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Attention: Ms Trudi Malan

Dear Madam

ESKOM ENVIRONMENTAL IMPACT ASSESSMENT (EIA: 12/12/20/944) FOR A PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Arcus GIBB acknowledges receipt of the submission received from your organisation discussing the above report. 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.

YOUR COMMENT (1)

During the Public Participation Process we questioned the original site selection process. Arcus Gibb stated through Ms Jaana Maria Ball that they did review the findings of the NSIP and that they were satisfied that the original studies were conducted according to sound environmental principles. We contest this statement.

The fact that the current EIA process is being informed by a site selection programme that was conducted during the 1980's is in itself a fatal flaw. After accessing all the documents relating to the NSIP, it becomes clear that these studies would in no way be acceptable under the current NEMA regulations. 1994, was a new beginning for South Africa in more ways than one.

The majority of the people in the country finally gained their rightful freedom and the right to environmental protection was also enshrined in the new constitution.

We therefore hold that the original ESKOM brief to exclude sites purely due to their proximity to the old homelands is unconstitutional. The fact that the Glendour 394 Farm site was excluded in 1981 from any further investigations proves this point.

coastline. Access is reasonably good and the site is situated midway between East London and Port Elizabeth.

Fig 1: NSIP – EC 006703 (Computer ref 392523R) page II – 2

ESKOM should have been pro-active, they have now had 15 years to re-investigate sites that would not only be far better from an environmental perspective and more in line with new environmental legislation, but could also be closer to areas where the relevant infrastructure is more developed and where the electricity is actually required. The proximity to already developed infrastructure and power lines would also ensure cost savings.

The only documents referring to the NSIP published as part of the Draft EIA FOR Nuclear 1 is listed under Background Documents and it includes the NSIP Summary Report – Eastern Cape Part 1 & 2.

Through the Public Access to Information Act (PAIA) we requested all information pertaining to the Nuclear Site Investigation Programme for the Eastern Cape. (See Appendix 1 for full list) It is interesting to note that most of these documents were classed as “Confidential” or “Restricted” and the public had very little or no opportunity to participate in the process.

The basis of selection of possible sites NSIP Doc 006703 dated 18 September 1981 includes the following:

- Demography
- Geology
- Agriculture
- Coastal Morphology
- Meteorology
- Seismicity
- Oceanography
- Ecology – Ecologically sensitive areas including National Parks, Nature Reserves & Forests were mapped.
- General – Water supply, road access, aircraft flight paths & proximity of transmission lines.

As with the current study it is clear that the site selection criteria were primarily based on the geological and engineering suitability for the construction of a Nuclear Power Station. It is clear that other disciplines were not given the same weighting as those mentioned above.

Very little information was available on the sensitive ecological areas in the Eastern Cape in 1981 when the original “mapping” process was undertaken. Areas that were therefore not indicated as Parks or Reserves were not listed as sensitive.

NSIP Doc 116448 refers to a Symposium in Grahamstown titled: Towards an environmental plan for the Eastern Cape. During these proceedings it was noted that: “Geologically sensitive areas in the Eastern Cape are:

- estuaries,
- coastal dune fields,
- beaches,
- fossil localities
- salt pans and
- groundwater management.”

Considering the fact that 4 out of the listed 6 sensitive areas occurs on the Thyspunt site, it is clear that sensitive areas that were not under protection were not considered to be sensitive during the original investigations.

Already declared nature reserve areas are highly undesirable and areas that are in the opinion of the authorities sensitive, ^{ie potential areas} are to be declared nature reserves or wilderness areas and inland waters are shown as moderately undesirable. In the marine environments little is known concerning migration routes, breeding grounds, unique habitats and ^{near} endangered species and intensive research is required before these factors can be accurately evaluated.

Fig 2: NSIP – EC 006703 (Computer ref 392523R)App II-I-2

The information used to inform the original site selection process differs vastly from the current information and we will highlight some of these differences.

