05 August 2015

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

Email: iiosiphakis@gmail.com

Dear John Losiphakis

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

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The Nuclear-1 EIA Team