred site for Nuclear-1.

It was imperative to compare the three alternative sites (Duynefontein, Bamtamsklip and Thyspunt) to each other, since the application for Nuclear-1 is for a single nuclear power station. All sites were assessed on the same basis and comprehensive assessments on the full range of impacts were undertaken for each site individually. The EIA specialists were required to identify fatal flaws and significant environmental impacts for each site.

Comment 15:

- 2.1.1.4 In terms of the Vertebrate Faunal Assessment (“VFA”)(Appendix E13), the amount of land available to the proposed Nuclear Power Station (“NPS”) that is not of high faunal sensitivity is limited at the Duynefontein site. In addition, there will be high negative impacts due to direct impacts on faunal habitats within footprint areas. The VFA further concludes that the Duynefontein site will benefit from the no-go option since the site forms part of a private nature reserve and the opportunities for on-site conservation offsets are limited. A number of extensive mitigation measures are therefore required to ensure that negative impacts are minimized, but it is evident from the VFA that negative impacts on vertebrate fauna is inevitable. It is therefore concerning that the overall conclusion reached in the VFA is that Nuclear-1 could be developed at either Duynefontein or Bantamsklip.

Response 15:

Your comment is noted. Unmitigated impacts on fauna at any of the sites have the potential to be significant. However, no fatal flaws were identified from a vertebrate faunal perspective.

Comment 16:

- 2.1.2 Bantamsklip Site:

- 2.1.2.1 Based on the findings of the Botanical Assessment (Appendix E11), the Bantamsklip site is highly sensitive from a botanical assessment due to the high proportion of red data species (approximately 50 identified), high number of localized plant species, soil types, etc. Although it is proposed to place the proposed power station on the vegetation classified as least threatened, the construction of transmission lines and roads pose high negative impacts on the highly sensitive vegetation.

Response 16:

Your comment is noted. However, compared to the footprint of the power station (a maximum of 280 ha), the footprint of the proposed access road will be small. The potential negative impact of transmission lines is reflected in the report and is one of the considerations which make Bantamsklip less preferable than the other alternative sites. Transmission lines will not require clearance of the vegetation in the power line servitude, although maintenance of vegetation will be required in order to minimise the risk of fire-damage to the transmission lines. This implies that vegetation will be kept as short as possible through regular controlled burning to prevent the build-up of fuel that could contribute to large unplanned fires. Occasional mechanical methods of keeping vegetation low may also be required.

Comment 17:

- 2.1.2.2 Despite the mitigation measures recommended by the botanist in the Botanical Assessment Report, the impacts on botany on the Bantamsklip site will be irreversible. Rehabilitation of disturbed areas is also highly unlikely to minimize the extent of the negative impacts on plant populations and habitats. This Department does not support the proposed development on the Bantamsklip site based on the botanical sensitivity of the site.

Response 17:

On the contrary, rehabilitation methods in dune areas are well-established and have been undertaken successfully for many projects in coastal areas. For instance, rehabilitation after the establishment of Koeberg Nuclear Power Station has been very successful. The Dune Geomorphology specialist, Dr Werner Illenberger, has indicated in his report (Appendix E2 of the Revised Draft EIR) that there are a

number of methods of dune rehabilitation that can be successfully applied to the three alternative sites. His recommendations include methods of profiling roads to ensure that sand movements within mobile dune systems can continue.

Comment 18:

- 2.1.2.3 The VFA concluded that the proposed NPS at the Bantamsklip site would have significant negative impacts due to direct impacts on faunal habitats within footprint areas. Further, it states that offset options are available if undeveloped land is declared as a nature reserve and effectively managed as such depending on an adequate coastal corridor and effective management of the inland portion. The VFA also indicates that the no-go option is *“not positive because it can be assumed that it would lead to a change of ownership and probable residential and/or resort development at the coast, and possible increase in the intensity of agricultural exploitation on the inland portion”*. This conclusion therefore appears to be contradictory to the fact that the VFA also indicates the land available to the proposed development of the proposed NPS that is not of high faunal sensitivity at the Bantamsklip site is severely constrained and not sufficient to allow for the proposed NPS. The purchase of additional land as suggested in the VFA is premature and cannot be used as a mitigating factor to accommodate the proposed NPS.

Response 18:

The recommended footprint at the Bantamsklip site avoids what has been identified as sensitive from the point of view of all biophysical specialists and the heritage specialist. The north-western portion of the site (south of the R43 road), which is identified as sensitive by the vertebrate faunal specialist, has been excluded from the recommended footprint. Furthermore, the entire north-eastern portion of the site (north of the R43) has been excluded from the recommended footprint.

The overall amount of land on the total Bantamsklip site that is not of high faunal sensitivity is limited, based on fact that the entire portion north of the R43 is considered faunally sensitive and that this accounts for the majority of the total site. The total site (including all three properties belonging to Eskom) is 1708 ha, of which the farm Hagelkraal is 1320 ha (77 % of the total site). Nine hundred and twenty seven hectares of the Farm Hagelkraal (54% of the total site) occurs north of the R43. However, as evident from the map showing the recommended footprint (at the end of Chapter 9 of the revised Draft EIA), there is an area of 172 ha that is not of high sensitivity from the perspective of any of the specialist studies. With regards to faunal sensitivity, only the north-western part of the site lying south of the R43 and a coastal strip of approximately 400m have been defined as highly sensitive at Bantamsklip. A coastal strip of 200m width has in any event been excluded from the development footprint at all three of the alternative sites, irrespective of the sensitivity analysis.

The conservation benefits of conserving the remainder of the Bantamsklip and Thyspunt sites outside the power station footprint was a common theme in all the biophysical specialist studies. It is a legitimate recommendation that additional land should be purchased in order to secure greater benefits for conservation in the event that the power station is approved at a particular site.

Comment 19:

2.1.3 General

The EIR failed to fully assess the extent of potential impacts on biodiversity on all three sites since limited information on the final layout design is available. Whilst mitigation measures are proposed in the Botanical Assessment Report, this is premature since the alternative sites to place the power station and its associated infrastructure as recommended by the specialist have not been assessed in this EIA. Further assessments will therefore be required once the final layouts become available. At this point, it is evident that the impacts on botany have not been adequately addressed in the EIA. Further, the Invertebrate Faunal Assessment (Appendix E14) indicates that the assessment conducted is limited by the number of

field assessments conducted and as such detailed investigations of invertebrate fauna will be required prior to construction.

Response 19:

Eskom has indicated the area it requires for the construction of a power station. Please refer to Section 3.1 of the Revised Draft EIR, where it is stated that the maximum area required for the power station (including the HV yard) is 280 ha. All critical infrastructure for the power station will be placed within this area.

The specialists have identified the areas of sensitivity on the site, and on the basis of the sensitivity assessment, areas of low sensitivity have been identified for each of the alternative sites. Specialists assessed the entire site at each of the alternative sites and hence defined the low and high sensitivity areas. Furthermore, in the absence of detailed design of the proposed power station and its associated infrastructure, the approach of the EIA has been to define limits of acceptable impact. So, for instance, each specialist has defined what may be regarded as environmental “no-go areas” on each site or they have, as appropriate to their fields of expertise, defined maximum allowable inputs or outputs.

Detailed assessments for a number of specialist disciplines will be required prior to construction, as is the case with most large infrastructure projects such as power lines. It is common practice in EIAs for power lines for the authorities to issue and authorisation for an EIA corridor of a 1 km width, for instance, and for the detailed positioning of pylons to be determined through a “walkdown assessment” of the corridor. Such assessments are undertaken typically by a team consisting of an archaeologist, botanist and avifaunal specialist and the focus thereof is to determine the exact location of various forms of infrastructure.

Comment 20:

2.2 Wetlands

2.2.1 It is noted that all of the site alternatives include within their boundaries, and immediate surroundings, wetland systems that are of high ecological importance, relatively unimpacted and considered to be either among the last remnants of particular wetland habitats (in the case of Duynefontein) or they are considered to be unique systems that are unlikely to be represented in their present form, extent and complexity anywhere else in the world (in the case of Bantamsklip and particularly Thyspunt). Their conservation status is extremely high and any threats to their integrity have been assessed as of high negative significance.

Response 20:

Your comment is noted. In the case of Duynefontein the wetlands are very small in extent and will be avoided. In the case of Bantamsklip, extensive wetlands occur on the portion of the site north of the R43. No development is proposed on this portion of the site. In the case of Thyspunt, the recommended power station footprint does not impact on any wetlands and it has furthermore been determined, through intensive groundwater modelling, that groundwater drawdown during construction will not impact on the ecologically important Langefonteinvlei wetland. Furthermore the dune slack wetlands within the mobile dune field at Thyspunt will not be affected.

Comment 21:

2.2.2 It is noted that the assessment of wetland ecosystems on the three proposed sites concluded that the proposed NPS at Duynefontein would be associated with the lowest level of negative impact to wetland systems and all identified impacts would be mitigable. The development area proposed for the siting of the plant is stated to be well away from the most sensitive wetlands on the site. However, it is stated that if mitigation measures are not implemented, the proposed NPS at Duynefontein would have a medium negative impact from a wetland perspective. It is therefore of great importance that the specialist’s mitigation measures be implemented if this

site were to be considered. The implementation of mitigation measures is important for all three sites.

Response 21:

Your comment is noted.

Comment 22:

2.2.3 The wetlands identified at Bantamsklip all lie north of the R43. The development of the proposed NPS at Bantamsklip would be associated with impacts which are linked to activities indirectly resulting from the proposed development (i.e. additional development in Pearly Beach and the surrounding area for housing and other urban needs, increased traffic to the site and across the northern part of the site and the transmission lines). These indirect impacts again emphasise this Department's previous concern (as discussed under the section titled General) that the separation of projects that are directly related to the NPS, such as the staff village and transmission lines, prevent factors that may have a high impact from being considered in the selection of the preferred site.

Response 22:

Your comment is noted. Please refer to Response 7.

Comment 23:

2.2.4 The development of the proposed NPS at Bantamsklip was stated to have the potential to have a positive impact on wetland ecosystems if the Groot Hagelkraal wetlands to the north of the R43 were to be secured and managed as a nature reserve in perpetuity. However, the specialist re-emphasized that because of the uncoupling of the assessment of impacts associated with the proposed NPS from those associated with the routing of transmission lines from the sites, there was the possibility that there may be further significant negative impacts which may not be offset by the conservation of the northern section of the site. They concluded that *"the likely implications of transmission line impacts (not assessed in this study) inevitably tempers the positive rating of the development"*. It is therefore clear that the positive status of the overall mitigated impact of the development of an NPS at Bantamsklip on wetland ecology must be viewed with great caution as all significant indirect impacts have not been assessed in this EIA. Without mitigation, the impact on wetland ecology of the development of the NPS at Bantamsklip was stated to be of **at least** medium negative significance. Due to the lack of a detailed impact assessment of the indirect impacts of siting the proposed NPS at Bantamsklip (associated with the transmission lines, staff village etc.), and the anticipated effect this would have on the suitability of the site for the proposed NPS, this Department does not support the siting of the NPS at Bantamsklip.

Response 23:

Your comment is noted.

Comment 24:

2.2.5 The Thyspunt site was identified as being the most sensitive with respect to wetland ecology. The site includes portions of wetlands of extremely high conservation status, which are considered to be part of a one-of-a-kind system. As a result of the sensitivity of the site, the development of the proposed NPS at Thyspunt would have a high negative impact significance without mitigation. The specialist included numerous mitigation measures which would be of great importance to implement if the development were to take place at Thyspunt. Of these mitigation measures, one particular measure has considerable scope for securing a sensitive wetland area

into a conservation area, namely the inclusion of the full extent of remnant valley bottom wetlands between Langefonteinvlei and the Links golf course, and the inclusion of a substantial portion of the Oyster Bay dune field system into an effective nature reserve. This is land that is traversed/abutted by the proposed NPS access road. This mitigation measure would require the applicant, ESKOM, to purchase all the relevant erven with near-immediate effect, before approved, planned or proposed development of erven adjacent to the valley bottom wetlands and dunes takes place. This is crucial because once development in these areas has occurred, the positive impacts associated with the conservation of all the land around the access road are largely nullified and the impact of the proposed development on the wetland ecosystems returns to being of high negative significance. The competent authority should not support the development of the NPS at Thyspunt if ESKOM cannot guarantee the effective implementation of the mitigation measures, including the above. Only if the required land can be secured, can the impacts of the NPS development on the coastal seep wetlands at Thyspunt (of high significance), be offset. A high significant negative impact on wetlands of considerable conservation importance should not be permitted.

Response 24:

Your comment is noted. At its own risk Eskom has been acquiring additional land required for the project and to secure the wetlands that the Freshwater Ecology Assessment (Appendix E12 of the Revised Draft EIR) has recommended should be acquired for conservation. Furthermore, as indicated in responses above, the recommended footprint of the power station does not impact directly on any wetlands. No development is proposed for the areas where the ecologically important Langefonteinvlei wetland and the dune slack wetlands in the mobile dune field occur.

Comment 25:

2.2.6 Table 5.3 in the wetland study lacks the two columns for “Nature of Impact” and “Confidence” that Tables 5.1 and 5.5 have included. Please include these.

Response 25:

Thank you for your comment.

Comment 26:

2.2.7 There is a conflict between the information on page 172 of the wetland study which states that “...*despite mitigation, the residual impact of the operational phase on the coastal seeps is considered of high negative significance...*” and the assessment table on page 188 which indicates that the impact of the operational phase on coastal seeps is medium after mitigation. This table needs to be corrected to reflect the high negative impact, even with mitigation, as described in the text.

Response 26:

Thank you for your comment. The necessary changes will be made to the reports to eliminate inconsistencies.

Comment 27:

2.3 Freshwater

2.3.1 The Fresh Water Supply Environmental Impact Report (Volume 9 of the Draft EIR) clearly concludes that at all three sites, the most viable option for an assured water supply with least environmental impact, would be the desalination of sea water. However, in the tables of mitigation measures on pages 34 and 35 of the Study, the use of groundwater and surface water are indicated. It needs to be clarified what qualities of water will be supplied by the three different sources (groundwater,

surface water and desalinated water) at the three sites and, if surface and groundwater are required, why desalinated water cannot be sufficient to meet these requirements as well.

Response 27:

A number of different water supply alternatives, including the use of fresh water and groundwater, were assessed at each of the three sites. The conclusion reached by this study is that desalination is the only viable alternative at all three of the alternative sites. All the water needs will be supplied by desalination, although there may be a period of a few months during construction of the desalination plant when other sources will be required.

Comment 28:

2.3.2 The use of desalinated water will, in this Department's opinion, be preferable if it can fully supply the Nuclear Plant so that further stress is not placed on limited surface and groundwater resources that also need to meet the requirements of other users (current and future).

Response 28:

Your comment is noted.

Comment 29:

2.3.3 It is also important that the brine produced by the desalination process is disposed of by mixing it with the plant's cooling water as suggested in the Study. It is noted that a marine ecologist must monitor the discharge areas to assess the impacts on the marine ecology. It is not clear what steps will be taken if impacts are found to be occurring. There should be alternative methods of brine disposal in place or at least planned so that the discharge to sea (by the method outlined in the Study) can be discontinued if found to be having an adverse impact on the marine community in the area of discharge.

Response 29:

The Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) states for the construction phase that when brine is released independently, the impacts of hypersaline effluent are focused on benthic communities, as brine has a higher density than seawater and thus settles on the sea bottom, where dispersion is limited. Under such conditions any impacts on benthic biodiversity will be focused around the release site. As brine will be diluted to undetectable levels prior to release, no impact on the marine environment is predicted from this effluent during the operational phase.

Although it is indicated in the Marine Ecology Assessment that brine will be discharged into the surf zone during construction, it is considered best practice, based on recent experience with desalination plants along the South African coastline, to discharge beyond the surf zone via a pipeline. Thus, the Marine Ecology Assessment is being revised to recommend the discharge of brine via a pipeline during construction.

Practical experience with marine discharge of brine indicates that the zone of impact from this form of discharge is small (typically 30 – 150 m radius from the point of discharge). Beyond this zone, salinity returns to background levels. Modelling undertaken for Nuclear-1 indicates that dilution will occur within 110m of the point of discharge (as cited in the Marine Ecology Assessment). Therefore, it is not necessary, based on understanding of the functioning of marine brine discharge, to consider other forms of brine disposal.

The Marine Ecology Assessment further quotes a study by Hopner and Windelberg (1996), which divides global marine habitats into 15 categories according to their sensitivities to the effects of desalination plants. According to this hierarchy, Duynfontein falls within the category of sites ranked as fourth most suitable for the construction of desalination plants, due to its location on a high-energy coast with associated upwelling. Bantamsklip and Thyspunt fall within the ranking of fifth most suitable for desalination out of fifteen. This category is described as large intertidal areas with large sediment surfaces. Water exchange and sediment mobility are, however, still high at these sites.

Comment 30:

2.4 Geotechnical Impacts:

2.4.1 Geotechnical Characteristics:

2.4.1.1 The main impacts of the proposed development with respect to geotechnical characteristics will be slope stability and site disturbance. It has been confirmed that the development platforms must be on bedrock so all material overlaying the bedrock, referred to as “overburden”, must be excavated and removed (spoiled). The slope angles of the excavations need to optimize slope angles without placing undue risk on slope stability. At the same time the lower the slope angle, e.g. 20 °, the larger the area that will need to be excavated to achieve that angle.

2.4.1.2 The areas that will be disturbed at the three sites, according to the tables on pages 33-35 of the Geotechnical Characterization Study, are as follows:

2.4.1.2.1 Average disturbed area at sea:

Thyspunt	2 hectares
Bantamsklip	1.6 hectares
Duynefontein	3.7 hectares

2.4.1.3 Average area disturbed within 500m inland:

Thyspunt	7.8 hectares
Bantamsklip	3.3 hectares
Duynefontein	6.6 hectares

2.4.1.4 The excavation of material from the sites (within 500m inland) will be highest at Thyspunt, followed by Duynefontein and then Bantamsklip. Similarly, the size of the area to be disturbed (and within 500m inland) is highest at Thyspunt, followed by Duynefontein and then Bantamsklip. The area to be disturbed at sea and the amount of material to be excavated at sea is, however, highest at Duynefontein, followed by Thyspunt and then Bantamsklip.

2.4.1.5 The impact assessment table on page 38 of the Geotechnical Characterization Study reflects the impact significance of a few impacts with and without mitigation. However, all sites are represented by this table and thus are all shown to have the same impact, despite differing areas of disturbance, excavation volumes etc. Furthermore, the significance of all impacts regardless of some having a “high” impact on irreplaceable resources or a “high” probability is “low” for all impacts (whether with or without mitigation). The Department would like clarity on why the above factors do not result in different significances of impact, between sites and between impacts with and without mitigation.

Response 30:

Your comment is noted. The apparent discrepancy will be addressed.

Please note that the disturbed areas you have quoted per site are **for a 1ha area of disturbance** (for comparative purposes), **not for the total area of disturbance at each site**. The Geotechnical Suitability Assessment (Appendix E5 of the Revised Draft EIR) shows these figures to provide a comparison of the relative degree of disturbance caused by excavation of a similar sized area on the three alternative sites, for both an excavation at sea level and for an area 500 m inland.

Comment 31:

2.4.1.6 There are a number of references to documentation that currently state “Error! Reference source not found”. The relevant links should be restored so that the documents are complete.

Response 31:

Thank you for your comment. These references will be corrected.

Comment 32:

2.4.1.7 It is noted that, as mitigation, the Thyspunt and Bantamsklip sites should be located as close as possible to the coast and lateral support systems must be investigated for the Duynfontein site. Please indicate if such investigations have been done and if so, if lateral support measures can be implemented at Duynfontein and what these will involve. With reference to the Bantamsklip site, it is noted that this information is contradictory to the fact that the land closest to the sea at the Bantamsklip site cannot be considered since the land belongs to the State and not Eskom. Further, it is noted that the visual impact assessment prescribes a minimum setback of 200m between the high water mark of the sea and the nuclear power station buildings. As such, clarity is required in terms of the practicality of this mitigation measure.

Response 32:

Lateral support systems are a well-established construction method used in coastal areas. As such, no additional studies are required to test the applicability of these measures at a particular site.

Eskom owns 45% of the land at Bantamsklip and intends to acquire another 2610 ha as a buffer zone. The coastal properties east and west of the current Eskom property are state land and are managed by CapeNature but they have no official conservation status (i.e. they are not proclaimed nature reserves).

Besides the visual impact assessment, all the terrestrial biophysical specialist studies and the heritage impact assessment have recommended a setback of 200 m from the coastline. It is an entirely practical recommendation and has been accepted by Eskom.

Comment 33:

2.4.1.8 It is noted that the Study concludes that *“because of the extensive overburden soils present at Thyspunt, it is apparent that, even with mitigation, the site may present scenarios where site disturbance and slope stability concerns are possible across the majority of the site”*. This is not reflected on the impact assessment table (page 38 of the Study) as being a higher impact at Thyspunt as all sites are represented by one table.

Response 33:

Your comment is noted. The apparent discrepancy will be addressed.

Comment 34:

2.4.2 Geotechnical Hazards:

It is noted that the Geological Hazard Environmental Impact Report (Volume 9 of the Draft EIR) has reviewed available geological data on the three sites and that this review has concluded that the three sites all have a low risk. However, it is further stated in the assessment that additional studies still need to be completed and submitted to the National Nuclear Regulator (“NNR”) as part of the Site Safety Report. It is stated that these studies may impact and even change the conclusions reached, and therefore no final conclusions can be made about site suitability. The EIR Study is based only on the current state of knowledge without incorporating the regulatory required detailed investigations. This is a concern as the feasibility of the three alternative sites may be affected by the further studies.

The competent authority should know the final site suitability results as these could affect or change the decision reached in the absence of these studies.

Response 34:

The Geotechnical Report comes to the conclusion that there are no disqualifiers at any of the sites. Although the Peak Ground Acceleration (PGA) values of the alternative sites differ, it is concluded that it is technically possible to build a nuclear power station at any of the three alternative sites. However, the engineering design may have to be adapted for sites with higher PGA values (e.g. for Duynefontein). This in turn will result in additional cost and time as reflected in the site selection process.

The regulatory studies to be undertaken for licensing by the National Nuclear Regulator are required for detailed engineering design and are not required for EIA-level decision making on the feasibility of constructing a nuclear power station.

Comment 35:

2.5 Seismic Hazards:

It is noted that the assessment of seismic risk at the three sites is still being undertaken, i.e. the assessment contained in the EIR (Seismic Hazard Environmental Impact Report (Volume 9 of the Draft EIR)) describes the work carried out to date. It is stated in the assessment that the NNR has accepted the results on condition that further investigations be performed to meet international regulatory requirements, including Senior Seismic Hazard Analysis Committee ("SSHAC") Level 3 Seismic Hazard Studies. The assessment also states that the SSHAC Level 3 studies will not only serve to confirm the current results, but would probably result in a change in the peak ground acceleration ("PGA") values for the sites. The Section on Limitations of the EIR (Page 9-3 of the EIR, Volume 2) confirms that conclusions regarding the seismic suitability of the sites are therefore based on the current state of knowledge. This is an important consideration for the competent authority as the conclusions with respect to the site with the least seismic risk may change. With the current PGA values, the Thyspunt site has the highest seismic margin and is thus the preferred site from a seismic risk perspective.

Response 35:

As indicated in Response 34, further seismic investigations such as the SSHAC assessment will be focused on detailed engineering design of the power station. Although PGA values may change at very high recurrence intervals (e.g. 1 in 10,000 years), the current PGA values are based on a number of years of seismic monitoring by the Council for Geoscience. The margin between the 0.3 g PGA value required for a standard nuclear power station and the 0.16 g at Thyspunt is the largest of the three alternative sites (compared to 0.23 g at Bantamsklip and 0.3 g at Duynefontein). Therefore, Thyspunt is seismically speaking by far the most suitable site and a marginal change in the PGA values is unlikely to change the hierarchy of sites from a seismic point of view.

Comment 36:

2.6 Hydrology:

2.6.1 According to the Hydrology Environmental Impact Assessment (Volume 10 of the Draft EIR), one of the mitigation measures for storm water control during the operational phase is the installation of dirty water containment ponds. It is not clear from the report how this water would be treated or "cleaned" and where the water will be disposed of once clean if it is not to be re-used by the power plant.

Response 36:

The ponds will retain the stormwater so that solids can settle to the bottom of the ponds. Oil will be removed from the surface of the retained water. Water will be released into a second chamber from below the surface to prevent the transfer of oils. The water released into the second chamber will be checked for cleanliness prior to release into the environment.

The specific water management practices and processes will be initiated prior to final design and will be subject to detailed evaluation in the Water Use License, which will need to be in place prior to operation.

Comment 37:

2.6.2 The recommended monitoring programme for wetlands (see page 94 of the Assessment) should include a set of monitoring data (to be collected and recorded by the same method as future data during construction and operation) that is collected before any works commence on the site. This will provide a baseline against which to compare future results.

Response 37:

Your comment is noted and it is agreed that monitoring should commence before construction to establish a baseline. It is to be noted that the Wetlands Monitoring Report documents a several years' worth of monitoring data of wetlands and groundwater at all three of the alternative sites and that the data collected for this study started in 2010 already provides a valuable baseline. The monitoring programme recommended in the Freshwater Ecology Assessment (Appendix E12 of the Revised Draft EIR Version 2) has been incorporated in the Environmental Management Plan (Appendix F of the Revised Draft EIR Version 2).

Comment 38:

2.6.3 All three sites were rated as having low to low-medium sensitivity from a hydrological perspective.

Response 38:

Your comment is noted.

Comment 39:

2.6.4 It is noted that the "no-go" alternative was taken to be that Eskom would sell the land and that the natural environment was only going to be preserved until another developer wants to develop the site. This is a concern as the "no-go" alternative should be the status quo, i.e. the site remaining as it is now. The future use of the site once sold by Eskom cannot be predicted to be a certain outcome which is then used as the "no-go" alternative.

Response 39:

Your comment is noted. The assessment of the no-go alternative is based on experience of the EIA team with development trends along the respective coastlines. In the case of Thyspunt land adjacent to the Eskom owned property was being developed and in some cases had already been sold off by developers to private owners who wish to build holiday homes. Hence housing developments had already been initiated. These developments had received the necessary authorisations and it is therefore appropriate to assume that such developments will not be limited in the future.

Comment 40:

2.7 Geohydrology:

2.7.1 This Department noted that the Bantamsklip site and Duynefontein site may experience problems due to corrosive groundwater that may impact on foundations and buried services.