RESPONSE (1)

Your comments are noted. A review of the NSIP reports was undertaken at the start of the EIA process and it was found that the information in the NSIP reports with respect to the initial selection of site is still valid. This information is not and was not intended to be sufficient for a detailed Environmental Impact Assessment. The process was described in the scoping report and was accepted by the authorities as an acceptable process. With feasible alternatives available the EIA proceeded to determine the detailed environmental sensitivities of the sites, to compare the environmental suitability of the alternative sites and to undertake sensitivity analyses to confirm the positions on each of these sites where it would cause the least environmental impact. Furthermore, a series of specialist studies was undertaken to confirm the technical suitability of the site for a nuclear power station, these included detailed studies on Freshwater Supply Assessment (Appendix E8 of the Draft EIR) and geohydrological but more importantly the geological and seismic assessments which are critical to ensure that the plant can be safely operated in the longer term.

It is indeed true that a larger section of coastline may have been identified for Nuclear sites if the same exercise as the NSIP were to be undertaken today, as the former homelands were excluded from the NSIP. However, Eskom's focus is to provide power as close as possible to the areas where there is the greatest need to power. The stretch of coastline that was included in the NSIP includes the two most important growth areas where the greatest increase in electricity demand occurs and is due to continue for the foreseeable future, namely Port Elizabeth and the Cape Town metropole. In this regard, it important to note that one of the reasons why the two Northern Cape sites were no longer regarded as reasonable and feasible for the EIA phase is the long distance to the Western Cape load centre that the transmission lines would have to traverse.

YOUR COMMENT (2)

ORIGINAL VS CURRENT PARAMETERS

DATA SETS

The original data set indicated a Nuclear Power Station (NPS) consisting of two reactors of 900 MW each, thus a total of 1 800MW. The current proposal is for a 4000 MW NPS. Regardless of which

technology is to be utilised (Generation II or Generation III) this is a large increase.

Original NPS information

Size of complete terrace – 1000 X 700m
Terrace Level - +8m above m.a.s.l
Ideal Rock Terrace -2m below m.a.s.l
Intake of silting basin 6m below m.a.s.l (-14.00)
Tunnel Intake 12m below m.a.s.l (-20.00)

(Quoted from NSIP Doc 014839 – October 1986)

According to page 9-34 of the DEIA 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. It is slightly confusing that on page 9-275 of the DEIA, the proposed size of the Nuclear-1 footprint is indicated as 31 hectares.

At the various Public and Key Stakeholder meetings it was repeatedly stated that the current application is for a 4000MW Nuclear Power Station. Ms. Jaana-Maria Ball stated at the Public Meeting held in St. Francis on 15 April 2010: "If Eskom wants to build a nuclear power station of 4001MW they will need to start a full EIA again." We therefore hold that using a site that was original (sic) selected for a 1 800MW NPS for a 4 000MW station constitute a fatal flaw.

Had ESKOM applied their minds they would have realised that the original site selection was based on a much smaller envelope and that a site that was already referred to as a sensitive in the early studies would now definitely not be able to cope with the increased size of the development as well as the increase in related infrastructure?

RESPONSE (2)

The initial NSIP studies were focused on a power station of similar size to Koeberg. A series of detailed specialist studies has been undertaken during the EIA process to confirm what footprint can be accommodated on each site and a recommended maximum allowable footprint (from an environmental point of view) has been developed for each site. Should Eskom be unable to fit its required infrastructure within this recommended footprint, it will have to consider alternatives such as closer spacing of infrastructure, building multi-story buildings instead of spreading buildings out on the site, and stacking during construction. The application submitted for this EIA was for up to 4000MW.

The correct size of the footprint for Nuclear-1 is approximately 250 to 280 ha.

YOUR COMMENT (3)

WORKFORCE

The workforce demand that was indicated in the original study draws very clear lines between black & white staff, again an indication as to when the study was done. (NSIP Doc 116467).

At the peak of construction (year 5) the workforce will consist of 2 381 White Skilled Workers and 3 450 Black un-skilled workers. A total workforce of 5 831.

During operation a white staff of up to 1 000 will be employed.