Response 40:

Your comment is noted. Corrosion is an issue which requires attention during construction and the operation of plants so close to the coast. Corrosion will certainly be considered and factored into the design.

Comment 41:

2.7.2 The impact of a nuclear accident on geohydrology was not considered by the study. This is assumed to be part of the agreement with the NNR. The Department has raised concerns about the approach of removing all nuclear radiation impacts from the Nuclear-1 EIA several times in previous comments. Despite the agreement made with the NNR, this Department remains of the opinion that the potential impacts that may arise from nuclear radiation should have been assessed by all specialists as part of the EIA as this is one of the major potential impacts of the proposed development that could, in the event of a spillage or accident, have major negative biophysical, social and economic effects.

Response 41:

The radiological aspects are not excluded from the Environmental Impact Assessment. Sufficient information is provided to facilitate a clear understanding of the NNR process and scope. The radiological waste management is discussed in depth.

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 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. 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.

In this regard you are also referred to the then DEAT's approval of the Scoping Report, dated 19 November 2008, where the following is stated:

2.21 All radiological issues raised during the EIA process, which are not comprehensively addressed, must be explicitly referred to the NNR to be addressed as part of their process.

This response by the DEAT clearly acknowledges that there are some radiological issues that cannot be comprehensively addressed in the EIA process and can only be addressed in the NNR's nuclear licensing process.

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 by 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 the EIR.

However, in recognition of requirements in the NEMA, associated legislation such as the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000) and other legal precedents that require the consideration of all relevant socio-economic factors in an EIA process, an assessment of radiological

impacts of the proposed power station is included in the current version of the EIR. Although this approach of including an assessment of the radiological impacts of the proposed power station results in a risk of duplication between the EIA and the NNR licensing processes, the risk to the EIA in terms of possible appeals, based on the exclusion of substantive issues such as health issues from the EIA process, is regarded as greater than the risk of duplication. The current version of the EIR therefore departs substantially from the approach in the previous versions of the EIR in terms of the consideration of radiological impacts.

In this context, it must be mentioned that the approaches of the EIA process and the NNR licensing process differ substantially. The focus of the EIA process is to assess the potential impacts of radiological releases (including normal operational releases and upset conditions). However, the focus of the NNR licensing process is to demonstrate beyond reasonable doubt that defence-in-depth measures (multiple, redundant, and independent layers of safety systems) employed in the proposed power station design and operation are sufficient to reduce the probability of a failure leading to core meltdown or a failure of reactor containment to acceptable and highly-unlikely levels. Thus, the EIA process focuses on the consequences of radioactive releases. The NNR licensing process also focuses on consequences but is also designed to reduce the probability of such releases. Please refer to Appendix E32 of the RDEIR Version 2 for the Radiological Impact Assessment report.

As indicated in the EIR, the assessment of the impacts of the proposed power station is based on a Consistent Dataset (Appendix C of the Revised Draft EIR), which represents a worst case scenario of potential inputs and outputs from a number of different Generation III nuclear power stations operating under normal conditions. This dataset has been based on the commercially available nuclear power station designs currently available.

Planning for nuclear emergencies is within the scope of the NNR's nuclear licensing process and falls outside the scope of this EIA process.

Comment 42:

2.7.3 The Department notes the "optional" mitigation measure of establishing a "lessons learned" task team to address inadvertent, unmonitored liquid releases from existing nuclear power plants including Koeberg. This Department would strongly advise that such a task team be mandatory, as opposed to optional, and that the task team should focus not only on inadvertent liquid releases, but on all the inadvertent impacts that have resulted so that the design and siting of the proposed Nuclear-1 plant and the management plans for the construction and operation of the plant may address all of these lessons.

Response 42:

The nuclear industry has a culture of evaluating, in depth, the performance of other nuclear facilities and the performance of its own plant. In doing so they ensure that the ALARA (as low as reasonably achievable) principle is implemented. This principle ensures that activities during operation are continuously improved and remains well below regulatory limits. Incidents that are evaluated can be small or large (such as Fukushima) and all contribute to continual improvement in best practice. .

Comment 43:

2.8 Impacts on Dune Systems:

2.8.1 Duynefontein:

2.8.1.1 There are three types of dune systems found near Duynefontein: mobile transverse dunes; transverse dunes stabilised artificially with alien vegetation; and naturally vegetated parabolic dunes.

2.8.1.2 Strictly from a dune dynamic perspective, the specialist study concluded that partial or complete loss or disturbance of any of the dune systems would not result in significant operational impacts.

- 2.8.1.3 The effects of disturbance of the dune systems on species composition, ecosystem functioning and sand movement (and its implications) within the dune systems were, however, not assessed in this study.
- 2.8.1.4 The Botany and Dune Ecology Impact Assessment highlighted that the transverse dune system is endemic and is poorly represented on the Cape West Coast and the sensitivity of the sand plain fynbos, found in the eastern parts of the site, is high.
- 2.8.1.5 Excavation of the receiving site poses a number of environmental impacts. Due to the profile of dunes on the Bantamsklip site, a large amount of sand will be removed in order to reach bedrock. In turn, this will result in a significant change of the characteristics of the dunes.

Response 43:

Your comments are noted.

It was not the intention of the Dune Geomorphology Assessment (Appendix E2 of the Revised Draft EIR) to assess the impacts in terms of species composition and ecosystem functioning. This was addressed in the Botany and Dune Ecology Assessment (Appendix E11 of the Revised Draft EIR).

Comment 44:

2.9 Impacts on Marine Ecology:

2.9.1 Duynefontein

- 2.9.1.1 Four sources of impact on the marine environment were identified: the construction of the cooling water intake and outfall systems; the entrainment and death of organisms associated with the intake of cooling water; the release of water from the plant (which includes warm water used for cooling purposes, desalination effluent and treated sewage water); and pollution of the marine environment by the discharge of groundwater polluted by organic, bacterial or hydrocarbon compounds.
- 2.9.1.2 Significant impacts on the marine environment (of medium significance) will occur during the construction phase of the development. These impacts relate mainly to destruction of habitat and the offshore discard of spoil material. However, there are indirect impacts associated with the operational phase of the NPS as a result of the release of water during operations.
- 2.9.1.3 In addition to the above, entrainment and death of organisms are associated with the intake of cooling water. The EIR however reports that these effects will be minimised by continuous use of low-level chlorination of the uptake water, the use of screens, and a slow uptake rate of water into the pipe. As such, the impacts on the marine environment are considered low based on the findings of the specialist study. A number of mitigation measures are however recommended by the specialist in order to minimise negative impacts.
- 2.9.1.4 From the findings of the specialist study, it was concluded that the release of warm water used for cooling purposes would not significantly affect the marine environment as no important commercial species exclusively utilise the waters around the site for breeding purposes or as juvenile habitat. The impacts on the general marine environment are considered as low as the distribution range of species found near the site extend far beyond the boundaries of the site, therefore impacts would be localised.
- 2.9.1.5 The pollution of groundwater during the operational phase of the proposed development is unlikely at the site due to the systems in place for operating the cooling system of the plant.

Response 44:

Your comments are noted.

Comment 45:

2.9.2 Bantamsklip:

2.9.2.1 The proposed site for Bantamsklip is situated within a habitat that is unique not only to this continent but to the whole world's ecosystems. This marine environment hosts unique species such as the Great White shark; the endangered African Penguin, abalone, various dolphin species (including the rare Humpback dolphin) an array of seabirds and the Cape Fur seal. The Southern Right whale also depends on this coastline every year from July to December when they come to mate and calve.

2.9.2.2 Other impacts of the proposed development on the marine environment include:

- Entrainment and death of fish and plankton in water due to change in water temperatures and pollution from construction work;
- Death of local fauna as a result of construction work, spoil dumping, etc.;
- Release of heated water and/or brine from desalination plants;
- Changes in current patterns due to breakwaters, etc.;
- Destruction of habitat (e.g. hard substrata where only beach existed before);
- Access control, leading to less angling and disturbance (conservation areas);
- Entrainment of marine organisms in cooling water; and
- Pumping and chlorination of cooling water may result in high mortality of, amongst others, phytoplankton and zooplankton in pumped water.

Response 45:

Your comments are noted.

Comment 46:

2.10 Climate change and extreme events:

2.10.1 Duynefontein:

2.10.1.1 Oceanographic impacts related to the construction phase are considered to be of low significance.

2.10.1.2 Meteo-tsunami events might cause a minimal impact on the proposed development, though the worst-case scenario of a tsunami event occurring at the same time as extreme meteorological conditions may pose significant problems. These factors need to be considered if the facility is to be developed.

2.10.1.3 The effect of increased water levels due to climate change needs to be accounted for. The hydrographic conditions for the proposed Duynefontein site were assessed and show that there is a risk of flooding within the lifetime of the planned nuclear installation and that needs to be taken into consideration.

2.10.1.4 Changes to the climate may occur within the design life of the proposed activity; consideration of the possible impacts of climate change needs to be accounted for. The climate change parameters that need to be taken cognisance of are: sea level rise, changes in sea temperature, wind speed, wave height and storm surge events.

2.10.2 Bantamsklip:

2.10.2.1 A decrease in rainfall and an increase in temperature associated with climate change will stress the artificially vegetated dune systems at Bantamsklip, increasing the likelihood of blowouts to form.

2.10.2.2 Coastline retreat may also cause stable dune systems to become mobile.

2.10.2.3 Both the above factors may impact the proposed development and the associated transmission lines. The extent of the impacts will depend on the layout of the site.

Response 46:

Your comments are noted.

Comprehensive studies on potential sea level rise have been undertaken for all three alternative sites (See Appendix E16 of the Revised Draft EIR). The risks of meteo-tsunami events, sea level rise, changes in the mobility of dune systems due to changes in rainfall, etc. will be taken into account in the design of the power station and its associated infrastructure. Mitigation measures for the worst-case scenario of a tsunami event occurring at the same time as extreme meteorological conditions (a meteo-tsunami event) will be incorporated into the design of the power station and included in the safety case, which will require approval from the NNR. Such measures relate especially to the height of the power station above sea level and to measures such as the height of backup power supply systems above sea level, to prevent inundation of such systems in the event of a tsunami.

Appendix E9 of the Revised Draft EIR models the expected position of the 1:100 year floodline, based on predictions of sea level rise. The proposed position of the power station and its height above sea level are informed by the findings of this study. Please also refer to Appendix E33 for the Beyond Design Accidents Report for further information.

Comment 47:

2.11 General Coastal Impacts:

2.11.1 Environmental Implications in terms of the ICM Act:

Although possible stabilization of the mobile dune systems were assessed in the Dune Geomorphology Assessment and the impacts were found to be of low significance for Duynefontein and low to moderate for Bantamsklip, the provisions of section 15 of the ICM Act were not taken into account. Section 15 (2) of the ICM Act states: *“No person may construct, maintain or extend any structure, or take other measures on coastal public property to prevent or promote erosion or accretion of the seashore except as provided for in this Act.”* In terms of Section 16 of the ICM Act, the dune system could form part of the coastal protection zone and as such must *“be managed, regulated or restricted in order to –*

- (a) *protect the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property;*
- (b) *avoid increasing the effect or severity of natural hazards in the coastal zone;*
- (c) *protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise;*
- (d) *maintain the natural functioning of the littoral active zone;*
- (e) *maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment”.*

2.11.2 Mitigation measures for the worst-case scenario of a tsunami event occurring at the same time as extreme meteorological conditions must be incorporated into the design of the facility.

2.11.3 It is unfortunate that the position of associated infrastructure such as transmission lines and high voltage yards have not been discussed in the assessment of these two sites is seen as a fatal flaw of the study. The nuclear power station cannot be developed without this associated infrastructure, therefore the assessment of the cumulative impacts of the nuclear power station with its associated infrastructure is seen as integral to the overall assessments of these two sites. The following must be addressed: the impact of the associated infrastructure on dunes (including the ecological integrity of the systems), associated fauna and flora (especially at Bantamsklip) and any wetlands that may be disturbed or destroyed.

Response 47:

Your comments regarding the implications of the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) [NEM: ICMA] are noted.

As with many different forms of development, construction of Nuclear-1 will be dependent on authorisations by 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. Authorisation in terms of the NEM: ICMA for construction within the coastal zone is one of those that will need to be obtained.

The positions of the HV yards on the sites is indicated in the Revised Draft EIR. See, for example, Figures 5-7 to 5-9 in the Revised Draft EIR. Conceptual positions of the HV yards are shown in these figures for all three alternative sites. The functional scope of the Nuclear-1 EIA excludes the transmission lines, and these are dealt with in the respective transmission line EIA processes. With respect to the cumulative impact of the transmission lines and the power station, please refer to Response 7.

Mitigation measures for the worst-case scenario of a tsunami event occurring at the same time as extreme meteorological conditions will be incorporated into the design of the power station and included in the Nuclear safety case, which will require the approval of the NNR. Such measures relate to the height of the power station above sea level and to measures such as the height of backup power supply systems above sea level, to prevent inundation of such systems in the event of a tsunami.

Comment 48:

2.11.4 Duynefontein:

Based on the Botany and Dune Ecology Impact Assessment, the current design of the proposed nuclear power station is undesirable as many sensitive features associated with the dune systems will be lost, therefore the development should be limited to the previously artificially stabilised dunes and disturbed areas. Redesign of the development layout should be considered.

Response 48:

Please refer to the least sensitive area (recommended position of the power station) on the maps contained at the end of Chapter 9 of the Revised Draft EIR. These maps show that the recommended position of the power station is to the east of the transverse dune system.

Comment 49:

2.11.3 Bantamsklip:

Development of a nuclear power station at Bantamsklip could be the initiation of a total ecological transformation of this highly sensitive marine environment. The impacts explored in the discussion above are just a few of the possible impacts and their cumulative impacts over time could be very devastating. The site is very sensitive and holds species that are endangered due to unsustainable human activities.

The construction of a nuclear plant in Bantamsklip will have negative impacts towards the sustainability of the marine ecological corridors and ecosystems in

the area. The ecosystem services derived from the environment will also be disturbed and this could lead to job losses and hamper efforts to alleviate poverty. The cumulative impacts of having a nuclear power plant in this area could also be detrimental for the coastal environment and surrounding wetlands.

Further ecological degradation of this site is not favorable or supported and a nuclear power plant will further transform the area. In addition, this site has been earmarked for consideration as a UNESCO World Heritage site because of its centers of biodiversity and marine endemism.

Response 49:

Your comments are noted.

It is an opinion expressed by the heritage specialist that the Thyspunt site may qualify for listing as a World Heritage Site. Whilst this is a noteworthy conclusion, the site currently has no World Heritage Status and it would need to be nominated by South Africa and accepted by UNESCO prior to such status being applied under South Africa's World Heritage Convention Act, 1999 (Act No. 49 of 1999). Only one nomination can be made per year per country. It cannot be deduced that the expression of the heritage specialist's opinion in this regard necessarily implies that UNESCO would share the opinion that the Thyspunt site is of universal value to humankind.

Comment 50:

3. Heritage:

- 3.1 Based on the Heritage Impact Assessment ("HIA"), dated October 2010 all three sites have exceptional heritage qualities. In terms of the Duynefontein site, despite the high paleontological sensitivity, the site is described as the least contentious of the three sites since the Late Stone Age heritage that will be impacted by the proposed development is substantially less than that of Bantamsklip and Thyspunt. Each site has its own merit in terms of what the site possesses in terms of heritage resources. To minimize the impacts of the proposed power station on the sensitive paleontological sites, a number of mitigation measures that will inevitably result in the loss and disturbance of sites will occur.
- 3.2 As for Bantamsklip, the key concern is the impact that the footprint of the power station will have on the Late Stone Age archaeological sites identified. The heritage resources within 300 to 400m of the coast are substantial. Although the HIA recommends that a 300m wide buffer zone between the coast and the proposed facility be established, the proposed development poses significant impacts on these sensitive heritage sites since extensive engineering will be undertaken to establish the associated infrastructure that will directly impact on this area, which includes cooling water intake tunnels and cooling water outlet tunnels. In addition, the owner control boundary (required to be placed between the proposed nuclear buildings and the coast) will be 200m between the high water mark and the power station. The HIA further prescribes a number of mitigation measures that require extensive archaeological investigation during the pre-construction, construction and post construction phases of the proposed development, which will be difficult to succeed. This Department does not support development on the Bantamsklip site in light of the high degree of impacts of the proposed development.
- 3.3 Of concern is the fact that the HIA indicates that since layouts were not available, the entire associated infrastructure that will be required was not considered during the assessment at the Bantamsklip site. As such, further assessments will be required once the final layout becomes available. The assessment is therefore inconclusive.
- 3.4 The HIA states that on all three sites, the no-go alternative is undesirable. Further, it indicates: "*Thus, in the medium to long term heritage impacts could be expected depending on the future land use. Eskom has indicated that land will be sold if it cannot be used for the power station development.*" Alternatives must be measured against the baseline of the no-go option, which must be assessed to the same level and detail as the other alternatives. Possible future land uses should therefore not be used as a measure to indicate why the no-go option is not feasible. For the Duynefontein site, much of the land to be developed for the proposed power station will result in the loss of land currently used as the Koeberg Nuclear

Power Station Private Nature Reserve. As for Bantamsklip, the site is situated between two nature reserves and the coastal portion, which does not belong to Eskom. As such, the no-go option therefore does not reflect possible future use.

Response 50:

Your comments are noted.

As indicated in Section 3.11.1 of the Revised Draft EIR, the following method will be used for construction of the intake tunnels. *“The construction of the intake tunnel(s) will involve sinking of a shaft on land to a depth of approximately 65m below mean sea level. At this point the tunnel will be driven seawards underneath the seabed. The tunnels will be lined with precast or in-situ poured concrete. At the other end of the tunnel, a tower extending approximately 5 m to 10 m above the sea bed floor will be constructed to connect the intake structure and the tunnel.”* Therefore, the intake pipelines will not have an impact on heritage resources along the coastline. The outlet pipelines, however, will require trenching and depending on their positioning, will have an impact on heritage resources that will need to be mitigated.

Although detailed layouts were not available, the EIA process has defined what is regarded as an environmentally acceptable position for the power station (an area that excludes the highly sensitive areas defined by the specialists). A strip with a width of at least 200 m from the coastline, where the heritage sites are particularly rich, will be kept free of development at all three of the alternative sites.

As indicated in Response 32, Eskom owns 45% of the land at Bantamsklip and intends to acquire another 2610 ha as a buffer zone. The coastal properties east and west of the current Eskom property are state land and are managed by CapeNature but they have no official conservation status (i.e. they are not proclaimed nature reserves). It is not correct to state that further assessment will be required for associated infrastructure. The transmission lines beyond the HV Yard are the subject of separate transmission line EIA processes and are, therefore assessed. However, as is the case with many large infrastructure projects, authorities require that “walk-down” assessments are undertaken after environmental authorisation to optimise the placement of infrastructure and to inform detailed design.

Comment 51:

3.5 Visual Impacts:

- 3.5.1 The Visual Impact Assessment, dated August 2010 indicates that Eskom intends building new nuclear power stations on all three sites. As such, this must be amended accordingly.
- 3.5.2 The visual impacts associated with the proposed development have been evaluated as high for all of the sites concerned. In addition, the sense of place will be permanently altered at all the locations. As such, appropriate siting of the power station is required. Despite any recommendations for specific mitigation to reduce the visual impacts associated with the proposed development, the facility will be visible irrespective and change will be permanent.
- 3.5.3 The VIA does not provide adequate details with respect to screening methods considered.

Response 51:

Thank you for your comment regarding the statement in the Visual Impact Assessment that Eskom intends developing all three sites. This will be corrected.

Your comment regarding the permanence of the visual impacts is noted. This is one of the reasons why the impacts have been assessed to be of medium significance without mitigation. None of the impacts are assessed to be of high significance prior to mitigation.

Visual screening methods can be specified in greater detail once the visual appearance of the nuclear power station is known. The Visual Impact Assessment (Appendix E19 of the Revised Draft EIR)

recommends that a Landscape Architect should be appointed to the design team to make recommendations on the visual integration of the project on a detailed level during design and construction, especially for the design of the spoil dumps and roads.

Comment 52:

4. Social Impacts

4.1 Duynfontein Site:

- 4.1.1 Although the EIR indicates that the accommodation requirements for the Duynfontein site can be provided for by the greater Cape Town rather than having to construct new residential developments, details must be provided as to where Eskom proposes to house the construction workers. The draft EIR provides no indication of where construction workers will be accommodated. This information is essential since the proposed power station will have a considerable effect on municipal and social infrastructure.
- 4.1.2 Further, it is noted that in the Department's previous comment on the draft EIR, dated 14 May 2010, clarity was requested regarding the potential benefits associated with constructing a construction staff village in Atlantis. This information was however not provided in the revised EIR.
- 4.1.3 Whilst the Social Impact Study indicates that approximately 25% of the construction jobs will be afforded to local labour force, the SIA and the EIAR do not provide details as to what local labour force (i.e. what percentage of the labour force will be sourced from the surrounding towns of Atlantis) will be considered and what types of labour skills (i.e. how many low skill, semi-skilled and highly-skilled jobs will be afforded to the local labour force identified) will be required.
- 4.1.4 The SIA concluded that the proposed development poses a significant degree of impact on all three sites. With respect to the Duynfontein site, the SIA indicates that the area around Duynfontein may find it easier to accommodate large numbers of staff and construction workers than the other two sites due to the developed nature of the area. Mitigation measures are however recommended by the specialist for implementation in order to ensure that the area can cope with the large numbers of people flowing into the area. The mitigation measures provided in the SIA place a large amount of strain on the local municipality to ensure the transport.
- 4.1.5 Since the safety of nuclear sites are one of the major perceptions and fears identified by various people who reside in areas in close proximity to three sites identified, it is interesting to note that the exclusion zone Eskom have applied is lower than the existing Koeberg Nuclear Power Station.
- 4.1.6 There is an overwhelming focus on the impacts of construction workers on the receiving social environments. While this is a significant impact, the SIA does not include detailed information on the combined risk of a power station at the Duynfontein site and the existing Koeberg Nuclear Power Station.

Response 52:

- 4.1.1 A decision on the location of staff villages or similar accommodation will only be made once certainty has been obtained on the preferred location of the power station. It has been stated in the Revised 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 residential development that would require its own EIA process.

- 4.1.2 As indicated in the above response, no decision has been taken on the locality of staff accommodation as it will be dependent on the authorisation of the power station. It would therefore be premature to discuss the benefits of locating the staff village in a specific location such as Atlantis.
- 4.1.3 As indicated in the above responses, the location of the power station is not known. The proportions of labour of various categories sourced from the surrounding areas would differ substantially from site to site. In a large urban area like Cape Town it is likely that a larger proportion of skilled labour would be sourced locally than is the case at the other more remote sites.
- 4.1.4 It is customary for the contractor to provide transport for construction workers for a large construction project such as this. The Traffic Impact Assessment (Appendix E25 of the Revised Draft EIR version 2) recommends that construction workers should be transported to and from the site by contracted buses and minibus taxis. With regards to operational phase the staff complement is approximately 2000 people. Section 4.4.1 of the Traffic Impact Assessment indicates that the existing modal split for Koeberg is currently approximately 70% private transport and 30% public transport. If the same modal split is assumed for Nuclear-1, then approximately 420 Nuclear-1 operational phase employees would be dependent on public transport. However, public transport includes not only municipal bus services but also minibus taxis. The Traffic Impact Assessment comes to the conclusions that the number of public transport trips that will be generated by the proposed Nuclear-1 site at Duynefontein can be accommodated by the current public transport system, as well as the proposed IRT system that will start operating in 2013.
- 4.1.5 The reduction of the Emergency Planning Zones for the proposed Nuclear-1 power station is due to the use of newer and inherently safer technology (a Generation III plant) than was the case with Koeberg Nuclear Power Station. If anything, the use of safer technology with lower risks should allay fears regarding nuclear safety.
- 4.1.6 It is unclear what form of risk your comment refers to. It is assumed that you are referring to the safety risk of a nuclear leakage incident. As stated above, the proposed Nuclear-1 power station would be a Generation III nuclear power station, with inherently reduced risks of a nuclear incident compared to the Koeberg Nuclear Power Station. Proximity of nuclear power stations to each other does not necessarily result in an increase in the risk of a nuclear incident. The Fukushima incident illustrates this: There are two nuclear power stations situated within 11 km of each other: Fukushima Daiichi (Fukushima 1) and Fukushima Daini (Fukushima 2). In spite of the meltdown at Fukushima Daiichi, the Fukushima Daini plant reached safe cold shutdown, although it was exposed to similar conditions as at Fukushima Daiichi. Even on the Fukushima Daiichi site the accident progression in each of the reactors was independent of each other. Nuclear power stations are designed with full safety independence such that an incident on one unit does not affect another unit's operation or safety systems. Please refer to Appendix E33 for further information.

Comment 53:

4.2 Bantamsklip Site:

- 4.2.1 With reference to the Bantamsklip site, the proposed development poses a range of social impacts for this area. As discussed in point 1.8 above, the required construction village poses an enormous pressure on the social resources to the region. New residential nodes will thus be introduced into an area that is primarily associated with tourism, recreational and coastal activities. Additional infrastructure will also be required to service the needs of the new staff village.
- 4.2.2 The EIR fails to provide any indication of the proximity of the proposed construction village. Since the locality of the power station is known, the EIR should indicate any potential sites which have been identified as suitable based on the practicality (having construction workers within travelling distances to the proposed site), locality within the urban edge and environmental baseline.

4.2.3 Since the Bantamsklip site is currently undeveloped and located between two nature reserves, the sense of place will be negatively impacted on by the proposed development during both the construction and operational phases of the proposed development. As such, this Department does not support the proposed development at the Bantamsklip site.

Response 53:

4.2.1 Your comment is noted.

4.2.2 As indicated above, no decision has been taken on the location of staff villages. Such a decision will only be made once certainty has been obtained on the location of the power station. It has been stated in the Revised 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 residential development that would require its own EIA process.

4.2.3 Your comment is noted.

Comment 54:

5. Economic Impacts:

The costs associated with the road infrastructure required for the proposed development is an additional cost that was not included in the Economic Impact Assessment, dated September 2010. The Economic Impact Assessment comparatively assessed the three sites considered however indicates "*...for the proposed construction of nuclear power stations and associated infrastructure on three sites in the Eastern and Western Cape provinces.*" This must however be amended to state that three sites have been identified for consideration for the proposed construction of a nuclear power station and associated infrastructure.

Response 54:

Your statement that the cost of roads infrastructure was not included in the Economic Impact Assessment is incorrect. No significant upgrades of the long-distance roads infrastructure are required. However, distances for road transport of extra heavy loads to the sites vary considerably due to terrain. This is summarised in Table 3.4 of the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). Distances to the Bantamsklip site are considerably longer, as Sir Lowry's Pass cannot be used for the transport of extra heavy loads, and an inland route therefore has to be followed to Bantamsklip. The distances from the harbour to the site for the Bantamsklip, Duynefontein and Thyspunt sites respectively are 550 km, 45 km and 120 km. This results in the following difference in transport costs for the three sites (from Table 3.4 of the Economic Impact Assessment):

Site	Bantamsklip	Thyspunt	Duynefontein
Total transport cost (R million, 2008 prices)	2065.38	1635.63	1662.2

Estimated capital costs for local access roads to the sites are provided in Table 3.11 of the Economic Impact Assessment.

Comment 55:

5.1. Economic impacts on Duynefontein:

5.1.1 Based on the economic climate associated with the Duynefontein site, it is clear that the consequences of serious events at a nuclear power station pose high negative impacts on the economy of the Cape Metropole and nearby towns. This risk would be increased given the fact that the proposed nuclear power station will be placed adjacent to the existing Koeberg nuclear power station. The economic costs associated with managing both Koeberg and the proposed new site will have high negative impacts on the economy.

In terms of infrastructure costs associated with the proposed development, the costs associated with the removal of sand as well as the bedrock would therefore be much higher than the preferred sites with the exception of Duynefontein where the amount of bedrock and the costs associated with the removal of bedrock at the Duynefontein site is higher. As such, it is thus clear that the alternative sites at both the Bantamsklip and Duynefontein sites are not feasible in this regard.

Response 55:

Your comment is noted. Please provide substantiation for your comment that removal of sand and excavation of bedrock is not feasible. According to the Economic Impact Assessment the costs of sand and bedrock removal vary from R 124 million to R 201 million and R 56.7 million to R 102.6 million respectively (in 2008 prices). The cost of such removal is a necessary expense for the construction of nuclear power station foundations and forms a relatively small proportion of the overall capital costs.

Comment 56:

5.1.2 Traffic:

Based on the Traffic Impact Assessment, dated March 2011 the number of heavy vehicles transporting low level and intermediate waste is not anticipated to increase substantially the number currently transported from KNPS.

In terms of air and maritime impacts associated with the proposed development, the Traffic Impact Assessment indicates that since the Nuclear-1 will fall within the same safety zone as Koeberg, the impacts on sea vessel routes are thus addressed in the Site Safety Report (Eskom, 2006) in place for the KNP. This report was however not included in the EIR.

Response 56:

The Site Safety Report for Koeberg Nuclear Power Station does not form a part of this EIA process as the EIA is focused on the prediction of impacts for Nuclear-1.

Comment 57:

5.1.3 Tourism:

The Tourism Impact Assessment ("TIA") dated February 2010 concluded that the proposed nuclear power station at the Duynefontein site does not pose any significant impacts on the tourism industry since the industry continues to grow despite the presence of the KNPS. The proposed power station will transform the sense of place permanently by an additional power station in the area despite the sense of place that has already been altered by the Koeberg power station as indicated in the EIR. The addition of a nuclear power station north of the Koeberg power station in an area identified as a growth node poses a number of potential long term impacts on future land uses surrounding the facility (including tourism facilities).

Response 57:

As indicated in the above responses, the proposed Emergency Planning Zones (EPZs) for the Nuclear-1 power station are smaller than for the existing Koeberg Nuclear Power Station, based on the fact that Nuclear-1 will be a Generation III power station. Therefore, the imposition of the Nuclear-1 EPZ will add no additional spatial restrictions to development.

With respect to the change in the sense of place, as you have rightly mentioned, the sense of place is already transformed by the presence of a nuclear power station. Arguably the majority of the residents of the surrounding areas accept the presence of the power station as a part of the visual environment, as it has been a feature of the environment for more than 30 years. The land use of the site will not change by the construction of an additional power station, although the visual appearance of the site will change.

Comment 58:

5.1.4 Agriculture:

As illustrated in the Agricultural Impact Report ("AIR"), the proposed nuclear power station will have low impacts on agricultural production on all three sites. The agricultural sector will primarily be impacted upon by other economic related impacts as well as traffic and dust impacts generated during the construction phase. However, the indirect impacts associated with the proposed development must be considered in this regard, particularly at the Bantamsklip site, which is experiencing an increase in wine farms, which not only benefits the local agricultural growth, but increases tourism in the area.

Response 58:

Your comment is noted. Experience with Koeberg Nuclear Power Station (KNPS) has shown that the presence of a nuclear power station is not necessarily an impediment to the development of agriculture. There are, for instance, organic wine farms within sight of the KNPS. However, the potential secondary economic impacts of the development of a nuclear power station on economic activities such as tourism, agriculture and aquaculture have been assessed in the Economic Impact Assessment (Appendix E17 of the revised Draft EIR). With respect to economic impacts on agriculture please refer to Section 3.2.1.3.8 and Table 3.21 of the Economic Impact Assessment.

Comment 59:

5.2 Economic impacts on Bantamsklip:

5.2.1 The Bantamsklip economy is mainly comprised of the commercial fishing industry (due to pelagic fishing industry in Gansbaai) and tourism (shark cage diving and whale watching). The natural asset of Bantamsklip is therefore the key economic driver of the economy and it provides employment. As such, these natural assets must be managed effectively to ensure that further positive growth is achieved. Whilst it is recognized that the construction phase of the proposed development offers employment opportunities for local low-skilled unemployed persons, the Economic Impact Assessment fails to provide information on the number of low-skilled, semi-skilled and skilled job opportunities that will be afforded to local people in the region (specific towns).

In terms of the fishing industry, the Economic Impact Assessment indicates that the fishing industry in the Koeberg area has continued successfully, therefore the potential impacts of a nuclear power station at the Bantamsklip site is not considered to have a negative impact on the fishing industry in the region. This comparison is inappropriate since the Koeberg area and the Bantamsklip are differ substantially in this regard based on the fact that the fishing industry is informal and small-scale as opposed to the Gansbaai pelagic fishing industry which hosts the only pelagic factory situated between Mossel Bay and Hout Bay.

The proposed development poses a number of impacts on the non-commercial fishing industry due to the potential 1km exclusion zone. In addition, if the proposed 1km exclusion zone is not granted by the NNR, the current exclusion zone as in place at Koeberg, which is 5 km potentially becomes applicable, which will impact on this industry. Further, the required safety exclusion zone required in terms of the Sea Shore Act will also pose potential negative impacts in this regard.

Abalone farming is an additional industry that also contributes to the local economy. As such, the Economic Impact Assessment indicates that the proposed development may have positive impacts on this industry by providing a reliable power supply. However, this is based on the assumption that the current economic status of this industry is based on the unavailability of power supply. The costs and benefits associated with the proposed development therefore become essential. In the context of the economy of the Bantamsklip site, this Department does not support the proposed development since the costs to the economic, ecological and social environments outweigh the potential benefits associated with the proposed development.

Response 59:

Your comments are noted.

It would not be possible to provide an assessment of the number of unskilled, semi-skilled and skilled job opportunities afforded to specific towns within the region without conducting a detailed skills assessment of the entire population. This is outside the scope of an EIA process and would be more appropriate at the commencement of construction. Even with such a skills assessment, it would not necessarily provide an accurate estimate of the number of people who live in the local area that would find employment with this project. People from around the country have freedom to move to where economic opportunities present themselves and it may well be that there is significant migration of skills to a particular site occur during the construction and operational phases of the development. This migration would differ from site to site. In a large urban area like Cape Town, where there is an abundance of skills, such in-migration would conceivably be less than would be the case for a site like Bantamsklip, where skills for a nuclear power station would be more limited.

The statement in the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR) regarding the impact on the fishing industry is based on the findings of the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) and the monitoring that the marine assessment specialist team has conducted at the KNPS for many years. This monitoring indicates that the level of radioactivity in the marine environment due to the presence of the KNPS is very low. In this regard, please refer to the following quotation from Section 3.1.5 of the Marine Ecology Assessment:

“The levels detected at the KNPS have been below the levels at which further investigations or compulsory reporting to the NNR is required (Alard 2005). Importantly, due to radionuclides having been recorded in very few individual organisms at KNPS, the low concentrations at which they have been recorded and the fact that compounds at equivalent levels of radioactivity have previously been recorded in these species under natural conditions, these findings are not considered indicative of any significant effect resulting from the power station on the surrounding marine environment (Griffiths and Robinson 2005).”

The statement in the Economic Impact Assessment is furthermore based on oceanographic modelling, which has been referred to in the Marine Ecology Assessment. This modelling indicates that the area where increased temperature would be experienced would be very limited in extent. Lastly, the impact on the pelagic fishery would be dependent on the point at which warmed cooling water is released. The conclusion in Section 3.2.3 of the Marine Ecology Assessment in this regard is that *“Pelagic fisheries will not be affected by the release of warmed water, as they are focused further offshore than the outfall plume will reach.”*

The current seaward exclusion zone at Koeberg Nuclear Power Station (KNPS) extends 2km from the shoreline. There is no 5 km marine exclusion zone at the KNPS. A 5 km Emergency Planning Zone is applicable only to landside evacuation planning. Eskom has stated its intention to apply for a 1km marine exclusion zone for Nuclear-1.

Your comments regarding the abalone industry are noted. The Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) provides an assessment of the potential impacts on abalone. This assessment focused particularly on abalone at Bantamsklip because of the precarious state of this

species. Abalone stocks are currently severely depleted due to poaching. This assessment comes to the conclusion that the marine exclusion zone provides a benefit to abalone in terms of improved protection from poachers, provided that the marine exclusion zone is effectively policed.

Comment 60:

5.2.2 Traffic:

As indicated in the Economic Impact Assessment, the Bantamsklip site will have a significant impact on the existing transport network. As such, extensive transport upgrades will be required for the public transport system, road upgrades to accommodate heavy vehicles, and the required evacuation routes.

With respect to the emergency planning, the Traffic Impact Assessment stipulates that a detailed Emergency Plan, which includes a Transport Model and an Evacuation Management Plan will be compiled to enable testing of the different scenarios. As such, the full extent of the suitability of the Bantamsklip site is inconclusive at this point from a traffic and emergency planning perspective.

Further work required includes the promulgation of new restricted/prohibited areas in light of the number of air strips located within a 60 km radius of the Bantamsklip site. In addition, a safety exclusion zone will be required in terms of the Sea Shore Act in order to establish a nuclear facility at Bantamsklip. This poses further economic implications and delays in terms of construction in this regard.

Response 60:

The development of an evacuation management plan is required by licensing process for the National Nuclear Regulator and as such falls outside the scope of this EIA process.

The marine exclusion zone that will be applied for Nuclear-1 is 11km offshore as indicated in Response 59 above. In view of the fishing industry around Bantamsklip being pelagic, and the conclusions of the Marine Ecology Assessment that the pelagic fishery occurs further offshore than the direct zone of impact close to the proposed power station, it is unclear how the this industry would be significantly impacted. It is also unclear how the imposition of a marine safety exclusion zone would result in delays in construction. The authorisation is only the 1st of potentially more than 30 different authorisations that Eskom would require for the construction of a nuclear power station. It is likely that at least another three years will elapse before construction can commence. That would be sufficient time for all the other necessary authorisations to be obtained.

Comment 61:

5.2.3 Tourism:

The TIA indicates that the proposed development has a number of positive benefits to the tourism industry based on the investment of road infrastructure upgrades, which include providing suitable access for people travelling between the Cape Metropole and the Cape Agulhas area. The current road infrastructure is however suited to the current development in the area. Whilst road infrastructure will be required for the proposed development at the Bantamsklip site since the infrastructure is unable to accommodate heavy vehicles, road transport is the only means of transporting the required infrastructure to the area since there are no barging facilities. In addition, the construction phase of the proposed nuclear facility is expected to last approximately nine years. As such, this poses a significant impact on the current tourism sector in the region.

Response 61:

Your comment is noted. The Tourism Impact Assessment [TIA] (Appendix E22 of the Revised Draft EIR) considers all forms of tourism, which include not only nature-based tourism. Although nature-based tourism may be negatively impacted by the increase in traffic during the construction phase, the TIA considers all forms of tourism, including business tourism associated with the proposed power station. This assessment is based not only on the increase in business-based tourism associated with the KNPS, but also on current power station construction projects such as Medupi in Limpopo Province, where a similarly relatively isolated area has benefitted from a huge increase in business-related travellers.

Comment 62:

6. Nuclear Safety:

- 6.1 An analysis of the key environmental impacts and nuclear safety measures per reactor design is required, such as the available options for back-up power generation in case of possible power failures and other incidents that would result in the release of dangerous levels of radiation.
- 6.2 The data provided with regard to the number of inhabitants in the Bantamsklip area must consider that these numbers increase significantly during holiday periods. This increase in population must be factored into Emergency Response Planning for this alternative.

Response 62:

The Nuclear-1 EIA is based on a worst-case scenario “basket” of inputs and outputs from a nuclear power station conforming to a Generation III design, which includes consideration of a number of commercially available Generation III designs available on the market. This basket is summarised in the Consistent Dataset (Appendix C of the Revised Draft EIR).. All Generation III designs that are being considered have multiple independent power supplies (diesel generator supplied) and Eskom has indicated that it will be installing a gas turbine plant to provide a further backup electrical supply. These alternative power systems will be shown to meet the NNR public safety requirement.

However, as pointed out previously in this letter, the consideration of specific safety designs for a nuclear power station are outside the ambit of the EIA process and are subject to the nuclear licensing process managed by the NNR.

Your comment regarding the variable population during holiday periods is noted and will be considered in the NNR’s nuclear licensing process.

Comment 63:

6.3 Emergency Response Report:

- 6.3.1 On page 14 the report mentions a minimal need for emergency interventions (e.g., evacuations) beyond 800m from the reactor. However, the Federal Emergency Management Agency (FEMA) website (<http://www.fema.gov/hazard/nuclear/index.shtml>), under the heading ‘Nuclear Power Plant Emergency’, the following paragraph refers to 10 mile (16.09 km) and 50 mile (80.47 km) radii:

“Local and state governments, federal agencies, and the electric utilities have emergency response plans in the event of a nuclear power plant incident. The plans define two “emergency planning zones.” One zone covers an area within a 10-mile radius of the plant, where it is possible that people could be harmed by direct radiation exposure. The second zone covers a broader area, usually up to a 50-mile radius from the plant, where radioactive materials could contaminate water supplies, food crops, and livestock.”

This needs to be explained in greater detail in the EIR.

- 6.3.2 The Emergency Response Report indicates that the emergency planning considerations for the Thyspunt and Bantamsklip sites are acceptable since the EUR approach followed by Eskom for emergency planning suggests the proposed NPS can be built in South Africa without the need for off-site short-term emergency interventions. Further, this Department is of the opinion that the EIA is fatally flawed in this regard since the exclusion zone is not practical and based on the assumption that this approach will be agreed to by the NNR.
- 6.3.3 The Emergency Response Report does not provide adequate information with respect to emergency planning such as the accessibility to the site during an emergency.

Response 63:

The basis for adopting the EUR by Eskom is that the EUR aims at ensuring that the design that is adopted has minimal impact on the man and environment. This has been developed by utilities who will, in any case, have their design studied and endorsed by the relevant regulatory body. If the final design does not conform to the assertions made, the design will not be accepted and might have to be modified accordingly until it conforms to these requirements. Thus, the key emphasis of this requirement is to minimise the impact on man and environment. Eskom has chosen the EUR as this specification is sound and robust. It also allows for alignment with the international nuclear community. The Emergency Plan boundary allows for minimal restrictions around the site, while also providing for safer designs.

Your comment regarding the size of the EUR emergency planning zone is noted. It is an assumption of this EIA process that EUR-based emergency planning zones will be applicable. Should this assumption or any of the other key assumptions prove to be incorrect, then the EIA would be invalid.

Initial indications provided by the NNR are that it is likely that the EPZ will be reduced. 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 ...*".

This is in line with the regulations on licensing of sites for new nuclear installations issued in Government Notice No. R 927 of 2011 under the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

Regulation 5(7)(a) of this Notice states that emergency planning zones must include the following: "*An exclusion zone which is a radius determined for the purposes of evacuating persons in the event of a nuclear accident. Within the boundaries of that zone or within any erven intersecting with that zone there must be no members of the public resident, no uncontrolled recreational activities, no commercial activities, or institutions which are not directly linked to the operation of nuclear installations situated within this zone, or for which an authorization has been not been granted;*"

It is Eskom's understanding that to meet this requirement the operator must own the land involved and that this is fully in line with the EUR requirements. To meet this Eskom will purchase all land within 2 km of the proposed sites, which is consistent with a Generation III design.

Comment 64:

6.4 Management of Radioactive Waste:

- 6.4.1 The measures taken to dispose of low and intermediate level radiological waste (LILWH) and high level radiological waste (HLW) seem to be taken care of in detail. A concern is the fact that there is no permanent storage for the spent fuel yet. Also, as the spent fuel will be dangerous for millennia, there is a concern with securing it, even with permanent storage in place. The option of storage above ground may, as pointed out on page 14 of the section 'Management of Radioactive Waste', result in an undue burden on future generations.

- 6.4.2 The complicated and expensive measures to be established to prevent radioactive leakages in the form of gases, liquids and solids are a concern. An overview of the contamination sources is provided on page 19, under the section 'Generation of Radioactive Waste', and covers the multiple possible sources of radioactive contamination. Is there a way of designing to minimise this? This is especially important when considering the cumulative effects, risks and total cost posed by increasing the numbers of nuclear power stations.

Response 64:

Your comment regarding storage of spent fuel is noted. The Vaalputs nuclear waste disposal site, which is currently only licensing for Low-Level and Intermediate-Level nuclear waste (LLW and ILW), is currently being considered as a repository for high level waste. However, the necessary EIA and other licensing processes for this have not been initiated. In the interim, Eskom will follow the internationally accepted practice of permanent on-site storage of High-Level Waste, following practices that allow for the safe storage of such waste on site.

There are a number of potential sources of radioactive waste, as indicated in the Nuclear Waste Assessment (Appendix E29 of the Revised Draft EIR). All technically feasible waste minimisation practices are applied. However, due to the absolute importance of ensuring safety of nuclear plant personnel, many of the waste generated (e.g. personal protective equipment) are an absolute necessity.

Comment 65:

7. Air Quality:

- 7.1 It is recommended that the vendor specific plant design and reactor model be sourced before finalising the Air Quality Impact and Climatology Assessment (AQICA).
- 7.2 It is further recommended that continuous ambient radiation monitoring be conducted upon commissioning of the proposed nuclear power station to determine if there is a possible increase in radiation over time. The AQICA should provide a plan for the development and roll out of a continuous ambient radiation monitoring network and inform the appropriate location of these monitors.
- 7.3 Clarity is required as to the increase in the annual dose limit for members of the public, should another nuclear facility be operational in the Koeberg area and whether it will have a significant effect.

Response 65:

7.1 The Air Quality Assessment (Appendix E10 of the Revised Draft EIR) is based on emissions information in the Consistent Dataset, which itself is based on commercially available Generation III nuclear power station designs. As such, the current Air Quality Assessment provides sufficient confidence in the predictions of environmental impact.

7.2 Your comment is noted. Radiation monitoring will be undertaken in terms of the requirements of the NNR license. This will include baseline monitoring and on-going monitoring during operation.

7.3 Response by the nuclear waste management specialist:

The public dose limit (1 mSv per annum) is a legal limit applied internationally for the protection of human health from exposure to ionizing radiation. This is regulated in South Africa by Regulation 388 of April 2006. Also included in this Regulation is the concept of a dose constraint. Internationally the dose constraint (not a limit) varies between 0.1 and 0.3 mSv per annum. In South Africa it is 0.25 mSv per annum, although the dose constraint could be changed to a higher constraint as part of negotiations between the operator and NNR, at least in principle. Its application is such that a constraint is imposed on Koeberg of say 0.25, with a constraint of 0.25 for the next NPS, and 0.25 for the next. In this way in principle up to four nuclear power stations in the area can be established, each with a constraint of 0.25, but the limit of all contributors will still be below 1 mSv per annum.

Comment 66:

8. Pollution and Effluent Management:

8.1 The EIA report indicates that liquid, gaseous and solid waste that is regarded as radioactive, will be produced by the reactor during the generation of electricity. The level of radioactivity is dependant on the choice of technology as well as the type and quality of fuel that will be used. It also indicates that controlled discharges will be released into the environment and will not exceed a fraction of the dose limit for public exposure risk, and that Authorised Discharge Quantities (ADQ) have been defined for these waste streams. There is no indication of what these standards are, what the estimated radiation levels will be from each waste stream or whether all these contaminants from the process are addressed by the ADQ. This information must be provided.

However there is no indication of how these releases will be controlled, with regard to what the maximum capacities that can be retained in the system are, before a forced release must occur. The monitoring of these releases must be detailed with regard to what the impact of exceedences of these limits will be on the environment and how it will be managed.

8.2 The report also indicates that waste will be generated that is unsuitable for disposal at Vaalputs and that it will be stored onsite e.g. reactor parts and motors, and that spent fuel types will be stored in fuel pools, until a suitable geological repository becomes available. Does any site with the required geology exist in South Africa? What planning, including financial planning, has been considered in the event that a suitable repository cannot be (sic) found by the end of the operational lifespan of the plant (60 years)?

8.3 What risk does the leakage of radioactive liquid from these pools pose to the environment? The liquid waste that this facility will produce has been quantified as being between 8000m³ and 20 000 m³ per annum (depending on the technology type)? What percentage of the processed water is going to be discharged to the environment and where are the discharge points located for the Bantamsklip site?

8.4 The report states that radioactive steam is treated using the reactor Heat, Ventilation and Air Conditioning System (HVAC) and that the radioactive materials are removed from air through purging, filtration and recirculation and that the remaining air is vented to the atmosphere. The EIR must report on how this process will be monitored to prevent radioactive particles from being released with this air.

Response 66:

8.1 Authorised Discharge Quantities (ADQs) are determined by the NNR. These limits are based on effective total doses to the public from all potential sources of radioactivity and are not defined with reference to specific sources of radioactivity.

Response by the nuclear waste specialist:

The derivation of ADQs is site-specific and operation-specific and takes into consideration all the potential exposure pathways from the point of release to set limits that if the authorized quantities are released. Members of the public will still be protected at levels less than the dose constraint¹ (0.25 mSv per annum). The NNR will approve these quantities for both gaseous and liquid waste, which means that the operation will be allowed to release these quantities on an annual basis without the risk of compromising human health. While the quantities are for annual releases, it is managed on a monthly (or even weekly or daily) basis. Compliance will be monitored at source and at the point of release into the environment. Releases will be managed and controlled through continuous monitoring at source, so the operator will know what has been released to date and what capacity remains available for the year to remain compliant. If higher quantities are released an alarm goes off to stop releases. If the annual quantity is exceeded, then no more releases are allowed. If these quantities are exceeded it will be a non-compliance, but since it is limited to values less than the dose constraint, it does not mean that members of the public will be exposed to values above the dose limit (1 mSv per annum). In reality the ADQ is much lower than the dose constraint.

8.2 No such site has yet been identified in South Africa. It will be one of the responsibilities of the National Radioactive Waste Disposal Institute, established in terms of the National Radioactive Waste

¹ Note that the dose constraint is not a limit.

Disposal Institute Act, 2008 (Act 53 of 2008) to identify such a site. However, given the stable geological conditions in South Africa (being far from any volcanically active areas or seismically active areas), it is feasible that a suitable site could be found in South Africa.

Once a suitable site has been identified, the disposal concept design process will follow. During this process, the characteristics of the waste itself and the site selected for disposal will be taken into consideration to ensure that the engineered and natural barriers in combination provide the necessary containment and isolation required to ensure long-term safety.

The disposal of nuclear waste is the remit of the National Radioactive Waste Disposal Institute (NRWDI), which has been established by the National Radioactive Waste Disposal Institute Act, 2008 (Act No. 53 of 2008). It is the policy of the Department of Energy to establish a central interim spent fuel store (under the auspices of the NRWDI) for South Africa by 2025. Therefore spent fuel would be shipped to this store from the power station.

8.3 The spent fuel pools are designed to have no leakage (they are normally stainless steel lined reinforced concrete design). The processing of liquid waste relates to a number of sources on the plant and will result in concentrated waste that will be disposed of by mixing with concrete for disposal at Vaalputs and water that is within the discharge limits laid down by the NNR. This water will be discharged into the sea through the main CW system only after going through a cleaning process to ensure that no limits are exceeded.

8.4 Please refer to Response 8.1 above with respect to the monitoring of releases. Continuous Particulate Air Monitors (CPAMs) specifically designed for nuclear applications are typically used for monitoring releases from nuclear facilities.

Comment 67:

9. Noise:

The Department agrees with the recommendation made on page 39 paragraph 2, that the noise effect on the farm residences be confirmed by a noise prediction study once quantitative noise data of the actual plant is available. As such, additional noise assessments will be required once the final layout has been finalized.

Response 67:

Your comment is noted.

Comment 68:

10. Shutdown and Maintenance:

Since the reactor will need to be shutdown periodically for routine maintenance, the EIR must provide information pertaining how often this is planned and provide details as to how the radioactive contaminants (water and steam) that are in circulation in the system will be controlled and managed. The amended Environmental Management Plan that will be drafted once the final reactor type has been determined must address the management of these contaminants during the shutdown process.

Response 68:

The safe management of potential sources of radioactivity during shutdown and maintenance will be addressed in detail in the NNR's nuclear licencing process.

Comment 69:

A number of specialist assessments are inconclusive based on the fact that the design of final reactor is unknown, final plant layouts are not available and alternative siting of various associated infrastructure has not been fully assessed. As such, the EIA is deemed as inconclusive. With reference to the Duynefontein site, the EIA failed to comparatively assess the extent of the impacts of the proposed power station in conjunction with the effects of the current KNP. The suitability of the Duynefontein site is thus questioned by this Department, since the potential economic impacts of the

proposed development along with the increased human health risk decreases the suitability of the site substantially. The unsuitability is increased due to the fact that the future expansion of the City of Cape Town Metropole is to the north. As detailed in the comments provided above, the Bantamsklip site is not supported due to botanical sensitivity, heritage concerns, social and economic reasons. As such, it is thus concluded that site alternative 2 and site alternative 3 are both deemed as inappropriate and are therefore not feasible.

Please send two copies of all follow-up documentation regarding this application to the following contact persons as the proposed Western Cape sites fall within two different administrative regions:

This Department reserves the right to revise or withdraw any comments or request further information from you based on any information that might be received.