If compared to the 8 557 workers now indicated, there is a huge discrepancy. (Source:-Consistent Data Set supplied by ESKOM and Dated February 2010.)

RESPONSE (3)

The EIA process is detailed and up to date and studies have been completed with the correct data.

YOUR COMMENT (4)

TRANSPORTATION

Transport needs were indicated as 1 000 cars, 150 light trucks and 200 heavy duty trucks per day. Thus compared to the current indications of 1 773 light & heavy duty trucks per day.

NSIP Doc 116467 point 2.6.18 highlights the Airport and Flight Routes. It clearly explains that the restrictions surrounding a NPS in the Oyster Bay area may have a serious inhibiting effect on light aircraft. The traffic controller at the then Hendrik Verwoerd Airport now Port Elizabeth Airport considered the fact that light aircraft would be forced to fly inland, closer to the mountains as very dangerous.

No hint of these dangers appears in the present Draft EIA.

RESPONSE (4)

Your comments are noted. At Koeberg the restrictive area is 2000ft above ground level and the same restrictions are likely to apply to Nuclear – 1. No significant restrictions on airport approaches were identified in the transportation assessment included as Appendix E25 of the DEIR.

YOUR COMMENT (5)

SERVICES

Solid Waste

NSIP Doc 116467 states that “solid waste should not present a problem”.

The Kouga Municipality is currently utilizing a landfill site at Humansdorp, the license status of the site is however not confirmed. (Minutes of meeting between ESKOM & Kouga Municipality 07-09 December 2009).

Sewerage

The NSIP Doc 116467 also states that both Humansdorp and Jeffreys Bay have newly constructed sewerage systems and therefore should be able to cope with the added demand of a construction village.

In the same meeting referred to above the Kouga Municipality indicated that the capacity of the Humansdorp sewer plant would not be able to handle additional volumes and no budget allowances have been made for sewer upgrades.

In the 2009 State of Waste Water Treatment Plants in the Eastern Cape published by the Department of Water Affairs it was recorded that the treatment plant at Jeffreys Bay is not licensed. Humansdorp is exempted from a license and the licensing state of the St. Francis Bay plant is undetermined.

The St. Francis Plant is running 73% over capacity. The Humansdorp plant is at full capacity and cannot take any extra load and the Jeffreys Bay plant is operating at 143%, 43 % over capacity.

RESPONSE (5)

Your comments are noted and it is acknowledged that there are service backlogs in Kouga Local Municipality. Prior to construction of the power station, Eskom will have to reach agreement with the municipality on the contributions that Eskom will need to make to the upgrading of local infrastructure due to the influx of people during the construction and operational phases. Eskom has, for instance, upgraded clinics and sewage treatment plants for the construction of the Medupi Power Station at Lephalale in Limpopo Province, as well as constructing a new waste disposal site for Eskom use during construction and operation.

YOUR COMMENT (6)

Water Supply

NSIP Doc 1164676 point 2.6.12 states: "It would appear that water for domestic use could be produced at fairly short notice from, *inter alia*, the Churchill Dam water supply system.

At the December 2009 meeting the Kouga Council indicated that their quota licensed from the Churchill Dam pipeline is **insufficient** to provide the large volume of water required. The current connections to the RDP housing programme are taking up all spare capacity.

RESPONSE (6)

The Fresh Water Supply Assessment (Appendix E8 of the Draft EIR) provides an updated assessment of the freshwater resources available to all three alternative sites. On the basis of this assessment, Eskom proposes to construct desalination plants at all three sites to provide in the needs of construction and operation.

YOUR COMMENT (7)

ECONOMIC ACTIVITIES

SQUID INDUSTRY

The NIPS Doc 1164676 makes the following statements with regards to the fishing industry: point 2.4.3 states: "Choka (sic).....appear irregularly, with no seasonal patterns."

takes place. Choka is caught at different places all along the Eastern Cape coast, but they appear irregularly, with no seasonal pattern. Therefore, the commercial fishermen move around a great

Fig 3. NSIP-EC Ref Nuclear 1164676 – page 39

Point 2.5.3 with the heading Fisheries & Commercial activities refers only to seaweed & shells and states: "coloureds collect shells for sale as tourist items. No other activities take place along this coastal stretch."