Response 69:

Your comments are noted. However, as indicated in responses above, this EIA process has followed the approach of many similar large scale infrastructure projects by assessing the footprint of the infrastructure, after which more detailed site-specific "walk-down" assessments will be conducted to determine appropriate detailed positioning of specific forms of infrastructure after authorisation and to inform detailed design. Based on information provided in the specialist assessments, there are a number of sensitive features on all three of the alternative sites. However, no fatal flaws have been identified.

With regards to the impact of Nuclear-1 at the Duynfontein site on the expansion of the Cape Metropole, please refer to our response above in which it is pointed out that the emergency planning zones for Nuclear-1 will be smaller than those for the KNPS. The Nuclear-1 power station would therefore not impose additional spatial restrictions on development.

Follow-up documentation will be provided to the DEA&DP contact persons, as requested.

Yours faithfully

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

For GIBB (Pty) Ltd
Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

The Chairman: Rodney Anderson
Save Bantamsklip

Email: info@savebantamsklip.org

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Mr Anderson and Save Bantamsklip

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

Comment 1:

On behalf of the Save Bantamsklip Campaign, a Non-Profit Organisation representing a range of communities and groupings, we would like to register our final and undiluted opposition to the proposed nuclear power station at Thyspunt, (and/or either of the two alternative sites – Bantamsklip and Duynefontein).

We understand from an article published on page 2 of “The Herald” in Port Elizabeth on Hiroshima Day, 6 August 2011 that an Eskom spokesperson is on record as having said that the Thyspunt Nuclear Power Station will go ahead, regardless of public opinion and recorded opposition. Eskom further stated on the record that “construction would start at Thyspunt next year” (i.e. in 2012) and that there would be two reactors built every two years for another four years.

Statements like these are not only indicative of bad faith in terms of the ongoing process, but also the “roll out” timing suggested is highly unlikely. The choice of date to make such statements was also insensitive.

Response 1:

Your comments and concerns are noted. Although Thyspunt has been identified as the preferred site for the Nuclear-1 Power Station, through the EIA process, GIBB confirms that the final decision in terms of the Environmental Authorisation lies with the Competent Authority; the Department of Environmental Affairs. GIBB as the independent Environmental Impact Assessment Practitioner therefore distances itself from any statements made in the press or otherwise as is referred to above.

Comment 2:

We place on record that the Environmental Impact Assessment (“EIA”) process has been flawed, in a multiplicity of ways. There is also a clear lack of bona fides on the part of both Eskom and Arcus Gibb.

Response 2:

Your comment is noted however it is not clearly understood what is meant by “*There is also a clear lack of bona fides on the part of both Eskom and Arcus Gibb*” and we request that Save Bantamsklip clarify this statement.

Comment 3:

We also place on record that there has been a failure to comply with the necessary legislation, including the National Environmental Management Act, the EIA Regulations published there under, the Promotion of Administrative Justice Act, as well as the Constitution.

Response 3:

Your comments are noted. The Nuclear- EIA report has been peer reviewed by technical and legal specialist in the field of Environmental Impact Assessment in terms of the compliance to legislation and the content of the report. GIBB therefore requests that Save Bantamsklip provide GIBB with a detailed report listing all instances in the Revised Draft EIR (version 1) where there is a failure to meet the requirements of the legislation as suggested above, so that GIBB can review and address if required.

Comment 4:

We therefore heartily endorse the current submissions of our constituent members and those of our colleagues and associates in civil society, namely the Hermanus Ratepayers Association, The Overstrand Conservation Foundation t/a Whale Coast Conservation, The Dyer Island Conservation Trust, The Strandveld Conservation and Tourism Association and the Buffeljags Community, to name a few.

Response 4:

Your endorsement of submissions by the Hermanus Ratepayers Association, The Overstrand Conservation Foundation t/a Whale Coast Conservation, The Dyer Island Conservation Trust, The Strandveld Conservation and Tourism Association and the Buffeljags Community amongst others are noted. Responses to these submissions have been provided.

Comment 5:

We trust that the Minister, the Honourable Ms Edna Molewa, MP, in applying her mind to these and many other submissions from around the country, will reject the EIA report and issue a negative ROD.

Given the circumstances set out above, we hereby reserve our right to take such legal action as we may be advised.

Response 6:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd



Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035/J31314

Your Ref: Email received 18 January 2012

Sustainable Energy and Climate Change Project
P.O. Box 32131
Braamfontein
2107

Email: tristen@earthlife.org.za



Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Tristen Taylor

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

Comment 1:

Re: Supplementary Information regarding the EIA for Nuclear-1 and No-Go Option

Dear Arcus Gibb,

Since the final deadline for submissions to the Nuclear-1 EIA (June 2011), recent official information has come to light regarding the lack of a no-go option as stated in the EIA. Namely, the National Planning Commission, under Minister Manuel, has charted a No-Go Option in its plan (Nov. 2011) and has called for a further rethink of nuclear power. This is vital information for the EIA to consider; in fact, the EIA cannot ignore a no-go option when presented by a government entity, especially one engaged in planning for South Africa's future.

In Chapter Four of the plan, it states (pg. 147):

Re-assess the desirability of nuclear power investments

According to the Integrated Resource Plan, more nuclear energy plants will need to be commissioned from 2023/24. Although nuclear does provide a viable base-load alternative, South Africa needs a thorough investigation on the implications of nuclear energy, including its costs, safety, environmental benefits, localisation and employment opportunities, uranium enrichment, fuel fabrication, and the dangers of weapons proliferation.

South Africa will face major challenges in financing the capital costs of a nuclear fleet. Nuclear plants involve massive, lumpy investments (given that a single unit can now be as large as 1 600 MW). It will also be extremely challenging to build the institutional and skills base for running new-generation nuclear plants. All possible alternatives need to be explored, including the use of shale gas, which could provide reliable base-load and mid-merit power generation through combined cycle gas turbines. Developing nuclear power plants requires long lead times. A maximum of one year remains to agree on a decision-making process for new nuclear investments.

And on page 143:

Explore gas as a viable alternative to coal (and nuclear)

Substituting gas for coal will help cut South Africa's carbon intensity and greenhouse gas emissions.

Possibilities include coal seam methane, shale gas resources in the Karoo basin and imports of liquefied natural gas. Experiments are under way to assess the potential for using methane gas associated with coal deposits. Underground coal gasification technology is also being developed. These resources and technologies could make a significant contribution to South Africa's energy needs, while reducing greenhouse gas emissions and carbon intensity...

A global market has developed for liquefied natural gas imports, the prices of which are increasingly delinked from oil prices. With South Africa needing to diversify its energy mix, liquefied natural gas imports and the associated infrastructure could provide economic and environmentally positive options for power production, gas-to-liquids production (at Mossgas) and use of industrial energy.

Whatever the merits of gas as an energy source may or not be, the National Planning Commission clearly thinks that it is a possible no-go option. **We must, quite clearly add, that we do not support the use of natural gas, fracking or coal seam methane, but rather endorse the renewable energy alternatives as no-go options, as indicated in our submission.** Therefore, the EIA must include this and other no-go options based on renewable energy (as presented in a variety of submissions to Arcus Gibb on Nuclear-1, including but not limited to Earthlife Africa Jhb and Greenpeace Africa's), and, if it doesn't, Arcus Gibb could rightfully be described as not putting all the relevant information before the decision-maker.

Response 1:

Your comment is noted.

The environmental application for Nuclear-1 is for a nuclear power station and the Nuclear-1 EIA process is not a strategic level review of potential power generation alternatives. Strategic review of the power generation alternatives was the function of the IRP.

As with these previous instances of power station EIAs (e.g. those constructed at Mossel Bay and Atlantis, and the Medupi and Kusile coal fired power stations currently under construction), the scope of the Nuclear-1 EIA is restricted to a specific power station on a specific site or sites within a defined geographical area. It cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa's electricity needs. Government has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa's future electricity needs for the next two decades. The conclusion of the IRP 2010 process is that 9,600 MW of nuclear generation must form a part of the mix of generation technologies.

Environmental Impact Assessment, as a project-specific tool of environmental management, is not the appropriate vehicle to consider the broader strategic issues of what resources need to be employed, in what proportions, to provide in South Africa's energy security.

Yours faithfully
for GIBB (Pty) Ltd



The Nuclear-1 EIA Team

05 August 2015



Our Ref: J27035
Your Ref: SQ29
Email received 11 May 2012

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dr K Prochazka
Department of Agriculture, Forestry and Fisheries
Directorate Resources Research, Branch Fisheries
Private Bag X2
ROGGE BAY
8012

Dr Hans Verheye
Department of Environmental Affairs
Oceans and Coasts Research
P.O Box 52126
Victoria & Alfred Waterfront
8000

Email: hverheye@environment.gov.za

Dear Dr K Prochazka and Dr Verheye

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

The above-mentioned document dated April 2011 and received by the Department on 03 May 2011 refers. The Department of Environmental Affairs ("DEA") reference number is: 12/12/20/944.

Arcus GIBB's comments on the Additional considerations by the Director: Resources Research: on the comments of the Scientific Squid Working Group as well as the original comments of the Scientific Squid Working Group which follow below are presented as follows: Comments presented by Dr Prochazka will firstly be discussed followed by the body of Dr Verheye's email and finally comments on the Squid Scientific Working Group's EIA Report.

Comment 1:

Although I find the conclusion of the Squid SWG satisfactory in relation to the likely impact on squid, I have some reservations around the accuracy of the statement made that discharging the brine into the breaker zone will "facilitate mixing". My reservation comes from the experience of the Plettenberg bay desalination plant, where discharge of brine into the breaker zone (or surf-zone) in fact has the opposite effect of entraining the brine in the surf-zone, rather than facilitating mixing. I therefore suggest that Dr Stephen Lamberth is consulted in relation to the accuracy of this statement.

You will note that the Report was supported by Dr Kim Prochazka, Director: Resources Research, (as well as Chief Director, Dr Johann Augustyn) subject to an additional consideration regarding the discharge of brine into the breaker zone, which would reportedly facilitate mixing. Dr Lamberth's response to Dr Prochazka's query is as follows:

"[Dr Prochazka] is entirely correct in that the surf-zone is a retention rather than a dispersal zone. The Water Act marine waste disposal policy recognizes this and requires effluent pipes to extend beyond the surfzone. http://www.dwaf.gov.za/Dir_WQM/docs/marine/MarineWaste. I think the responsibility for marine disposal is (slowly) migrating to DEA and the Coastal Management Act. Retention aside,



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B. Hendricks, M. Mayat, J.M.N. Ras

Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.



an attempt to pump and disperse effluent from the Sedgefield desalination plant through a beach "sump" resulted in elevated salinity levels in the adjacent surfzone. This fluctuated according to weather but persisted when it occurred."

In the Thyspunt case, the brine will be diluted to undetectable levels with the simultaneous release of the cooling water during the operational phase of the proposed "Nuclear 1". It is therefore believed that its discharge will not result in elevated salinity levels and, hence, have no effect on squid.

Response 1:

Thank you for your comment. The Marine Ecology Specialist will be requested to consult with Dr Lambert with regards to the dilution of brine during the construction phase. The proposal at all the alternative sites is for operational phase brine from the desalination plant to be released via the cooling water outlet pipe.

Comment 2:

Two major issues of concern were identified by the Working Group as requiring further investigation; specifically the impacts of the disposal of spoil in the offshore marine environment during construction and the continuous release of warmed cooling water at either a nearshore or offshore location. The first issue involves two components; namely the loss of spawning habitat through smothering of the seafloor by the spoil and impacts of fine sediment particles suspended in the water column (i.e turbidity) on squid spawning behaviour and paralarval survival. Published information suggests that paralarvae will not survive in waters saturated with suspended particulate matter. However, the area that will be affected by the spoil is relatively small and it is uncertain to what extent it will elevate paralarval mortality. This depends upon paralarval transport routes, which are presently not well documented. An Individual Based Modelling (IBM) approach was employed to assess this latter component.

Response 2:

In order to address these concerns the Scientific Squid Working Group undertook IBM, the results of which are presented and discussed in Comment 35 below.

Comment 3:

The SSWG agrees with the independent marine consultants that the impact of the construction of the inflow and outflow systems if of limited spatial extent and can be considered to be negligible in comparison with the overall area available to squid for spawning.

Response 3:

Your comment is noted.

Comment 4:

The SSWG agrees with the conclusion that closure of the safety zone to exploitation reflects a negligible area lost to the squid fishery.

Response 4:

Your comment is noted and reflects the finding of the Nuclear-1 Marine Assessment.

Comment 5:

The squid fishing industry (SASMIA) is advised to collect the required information on spatial distribution of catches, which would enable it to provide a more accurate assessment of the magnitude of the catches that may be impacted by Nuclear 1.

Response 5:

Your comment is noted.

Comment 6:

The squid fishing industry (SASMIA) should enter into dialogue with Eskom and broker a compensation agreement that clearly specifies the criteria on the basis of which the extent of the impact of Nuclear 1 on squid fishing operations is measured. These criteria should include presence-absence of main fishable concentrations in the vicinity of the Thyspunt site, i.e. Aasvogels, Oysters Bay, Seals Bay and Kromme. These concentrations were a constant feature of the squid jig fishery since its inception.

Response 6:

Your comment is noted. Eskom is not in a position to pay ongoing compensation for the loss of access to a resource.

Comment 7:

The SSWG agrees with the conclusion that the abstraction of cooling water and the release of desalination plant effluent are unlikely to impact on the squid resource or the fishery.

Response 7:

Your comment is noted and reflects the finding of the Nuclear-1 Marine Assessment.

Comment 8:

The issues of radiation contamination, release of sewage effluent and the polluted groundwater, while representing potentially major threats to the marine environment, are adequately discussed in the Marine Ecology Report and were not considered further by the SSWG. It should be noted, however, that perceptions to the international squid market should be taken into consideration. The SSWG cannot provide specific advice on this aspect and suggests that this should be researched by the squid industry itself.

Response 8:

Your comment is noted and reflects the finding of the Nuclear-1 Marine Assessment.

Comment 9:

In assessing the impacts of spoil disposal on the squid spawning habitat, the SSWG assumed that the differences between the disposed spoil and the naturally occurring sediments would reflect a permanent loss of spawning habitat. The worst-case scenario (area covered to a depth of more than 0.5 cm of spoil sediment by the disposal of the full volume of spoil) represents an area of 18.1 km². The SSWG considers this to reflect an appreciable (20%) loss of nearshore squid spawning sites in relation to the total number of sites in the core inshore spawning area, recorded between the Tsitsikamma River and Algoa Bay.

Response 9:

Your comment is noted. Please note that the Nuclear-1 assesses a number of alternatives with regards to marine spoil disposal, including near-shore disposal and offshore disposal (beyond the squid spawning grounds). The recommended alternative for the Thyspunt site is disposal at an offshore site, thus avoiding the squid spawning grounds.

Comment 10:

The SSWG considers that the mortality of paralarvae arising from the plume of turbid water resulting from the release of the spoil is negligible. Even in the worst-case scenario of the release of the full volume of spoil, only about 5% of all hatched paralarvae will encounter the plume of turbid water and die. If the disposal of the spoil could be conducted during the winter months when squid spawning is at a minimum, the impacts of this component on squid recruitment will be even further reduced.

Response 10:

Your comment is noted and reflects the finding of the Nuclear-1 Marine Assessment.

Comment 11:

The SSWG considers that the mortality of paralarvae arising from the plume of the warmed cooling water is negligible. Even in the worst-case scenario where water warmed to only 2°C above ambient will result in 100% mortality of paralarvae entering the plume, only about 5% of all hatched paralarvae will be impacted. Even though the warmed cooling water will be a permanent source of paralarval mortality, the low level of this impact can only be considered to be negligible in terms of squid recruitment.

Response 11:

Your comment is noted and reflects the findings of the Nuclear-1 Marine Assessment.

DISRUPTION OF THE MARINE ENVIRONMENT DURING CONSTRUCTION-TEMPORARY

Comment 12:

1.1 Construction of intake and outflow systems- estimated to be of 1-2 year duration

According to information from the independent marine consultants, construction of the outflow system is expected to take 2 years. The intake system will take 4 years but little of this time will disrupt the marine environment as most construction consists of the subterranean tunnelling and onshore work. Exact timing has not been planned; however, according to the independent marine consultants, a 1- to 2-year disruption at some stage in the 4-year period should be anticipated.

Construction of temporary coffer dams, excavation of trenches, laying of the intake and outflow pipes followed by the deliberate collapse of the walls and burial of pipes will take place over a 4-year period.

As reported by the independent marine consultants, an area of 500m x 150m will be lost during the construction of the outflow system. Two intake pipes will extend from the shore out to a depth of about 25m, while up to ten outflow pipes will extend to about 400m from the intertidal zone. According to the independent marine consultants, an area of not more than 2500m² will be lost during the construction of each of the intake structures (i.e. assuming a worst case of 50m x 50m for each of the two intake structures). Construction is expected to negatively impact squid through physical disturbance, smothering/loss of potential spawning area and egg beds, and increased turbidity.

Assessment: Severe disruption, but spatially localised and of short duration.

Response 12:

Your comment is noted and reflects the findings of the Nuclear-1 Marine Assessment.

Comment 13:

1.2 Dumping of spoil (sediment from the excavation of the site) in the offshore zone- estimated to be of 143 days (5 months) duration

Note: the SSWG was verbally notified by the consultants Arcus GIBB that although a number of options had been proposed and assessed in the report, disposal of the spoil at medium discharge rate at a deep site offshore was the most likely option to be implemented.

As the most severe of these options is the disposal of full volume this is the scenario which the SSWG considered and comments on. This scenario involves approximately 6.37 million m³ of spoil being mixed with seawater to form slurry (sediment concentration of 15% by volume) that is then pumped at a rate of 3.5m³/s to the offshore disposal site (5km offshore, water depth of about 84m) through three temporary marine pipelines (internal diameter: 0.5m) laid on the seabed, discharging at a rate of 2.06m³/s. Two aspects of the spoil disposal were identified by the independent marine consultants as potentially exerting profound negative impacts on the squid resource:

1.2.1 Smothering of the seafloor resulting in destruction of egg beds and loss of spawning habitat

Following disposal of the spoil, roughly 3m of sediment will cover an area of 3km² around the discharge site. Subsequently, local water movement will result in a shifting of the spoil in a north-easterly direction towards Seal Point.

Within the first 5 years following disposal, the sediment is likely to spread to cover an area of approximately 8.3km² with sediment to a mean depth of between 0.5 and 1cm (Figure 1). In the next 5 years the spoil is expected to continue to spread towards Seal Point (Figure 2), eventually covering approximately 0.01km² of the small bay east of Seal Point in sediment 0.5-1cm thick. Sediments will not spread into St Francis Bay.

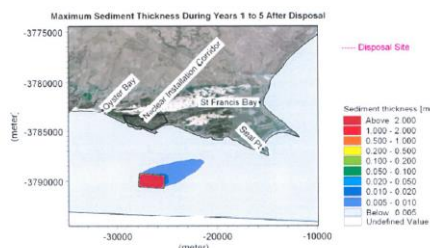


Figure 1: Maximum sediment thickness during years 1 to 5 after spoil disposal (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

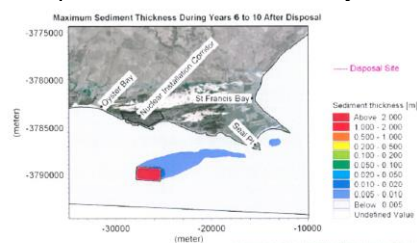


Figure 2: Maximum sediment thickness during years 6 to 10 after spoil disposal (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

The Marine Ecology Report does not specify the total areas that will be affected, but the results of the marine sediment disposal study indicate that for alternative 5 (full volume of spoil discharged at the offshore site at a depth of 8 (sic) m) the area impacted in the first 5 years after disposal will range from 2.6km² covered to a depth of more than 1cm, to 11.1km² covered to a depth of more than 0.5cm (see Table 19 in "Marine Sediment Disposal Report 27Nov09.doc").

In years 6 to 10 after disposal, while the area covered in sediment of more than 1 cm in thickness will not increase, the area covered in more than 0.5cm of sediment will increase to 18.1km².

It is likely that benthic communities that establish on the spoil will be dissimilar to those currently existing owing to the differences in sediment characteristics between the current consolidated sands and the loose sediments derived from the spoil.

1.2.2 Increased turbidity and the suspension of fine sediment particles in the water column during discharge could influence squid spawning behaviour

Maximum suspended sediment concentration is not expected to exceed 80mg/l near the sea surface at any time during or after disposal (Figure 3), and will be confined to an area of less than 1.4km² near the seafloor (Figure 4). Turbidity levels of this magnitude will also be temporarily limited outside the disposal site, occurring for a maximum of 2 days throughout the entire disposal period.

The possibility that re-suspension of fine particles during storms could result in more frequent and more intense turbidity events than is the norm at present is unlikely considering that the spoil comprises only 7.1% “fines” that will be rapidly dispersed out of the area.

Assessment: While squid will be locally affected, the limited spatial and temporal extent of the spoil dispersal and the elevated turbidity relative to the entire area in which the species spawns suggest that impacts will not be significant to the squid resource as a whole. However, limited information on paralarval dispersal and transport routes makes an adequate assessment of the impact on paralarval dispersal and transport routes makes an adequate assessment of the impact on paralarval survival difficult (sic). The inshore jig fishery is unlikely to be greatly affected as only a small proportion of the catches are taken in the area expected to be impacted.

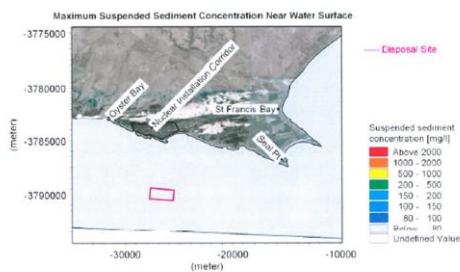


Figure 3: Maximum suspended sediment concentration near the surface during disposal of the full spoil volume (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

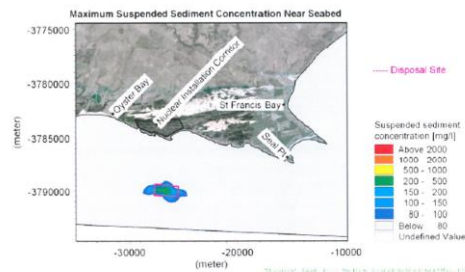


Figure 4: Maximum suspended sediment concentration near the seabed during disposal of the full spoil volume (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

Response 13:

Your comments reflect the findings of the EIA and are noted.

Comment 14:

2 Abstraction of cooling water and subsequent entrainment of organisms- permanent

Extraction of cold seawater from the marine environment (for cooling of the proposed plant) will occur at a slow rate (maximum of 1 m³/s). A number of measures to minimise the fouling of the system by organisms (including continuous low-level chlorination of the intake water) will be implemented, and screens will be used to prevent the intake of larger marine organisms.

Assessment: No species of commercial value are likely to be affected by entrainment and ecological impacts are not anticipated to be important.

Response 14:

Your comments reflect the findings of the EIA and are noted.

Comment 15:

3 Release of warmed cooling water containing low levels of chlorine at either a nearshore or offshore site- permanent

The oceanographic models used to estimate the extent of warm-water release assumed a background (ambient) temperature of 19°C. Release of warmed cooling water will occur from multiple points above the seafloor to maximise mixing with cool surrounding water. A nearshore outflow will result in a mean increase of 3°C near the seafloor, limited in spatial extent to an area of roughly 0.2km² around the outflow (Figure 5). An area of 0.7km² will experience a maximum increase of 3°C or more at any time. Such temperature increases are predicted to be limited to depths shallower than 15m. Offshore release will result in to no temperature increase at the seafloor (Figure 6), while a mean increase of 3°C will affect an area of less than 2.5km² near the surface (Figure 7). Note that the offshore estimates were obtained assuming a 10 000-MW plant (i.e a plant more than double the size of the proposed Nuclear 1 plant). It is likely that the temperature effects of the proposed 4000-MW plant will be less than those described above.

Assessment: Squid will be impacted by the release of warmed cooling water. In the case of a nearshore outflow, adult squid are expected to avoid an area of about 0.2km², and a certain amount of egg mortality is to be expected. This area is, however, less than 1% of the coastal spawning area. In the case of an offshore flow, the impact will be marginally reduced (although the water column will experience elevated temperatures, the seafloor will not). It is likely that adults avoiding the warm-water plume will move to another spawning ground.

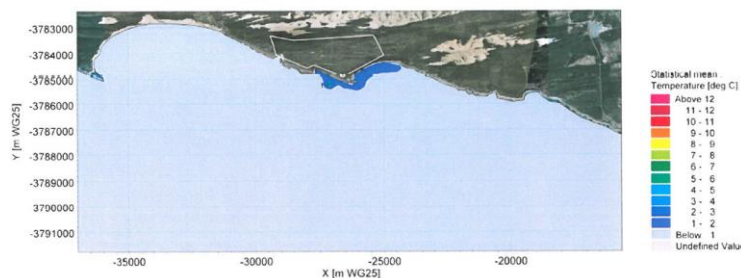


Figure 5: Mean temperature increase arising from the release of warmed cooling water from a nearshore piped outlet (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

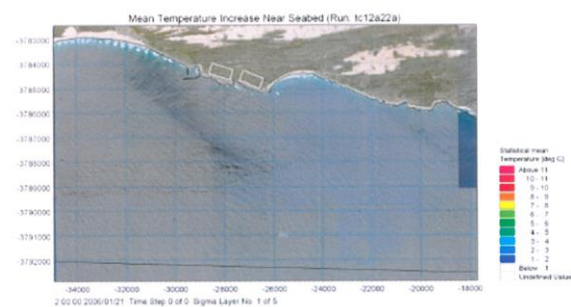


Figure 6: Mean temperature increase near the seabed arising from the release of warmed cooling water from an offshore piped outlet (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

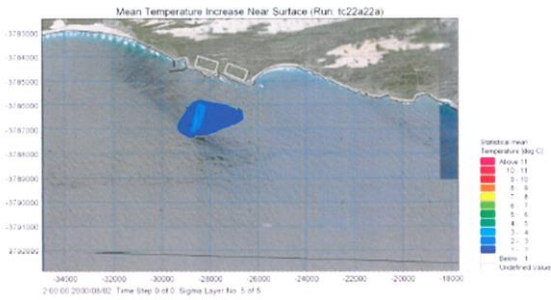


Figure 7: Mean temperature increase near the surface arising from the release of warmed cooling water from an offshore piped outlet (extracted from the presentation to the Squid Scientific Working Group by the independent marine consultants)

Response 15:

Your comments reflect the findings of the EIA and are noted.

Comment 16:

4 Release of desalination effluent in the inshore zone- permanent

Construction and normal operation of the proposed development will require access to freshwater. A portable desalination plant will be installed to provide for freshwater needs during the construction phase. This plant will use beach wells for the intake of seawater and will discharge the brine into the breaker zone to facilitate mixing. A permanent desalination plant will be constructed for use during the operational phase, from which the hypersaline effluent will be released together with the warmed cooling water in a ration of less than 99:1 (seawater: brine). The brine will consequently be diluted to undetectable levels prior to discharge into the marine environment.

Assessment: Not an issue during the operational phase owing to dilution of the desalination effluent prior to release. Release into the surf zone during construction will minimise the impact, which is unlikely to influence squid.

Response 16:

Your comments reflect the findings of the EIA and are noted.

Comment 17:

5 Radiation emissions- permanent

The most likely source of radiological release into the marine environment is through the release of contaminated cooling water. Such releases are, however, controlled by the National Nuclear Regulator and previous experience at Koeberg Power Station has demonstrated that such radioactive contamination is very unlikely.

Assessment: Such an even may impact the marine environment. Mortalities are expected to be limited to the general area of the plant, but mobile species exposed to low/intermediate radiation levels can move great distances and pose a threat to public health if consumed. It is vital that radionuclide levels in marine species (squid in particular) be monitored.

Response 17:

Your comments reflect the findings of the EIA and are noted. Monitoring of radiation levels in marine biota before the construction phase (to establish the baseline) and into the operation phase is a requirement of the Nuclear-1 Environmental Management Programme. For further information on the Radiological impacts of the power station please refer to Appendix E32 of the RDEIR Version 2.

Comment 18:

6 Closure of the site to exploitation- permanent

The safety zone is planned to cover an area of 800m around the power station, extending 1km out to sea. All fishing activities will be excluded from the safety zone.

Assessment: The exclusion zone is not expected to significantly impact the squid fishery owing to its small size relative to the overall fishing grounds.

Response 18:

Your comment reflects the findings of the EIA and is noted.

Comment 19:

7 Release of sewage effluent- permanent

During both construction and operational phases, a sewage waste-water treatment plant will treat a maximum of 1000m³ per day on site. The effluent, if discharged via the cooling water outflow tunnels, will meet the required national standards for water quality in coastal marine waters.

Assessment: No impact on the marine environment.

Response 19:

Your comment reflects the findings of the EIA and is noted.

Comment 20:

8 Unintentional discharge of polluted groundwater- permanent

During the construction and operational phases, potential pollution of groundwater and subsequent contamination of the marine environment may originate from leaks and spillages from both on-site sanitation facilities as well as from fuel, oil and grease storage facilities.

Assessment: Impacts of both organic and inorganic pollution through discharge of contaminated groundwater can be dire, but the exposed nature of coastline with resultant nearshore mixing will facilitate the dilution and dissipation of any contaminants.

Response 20:

Your comment reflects the findings of the EIA and is noted.

Comment 21:

9 Impacts of the environment on the proposed development plans- permanent

Not relevant to squid.

Response 21:

Your comment is noted.

Comment 22:

The construction of the intake and outflow systems clearly represents a major disruption to the marine environment, including squid. Adult squid will avoid the area and will probably not engage in spawning activities in the area during construction. Existing squid egg beds will be destroyed, and it is possible that they will not be re-established once construction is completed.

The SSWG agrees that the independent marine consultants that this impact is of limited spatial extent (0.075km²) and can be considered to be negligible in comparison with the overall area available to squid for spawning (estimated to be about 90km²-see below).

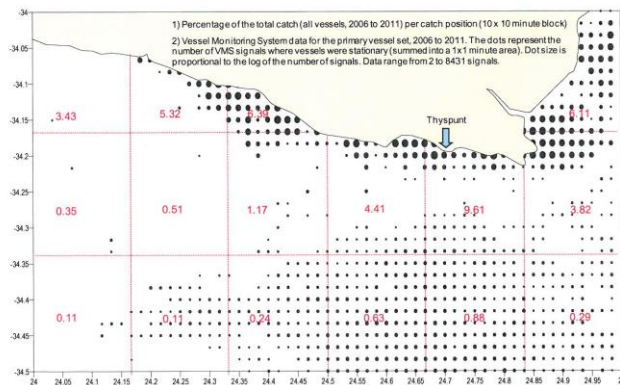


Figure 8: Average squid catches per fishing block (expressed as a proportion of the total catch) and squid fishing vessel presence (computed from VMS data) over the period 2006 - 2011

Response 22:

Your comments reflect the findings of the EIA and are noted.

Comment 23:

The exclusion of fishing from the safety zone represents a loss of fishing area of 0.8km². This can only be considered to be negligible in terms of the entire area in which squid fishing occurs.

The SSWG agrees with the conclusion that closure of the safety zone to exploitation reflects a negligible area lost to the squid fishery.

Response 23:

Your comment reflects the findings of the EIA and is noted.

Comment 24:

The fishing block immediately adjacent to the Thyspunt site yields on average 9.61% of the total squid catch (Figure 8). Vessel Monitoring System (VMS) data indicate that squid vessels spend most of their stationary time (presumably the time spent fishing) relatively close to the coast (Figure 8). The average catches calculated for each fishing block may therefore not reflect an accurate perception of the potential impacts of the Nuclear 1 development on the squid fishery in terms of lost catch.

The squid fishing industry (SASMIA) is advised to collect the required high-resolution information on spatial distribution of catches, which would enable it to provide a more accurate assessment on the magnitude of the catches that may be impacted by Nuclear 1.

Response 24:

Your comment is noted and will be forwarded to SASMIA.

Comment 25:

It is possible that long-term effects in terms of changes in squid migration patterns and spawning behaviour may arise from the disruptions/alterations to the substrate (seafloor) and water temperature regime (i.e. impacts that extend beyond the spatial and temporal limits of the disruptions). However, there is little or no information to properly assess this and the SSWG cannot provide comment on the likelihood of such changes in the squid population, or the implications for the resource of the fishery.

The squid fishing industry (SASMIA) should enter into dialogue with Eskom on this possibility and broker a compensation agreement that clearly specifies the criteria on which the extent of the impact of Nuclear 1 on squid fishing operations is measured. These criteria should include presence-absence of main fishable concentrations in the vicinity of the Thyspunt site, i.e. Aasvogels, Oysters Bay, Seals Bay and Kromme. These concentrations were a constant feature of the squid jig fishery since its inception.

Response 25:

Your comment is noted.

Comment 26:

The SSWG agrees with the conclusion that the abstraction of cooling water and the release of desalination plant effluent are unlikely to impact on the squid resource or the fishery.

Response 26:

Your comment reflects the findings of the EIA and is noted.

Comment 27:

The issues of radiation contamination, release of sewage effluent and polluted groundwater, while representing potentially major threats to the marine environment, are adequately discussed in the Marine Ecology Report and were not considered further by the SSWG. It should be noted, however, that perceptions of the international squid market should be taken into consideration. The SSWG cannot provide specific advice on this aspect and suggests that this should rather be researched by the squid industry itself.

Response 27:

Your comment is noted.

Comment 28:

Of primary concern are the short-, medium- and long-term impacts on the squid resource and fishery arising from the disposal of the spoil during the construction phase, and the continuous release of warmed cooling water during the operational phase.

Response 28:

Your comment is noted. Both these potential sources of impact have been assessed in the Nuclear-1 EIA and in particular, in the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR).

Comment 29:

Disposal of the spoil will smother the seabed in loose sediment, destroying existing egg beds and potentially resulting in the long-term loss of spawning habitat. Adult squid may consequently avoid this area during spawning, with no spawning aggregations forming in the impacted area.

Response 29:

Your comment reflects the findings of the EIA and is noted.

Comment 30:

Elevated turbidity levels will result in increased mortality of squid paralarvae passing through the impacted area owing to numerous physiological constraints such as impaired movement and respiration, but also starvation due to inability to catch prey. Published information suggests that paralarvae will not survive in dirty water saturated with suspended particles.

Response 30:

Your comment reflects the findings of the EIA and is noted.

Comment 31:

Elevated water temperatures may increase mortality of paralarvae owing to metabolic effects.

Response 31:

Your comment reflects the findings of the EIA and is noted.

Comment 32:

Adult squid will avoid turbid water as a result of decreased vision.

Response 32:

Your comment reflects the findings of the EIA and is noted.

Comment 33:

The SSWG wishes to emphasise that the impacts of spoil disposal and warmed cooling water release on squid spawning and recruitment cannot be taken lightly, even in view of the relatively short duration of spoil disposal. *Loligo reynaudi* is a relatively short-lived species, most individuals in the population completing their entire life history in about a year. As such, the entire population of the species is based on the successful recruitment of a single year class. Significant increases in the mortality of the paralarvae and juveniles over a short period of time may seriously impact on recruitment and therefore the population as a whole.

Response 33:

Your comment is noted.

Comment 34:

In view of these observations, the SSWG felt that further investigation was required. In considering the impacts of the disposal of the spoil (in terms of both the substrate and turbidity) during the early construction phase and the long-term release of warmed cooling water, the SSWG adopted a spatial comparison approach based on “worst-case” scenarios in an attempt to bound each problem (i.e. establish whether the spatial extent of a specific impact would be negligible or non-negligible relative to the overall habitat available to squid):

Problem

Impacts of the disposal of spoil on spawning habitat (specifically the seafloor)

“Worst-case” scenario

The area covered by the spoil to a depth of 0.5cm or more (including the area impacted by spoil shift over time) represents a long-term loss of squid spawning habitat. Adult squid will not form spawning aggregations over this area and will not deposit egg capsules in the affected area.

Problem

Impacts of elevated turbidity levels.

“Worst-case” scenario

The area of elevated turbidity represents a 100% mortality zone for paralarvae. Adult squid will avoid the affected area for both feeding and spawning.

Problem

Impacts of elevated water temperatures.

“Worst-case” scenario

The area of elevated temperature represents a 100% mortality zone for paralarvae. Adult squid will avoid the affected area for both feeding and spawning.

There were some reservations regarding the estimates of the spatial extent of elevated turbidity levels that were generated by the hydrographic models. These models considered turbidity levels in excess of 80mg/l. This is the value indicated by the marine ecology specialist above which biological impacts can be anticipated. The SSWG is of the opinion that paralarval mortalities may result from turbidity levels substantially lower than this value, and recommended an investigation based on turbidity levels of 20, 40 and 60mg/l. The Marine Sediment Disposal Report indicates that background suspended sediment concentrations (measured in water depths of 5 to 30m) average 5mg/l with a maximum of 29 mg/l.

Response 34:

Your comments are noted and are addressed in response 35 below

Comment 35:

Spatial components against which the extent of the “worst-case” Nuclear 1 impacts were compared:

- a) **Area of known spawning sites/egg beds:** Squid spawning habitat is defined as an area over which squid form an aggregation, engage in reproductive behaviour and then deposit egg capsules. This includes the area within which adult squid move at night when spawning activity ceases. Each patch of squid spawning habitat (i.e. spawning site) is assumed to be

about 1km² in extent, therefore it is important to note that some inshore sites overlap. Thirty nine sites were identified in shallower water between the Tsitsikamma River and Algoa Bay (Sauer et al., 1992) with eight of these possibly impacted, representing 20.5% of the total recorded.

- b) **Transport patterns of squid paralarvae from spawning site to nursery areas:** This was modelled using an Individual Based Model (IBM) linked to a hydrographic model employing simple Lagrangian particle transport dynamics. The approach was to simulate the “release” (hatching) of paralarvae from squid egg beds and monitor their transport over time. The proportion of the paralarvae passing through the elevated turbidity and temperature plumes relative to the entire “population” of paralarvae was computed; this proportion assumed to reflect the total mortality arising from the Nuclear 1 impacts.

Two elevated-turbidity and three elevated-temperature scenarios resulting in paralarval mortality were considered:

- Plumes of elevated turbidity (>20mg/l) resulting from disposal of either the full spoil volume (mortality zone D in Figure 9) or half of the spoil volume (mortality zone E in Figure 9).
- Plumes of water temperature that were on average 2°C (mortality zone A in Figure 9), 3°C (zone B) or 4°C (zone C) warmer.

Within the model, “paralarvae” were released from 6 release zones (Figure 9) and their transport was driven by the hydrodynamic model, incorporating diel vertical migration effects.

Paralarvae were considered to have died if advected off the shelf (“Agulhas Bank Mortality Zone” in Figure 9) when older than 4 days (to account for yolk-sac depletion), or if they came into contact with the elevated temperature and turbidity plumes. A number of simulations were run for each scenario in order to measure the variance associated with mortality estimates.

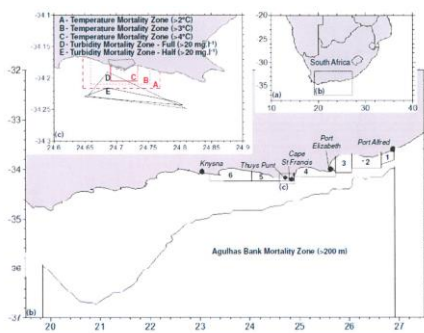


Figure 9: The 6 “paralarvae” release zones and the “mortality” zones used during the IBM model of paralarval transport.

RESULTS AND CONCLUSIONS

1 Impacts of spoil disposal and subsequent movement over time:

The sediment characteristics of the spoil have been described in the Marine Sediment Disposal Report, and were found to fall within the range of the naturally occurring sediments. It should be noted, however, that the samples of naturally occurring sediments, which were used for this comparison, were collected from water depths between 10 and 30m, considerably shallower than the depth of the proposed offshore disposal site (84m). An additional factor to consider is that the naturally occurring sediments are consolidated, whereas the spoil will comprise loose sediments.

The SSWG consequently assumed that the differences between the disposed spoil and the naturally occurring sediments would reflect a permanent loss of spawning habitat.

Assuming the “worst-case” scenario, a total area of 18.1km² would be lost as squid spawning habitat over a 10-year period subsequent to spoil disposal. This represents 20.5% of the total nearshore spawning sites recorded between the Tsitsikamma River and Algoa Bay.

The SSWG is consequently of the opinion that the disposal and subsequent shift of spoil may result in an appreciable impact on squid in terms of spawning habitat.

2 Impacts of elevated temperature and turbidity levels:

The results of the simulation are provided in Table 1 below.

Table 1: The average percentage of paralarvae released from each of the release zones (1-6) that were killed in the various mortality zones (A-E)

Release zone	Agulhas Bank advection	A Temp > 2 °C	B Temp > 3 °C	C Temp > 4 °C	D Turbidity full	E Turbidity half
1	54.62 ± 9.19	0.25 ± 0.06	0.20 ± 0.03	0.09 ± 0.04	0.72 ± 0.13	0.39 ± 0.07
2	23.44 ± 5.47	0.92 ± 0.17	0.46 ± 0.15	0.20 ± 0.07	0.94 ± 0.30	0.73 ± 0.25
3	0.24 ± 0.16	0.59 ± 0.15	0.61 ± 0.28	0.34 ± 0.10	1.47 ± 0.37	1.38 ± 1.39
4	0.24 ± 0.10	2.71 ± 0.44	1.95 ± 1.31	1.00 ± 0.22	3.94 ± 1.03	3.14 ± 0.84
5	0	19.64 ± 4.77	14.50 ± 8.95	6.60 ± 2.63	14.26 ± 4.68	10.72 ± 3.75
6	0	0	0	0	0	0
TOTAL	5.95	5.28	3.88	1.80	4.47	3.42

The results indicate that 5.95% of all paralarvae that hatched from nearshore spawning sites will be advected off the shelf area and die. In terms of Nuclear 1 impacts:

- Assuming that paralarvae entering a plume of released cooling water that is 2°C or more warmer than ambient will die, 5.28% of all hatched paralarvae will die as a result of the release of warmed cooling water by Nuclear 1. This percentage decreases to 3.88% if mortality only results from water 3°C warmer than ambient, and to 1.80% if mortality only results from water that is 4°C warmer than ambient.
- If only half of the spoil volume is released offshore, the resulting plume of turbid water will lead to a mortality of 3.42% of all paralarvae that hatched from nearshore spawning sites. This percentage increases to 4.47% if the full volume of spoil is released offshore.

Response 35:

Your comments are noted and reflect the findings of the Nuclear-1 Marine Assessment.

It is recommended to place spoil at a deep site and thereby avoid shallow spawning sites as much as possible. However, the spread of spoil that takes place after disposal will take the sediment into shallower areas and impact on some spawning habitat. This is unavoidable and current-driven. However, the impact of spoil disposal at a deep offshore site would still be much lower than disposal at a shallow site.

Comment 36:

The SSWG considers that the mortality of paralarvae arising from the plume of turbid water resulting from the release of the spoil is negligible. Even in the “worst-case” scenario of the release of the full volume of spoil, only about 5% of all hatched paralarvae will encounter the plume of turbid water and die. If the disposal can be conducted during the winter months when squid spawning is at a minimum, the impacts of this component on squid recruitment will be even further reduced.

Response 36:

Your comment is noted and reflects the findings of the Nuclear-1 Marine Assessment..

Comment 37:

The SSWG considers that the mortality of paralarvae arising from the plume of warmed cooling water is negligible. Even the “worst-case” scenario where water warmed to only 2°C above ambient will

result in 100% mortality of paralarvae entering the plume, only 5.28% of all hatched paralarvae will be impacted. Even though the warmed cooling water will be a permanent source of paralarval mortality, the low level of this impact can only be considered to be negligible in terms of squid recruitment.

Response 37:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or 'J' with a small dot above it.

The Nuclear-1 EIA Team

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT VERSION 1**

(Volume RDEIR IRR 5 – 137 May 2012)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Francois Bekker	Interested Party
2	Dr. Peter Inman	Coega Development Corporation

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	02 May 2012 16:29 Email (Previous email 02/08/2011)	Francois Bekker Affected Party (adjoining landowner)	<p>On previous occasions I have requested information about the Milnerton geo-technical fault line that the current Nuclear reactor is built upon. You did not provide any information to us!</p> <p>We have a farm adjacent to Koeberg Nature reserve and would like to know urgently what the exclusion zones ,or planned exclusion zones are, as it would severely affect what we could do on the land, and it would also affect the price of the land.</p> <p>I do not approve of the current processes you are following as you do not consult with adjacent landowners whose land prices could be severely affected if another plant is built nearby the current Nuclear plant.</p> <p>What is the expected lifespan of the current plant?</p> <p>Please provide the requested information on an urgent basis, and I would like to discuss the matter with the head of GIBB or Escom (sic).</p> <p>We are adjoining landowners and we could be severely affected by any future developments and the building of new reactors.</p> <p>On numerous occasions I have requested information and meetings with yourselves or Escom (sic) and you do not have the decency to respond to my requests.</p> <p>We will not allow it and will take the necessary actions to protect our rights. I request your immediate response.</p>	<p>Koeberg Nuclear Power Station (KNPS) is not built on a fault line.</p> <p>The following extract from the Seismic Risk Assessment (Appendix E4 of the Revised Draft EIR) deals with the postulated Milnerton Fault. <i>“Dames and Moore (1976) concluded that enough circumstantial evidence exists to postulate the presence of a northwest striking fault offshore of Duynefontein but that it does not come closer than 8 km to the site. It is however possible that such a postulated fault could pass anywhere between 7 and 10 km offshore of Duynefontein (the inferred Melkbos Ridge Fault passes 7.5 km from the Koeberg Nuclear Power Station). No new research has been performed to confirm or refute the presence of the postulated fault or its point of closest approach to the site. The inference that the event happened closer to Milnerton than to Duynefontein is based on the reported damage to the farmhouse at Jan Biesjes Kraal.”</i> Should you have any scientifically validated peer-reviewed information to challenge these findings, GIBB would welcome the opportunity to consider this.</p> <p>The KNPS has been designed to withstand a peak ground acceleration of 0.3g, which is equivalent to an earthquake of magnitude 7 on the Richter Scale (directly below Koeberg).</p> <p>Accordingly, based on the potential presence of an offshore fault and the seismic events that have taken place in the Western Cape, the KNPS has been built on a “seismic raft”, and all the components and plant systems that are important to nuclear safety have been designed to these seismic specifications so that they will be able to perform their expected functions during and after an earthquake.</p> <p>The sizes of the planned Emergency Planning Zones (EPS) for Nuclear-1 are documented in Chapter 3 of the Revised Draft EIR. These zones are much smaller than the current EPZs for the KNPS. Therefore, should Nuclear-1 be established at Duynefontein, Nuclear-1 would have no impact on land use.</p> <p>The expected life span of the KNPS is 40 years (i.e. it is expected to shut down by 2024, unless upgrading takes place to extend its life-span.</p> <p>Your comments regarding the construction of additional reactors are noted. GIBB cannot comment on requests for information that you</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
				<p>have made directly to Eskom as GIBB only has a mandate to respond through the EIA process.</p> <p>Please note that adjacent landowners are included in the interested and affected party database. GIBB has confirmed that your details are included in the Nuclear-1 EIA stakeholder database.</p>
2	17 May 2012 08:07 Email	Dr Peter Inman Coega Development Corporation	<p>We are engaging with the Eskom nuclear team who are responsible for the early site works and they have informed us that only PE port was seriously considered for the importation of the large components required for Nuclear1.</p> <p>I am surprised that the new port of Ngqura was not considered since Transnet have a perennial complaint that access into the congested port area in PE is a challenge even for container traffic.</p> <p>When Pechiney and later Alcan investigated heavy haul routes for their proposed Aluminium Smelter, PE port was found to be a challenge. Further, the CDC specifically took account of heavy haul and abnormal load requirements with their infrastructural designs serving the IDZ and new port. We therefore consider that there has been an oversight in the planning for the transport of large components for Nuclear 1 and that this needs to be addressed.</p> <p>We have made the Eskom nuclear team responsible for the early site works aware of this oversight.</p>	<p>A port assessment was done and the full “Thyspunt Site Abnormal Load Haul Route Investigation” report is included as an annexure to the revised Traffic and Transport Assessment, which will appear in the Revised DEIR v2.</p> <p>The report is based on the assumption that either the ports of Port Elizabeth or Ngqura would be used. There has been no formal decision on which port would be used as yet, but the report states that the road traffic flow at the Port of Ngqura is less congested than at the Port of Port Elizabeth.</p> <p>The report further concludes that either of the two ports, Port Elizabeth or Ngqura, could be used for off-loading the large equipment. Both ports have suitable exit routes, although some additional work will be required in Port Elizabeth to make the current exit usable.</p>

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume RDEIR IRR 31 October 2012)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Mike Kantey	Earthlife Africa
2		
3		
4		
5		
6		
7		
8		

NO	DATE	NAME & ORGANISATION	ISSUES / COMMENTS	RESPONSE
1	31 October 2012, email received from Eskom. 26 October 2012, email received by Eskom entitled <i>Issues List</i>	Mike Kantey, Earthlife Africa	<p>Mr Kantey enquired about a document referred to on page 14 of the Appendix E26 of the Revised Draft for the Environmental Impact Report for "Nuclear-1": <u>NSIP 013244</u></p> <p>Mr Kantey stated that , the current version of the EIR recommends the development of a Pressurised Water Reactor at the Thyspunt site near Cape St Francis in the Eastern Cape and given the assertions made on page 14 of Appendix E26 of the RDEIR -- that the design of the new nuclear power stations do NOT require stringent emergency planning procedures.</p> <p>According to him it is essential that we all have access to and understand the content of this document in order to assess the veracity of the claims. He also feels that it is disturbing that the claims are based on those of the European Nuclear Industry's own lobbyists, rather than the South African statutory authority, the National Nuclear Regulator.</p>	<p>Your comment is noted. A copy of the document is available on the GIBB website: http://projects.gibb.co.za/Projects/Eskom-Nuclear-1 Under section 13: Background literature.</p> <p>As stated in the Revised Draft EIR Version 1, it is an assumption that the NNR will accept the EUR's Emergency Planning Zone (EPZ) recommendations during the nuclear licensing process. Initial indications provided by the NNR are that it is likely that the EPZ will be reduced. 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 ...".</p> <p>Section 3.20.2 of the Revised Draft EIR Version 2 deals with emergency planning zones. It is stated clearly in this section that the EUR standards "were initiated by a group of power utilities from six European countries". There has never been any suggestion that the EUR standards carry any legal status. It is also stated clearly as an assumption of the Revised Draft EIR that the NNR will accept the EUR recommendations. Should this not be the case, then a key assumption of the EIA process would be invalid and a re-assessment would be required.</p>

05 August 2015



Our Ref: J27035
Your Ref: Email received 05 August 2011

Email: rob.fryer@ocf.org.za

Dear Rob Fryer

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
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)

OVERSTRAND CONSERVATION FOUNDATION COMMENTS ON REVISED DRAFT EIA REPORT

Comment 1:

The Overstrand Conservation Foundation (OCF), now trading as Whale Coast Conservation, wishes the following comments to be recorded and given careful consideration in the review of the EIR.

The OCF considers the Environmental Impact Report to be fatally flawed with respect to the proposed Bantamsklip site because it fails to deal adequately with three important issues:

- 1 Tourism impact
- 2 Socio-economic impact
- 3 Site access for equipment delivery
- 4 Transmission line route

1 Tourism Impact – OCF alignment with Overstrand Municipality’s Local Economic Development (LED) Strategy

The OCF is rebranding itself as Whale Coast Conservation to align our activities the local Overstrand municipality’s initiative to market the Cape Whale Coast as an internationally significant terrestrial and marine biodiversity hotspot with enormous eco-tourist potential. The slogan of the Cape Whale Coast is “*wonders never cease,*” referring to the amazing variety of unique experiences available to eco-tourists visiting this amazing coastline. This branding of the Overstrand and marketing of the eco-tourism potential is at the heart of the Overstrand municipality’s LED strategy.

This municipal LED strategy is not given any credibility in the specialist study on tourism, which dismisses the growth potential for eco-tourism as insignificant, restricts its consideration of tourism to the Bantamsklip site itself, and uses “facts” relating to commercial visitors to Medupi coalpowered station as evidence that the construction of power stations increases “tourism” and claims that the proposed power station itself will attract tourism to the area and makes statements about the increased economic activity that will occur due to additional permanent residents (ref J27035).

The specialist study and reference illustrate the specialist’s superficial treatment of the Cape Whale Coast’s potential for a highly rewarding eco-tourism industry, for which it substitutes a few thousand business related visits to the power station annually and an increase in restaurant trade due to increased population. This is incredible! It is a fact that the area’s eco-tourism potential has not been properly studied or documented and that tourism data for the region as a whole has not been systematically captured and analysed.