Point 4.4 states: “The social & economic levels of the marine environment of the study area are not highly developed and it is therefore anticipated that the proposed development will not have a substantial impact on these activities.”

It is clear from these statements that the NSIP was completed before the development of the very lucrative squid industry. It also highlights the danger of basing decisions on information that is older than 20 years.

These points may all help to explain why the impacts on the squid industry during the construction of a NPS at Thyspunt was conveniently left out of the current study.

In the Influence Matrix of the proposed development (NIPS-EC Doc 1164676) the following is indicated: (See Appendix 2)

SECTION	ACTIVITY	PRE-CONSTRUCTION	CONSTRUCTION	OPERATION	POST ACCIDENT
2.3.3.5	Fish Fauna	Disruption during reconnaissance activities.	Disturbance to habitats	Displacement of communities due to temperature.	Risk of loss of species.

2.3.3.5 Fish Fauna – Disturbance to habitats during construction & Displacement of communities due to temperature during operation.

SECTION	ACTIVITY	PRE-CONSTRUCTION	CONSTRUCTION	OPERATION	POST ACCIDENT
2.4.3	Fisheries	None	None	None (See also Marine biotic environment).	None (See also Marine biotic environment).

2.4.3 Fisheries – No impact during construction

RESPONSE (7)

Impacts of the chokka industry were addressed in both the Marine Assessment and the Economic Impact Assessment (Appendices E15 and E17 of the Draft EIR, respectively). The section on this was however not comprehensive enough and will be updated in the Revised Draft EIR.

YOUR COMMENT (8)

ARCHAEOLOGY

The fact that the immediate coastline and adjacent dune system constitute one of the densest areas of archaeological material in the country is clearly pointed out in the original NSIP. It would however seem that the same amount of disregard for the heritage of the First Nations that were evident during the apartheid years are still in place today.

RESPONSE (8)

Your comments are noted. The Heritage Impact Assessment (Appendix E20 of the Draft EIR) and the entire public participation process was carried out with extensive consultation of the affected communities, including the Gamtkwa community. The value that the area in general and the site in particular has to these communities is acknowledged in the report.

YOUR COMMENT (9)

MARINE ENVIRONMENT

Even in the first study it is stated that specific information on the effects of thermal effluents on reef communities is not available. A detailed baseline study and subsequent monitoring programme is suggested. These recommendations were seemingly ignored because even in the present study the marine specialist constantly refers to the situation at Koeberg. Thyspunt is not Koeberg and we maintain that baseline data is still not available.

RESPONSE (9)

The movement of the thermal plume has been well studied at all three alternative sites. This is assessed in the Oceanographic Impact Assessment (Appendix E16 of the Draft EIR) and its attendant numerical modeling appendices. Koeberg is frequently referred to in the Marine Assessment (Appendix E15), since monitoring of the impact on marine organisms has been ongoing at this site since before Koeberg Nuclear Power Station was constructed in the mid-1970s. These results indicate that, despite well publicized reports before construction that predicted a disastrous impact on marine organisms, negative impacts have been very limited. It would be remiss of the marine specialists not to consider the Koeberg experience.

YOUR COMMENT (10)

DUNE GEOMORPHOLOGY & WETLANDS

During the original site selection process no Dune Geomorphology study was conducted. NSIP Doc 116477 point 7.2.1 does state: "the most important features of the geomorphology of the region lies in the dune dynamics." Several serious warnings are issued with regards to the dangers to a NPS of wind-blown sand and the difficulty regarding access roads is pointed out.

Yet these features and the possible risk to the NPS are not described or explained. The fact that the very fluid and inter-related groundwater system were not investigated during the original siting process would have been considered a fatal flaw. The current draft EIA clearly indicates that there is still lack of proper information and therefore understanding of the system. There is no specialist overview or record of the Freshwater Systems on this site.