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras
Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

This lack of data and information has led the specialist to seriously underestimate the potential and value to the region's economy of exploiting the potential for extended visits by hundreds of thousands of eco-tourists annually.

The OCF is adopting the branding Whale Coast Conservation to signify that we are striving to “*ensure wonders never cease.*” We are committed to inspiring people in the Cape Whale Coast region to become a vibrant and environmentally sustainable community. We work with community, business and government and champion responsible environmental management and optimal utilisation of our ecosystem services.

The OCF is a significant player in the Cape Whale Coast, has consistently participated in the Nuclear-1 public participation meetings and is widely known as a credible organisation in the region. We have commented upon the tourism content of the Nuclear-1 EIA specialist study, but, the specialist has never made any attempt to contact our office for information or to discuss our views. Instead, dismissive comments have been made in response to our input and there is no indication that any serious attempt has been made to address the issues raised. In conclusion, the EIR treatment of the impact of the proposed Nuclear-1 power station on ecotourism in the Cape Whale Coast:

- Fails to recognise the Cape Whale Coast branding and marketing initiative and the potential for this to substantially increase eco-tourism;
- Claims increased “tourism” of a few thousand business-related visits to the proposed power station and increased restaurant trade due to an increase of 1000 permanent residents will exceed the potential for eco-tourism revenue.
- Failed to consult with the OCF (and presumably others who have made similar comment) despite our having raised serious doubt about the credibility of the specialist report and just dismissed our input.

On these grounds, the EIR treatment of the tourism impact is not credible and is fatally flawed.

Response 1:

Your view of the Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR) is noted. The Tourism Impact Assessment is based on a balanced assessment of the potential loss of existing nature-based tourism and the potential increase in business tourism associated with the establishment of a power station. This is based on experience with the operation of tourism around Koeberg Nuclear Power Station and the current construction of power stations such as Medupi near Lephalale in Limpopo Province.

Research for the Tourism Impact Assessment (Appendix E11 of the Revised Draft EIR Version 2) was conducted in 2008. No Overstrand LED strategy was available at the time. The tourism specialist obtained older documents (with difficulty) from the Overberg District Municipality. These documents included a spatial development framework document from 2004 and an integrated development plan from 2002. These documents make generic and expansive mention of tourism as a holistic concept, with eco-tourism as a part of the greater definition of identified sub-sectors of tourism. No specific planning, development targets, empirical research, responsibility mandates, nor plans of action were evident. The documents were expansive with macro-economic statements with policy formulation proposals and guidelines.

The Tourism Impact Assessment report does not disregard the growth potential of eco-tourism as insignificant. However, it does acknowledge the disparate and haphazard statistical evidence thereof. There are multiple claims of eco-tourism's growth, however Stats SA, Western Cape Tourism, CTRU and all the relevant Western Cape provincial government departments are unified in their admission that tourism statistics are insufficient and quantifiable data for specific geographic areas such as those for the Nuclear-1 project are lacking. As a result of the data inequalities and the absence of localised evidence or statistics, claims of growth potential on a policy and strategy document level cannot be

leveraged as accurate and the report indicates this data situation and recognises this in the assumptions and limitations of the study.

In conclusion, the Tourism Impact Assessment does not dismiss eco-tourism, nor does it dismiss the Overstrand Municipality's LED. The respondent is directed to the evident increase in eco-tourism that was experienced around Koeberg Nuclear Power Station and the surrounding reserve areas. This represents the only contextualised eco-tourism experience and available statistics that were available at the time of the assessment.

Comment 2:

2 Socio-economic impact

At the most recent public participation meeting in Gansbaai it was admitted by the Eskom and Arcus GIBB representatives that no attention has been paid during the EIA process to the need to accommodate a peak of 7000 workers and their families during the construction phase of the project or to the need to accommodate 1 000 permanent employees during the operational phase "it being assumed that these can be absorbed into the existing residential areas near to the proposed site of the power station." It was also admitted at the meeting that this is not a reasonable assumption.

The provision of housing and infrastructure for such large temporary and permanent numbers of workers and their families is a major project on its own, one which will definitely trigger an EIA. None of this, which is a direct and inherent consequence of the proposal to build the Nuclear-1 power station, has been taken into account in the nuclear-1 EIA. This is a fatal flaw in the EIA process and the EIR should be referred back to ESKOM in order this to be addressed. It is weakly admitted in the response to the OCF's previous comments on the effects of worker inflow that "The influx of substantial number of people into the area will definitely pose challenges regarding a wide variety of aspects. The importance of the mitigation measures cannot be underestimated, especially due to the fact they draw on lessons learned from other projects such as Saldana Steel (ref J27035)." The "mitigation measures" referred to are totally inadequate under the circumstances. There needs to be a fundamental look at how an effective development programme can be rolled out prior to and throughout the construction phase of the proposed power station to absorb the influx of people into the local economy. The funding for the development and implementation of a broadly based local economic development plan to absorb the influx of workers needs to be carried by the nuclear-1 project and must be part of the implementation plan for the project and part of the EIA study for the project because it is a direct consequence of locating such a project in a rural area such as Bantamsklip and Thuyspunt.

The mitigation steps referred to in the EIR do not at all address the human crisis that is inevitably going to unfold unless there is a real LED plan and associated funding. The glib statements made in the EIR and specialist studies lack credibility and render the EIR fatally flawed.

Response 2:

Your comment is noted.

The housing of employees for Nuclear-1 during the construction and operational stages of the development of Nuclear-1 has not been ignored. It has been stated in the EIA process that the environmental impacts of housing will be assessed in detail once a decision has been made of the location of the power station (assuming that the Department of Environmental Affairs issues an authorisation for Nuclear-1). It is also Eskom's preference not to develop a dedicated "construction camp" but to integrate housing for the proposed power station with other residential areas, where possible.

Your comment regarding the assumption that residential areas "*can be absorbed into the existing residential areas near to the proposed site of the power station*" not being reasonable is noted. No such admission was made by either GIBB or Eskom. You are referred to the relevant section of the

final minutes of the Gansbaai meeting of 23 May 2011, where it is stated “...for residential use, a separate EIA process will be required. Mr Heydenrych confirmed that the impacts associated with housing are not considered in the EIA for the nuclear power station, as it considers only the impacts associated with the power station itself and its immediately associated infrastructure. A separate EIA process for housing may therefore be required in future. The social aspects associated with accommodation have been considered in this EIR.” There is no statement in this passage that the assumptions of the Nuclear-1 EIA are unreasonable.

However, it is recognised in the EIA that the environment around the Bantamsklip site would be less capable of accommodating an influx of a large number of employees than either of the other alternative sites, since the social infrastructure in the Bantamsklip area is less developed than in the alternative affected areas and the settlements around the Bantamsklip are smaller. The cumulative social impact at Bantamsklip would therefore be higher than at Thyspunt or Duynfontein. This is one of the reasons why the Revised Draft EIR Version 2 came to the conclusion that Bantamsklip would be the least preferred of the three alternative sites and as such is no longer considered feasible for Nuclear-1.

The labour policies of the Coega Development Corporation (CDC) are recognised as being effective and the Nuclear-1 project’s labour policies and procedures will be modeled on examples such as these. The CDC has indeed indicated its willingness to share its experiences in this regard so that the Nuclear-1 project can learn from these.

Comment 3:

3 Transmission Line Route to Bantamsklip

The previous comments made by the OCF elicited the response (ref J27035) that “Your comment is noted. The transmission lines are the subjects of separate EIA processes, as it would have been impractical to combine the EIA for the Nuclear Power Station and three transmission lines into a single process. Kindly submit your comments regarding the proposed Bantamsklip transmission line to through the dedicated communication channels for that particular EIA.” This is not an acceptable response!

At the last public participation meeting the EIA consultants and ESKOM attempted to move the responsibility for identifying a feasible transmission line route to the interested and affected parties (I&AP) invited to participate. When it was admitted that ESKOM has not itself identified a feasible route, the assembled I&APs refused to take responsibility for finding a feasible route and it was agreed that this would be done by ESKOM and that the proposed route would be presented to the I&APs at another workshop. This has not happened. At the most recent public participation meeting in Gansbaai it was again asked whether a feasible transmission line route has been identified and the answer given was that ESKOM has, months later, still not identified a route that it is happy to communicate to I&APs. It was further said that the transmission line EIA is well behind schedule.

The OCF submits that the failure to identify and communicate a feasible transmission line route to I&APs represents a fatal flaw in the EIA process for the proposed power station and that the proposed Bantamsklip site should be removed from consideration in the Nuclear-1 EIA authorisation process.

Response 3:

Your comment is noted. GIBB stands by its previous response in this regard that the EIA processes for the power station and transmission lines are separate.

At the time of writing this response, the EIA process for the Bantamsklip transmission lines has been suspended. In any EIA process, it is the responsibility of the applicant to propose technically feasible and reasonable alternatives. These alternatives need to be critically interrogated by the environmental assessment practitioner (EAP), based on known environmental sensitivities, and the potential environmental impacts of these alternatives then need to be investigated in detail. Public participation

is an essential part of the EIA process and this regards to the identification of alternatives, it is critical in identifying the best practicable environmental option.

Should no feasible transmission route be identified for the Bantamsklip sites, it would mean that Bantamsklip cannot be regarded as a feasible and reasonable alternative for Nuclear-1.

Comment 4:

4 Site access for equipment delivery

The OCF reiterates that the lack of a feasible route to deliver equipment to the Bantamsklip site, by road or by sea, renders that site unfeasible as a potential site for the construction of nuclear-1 or any future proposed nuclear power station. The proposal that Bantamsklip can be considered as an alternative site to Thuyspunt or Duinefontein is not rational and Bantamsklip should be withdrawn as a possible site for nuclear-1 in this EIA authorisation process.

Response 4:

Your comment is noted. It is acknowledged in the Nuclear-1 Revised Draft EIR Version 1 that the transport logistics make Bantamsklip a more challenging site than either Thuyspunt or Duinefontein, Whilst it does not imply that it is a technically impossible site it is one of the factors that results in Bantamsklip not being the preferred alternative for Nuclear 1.

Comment 5:

5 Other Comment

The OCF notes that the EMP appended to the EIR is specific to Thuyspunt and that no work has been done to draw up an EMP for the proposed Bantamsklip site. According to our interpretation of the EIA regulations, Bantamsklip cannot be considered as an alternative site for the proposed nuclear-1 power station unless an EMP is submitted for that site. It is also noted that the use of the proposed Bantamsklip, the Groot Hagelkraal property, is a Private Nature Reserve (in terms of proclamation 983/88 of 11 November 1988), and will require deproclamation prior to it being available for the development of the proposed nuclear-1 development. Such a deproclamation will be strenuously opposed, should there be such an application, on the grounds that this site is extremely important as an example of coastal fynbos and worthy of registration as a World Heritage Site.

Response 5:

The EMP focuses on the Thuyspunt because this site is recommended site in the Nuclear-1 Revised Draft EIR. Should the Department of Environmental Affairs authorise a different site, the EMP would be amended to the authorised site.

It is not correct to state that the Bantamsklip properties are nature reserves. The properties east and west along the coast are state-owned and are managed by CapeNature, However, they are not proclaimed or declared nature reserves.

Your comment regarding the potential status of the site as a World Heritage Site is noted. Although there are valuable examples of fynbos ecosystems on the site, particularly the patches of limestone fynbos, and there are extensive wetlands (which will not be developed) on the northern portion of the site, no finding was made in any of the terrestrial ecological assessments that the site could be regarded to be of exceptional value to all of humankind.

Comment 6:

6 Conclusions

The EIA process for the proposed Bantamsklip site for the proposed nuclear-1 power plant is fatally flawed due to inadequate attention to previously submitted comment about the issues raised above. The responses given to the OCF's submissions are dismissive and show no intention to address the important observations made and none of these are reflected in the final EIR. As a consequence, Bantamsklip should be removed from consideration as a potential site for the proposed nuclear-1 power station.

Response 6:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'G' or similar character, located below the typed name.

The Nuclear-1 EIA Team

05 August 2015

Our Ref: J27035/J31314

Your Ref: Email received on 17 November 2012



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

Dear Mr Goedhart

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

Comment 1:

As an I&AP, and team member of the Eskom SSHAC committee (Senior Seismic Hazard Assessment Committee), I would like to get the overview of the Thyspunt site as provided in the EIA. I was responsible for the geological mapping of the Regional, Site Vicinity and Site Area, and initial Site Location work (1:5,000 scale). These are regulated investigative distances from the reactor site. I am also the person who mapped out and removed the 'Klippepunt fault' previously indicated by the AEC team (now NECSA), and helped co-ordinate and interpret the geophysics around the site, both onshore and offshore. These maps and reports are all at CGS and Eskom, and I am sure you have perused them. Following recent discussions with people and organizations who contributed to the EIA, and are probably referenced in it, I realized I never saw the final EIA, e.g. what is the purpose of the 3km boundary from the EIA corridor, and how is it defined?

Or for that matter, the 800m line from the EIA corridor?

Response 1:

As indicated in section 3.20.2 of the Revised Draft EIR version 2, the radii of the emergency planning zones for Nuclear-1 are based on European Utility Requirements (EUR) guidelines for Generation III nuclear power stations. These are safety zones defined around the power station. The inner EPZ, within which no private development is allowed, is referred to as a Protective Action Zone (PAZ) and is 800 m in radius. The larger EPZ, within which development restrictions will apply to ensure that emergency evacuation is feasible, is referred to as an Urgent Protective Zone (UPZ) and is 3 km in radius.

Comment 2:

Are these distances regulated, as per NUREG Site Area and Site Location regulations?

Response 2:

The European Utility Requirements (EUR) is a specification document drawn up by electricity utilities to give guidance to designers and vendors on the expectations of the utilities. The decision regarding the nuclear emergency plan rests with the National Nuclear Regulator (NNR).

.No fixed distance for these EPZs is specified in legislation, but the NNR determines their size on a project-specific basis, based on the safety case for the specific technology proposed for the power station. Although current EPZs for Koeberg Nuclear Power Station (KNPS) are larger than those proposed for Nuclear-1, Eskom has proposed EPZ based on EUR requirements, based on the proposed technology for Nuclear-1. . The basis for Eskom adopting the EUR is that the EUR specification aims at ensuring that the design of nuclear power station that is adopted will have minimal impact on people and the environment.

Comment 3:

Are they defined in the EIA?

Response 3:

Please refer to Response 1.

Comment 4:

There are various activities and proposals being submitted around the Eskom property. Are these addressed in the EIA to buffers?

Response 4:

Current land uses around the proposed sites are considered. However, planned land uses cannot be anticipated and are outside the control of Eskom or the NNR until such time as the EPZs have been formally defined. Refer to Appendix E34 for the Town Planning Assessment which considers the impact of the EPZ's on the surrounding land use.

Comment 5:

What regulations control the type of activities allowed just outside the Eskom area?

Response 5:

The National Nuclear Regulator will exercise control over the activities taking place within the UPZ.

Comment 6:

1. Please could you send the EIA .pdf, or point me to a website where I can access it.

Response 6:

GIBB contacted the author via phone and e-mail on 23 November 2012 and referred him to the necessary link in order to download the documents requested.

Comment 7:

2. Dr. Werner Illenberger informed me that Gibb had Southern Mapping Co. fly all 5 sites with Lidar in 2007, for Eskom. The people we were dealing with at Eskom did not know this (right-left hand). We discovered this in 2009, and obtained the data for the Thyspunt site in time for the restart and recent T2 marine terrace mapping & OSL / CN dating program by Geomatrix-CGS. I was closely involved in this too, as well as the T1 fault mapping and dating program. With all the recent developments in and around Oyster Bay – Thyspunt – St. Francis, has the site since been reflown (aerial photography, or even lidar)? Just checking..e.g. Mapping the recent flood damage wrt the Sand River, and other areas, may assist geo-hazard investigations in the Site Vicinity area.

Response 7:

The sites have been reflowed in 2011.

Yours faithfully
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or 'J' with a horizontal line extending to the right.

The Nuclear-1 EIA Team

Cape Town

 14 Kloof Street
 Cape Town 8001
 PO Box 3965
 Cape Town 8000

 Tel: +27 21 469 9100
 Fax: +27 21 424 5571
 Web: www.gibb.co.za

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR141 1 – 30 September 2012)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Rory Haschick	ECDC - East London
2	Nicolene Venter	Sivest
3	Darryl Hunt	Dynamic Energy Consultants cc
4	Banie Engelbrecht	Interested and Affected Party

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Tuesday, 18 September 2012 17:14 Email	Rory Haschick ECDC - East London	Please can you advise as to the progress with the EIA for the Eskom nuclear power station itself (NOT the lines)?	The Environmental Impact Assessment Process for Nuclear-1 is at a draft EIR phase. The Revised Draft EIR Version 2 is available for public review from Monday, 21 September 2015 to Monday, 23 November 2015.
2	Wednesday, 19 September 2012 06:37 Email	Nicolene Venter Public Participation & Stakeholder Engagement Practitioner	<p>Please be informed that through the EIA and consultation process for the proposed Thyspunt Transmission Lines Integration Project, comments / concerns raised by our project's stakeholders and I&APs regarding the Nuclear-1 project has been forwarded to Arcus GIBB. A number of comments / concerns has been sent through as and when received throughout our EIA process. It was believed that these stakeholders / I&APs would have been registered on the Nuclear-1 project database.</p> <p>At a focus group meeting held on Monday evening 17 September 2012, our team was made aware that the Elands River Conservancy has to date not received any correspondence from Arcus GIBB.</p> <p>We kindly request that Arcus GIBB look into this matter and address it accordingly.</p> <p>Attached are the contact details of three of the Committee Members.</p>	Thank you for your comment, GIBB confirms that the Elands River Conservancy has been registered onto the Nuclear-1 EIA database.

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
3	Thursday, 27 September 2012 03:42 E-mail	Darryl Hunt, Dynamic Energy Consultants cc	<p>Please may I request that you change the method of correspondence from registered mail to e-mail. I am more than satisfied with this.</p> <p>We are a 3-person consultancy in the energy sector with a very full job-jar and cannot keep going to the Post Office to collect registered mail for something which could just as easily be sent by e-mail.</p> <p>Please confirm.</p> <p>Much appreciated.</p>	You will henceforth receive correspondence via e-mail as requested.
4	Sunday, 30 September 2012	Banie Engelbrecht, Interested and Affected Party	<p>With profound interest in the associated infrastructure, what about the infrastructure for employees such as residence, habitation, housing accommodation, right of occupation, schools, transport, retail and so forth.</p> <p>To whom may i correspond with regard to the above.?</p> <p>When can we have the results</p>	Thank you for your comment. The construction of accommodation / staff villages for construction and operational staff is not assessed in the Nuclear-1 EIA. Eskom's preference is for staff to be accommodated in existing or planned developments. However, should it be necessary for Eskom or the appointed contractor to construct staff accommodation, this may be subject to a separate EIA process.

Yours faithfully

For GIBB (Pty) Ltd
 The Nuclear-1 EIA Team

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**
ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)
COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
(Volume – IRR142 1 – 30 October 2012)

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Sharon Kayster	Western Cape Provincial Parliament
2	David Lipschitz	My Power Station: An ESX Energy Saving Experts Consortium member

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Wednesday, 3 October 2012 01:15 Email	Sharon Kayster PA to GCR Haskin ACDP MPP/ SCOPA Chairperson Western Cape Provincial Parliament	<p>I write to you on behalf of Grant Haskin MPP, ACDP, who acknowledge your letter dated 13 June 2012, with regards to the above mentioned topic and wish to extend a thank you for briefing us accordingly.</p> <p>Kindly supply us with a copy of the Issues and Response Report and if/when available the Draft EIR Version 2.</p> <p>Thank you kindly and we look forward to your response.</p>	<p>Your e-mail correspondence dated 21 June 2013 refers. Thank you for your comments. A copy of the issues and response report will be made available to all interested and affected parties via the project websites once the Revised Draft EIR Version 2 is made available for comment.</p>
2	Tuesday, 22 November 2012 02:56 E-mail	David Lipschitz My Power Station: An ESX Energy Saving Experts Consortium member	<p>What do you think of Peter's comment? How come you didn't ask for my presentation?</p> <p>If Renewable Energy will be cheaper than coal and nuclear within the next 5 years, then what is the point of building new nuclear power stations?</p>	<p>Your comments are noted.</p> <p>Unfortunately your email does not sufficiently identify the person named only by his first name of "Peter". We are therefore unable to respond to your question about his comment. Furthermore, it is unclear what presentation you refer to.</p> <p>It is not contested that renewable electricity generation has an increasingly important role to play in South Africa. However, a decision on the proportions that different power generation technologies contribute to South Africa's supply is outside the scope of the Nuclear-1 EIA.</p> <p>As indicated in Chapter 5, in order for Eskom to achieve its objective of providing reliable power to all sectors of South African society, it requires reliable sources of power generation that will supply a consistent base load that can be efficiently integrated into the existing South African power network. Only certain electricity generation technologies are presently commercially available, although not necessarily financially viable in South Africa, based largely on the availability of resources (fuel) and geographical constraints.</p> <p>The then DEAT's approval of the Final Scoping Report and the Plan of Study for EIA for the Nuclear-1 EIA accepted that different power generation technologies such as renewables do not need to be</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
				<p>investigated in the EIA phase of the Nuclear-1 EIA. It needs to be emphasised that nuclear power is not being pursued as an alternative to any form of renewable power generation or to the exclusion of any other power generation technology. All forms of power generation have an appropriate role in the mix of generation alternatives. No technological alternative for power generation can be assumed to be ideal for all purposes in all circumstances, and their application is dependent on their characteristics. The relative contributions of different generation technologies have been determined by the Integrated Resource Plan (IRP) 2010, based on the needs of the South African energy market.</p> <p>Comparisons of the Levelised Cost of Electricity (LCOE) in the IRP 2010 and two recent studies from the United States and the United Kingdom, cited in Chapter 5 of the Revised Draft EIR Version 2, indicates that the costs of nuclear power is comparable to other forms of power generation. Whilst the cost of renewable energy may be assumed to reduce over time, South Africa will continue to require reliable base load dispatchable electricity generation, as a number of different generation types, serving different purposes, are required.</p>

Yours faithfully



for GIBB (Pty) Ltd
 The Nuclear-1 EIA Team

Our Ref: J31314

DEA Ref.:12/12/20/944

NEAS Ref: DEA/EIA/918/2008

05 August 2015

Email: mgoedhart@mweb.co.za

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

Dear Marc Goedhart

**RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR-1 NUCLEAR
POWER STATION (NPS) AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No:
12/12/20/944)**

GIBB (Pty) Ltd acknowledges receipt of the submission received from the Marc Goedhart dated 17 November 2012. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Comment 1:

As an I&AP, and team member of the Eskom SSHAC committee (Senior Seismic Hazard Assessment Committee), I would like to get the overview of the Thyspunt site as provided in the EIA.

Response 1:

An overview of the Thyspunt site with regards to its seismic characteristics is provided in Appendix E4 of the Revised Draft Environmental Impact Assessment (EIR). The baseline environment of all sites, including Thyspunt, is discussed at length in Chapter 9 of the EIR.

Comment 2:

I was responsible for the geological mapping of the Regional, Site Vicinity and Site Area, and initial Site Location work (1:5,000 scale). These are regulated investigative distances from the reactor site. I am also the person who mapped out and removed the 'Klippepunt fault' previously indicated by the AEC team (now NECSA), and helped co-ordinate and interpret the geophysics around the site, both onshore and offshore. These maps and reports are all at CGS and Eskom, and I am sure you have perused them.

Response 2:

Your comment has been noted. GIBB confirms that your maps and reports were used to assist in the compilation of the Seismic Risk Assessment.

Comment 3:

Following recent discussions with people and organizations who contributed to the EIA, and are probably referenced in it, I realized I never saw the final EIA

Response: 3

Your comment is noted. The final Environmental Impact Report (EIR) has not yet been published. The EIR is still in draft form at the time of writing this response.

Comment 4:

What is the purpose of the 3km boundary from the EIA corridor, and how is it defined? Or for that matter, the 800m line from the EIA corridor? Are these distances regulated, as per NUREG Site Area and Site Location regulations? Are they defined in the EIA?

Response 4:

As indicated in Chapter 3 of the Revised Draft EIR Version2, all nuclear power stations are required to have emergency plans in the event of a disaster. At this stage, the exact delineation of the Emergency Planning Zones (EPZs) is unknown and the sizes of the EPZ have been assumed, based on current international practice for Generation III reactors. The extent of the emergency planning zones will be set by the NNR licensing process.

EPZs assist in accomplishing the emergency response goals by carefully controlling the activities in the region closest to a nuclear power station. In order to provide some clarity on the purpose of such zones, the existing Koeberg power station emergency zones are briefly discussed below as an example. Given that the technology of nuclear reactors has changed significantly since the commissioning of Koeberg, it is likely that the EPZ will be reduced in comparison to Koeberg Nuclear Power Station's EPZs. The emergency planning zones for Koeberg are characterised by 5 km and 16 km radii around the power station. The 5 km radius around Koeberg is referred to as the Protective Action Zone (PAZ) and the zone between 5 - 16 km radius is referred to as the Urgent Protective Zone (UPZ).

It is likely that the corresponding EPZs for the new nuclear power station will be reduced to 800 m and 3 km respectively. The reduced EPZs are based on European Utility Requirements (EUR) standards, which prescribe that modern nuclear power plants should have no or only minimal need for emergency interventions (e.g. evacuation) beyond 800 m from the reactor. The EUR standards also provide a set of criteria that a reactor must meet in order to demonstrate that it can be built to comply with such emergency planning requirements.

Comment 5:

There are various activities and proposals being submitted around the Eskom property. Are these addressed in the EIA it buffers? What regulations control the type of activities allowed just outside the Eskom area?

Response 5:

Development in the areas around a nuclear power station is controlled by regulations under the National Nuclear Regulator Act, 1999 and its associated regulations. The type of

development outside the Eskom area that will be allowed will be investigated in the Spatial Planning Report, which is in the process of being prepared. However, it is not anticipated that there will not be any restriction in terms of the type of development that will be allowed; provided that adequate provision is made for evacuation routes should an incident occur at the Nuclear Power Station.

Comment 6:

Please could you send the EIA .pdf, or point me to a website where I can access it.

Response 6

Please visit the link below for Revised Draft Environmental Impact Report (EIR) which was previously made available for public review and comment from 09 May 2011 to 07 August 2011:

<http://projects.gibb.co.za/enus/projects/eskomnuclear1reviseddrafteir.aspx>

You will be notified of the availability of the revised draft EIR version 2 in due course.

Comment 7:

Dr. Werner Illenberger informed me that Gibb had Southern Mapping Co. fly all 5 sites with Lidar in 2007, for Eskom. The people we were dealing with at Eskom did not know this (right-left hand). We discovered this in 2009, and obtained the data for the Thyspunt site in time for the restart and recent T2 marine terrace mapping & OSL / CN dating program by Geomatrix-CGS. I was closely involved in this too, as well as the T1 fault mapping and dating program. With all the recent developments in and around Oyster Bay – Thyspunt – St. Francis, has the site since been re-flown (aerial photography, or even lidar)? Just checking .e.g. Mapping the recent flood damage with regards to the Sand River, and other areas, may assist geo-hazard investigations in the Site Vicinity area.

Response 7:

The site was re-flown in 2011. The Sand River, in which the majority of the flooding has occurred, has a catchment north of the Oyster Bay mobile dune field and drains to the east. As such, flooding in the Sand River does not affect the proposed footprint of the power station, which lies in stable vegetated dunes well to the south of the mobile dune field.

The Nuclear-1 EIA team's dune geomorphologist has prepared a second addendum to his Dune Geomorphology Assessment (Appendix E2 of the Environmental Impact Report). This contains a detailed analysis of the causes of flooding in the Sand River catchment and confirms that flooding in this catchment is not a threat to either the proposed power station or the proposed access roads to the power station.

Yours faithfully

Reuben Heydenrych



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

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

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 144) 1 - 31 January2013)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Bruce Munnings	Interested and Affected Party

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Monday, 14 January 2013 11:33 Email	Bruce Munnings (Interested and Affected Party)	<p>There are in my opinion more suitable electricity generation options than a relatively large nuclear power plant at Thuyspunt (sic) for which the transmission lines are required. One of the options are small modular nuclear reactors for which major transmission lines will not be required as the relatively smaller generators are located closer to the load and are in some instances considerably safer (www.thorium100.com and http://www.nrc.gov/reactors/advanced.html). Other options include natural gas fired generators http://www.eia.gov/naturalgas/ which are more suited to peak power generation when renewables are not available compared to large nuclear power plants.</p>	<p>Your comments are noted.</p> <p>Your assertion about small modular reactors is correct. However, these reactors are in their early development phase and have not been proven for commercial power generation yet. South Africa has championed the PBMR reactor project development for this purpose, but unfortunately the project has been discontinued. As indicated in Chapter 5 of the Revised Draft EIR Version 2, in order for Eskom to achieve its objective of providing reliable power to all sectors of South African society, it requires reliable sources of power generation that will supply a consistent base load that can be efficiently integrated into the existing South African power network. Only certain electricity generation technologies are presently commercially available, although not necessarily financially viable in South Africa, based largely on the availability of resources (fuel) and geographical constraints.</p> <p>The then DEAT's approval of the Final Scoping Report and the Plan of Study for EIA for the Nuclear-1 EIA accepted that different power generation technologies such as renewables do not need to be investigated in the EIA phase of the Nuclear-1 EIA.. It needs to be emphasised that nuclear power is not being pursued as an alternative to any form of renewable power generation or to the exclusion of any other power generation technology. All forms of power generation have an appropriate role in the mix of generation alternatives. No technological alternative for power generation can be assumed to be ideal for all purposes in all circumstances, and their application is dependent on their characteristics. The relative contributions of different generation technologies have been determined by the Integrated Resource Plan (IRP) 2010, based on the needs of the South African energy market.</p> <p>Your comment about gas-fired generators is noted. As you indicate, gas-fired generators are only suitable for peak power. This is because their fuel costs in the South African market are very high compared to other forms of generation. According to figures in the IRP 2010, the Levelised Cost of Electricity (LCOE) for an Open Cycle Gas Turbine plant is R 2,866.00 / MWh, compared to between approximately R 400 and R 530 / MWh for coal and nuclear. The purpose of nuclear power is not to provide peak power at times when renewables are not</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
				available – it is to provide base load power, as clearly indicated in the Environmental Impact Report.

Yours faithfully



for GIBB (Pty) Ltd
The Nuclear-1 EIA Team



**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 145) 1 May - 31 May 2013)

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

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Jaana-Maria Ball	Interested and Affected Party

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Monday, 13 May 2013 04:31 Email	Jaana-Maria Ball Interested and Affected Party	Please can you register me as an I&AP for the Nuclear-1 EIA. My details are as follows: Jaana-Maria Ball 9 Silverlea Village 21 Silverlea Road Wynberg Western Cape South Africa Email: jaanaball@gmail.com	Thank you for showing interest in the project, you have been registered on our Nuclear-1 EIA database as an I&AP.

Yours faithfully



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 146) 1 - 30 June 2013)

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

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Hilton Thorpe	Interested and Affected Party
2	Anna-Marie Groenewald	Interested and Affected Party
3	Paul Prinsloo	City Of Cape Town Municipality
4	Alvan Gabriel	Department of Environmental Affairs and Development Planning (Western Cape).
5	Johannes Vermaak	Interested and Affected Party
6	Rob Fryer	Interested and Affected Party
7	Rhett Smart	Cape Nature
8	Trudi Malan	Thyspunt Alliance
9	John Taylor	Melkbosstrand Ratepayers Association

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Wednesday, 19 June 2013 06:31 Email	Hilton Thorpe Interested and Affected Party	This progress feedback letter has been forwarded to me, as the St Francis Bay representative on the Thyspunt Alliance. I should be most grateful if DVDs/CDs of the Issues and Responses Report and of the 2nd Revision of the Draft EIR could be sent directly to me at P.O.Box 445, St Francis Bay, 6312, or delivered to 37 Shore Road, St Francis Bay, as soon as they are available.	Thank you for your comment. A copy of the Issues and response report will be made available to you once the Revised Draft EIR Version 2 has been finalised.
2	Wednesday, 19 June 2013 10:21 Email	Anna-Marie Groenewald Interested and Affected Party	<p>Nuclear Power stations are outdated, as it is extremely dangerous and earth unfriendly and disasterous if something goes wrong. Germany decided to close down all nuclear stations more than 2 years ago. South Africa is really behind the times here.</p> <p>Even though wind power is also not so bird friendly, it is on the whole so much more eco friendly with less toxic waste and also much cheaper. And we have a lot of wind here. I do not think South Africa, with its unstable peace issues, its high corruption levels, and low expertise levels, should even consider more nuclear power stations.</p> <p>If they find it hard to keep even the roads in good condition, a nuclear station just forcasts trouble. Please move with the times and forget about expensive correl beds etc and use the money to install solar heating in houses and use the ground you have to put up wind farms. I object strongly to all nuclear power stations here or anywhere else.</p>	<p>Your objection has been noted.</p> <p>The German government's decision to phase out nuclear power is noted, but it means that Germany is increasingly dependent on imported power (including nuclear generated power from France). Whilst Germany's development of renewable power has been impressive, it has limitations and cannot be relied upon to provide base load power. Wind power and solar power require backup power supplies for the time that wind and sun are not available. Both these generation technologies have capacity factors of approximately 30%, which means that they are able to produce electricity only for that percentage of time. The capacity factors of base load technologies such as coal and nuclear are typically more than 80%.</p> <p>As you have indicated, wind generation is not without impacts of its own. These include impacts on birds and bats, visual impacts, impacts of the wind turbine footprints and associated infrastructure such as substations and access roads, noise impacts and substantial traffic impacts during construction. Added to these impacts is the fact that wind turbines have a life span of only approximately 20 years, which means that the material of which they are constructed becomes waste. As indicated in Chapter 5 of the EIR, the space required for wind to generate close to the 4,000 MW planned for Nuclear-1 is approximately 270,000 to 350,000 ha. This assumes that wind turbines can be placed at equal distances across an area and does not take</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
				<p>account of difference in suitability of the terrain. Due to differences in terrain, vegetation and other factors, the actual area required to generate this amount of electricity will be far greater.</p> <p>Your comment regarding the installation of solar heating is noted. Eskom, supported by government, is currently busy rolling out solar water heating across South Africa. Other forms of savings in electricity demand are also being actively pursued. However, such savings have a limited capacity to reduce demand, and 40,000 MW of additional power is still required to be developed in South Africa by 2030.</p>
3	Wednesday, 19 June 2013 08:39 Email	Paul Prinsloo City of Cape Town Municipality	Is Nuclear-1 the Koeberg NPS, or a proposal on another site in SA?	Thank you for your comment. The Nuclear-1 Power station is a proposal for a new nuclear power station on one of the following three alternative sites: Duynefontein (Koeberg), Bantamsklip (near Pearly Beach) in the Western Cape and Thyspunt (near St. Francis) in the Eastern Cape.
4	Thursday, 20 June 2013 11:32 Email	Alvan Gabriel Department of Environmental Affairs and Development Planning (Western Cape).	Please be sure to send a hard copy of the upcoming EIAR for comment to the EIA components of the Department of Environmental Affairs and Development Planning (Western Cape).	Thank you for your comment. A hard copy of the Revised Draft EIR Version 2 will be submitted to DEA&DP once it has been finalised.
5	Thursday, 20 June 2013 15:24 Email	Johannes Vermaak Interested and Affected Party	Please stop the air pollution by the Eskom coal power-stations and build the nuclear power-station as soon as possible	Thank you for your input, your comment has been noted.

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
6	Friday, 21 June 2013 14:06 Email	Rob Fryer Interested and affected Party	<p>The Overstrand Conservation Foundation, now trading as Whale Coast Conservation, has been a registered interested and affected party since the early stages of the Nuclear-1 EIA process. Please check your I&AP list to ensure that the correct contact details are reflected on your register ... we did not receive the I&AP e-mail directly from you and only became aware of it because it was forwarded to us from another party.</p> <p>I would also like to have feedback on what is happening with the transmission line EIA associated with the proposed Bantamsklip site. There has been no communication about its status for 2 years or more?</p> <p>Please amend my contact details to the following:</p> <p>Overstrand Conservation Foundation (Trading as Whale Coast Conservation) Represented by Rob Fryer e-mail: rob.fryer@ocf.org.za Telephone: 028 316 2527 cell: 072 185 5726 Postal address: PO Box 1949, Hermanus, 7200 Physical address: Green House, Farm Hoek van die Berg No.572/3, Vermont, Hermanus 7201</p>	<p>Thank for your comment, your details on the I&AP database for the Nuclear-1 power station EIA have been amended as requested.</p> <p>Please be advised that the transmission line EIA for Bantamsklip only proceeded up to the scoping phase. Eskom Transmission has not progressed further with the EIA process for the transmission lines. Please refer to Chapter 5 of the RDEIR Version 2 for further information.</p>
	<p><i>Second E-mail:</i> Friday, 28 June 2013 08:22 Email</p>			
7	Friday, 21 June 2013 14:00 Email	Rhett Smart CapeNature	<p>Please can you ensure that hard copies of the reports are provided to CapeNature when they become available for review. We assume that the latest updated issues and response report will be contained within the report.</p>	<p>Thank you for your comment. The Revised Draft EIR Version 2 will be made available to CapeNature once it has been finalised.</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
8	Monday, 24 June 2013 10:28 E-mail	Trudi Malan Thyspunt Alliance	<p>I am a registered I&AP for the Nuclear 1 project but I have to date not received any of the notifications forwarded to I&AP's. To ensure that I receive all future correspondence I have included the correct details. Please be so kind as to verify that I am registered and that you have received this e-mail with my most current details.</p> <p>Trudi Malan</p> <p>Details:</p> <p>PO Box 102 St Francis Bay 6312</p> <p>E-mail: trudi@amaziko.co.za (my previous address dolphin@intekom.co.za is still active, but I would prefer if you can use the provided address as my preferred address).</p>	Your comment has been noted. Your preferred e-mail address has been updated as requested. Thank you for your participation to date.
9	Sunday, 30 June 2013 08:28 E-mail	John Taylor Melkbosstrand Ratepayers Association	<p>Please confirm that Melkbosstrand Ratepayers Association is registered as an I&AP.</p> <p>Please note our new address for post is: P O Box 235 Melkbosstrand 7437</p> <p>All correspondence to also be emailed to: The Chairperson c/o john@melkbosstrand.net</p>	Your comment has been noted. The Melkbosstrand Ratepayers Association is registered as an I&AP. The contact details have been updated accordingly on the I&AP database for the Nuclear-1 power station EIA.

Yours faithfully

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character.

for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

Our Ref: J31314

DEA Ref.:12/12/20/944

NEAS Ref: DEA/EIA/918/2008

05 August 2015

Email:landuse@capenature.co.za

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

Dear Rhett Smart

**RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR-1 NUCLEAR
POWER STATION (NPS) AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No:
12/12/20/944)**

GIBB (Pty) Ltd acknowledges receipt of the submission received from the Cape Nature dated 21 June 2013. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Comment 1:

Cape Nature's requirements for providing comments on agricultural, environmental, mining, planning and water-use related applications

CapeNature is the statutory custodian of biodiversity in the Western Capeⁱ and commenting authority concerning potential impacts on biodiversity. This letter outlines the minimum requirements for submission of applications to CapeNature for the consideration, investigation and reporting on the biodiversity aspects of proposed changes to land use that may require an official decision.

In order to ensure that biodiversity and ecological issues are addressed as early as possible in the development application process and as comprehensively as required, please take note of the following information. This is applicable to any application that requires comment from CapeNature and complying with these recommendations should assist in avoiding unnecessary delays in the process.

Response 1

Your comment has been noted.

Comment 2:

Minimizing negative impacts on biodiversity

2.1 As part of the commenting process, CapeNature's involvement will relate specifically to the impact of the proposed development activities on the biodiversity and ecological aspects of the receiving environment. CapeNature expects that a precautionary and risk-averse approach be adopted towards those projects which may result in substantial detrimental impacts on biodiversity and ecosystems, especially the irreversible loss of habitat and ecological functioning in threatened ecosystems (as identified by the National Biodiversity Assessment, 2012)ⁱⁱ or designated sensitive areas: i.e. Critical Biodiversity Areas (as identified by systematic conservation plans, Biodiversity Sector Plans or Bioregional Plans) and Freshwater Ecosystem Priority Areas.

2.2 All reports must firmly demonstrate how the proponent intends complying with the principles contained in section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended³ (NEMA), which, amongst other things, indicates that environmental management should:

- In order of priority aim to: avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment;
- Avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

These principles serve as guidelines for all decision-making concerning matters that may affect the environment. As such, it is incumbent upon the proponent to show how proposed activities would comply with these principles and thereby contribute towards the achievement of sustainable development as defined by the NEMA.

Response 2

Your comment has been noted. The Environmental Impact Report (EIR) contains an analysis of the adherence of the project to the NEMA principles.

Comment 3:

Guidelines and biodiversity plans

3.1 The Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) has produced a series of guideline documents that provide clear guidance on the EIA processⁱⁱⁱ. Specifically, they aim to improve the capacity of environmental assessment practitioners (EAPs) to draft appropriate terms of reference that meet the information requirements for informed environmental decision-making. In addition the Fynbos Forum Ecosystems Guidelines for Environmental Assessment in the Western Cape (see point 3b

below) provides appropriate terms of reference for Botanical Assessments. By meeting the requirements for submission of accurate and relevant information, EAP's can support efficient and accountable decision-making.

With a view to adequately assessing impacts on biodiversity, we request that your environmental assessment is informed by the following documents. The implementation of relevant recommendations and/or actions as stipulated in these documents should be critically considered, regardless of whether a Basic Assessment, Scoping & EIA or any other authorisation process is to be undertaken.

- 3.2 Brownlie S (2005) *Guideline for involving biodiversity specialists in EIA processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 C. Republic of South Africa, Provincial Government Western Cape, Department of Environmental Affairs and Development Planning, Cape Town⁴.
- 3.3 De Villiers C, Driver A, Clark B, Euston-Brown D, Day L, Job N, Helme N, Holmes P, Brownlie S and Rebelo T (2005) *Fynbos Forum Ecosystem Guidelines for Environmental Assessment in the Western Cape*, Fynbos Forum and Botanical Society of South Africa, Kirstenbosch, Cape Town^{iv}
- 3.4 The National Spatial Biodiversity Assessment (2011)^v
- 3.5 The most recent conservation plans and their associated reports and guidelines are available at the SANBI Biodiversity GIS Unit website^{vi}. The mapping tools can be useful, but please note that while these tools can help to identify potential issues, the use thereof does not constitute a biodiversity assessment.
- 3.6 Biodiversity Sector Plans for municipalities, where available^{vii}.
- 3.7 The Western Cape Provincial Spatial Development Framework: Statutory Report (2009) (Department of Environmental Affairs & Development Planning)^{viii}.

Response 3

Your comment has been noted. The botanical specialist, Barrie Low of Coastec, is familiar with the DEA&DP guidelines and has produced a biodiversity assessment that addresses the issues identified in these guidelines.

Comment 4:

Biodiversity 'red flags' in the Western Cape

- 4.1 The following factors must be taken into account during project planning and assessment:
 - a. CapeNature *does not support* activities that may negatively impact on the following habitats and their ecological functioning:
 - i. Rivers, wetlands, groundwater-dependent communities or ecosystems, flood plains and estuaries, tidal flats or salt marshes.
 - ii. Viable and/or connected habitat in Critically Endangered and Endangered ecosystems.
 - iii. Any area that has been identified as a Critical Biodiversity Area or Ecological Support Areas as identified by the most recent systematic conservation planning initiative.

- iv. Any other special habitats that may contain a unique assemblage of species. This could include *inter alia*, dolomite outcrops, quartz or ferricrete patches.
- v. Any habitat that may contain rare, threatened or range-restricted floral or faunal species.
- vi. Natural habitat in an ecological corridor or along a vegetation boundary (including frontal dune systems).
- vii. Formally declared Mountain Catchment Areas.

Appropriate buffers must be determined by a suitably qualified specialist to avoid impacting on these habitats and particular attention should be paid to avoiding the loss of intact habitat, maximizing connectivity at a landscape scale, maximizing habitat heterogeneity and reducing fragmentation at a local and regional scale. Please also note that an infestation by alien plants does not necessarily mean that an area is not important for biodiversity conservation.

- b. The Cape Floristic Region is largely a fire-dependent system and natural fire regimes must be maintained and managed in the landscape. The exclusion of fire from certain habitats will be considered unacceptable as this may ultimately cause the loss of species. Where appropriate, the location of fire-breaks should be indicated and these fire-breaks may be considered part of the development footprint. A fire-risk assessment can help inform an appropriate layout for developments adjacent to fire-prone vegetation.
- c. Water is a limited resource in the Western Cape. Water requirements for proposed activities and the potential impact on broader surface and underground water resources must be rigorously assessed and considered by an aquatic/freshwater specialist, including the cumulative impact if other developments are also taking place in an area. Cumulative impacts on infrastructure such as Waste Water Treatment Works must also be considered.

Groundwater use for bulk supply purposes and irrigation must be assessed rigorously with specific reference to the possible groundwater-surface water interfaces. Groundwater use assessments must include the identification of possible groundwater dependent ecosystems and/or possible interfaces with surface resources. Aquifers need to be described in terms of: aquifer type, aquifer characteristics, aquifer condition, as well as aquifer recharge and yield^{ix}.

Specialist assessment(s) should be undertaken if any of the above-mentioned circumstances prevail or if there is any doubt about the biodiversity value of the potentially impacted areas. The opportunities and constraints of the receiving environment should be used to inform the desirability and layout of any development proposal so as to ensure that developments do not compromise the biodiversity value of the area.

Response 4

Your comment has been noted. These guidelines have been taken into considerations in the biodiversity assessments undertaken for the Nuclear-1 EIA.

Comment 5:

Commissioning of biodiversity specialists

- 5.1 A suitably qualified and experienced specialist is often critical to ensuring that the necessary information is provided for informed decision-making. Please take note of the following recommendations from the *Guideline for involving biodiversity specialists in EIA processes (DEA&DP 2005)*.

Biodiversity specialists should:

- a. Be competent at interpreting and evaluating information and able to explain the direct and indirect consequences of an activity to biodiversity;
- b. Have appropriate formal training in his/her field of expertise;
- c. Have sufficient practical experience working in the specific ecosystems of the affected region;
- d. Be able to trace impact pathways and identify indirect or cumulative impacts and consider ecosystem goods and services;
- e. Have good knowledge relating to assessment techniques and to relevant legislation, policies and guidelines;
- f. Be independent; and
- g. Be registered with South African Council for Natural Scientific Professions (SACNASP).

CapeNature also recommends that specialists be asked to review the information in the report to be submitted for decision-making to confirm that their opinion has been adequately reflected.

Response 5

Your comment has been noted. The biodiversity specialists used for the Nuclear-1 EIA comply with the above-mentioned criteria.

Comment 6:

Format of reports

- 6.1 Please help us provide you with a timely response by supplying all information in a readily accessible format:
- a. The main report must be submitted, and include: locality maps, all alternative layout plans and all biodiversity related specialist reports. All reports longer than 50 pages must be submitted in hardcopy, shorter reports can be submitted on disc. The hardcopy should be accompanied by a digital copy of the complete application on disc.
 - b. Electronic reports must be submitted on cd/dvd – we will not accept reports sent via email or ftp or website links.
 - c. We also encourage you to reduce the amount of paper used by printing both sides of a page.
 - d. Please supply all maps and alternative layouts in colour.
 - e. To facilitate assessment of potential impacts, we request that maps of proposed development layouts be overlaid with identified environmental features of a site. If provided separately, maps should be produced at the same scale.
 - f. Where available, GIS shape-files of the proposed development footprint, particularly for linear features or for combined applications with numerous sites, would be appreciated.

- g. Please allow sufficient time for post or courier services to deliver the documents at the beginning of the commenting period. We receive a large number of reports and need to treat applicants and consultants fairly therefore applications will be processed from date of receipt within the required number of days as stipulated by the DEA&DP, the DMR or other competent authority.
- h. For spatial planning reports or Environmental Management Frameworks however, electronic reports submitted via ftp sites will be accepted.

Response 6

Your comment has been noted. These guidelines will be considered in the development of reports.

Comment 7:

Status of CapeNature's comment

Please note that CapeNature does not consider verbal discussions regarding any aspect of a proposed development as adequate or complete comment. Please ensure that you obtain written comment once all the necessary information is made available for review. We reserve the right to amend our position based on any new information that may be received.

Response 7

Your comment has been noted.

Comment 8:

Applications requiring comment from CapeNature should be sent to the following addresses:

City of Cape Town and Overberg District Municipalities:

CapeNature
Scientific Services: Land Use Advice
P/Bag X5014
STELLENBOSCH
7599
Attention: Rhett Smart

Email: rsmart@capenature.co.za
Tel: 021 866 8000
Fax: 021 866 1523 / 086 529 4992

West Coast and Winelands District Municipalities:

CapeNature
Scientific Services: Land Use Advice
P/Bag X5014
STELLENBOSCH
7599

Attention: Alana Duffell-Canham

Email: aduffell-canham@capenature.co.za

Tel: 021 866 8000

Fax: 021 866 1523 / 086 529 3475

Eden and the Central Karoo District Municipalities:

CapeNature
Scientific Services: Land Use Advice
P/Bag X6546
GEORGE
6530
Attention: Benjamin Walton

Email: landusegeorge@capenature.co.za

Tel: 044 802 5328

Fax: 086 645 2546

Forward Planning Documents and Environmental Management Frameworks for all regions in the Western Cape

CapeNature
Scientific Services
Private Bag X7
Claremont
7735
Attention: Kerry Maree

Email: Kmaree@capenature.co.za

Tel: 021 799 8731

Fax: 021 797 7186

Response 8

Your comment has been noted and reports will be provided for comment to CapeNature as indicated.

Yours faithfully



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

ⁱ Section 9, Western Cape Nature Conservation Board Act 15 of 1998

ⁱⁱ Formerly the National Spatial Biodiversity Assessment of 2004

ⁱⁱⁱ http://www.westerncape.gov.za/your_gov/406

^{iv} Contact the Botanical Society on 021 797 2090 or email info@fynbosforum.org.za or download at <http://bgis.sanbi.org/wces/project.asp>

^v <http://bgis.sanbi.org/nba/project.asp>

^{vi} <http://bgis.sanbi.org> or email BGISHelp@sanbi.org

^{vii} Biodiversity Sector Plans include Critical Biodiversity Areas Maps, Municipal Biodiversity Profiles and Land and Resource Use Guidelines.

^{viii} http://www.westerncape.gov.za/eng/pubs/public_info/W/186589

^{ix} For groundwater-related assessments, consult: Saayman, I (2005) Guideline for involving hydrogeologists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 D. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

Our Ref: J31314

DEA Ref.:12/12/20/944

NEAS Ref: DEA/EIA/918/2008

05 August 2015

Email: trevor@grasslands.co.za**Cape Town**14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Trevor Elliot

**RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR-1 NUCLEAR
POWER STATION (NPS) AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No:
12/12/20/944)**

GIBB (Pty) Ltd acknowledges receipt of the submission received from Trevor Elliot dated 20 June 2013. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Comment 1:

Fusion is not the future: If Germany can phase out nuclear energy and thrive, why any country would choose to follow a uranium-fuelled path, wonders Jochen Flasbarth

At the start of this year Germany officially entered the Dark Ages again - at least according to it's state weather service. A mere 22.5 hours of sunshine were recorded in January- a 60-year low. Despite this, the country's power supply, which has a world leading input from solar panels, firmly stood its ground, even without the eight nuclear reactors that were switched off in 2011? There was sufficient energy for charging smartphones, running dishwashers and the like – and enough for slightly more essential things such as industry or life support systems in hospitals. And people in need of a fake tan could easily get one.

Such good news probably did not go down well with the pronuclear lobby. Grim and cold spells of this type had been their favourite doomsday scenario. Talk of a Stromlucke or electricity gap made headlines after the 2011 decision to shut nearly half of Germany's 17 reactors in the wake of Japan's Fukushima disaster, The fear ran rampant that, without a nuclear backbone, blackouts might push German industry out of business - or at least out of the country. This proved groundless. Despite the reactor switch-offs, Germany was able to help nuclear neighbour France as she struggled to meet electric heating needs in the winter immediately after Fukushima. According to recent figures released by the Federal Statistical Office, German electricity exports in 2012 hit a four-year high, which also rebuts the popular fallacy that the country relies on imported electricity from nuclear plants in France or the

Czech Republic. When a highly industrialised country such as Germany can cut a third of its nuclear capacity, almost at the flick of a switch and still export more electricity than it imports, the pursuit of a nuclear renaissance elsewhere is puzzling. For example, the UK recently agreed to a new nuclear plant, Hinkley Point C, in Somerset and work began on reactors in South Carolina and Georgia in the US.

Response 1:

Your comment has been noted.