If these studies were included in the original investigation process – the site would not have been selected.

RESPONSE (10)

An extensive Dune Geomorphology Assessment (Appendix E2 of the Draft EIR) and a Freshwater / Wetlands Assessment (Appendix E12 of the Draft EIR) were conducted for the Nuclear-1 EIA. In addition, claims of so-called debris flows that were raised during the EIA phase public meetings were assessed in an Addendum to the Dune Geomorphology Assessment which will be released with the Revised Draft EIR.

YOUR COMMENT (11)

CONSERVATION

Most probably the clearest indication that the then government and ESKOM did not play by the rules appears in NSIP Doc 1164676 dated February 1988.

At that stage the environmental and conservation value of the area in question was already established and plans were well underway for the establishment of the Cape St. Francis Coastal Park. A Marine Reserve would have been part of this conservation area.

The Coastal Dune Field from the Kromme River to the Tsitsikamma River was to be included as the uniqueness of the coastal headland bypass dune systems and related wetland structures were even then recognized. All state-owned land areas would have been included in the park, while private land owners would have been prohibited from exploiting the land for recreational, agricultural or residential purposes. It was recognized that this area is of extremely high conservation value and it should be afforded the same status as the Alexandria Dune Fields.

The original site selection brief stated that reserves and conservation areas were no-go areas. This left ESKOM and the government with a problem. The other possible site between Port Elizabeth and East London were too close to the homelands and if the coastal park were to be created they would suddenly lose all the other possible sites in the Eastern Cape. (Please note that the so-called five proposed sites in the Eastern Cape were all within a 20km stretch of coastline) It is therefore not strange that the proposal for a Coastal Park that was already mooted in 1984 disappeared from the table faster than you can say "Nuclear".

RESPONSE (11)

Your comments are noted. We trust that you have documented evidence that Government and Eskom interfered with the proposed coastal park, this is quite a serious accusation to make. It is not always productive to dwell on the past, South Africa needs to move forward in terms of strategic planning and future needs for the country. The sites for this EIA were the available sites as to date and decisions and recommendations were made accordingly. Recreational, residential and agriculture development have taken place in the area in spite of the NSIP document and conservation plans that were not implemented. More than 90 percent of the land owned by Eskom will be managed as a conservation area. This would not have happened if it stayed in private ownership because most of the properties have development rights.

YOUR COMMENT (12)

CONCLUSION

It is clear from studying the various documents that the original NSIP did not really consider any impacts of the construction and operation of a NPS on the biophysical and social environment. The various studies relating to the biophysical and social environment are nothing more than a description of the affected environment with a few ad hoc comments about possible impacts. This statement will be backed up when considering the "Influence Matrix of Proposed Development" published in NSIP Doc 116476 and attached to this report as Appendix 2.

As stated before, it is again obvious that the studies relevant to the design of the NPS are more detailed than those studies about the affected environment. There are several other discrepancies between the project data that was used to select the sites during the original investigations and the current proposal but we have highlighted the most important issues.

At the Public Meeting held on 15 April 2010 the question about using old information was repeatedly raised. Arcus Gibb included the following statement as a post meeting note to the minutes: "The Department of Environmental Affairs (DEA) has approved the Scoping report, which is based on the premise that only the sites identified in the Nuclear Site Investigation Programme need to be considered as they are the only sites that have been proved to be technically feasible."

We believe that the department was not made aware of the shortcomings of the original site investigation programme and they were not informed that the original site investigations were for 1 800 MW only. It is the responsibility of the EAP to bring this to the attention of the department.

RESPONSE (12)

Your comments are noted. As indicated in the responses above, extensive specialist studies have been undertaken for the EIA of Nuclear-1 to provide detailed updated information on the environmental sensitivities of all three alternative sites. Where relevant, this new information has replaced potentially outdated information contained in the NSIP reports.

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

Yours faithfully
For Arcus GIBB (Pty) Ltd

A handwritten signature in black ink that reads "JMBall". The signature is written in a cursive, flowing style.

Jaana-Maria Ball
Nuclear-1 EIA Manager