It is not the intention of the Nuclear-1 EIA to debate the pros and cons of alternative electricity generation technologies. 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), to assess the impacts of a proposed nuclear power station. An EIA, as a tool of environmental management, is not able to revisit strategic government decisions on the relative contributions of different electricity generation technologies to the mix of generation in the country as a whole.

The recommendations made in the Integrated Resource Plan 2010 with regards to the contributions of the nuclear, coal, renewables, etc. are strategic government decisions outside the ambit of the Nuclear-1 EIA process. Neither the Nuclear-1 EIA process nor any other EIA for a power generation project has any mandate to revisit the recommendations of the IRP 2010, which recommendations have been adopted as government policy through acceptance by cabinet. The IRP is reviewed periodically and some of its recommendations may change, but it is likely that the majority of the changes will be with respect to timing and not with respect to the mix of generation technologies.

With regards to the German power generation situation, various studies have been done on the implications of removing power from the supply side. Because of the pooled nature of European supply and seasonal variations, an overall analysis of the German situation is both complex and not necessarily directly comparable to the South African situation. The decisions on the generation mix taken in the IRP 2010 are based on the South African situation.

Comment 2:

Why would anyone choose to reinvest in a form of power that seems not to have been harnessed properly? At Chernobyl and Fukushima the world had two very close shaves. Not a very impressive safety record for technology that has been pampered with billions of dollars of investment over 60 years: Nuclear power incurs risks and costs beyond the operation of its reactors: getting uranium out of the ground devastates the ecology of countries that mine it.

Response 2:

Your comment has been noted.

All power generation technologies have some form of environmental and social costs. Whilst the environmental and social costs of nuclear accidents like Fukushima and Chernobyl are highly publicised, the environmental costs of other more socially accepted technologies like coal-fired generation have not been publicised to the same extent, but are no less severe. Impacts of coal-fired generation (from a life cycle perspective) include, but are not necessarily limited to: deaths and injuries from coal mining, acidification and salinisation of water sources, large scale sterilisation of farmland due to open-cast mining and ash dumps, use of large volumes of water (with associated impacts on aquatic systems) and potential respiratory health impacts. Whilst a nuclear accident such as Chernobyl had a single and large impact, coal technologies result in smaller scale and less visible impacts, but no less significant when considered cumulatively over time.

It is significant to note that although the Fukushima incident has received extensive publicity, the release of radioactivity from this plant has not resulted in any deaths or incidents of radiation sickness. It must also be noted that the technology of plants such as Fukushima and Chernobyl are several decades older than the proposed Generation III technology for Nuclear-1, which is much safer than the older technology. The two technologies mentioned also have different reactor types; Chernobyl was a Reaktor Bolshoy Moshchnosti Kanalniy (RBMK) / High Power Channel-type reactor and the Fukushima Daiichi reactor was a Boiling Water Reactor type (BWR) reactor, which are both completely different from the Pressurised Water Reactor (PWR) type reactors that Eskom proposes to use for Nuclear-1.

It is true that nuclear generation results in uranium mining impacts. However, the same is true for any other technologies, including renewable technologies like solar and wind generation. Raw materials for solar panels and wind turbines and their associated infrastructure are also obtained through extractive and destructive processes, including mining. Silicon for solar panels is obtained from soil, which is mined. Iron and other metals required for the construction of wind turbine towers is also mined. Thus, if a life cycle approach (from mining to decommissioning and waste disposal) is adopted to assess the impacts of nuclear power, the same approach must also be objectively applied to renewable technologies to provide a comparative assessment of the impacts of all these technologies. Renewable technologies are not free of environmental impacts over their life cycles. However, a life-cycle impact assessment is not possible within the constraints of a project-specific EIA process.

Please refer to Appendix E 33 for further details on Fukushima and Chernobyl within the Beyond Design Accidents Report.

Comment 3:

Then there is the risk of nuclear proliferation and of terrorist attacks on a reactor site. Finally, Germany and many other countries have no fatality (sic) for the final storage of nuclear waste.

That's a bit like taking off in an aeroplane without having a proper landing strip ready. Fortunately, there are far better alternatives. In 2010 my agency devised a study which showed how Germany could source all of its electric energy from sun, wind or water. Now

the Energiewende, or energy transition, the country needs to make is high on the political agenda and gathering pace quickly. Remaining nuclear power stations will be shut by 2022 and fossil-fuel dependence reduced bit by bit.

Response 3:

Your comment has been noted.

Whilst Germany may have a suitable wind regime for substantial generation of power, South Africa has a limited wind power potential. It must also be remembered that the capacity factor of wind turbines in the South African context is around 30% or less. Thus, although the development of some regions in South Africa are very suitable for the development of wind power, these areas are relatively small and concentrated when compared to the national grid. Even if extensive wind and solar power generation is developed, significant backup power supplies (e.g. gas, which is very expensive in the South Africa context, or pumped storage, which is expensive to develop and has limited capacity) are still required in order to level out the often erratic nature of renewable power generation. Thus, the environmental and costs impacts of renewable technologies are not limited to these technologies only and need to include those of the backup technologies that inevitably need to be developed in parallel to the renewable technologies.

Comment 4:

Some fear carbon emissions will raise. However, Germany is still way ahead of its Kyoto target. In 2012 emissions were already down 25.5 per cent compared to 1990 levels. Under Kyoto only 21 per cent is expected. One of the most pressing challenges of a 100 per cent renewable world is how best to use energy sources that by their very nature do not run constantly. Your average German wind turbine operates for 1600 hours of the year. Equally, there are times when wind turbines or Solar panels produce too much electricity. How to store this excess? This can be done conventionally by pumping water to fill a reservoir during the day and using it to produce hydroelectric power at night.

More sophisticated is power- to gas: carbon dioxide and water are combined in a series of steps to produce methane. Renewables will supply the electricity and the methane can be fed into the gas network to heat homes, fuel cars or generate electricity. The technology has yet to mature. But firms such as Audi are trying to get it off the ground commercially. Another challenge is to transport power from the wind rich north to the more populous southern and central Germany.

That will mean building hundreds of kilometres of new power lines. Opposition is predicted. But this could be tackled by offering locals a financial share in mid-scale private solar power installations or wind fans.

Response 4:

Your comment has been noted. Please refer to Response 1 in this regard.

It is also to be noted that the greenhouse gas footprint of nuclear power generation per kWh of electricity produced is also very similar to that of renewable technologies (See Chapter 4 of the EIR).

Comment 7:

A quick word on prices: the financial support for renewables has taken some flak. Critics argue that ladling out money for solar panels has overheated the market and created too much capacity at too high a price. But this can be dealt with. Cuts to payments to panel owners for the electricity they generate. The feed-in tariff have been made, more will follow. To put things in perspective: under the present system the average German is expected to pay €5 a month towards the feed-in tariff. This is a sound investment in clean technology protecting us from the spiralling prices of conventional energy. In a recent study we showed that in 2030, renewable electricity on average will cost 7.6 cents' per kilowatt hour; electricity from gas or coal-fired power plants will probably be 9 cents. Onshore wind turbines already match prices of some fossil fuels. Critics of the Energiewende have argued that it was a knee-jerk reaction after Fukushima. In fact, it was a very rational decision that ended a long and emotional debate over energy policy. We in Germany are not missionaries for this approach. Everybody is free to ignore the facts. Put simply, nuclear power is unsafe and fossil fuels are not a long-term option because of climate change.

Response:

Your comment has been noted.

Comparisons of the Levelised Costs of Electricity (LCOE) of various generation technologies, including nuclear, coal, wind, solar photovoltaic and concentrated solar are provided in Chapter 5 of the Environmental Impact Report (EIR) Version 2. These cost comparisons are provided for the South African, UK and USA markets. All three of these comparisons indicate that the costs of nuclear technology per kWh are competitive with coal-fired generation and with renewables. Although nuclear power has a high start-up (capital) cost, its operational cost per kWh is relatively low.

Yours faithfully



For GIBB (Pty) Ltd
Nuclear-1 EIA Manager

Our Ref: J31314

DEA Ref.:12/12/20/944

NEAS Ref: DEA/EIA/918/2008

05 August 2015

Uitkamp Action Group

Email: yoellmj@mweb.co.za

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

Dear Mike Yoell

**RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR-1 NUCLEAR
POWER STATION (NPS) AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No:
12/12/20/944)**

GIBB (Pty) Ltd acknowledges receipt of the submission received from the Uitkamp Action Group dated 4 July 2013. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Comment 1:

The circular I received two days ago & dated the 19th June 2013 refers.

Many thanks for the communication. It is much appreciated that you continue to provide updates on the progress being made with the EIA procedure.

Response:

Your comment has been noted.

Comment 2:

However the receipt of this message has prompted me to advise you that the Uitkamp Action Group has been disbanded. The Committee took the decision to wind up our affairs, following a declaration made by the City of Cape Town, to cease awarding Grant in Aid funding to NPO's such as ours. It flows from a policy review which essentially means that our ability to provide additional & vital funding for the Biodiversity Management Branch, which was spent on restoration & rehabilitation of the Uitkamp Wetland Nature Reserve, has been

terminated. This was our soul objective for our existence. We do however continue to work as volunteers in the Reserve.

Therefore we have indicated to the Dept. of Soc. Development that we wish to have them deregister the Uitkamp Action Group as an NPO.

Response:

Your comment has been noted. Your group has accordingly been removed from the register of interested and affected parties.

Comment 3:

From your point of view I would take it, that, as I no longer represent a group of interested & affected persons, you will also wish to deregister me (the Uitkamp Action Group) as a correspondent. I believe that would be the logical action you will wish to take.

Response

The Uitkamp Action Group has been deregistered from the Nuclear-1 substation EIA I&AP's database.

Comment 5 :

I wish you a very successful campaign & an ideal outcome for the investigation. The provision of environmentally friendly power generation is a priority for South Africa & the world at large. Many thanks.

Response:

Your comment has been noted.

Yours faithfully

Reuben Heydenrych



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

Our Ref:J31314
Your Reference: E-mailed dated 5 July 2013



7 October 2013

Dear Sirs

Thyspunt Alliance Management

Email: trudi@amaziko.co.za

CC: Msolomons@environment.gov.za, cormac@greencounsel.co.za, kuhljaz@intekom.co.za,
cheron@countryfeeling.co.za, lunit@icon.co.za, gregchristy@intekom.co.za,
helmie@intekom.co.za, waterwaysbb@webmail.co.za, hbthorpe@telkomsa.net,
kobusreichert@yahoo.com, rnc@kingsley.co.za, scowling@kingsley.co.za,
wvjbay@mweb.co.za

Dear Trudi Malan

RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR-1 NUCLEAR POWER STATION (NPS) AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No: 12/12/20/944)

We would hereby like to request the following:

Comment 1:

The date on which the Revised Draft EIR Version 1 was submitted to the Department of Environmental Affairs.

Response 1:

The Revised Draft EIR was submitted to the Department of Environmental Affairs (DEA) on 26 April 2011.

Comment 2:

An electronic copy of the exact document that was submitted to the Department of Environmental Affairs, together with any covering letters and attachments.

Response 2:

The document submitted to the Department of Environmental Affairs is exactly the same document that was provided for comment to interested and affected parties at public venues and on the GIBB and Eskom websites.



GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B. Hendricks, M. Mayat
GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.



Comment 3:

The review comments Gibb received from the Department of Environmental Affairs in January 2013, as indicated in your correspondences to I&AP's dated 19 June 2013, as well as any additional correspondence, documentation and notes of meetings relating thereto.

Response 3:

The review comments of the Department of Environmental Affairs, as well as GIBB's response thereto, will be included in the Revised Draft EIR Version 2 as they form part of the public record. However, some of the DEA comments are being reconsidered by the DEA after consultation with GIBB, since the DEA had missed some relevant facts in its compilation of its initial comments. It would therefore be premature to provide the DEA comments and GIBB's responses at this stage.

Comment 4:

Our understanding is that Gibb is currently in the process of making substantive changes as well as gathering additional information in order to produce a second version of the Revised EIR. We assume that this additional information would be used to re-evaluate the relative merits of the three sites under consideration. It is therefore reasonable to expect that once this new information is taken into account a site other than Thyspunt may emerge as the best practicable environmental option, and consequently as the option that would be recommended by Gibb in your capacity as the independent environmental practitioners conducting the EIA. (Please note that for the purpose of this letter "GIBB" also refers to the experts and entities engaged by Gibb to assist in the EIA process)

Response 4:

GIBB will objectively assess all new information produced in the course of the current work in terms of its implications for the Nuclear-1 EIA application.

Comment 5:

However on the basis of public statements made by representatives of Eskom it appears that Eskom is proceeding on the basis that Thyspunt is still the preferred site, even though the second version of the revised EIR has not been completed. These public statements are creating the very real perception that the applicant seeks to place pressure on the environmental assessment practitioner to write the EIR in a manner which favours the selection of the site preferred by the applicant.

Response 5:

Although the Revised Draft EIR identified Thyspunt as the preferred site for Nuclear-1 from an environmental perspective, GIBB confirms that the final decision in terms of the Environmental Authorisation lies with the Competent Authority (the Department of Environmental Affairs). GIBB, as the independent Environmental Assessment Practitioner, therefore distances itself from any statements made in the press or elsewhere regarding the preferred site. The Environmental Assessment Practitioner (EAP) is required to base his/her decision strictly on the merits of the project and the potential environmental impacts.

Comment 6:

In the light of these circumstances we would like to request your written confirmation that:

- 6.1 Gibb is conducting the EIA process with scrupulous independence and without being subjected to pressure from Eskom to influence the findings or recommendations contained in the EIAR or to recommend a particular site as the preferred option;
- 6.2 that the Revised EIR version 2 will consider all the alternatives sites for Nuclear-1, and will reassess their relative merits in the light of the additional information gathered in the process of preparing the second version of the revised draft EIR;
- 6.3 until such time as the new evaluation has been completed, Gibb is not in a position to identify which is the preferred option from an environmental and socio-economic perspective (i.e. the best practicable environmental option; and
- 6.4 you will write to your client (Eskom) advising them that in making any public pronouncements about which site they prefer, they must make it perfectly clear to the public that the EIA process has not yet been concluded and has not yet identified which option will be least harmful from an environmental and socio-economic perspective and accordingly Eskom's preference for the Thyspunt site is not based on the results of the EIA process

Response 6:

GIBB and the EAP are bound by the independence requirements of the EIA regulations and the National Environmental Management Act and need to be objective, impartial and independent at all times in considering all relevant information in the EIA process, including any amendments to the specialist studies currently being prepared. In this regard, any statements made in the press are irrelevant to GIBB's recommendation of a preferred site. GIBB, in its role as the Environmental Assessment Practitioners, does not base any of its decisions or recommendations on opinions expressed in the media. Eskom is aware that any public statements that it may make are subject to the findings of the EIA and the decision of the environmental competent authority, which has the power to authorise any of the site alternatives or to refuse to authorise the proposed development.

We note that you have sent this letter to the DEA as well. In this regard, we need to point out that the DEA is unable to respond directly to I&AP comments at this stage in the EIA process, since all I&AP queries are required to be responded to by the EAP. The DEA will only consider correspondence directly from interested and affected parties once the final EIR has been submitted to the DEA. Please be assured that all I&AP correspondence, including your letter, are included in the record of I&AP correspondence as an appendix to the EIR.

Yours faithfully



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager



GIBB

ENGINEERING & SCIENCE

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

**PROPOSED Eskom Nuclear Power Station
AND ASSOCIATED INFRASTRUCTURE**
ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)
**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 151) 1 - 31 July 2013)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Gerhard van Rensburg	Van Rensburg Shuttle and Tourism Services
2	Denton Francis	Interested and Affected Party
3	Zwelibanzi Shiceka	Western Cape Heritage
4	Elmene Bray	Yzerfontein Conservancy
5	Margaret Mcainsh	Interested and Affected Party
6	Melanese Schippers	Western Cape Government Environmental Affairs and Development Planning
7	C Hanekom	Planconsult Cape

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Tuesday, 1 July 2013 10:22 Email	Gerhard van Rensburg Van Rensburg Shuttle and Tourism Services	I hope you find this email well. Can you please direct me to the right person or persons who would deal with the Nuclear station that is on the books for the Eastern Cape. I am a bus/tour operator in Port Elizabeth and would like to find out who might be the person to speak to regarding their transport for workers as well as staff.	GIBB has been appointed to undertake an EIA Process for the proposed Nuclear -1 power station and associated infrastructure project. Your request falls outside the scope of the EIA process as GIBB will not be involved in the construction of the nuclear power station. Please be advised that Eskom advertises business opportunities on its tender bulletin. You would need to check the tender bulletin for the transportation services you wish to supply to Eskom once construction of the power station is due to start. The start of construction cannot be predicted at this stage, since it is dependent on a number of different authorisation processes.
2	Thursday, 04 July 2013 01:15 E-mail	Deaton Fourie Interested and Affected Party	Please be advised that I have sold my property in St Francis Bay and I am, therefore, no longer an Interested and Affected Party in the above matter. Please delete my name, postal address and email address from your records.	GIBB (Pty) Ltd hereby wish to acknowledge receipt of your e-mail. As per your request we will deregister you from the I&AP database. Thank you for your participation to date.
3	Friday, 12 July 2013 10h00 Telephonic Wednesday, 15 July 2013 13:56 E-mail	Zwelibanzi Shiceka Western Cape Heritage	Has GIBB previously received any comments from the Western Cape Heritage on the draft Revised Draft Environmental Impact Report (EIR) dated 26 April 2011 and who is the registered contact person from the Western Cape Heritage? Please be advised that Heritage Western Cape is not an I&AP, it is a statutory body in terms of National Heritage Resources Act (Act 25 of 1999). Therefore on any application that needs our comment must be submitted in HWC's new NID form which is now required for initiation of all Section 38 processes under the NHRA. The form is attached to the e-mail version of this communication and for your future use.	GIBB (Pty) Ltd has not received comments from the Western Cape Heritage on the Revised Draft Environmental Impact Report (EIR) dated 26 April 2011. GIBB has registered Mr Andrew Hall (Western Cape Heritage) on the Nuclear-1 project stakeholder database. Your comment is noted. Please note that, in terms of Section 24O of the National Environmental Management Act (NEMA), 1998 (<i>Criteria to be taken into account by competent authorities when considering applications</i>), all "State departments" are required to submit their comments on environmental applications to the environmental competent authority that consider the authorisation of a development under NEMA and the associated EIA regulations. Section 24O(2) of the NEMA requires that " <i>The Minister, the Minister of Minerals and Energy, an MEC or identified competent authority must consult with every State department that administers a law relating to a matter affecting the environment when he or she</i>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
				<p><i>considers an application for an environmental authorisation.”</i></p> <p>Section 24O(3) of the NEMA requires that “A State department consulted in terms of subsection (2) must submit comment within 40 days from the date on which the Minister, Minister of Minerals and Energy, MEC or identified competent authority requests such State department in writing to submit comment.”</p> <p>Heritage Western Cape, as a State department, is therefore required to consider an Environmental Impact Report when requested by the competent authority and to submit comments to the competent authority. In practice, however, the Environmental Assessment Practitioner (EAP) requests comments from State departments and provides these comments to the competent authority. All statutory bodies with jurisdiction that may affect a proposed development are therefore regarded as key interested and affected parties in environmental impact assessment processes.</p>
4	Wednesday, 15 July 2013 12:29 E-mail	Elmene Bray Yzerfontein Conservancy	<p>For some or other reason this is the first letter we, as the Yzerfontein Conservancy, received as I&AP. So at the moment we have no background regarding the proposed activity and the previous impact reports that were prepared and reported on.</p> <p>We would appreciate that you keep us on your mailing list as an I&AP, and that we will receive the forthcoming Draft EIR Version 2, as promised.</p> <p>Please also give us the website address to find more information on this project.</p>	<p>Please visit the link below for Revised Draft Environmental Impact Report (EIR), which was made available for public review and comment from 09 May 2011 to 07 August 2011: http://projects.qibb.co.za/</p> <p>Please be advised that GIBB has registered Yzerfontein Conservancy as an I&AP on the Nuclear-1 EIA database.</p> <p>Thank you for your interest to participate in the EIA process.</p>
5	Sunday, 14 July 2013 03:03 E-mail	Margaret Mcainsh Interested and Affected Party	<p>Please note address change to Cottage 7, Lapa Munnik Park, Seymour Street, Southend, Port Elizabeth instead of cottage 12</p>	<p>Your request dated 14 July 2013 to change the postal address on the Nuclear-1 EIA stakeholder database has been processed.</p>

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
6	Thursday, 18 July 2013 Post	Melanese Schippers Western Cape Government Environmental Affairs and Development Planning – Directorate of Land Management Region2	An I&AP feedback letter dated 19 June 2013 and received by the Department on 2 July 2013 refers. (DEA Reference No.12/12.20/944). <ul style="list-style-type: none"> • This letter serves as an acknowledgment of receipt of the feedback letter by the Directorate of Land Management Region 2. • This directorate awaits Version2 of the Draft Environmental Impact Assessment Report for commenting purposes. • Comments will be provided directly to the Department of Environmental Affairs and copied to the Environmental Practitioner. • You are required to quote the above-mentioned reference number in any future correspondence in respect of the application. • This directorate reserves the right to revise or withdraw comments or request further information from you based on any information that might be received. 	Thank you for your comments, they have been noted. The Revised Draft EIR Version 2 will be made available to DEADP once it has been finalised.
7	Friday 26 July 2013 09:18 E-mail	C Hanekom Planconsult Cape	Please register me as a I&AP for the proposed Eskom nuclear 1 station.	Please be advised that you are registered as an I&AP on the Nuclear-1 EIA stakeholder database. Thank you for your participation.

Yours faithfully
 Reuben Heydenrych



for GIBB (Pty) Ltd
 Nuclear-1 EIA Manager

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 152 : 1 - 31 August 2013)

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

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Cordia Louw	Svarchitects
2	Kier Hennessy	City of Cape Town - Spatial Planning & Urban Design Dept.

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Monday 5 August 2013 12:53 E-mail	Cordia Louw Svarchitects	Thank you for talking to me. As discussed please if you could keep us up to date on the EIA process for Nuclear 1.	Your comment has been noted. Your details have been added to the Nuclear-1 EIA public participation database. Thank you for your participation thus far.
2	Wednesday, 14 August 2013 08:28 Email	Kier Hennessy Spatial Planning & Urban Design Dept.	Please note that I am no longer a relevant I&AP for the City of Cape Town, as I have relocated to another section & area.	As per your request GIBB has deregistered you as an I&AP from the Nuclear-1 EIA database.

Yours faithfully



for GIBB (Pty) Ltd
Nuclear-1 EIA Manager

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 153 : 1 - 30 September 2013)

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

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Raykie Martin	City of Cape Town - Environmental Resource Management Department Economic, Environmental & Spatial Planning Directorate

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Thursday 5 September 2013 10:00 E-mail	Raykie Martin City of Cape Town - Environmental Resource Management Department Economic, Environmental & Spatial Planning Directorate	According to your I&AP Progress Feedback Letter dated 19 June 2013, the updated Issues and Response Reports (IRRs) regarding the EIA for the Proposed Nuclear-1 nuclear power station and associated infrastructure will be made available on the GIBB and Eskom websites. However, I am unable to locate an updated report on either of the websites and was thus wondering whether I could please be provided with an updated copy as well as a copy of the feedback that was received on the Revised Draft EIR from the DEA in January 2013? Alternatively, could you please provide me with a broad overview of the issues that were raised that led to the need for a second version of the draft EIR?	<p>Please visit the link below for Revised Draft Environmental Impact Report (EIR) which was made available for public review and comment from 09 May 2011 to 07 August 2011 on the following website: http://projects.gibb.co.za/</p> <p>Please see the link below for the Revised Draft Environmental Impact Report Version 2: http://projects.gibb.co.za/en-us/projects/eskomnuclear1reviseddrafteirversion2</p> <p>As a result of the public input and recommendations received on the Revised Draft EIR, including comments by the Department of Environmental Affairs, amendments have been made to the following Specialist Studies:</p> <ul style="list-style-type: none"> • Marine Ecology Assessment; • Heritage Impact Assessment; • Transport; • Dune geomorphology; • Emergency response; • Geohydrology; and • Town planning (a new study). <p>The content of the Revised Draft EIR Version 2 has also been updated. GIBB is of the opinion that these amendments are substantive; therefore the Revised Draft EIR Version 2 is made available for public review from Monday, 21 September 2015 to Monday 23 November 2015.</p>

Yours faithfully



for GIBB (Pty) Ltd
 Nuclear-1 EIA Manager

**PROPOSED ESKOM NUCLEAR POWER STATION
AND ASSOCIATED INFRASTRUCTURE**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944)

**COMMENTS ON
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

(Volume – IRR 154 : 1 - 31 October 2013)

Issues have been received from the following stakeholders:

No	Name	Organisation
1	Mr Piet Liebenberg	Interested and Affected Party
2	Mr Doug Jeffery	Doug Jeffery Environmental Consultants (Pty) Ltd

No	Date	NAME & ORGANISATION	ISSUES/COMMENTS	RESPONSE
1	Monday 14 October 2013 14:42 E-mail	Mr Liebenberg Interested and Affected Party	Please tell me what the status is of the EIA for the Nuclear facility at Thyspunt. We are a community newspaper in Jeffreys Bay. see www.jbaycourant.co.za Thanks Submitted By: Piet Liebenberg jbaycourant@gmail.com	Please be advised that amendments to the Environmental Impact Report (EIR) are still in progress. Once all the necessary amendments have been made, all registered interested and affected parties will be advised in good time of the availability of the Draft EIR Version 2 and the venues where they will be placed. Public meetings will also be held at this time. The dates of public meetings and venues for these meetings will also be communicated in due course. The availability of the EIR and the public meetings will be extensively advertised in the press.
2	Monday 21 October 2013 15:16 E	Mr Doug Jeffery, Doug Jeffery Environmental Consultants (Pty) Ltd	Please can you let me know what is happening with this project and when you envisage that the next version of the EIR will be made available for public comment. I have also noted that there are no reports regarding this project on your website. If I am wrong please let me know where I can find them.	Please be advised that substantive changes are being made to the Revised Draft EIR. All interested and affected parties will be informed once this report is available for public review. Please visit the link below for Revised Draft Environmental Impact Report (EIR), which was previously made available for public review and comment from 09 May 2011 to 07 August 2011 http://projects.gibb.co.za/Projects/Eskom-Nuclear-1-Revised-Draft-EIR . Please refer to the link below for the RDEIR Version 2: http://projects.gibb.co.za/en-us/projects/eskomnuclear1reviseddrafteirversion2