



GIBB
ENGINEERING & SCIENCE

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Your Ref: Email received 08 August 2011

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Dear Ms Royal

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

Comment 1:

COMMENTS ON DRAFT EMP (APPENDIX F) FOR TYUSPUNT ALLIANCE TO BE READ IN CONJUNCTION WITH THE THYSPUNT SUBMISSION

2nd DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT:

ESKOM NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE:

**Prepared by
Renee Royal, Planner and Environmental Consultant, B.SC Honours, MTRP
(Certified Environmental Assessment Practitioner of SA)
5 August 2011**

A submission focuses on the Thuyspunt site in respect of the 2nd Draft Environmental Impact Assessment (DEIA) Report prepared by Arcus Gibb. DEA Ref No: 12/12/20/944.

Please note that in instances where verbatim extracts from the DEIA has been incorporated this has been indicated as italics.

Regarding this report the right to add, revise or withdraw comments is reserved and the following is submitted without prejudice:

1 Draft EIA

1.1 Complexity of single EIA for three sites and lack of project detail. For a project of this magnitude it is not possible to assess three different sites in one Draft EIA. It is anticipated that this is to be a huge industrial project. By way of comparison, Olkiuoto 3 in Finland, the first uncompleted Generation III Nuclear Plant in the world, is Northern Europe's largest ever industrial project.

The above highlights the magnitude and complexity of the proposal and as such there is not enough project detail provided for the Eskom Nuclear 1 project. The use of an "Envelope" is not acceptable for a project of this complexity and size, approximately R 100 billion (reactor costs only exclusive of site specific works and infrastructure). In the context of the project it is not appropriate to conduct one EIA for three sites in parallel and this is considered a superficial comparative study. It is not appropriate to rank sites and compare them as was done in this EIA. It has merely presented site sensitivities and site evaluations resulting in a proposed footprint for development for each site. This cannot be considered an Environmental Impact Assessment. Individual site specific EIAs should be undertaken for each site where detailed development



plans, layouts, visual models of plant on landscape, cross sections, excavation details, stock pile areas, engineering drawings, storm water management plans, wetland delineations and functionalities, infrastructure plans, etc are developed and carefully assessed.

Response 1:

Your comments are noted.

In the light of the requirement in the EIA regulations that alternatives needs to be assessed and compared to each other, we question your statement that it is not appropriate to conduct one EIA for three sites in parallel. Alternative sites could not be effectively compared to each other if the sites are discussed in separate reports.

Your statement of the inappropriateness of ranking sites and comparing them refers. The approach taken in this EIA is that the environmental sensitivities of each site have been defined and overlaid to provide a composite environmental sensitivity map that outlines a variety of sensitivity zones on the alternative sites. The outcome, for each of the alternative sites, is an indication of the least sensitive areas that could be potentially suitable for the construction of a nuclear power station. In this way the environmental sensitivities of the site guide the development rather than accepting the proposed development detailed layout as a *fait accompli*.

It is common practice in EIAs for large infrastructure projects (e.g. for power lines) for the authorities to issue an authorisation for a corridor, but for the detailed positioning of pylons to be determined through a “walkdown assessment” of the corridor and for this assessment to be submitted to the authorities. Such assessments are undertaken typically by a team consisting of an archaeologist, botanist and avifaunal specialist (although the team may be adapted depending on the specifics of the site) and the focus of the walkdown is to determine the exact location of various forms of infrastructure. This is also the proposed approach in this instance.

It is interesting to note your comment that it is not possible to assess three different sites in one EIA. A contrasting view is held by many stakeholders that the entire life cycle of the nuclear power generation process must be assessed and compared to the life cycle of other forms of power generation, and that in addition to the potential impacts of the power station, the potential impacts of the transmission lines also need to be assessed in a single EIA report.

Comment 2:

1.2 Gaps in Studies and Mitigations

Chapter 10 : Conclusions and Recommendations, Section 10.3 Key Mitigations and conditions for authorisation, list many “mitigations” in the specialist studies, which are actually information gaps and investigations that should be done during the planning stage as part of the EIA and assessed according. However the EAP has taken these gaps through to the EMP. It is not appropriate to forward these items to the EMP with the assumption that an Authorisation will be granted for an EIA and this needs to be addressed.

For example in Section 10.3 Key Mitigations it is noted:

That it is “imperative that the recommendations for mitigation contained in this EIR, the specialist studies and the Environmental Management Plan (EMP) be strictly implemented. The mitigation measures for botanical impacts, vertebrate and invertebrate fauna, wetlands and heritage resources are particularly important. Mitigation of heritage impacts particularly will require the work of a site-specific team dedicated to excavations over a period of several months prior to the onset of construction. It will also be important to involve qualified and experienced botanical, vertebrate fauna, invertebrate fauna, dune geomorphology and heritage specialists to fine-tune the location of the power station on the site.”

Response 2:

Your comment is noted. Kindly refer to our Response 1 above with respect to walk-down assessments after authorisation. It is also common practice in large infrastructure projects to have specialists appointed on a contract basis to provide relevant input when required. The independent Environmental Control Officer would be accountable for determining the when and how often a specialist is required on site based on the phase of construction and the related potential risks.

Comment 3:

Many of these mitigations are in fact gaps that require further studies that should be done prior to an Environmental Authorisation being issued. Regarding Social Services as documented in Section 10.3.1 Key Mitigations for all sites.

“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.”

This cannot be considered a mitigation, it should be included, quantified and assessed in the EIA. Especially in the Eastern Cape where service delivery is problematic. Gaps in information and further studies that need to be undertaken prior to an Authorisation being issued specifically for Thyspunt are listed in Section 10.3.4 of the DEIA as follows:

“The following key mitigation measures are recommended at the Thyspunt site:

1.2.1 Heritage:

Mitigation of impacts on heritage sites is a priority at this site. In order to achieve effective mitigation, the following conditions need to be in place:

- A suitably qualified and experienced heritage impact assessment practitioner must conduct excavations in the central portion of the power station footprint and along the routes of the proposed access roads in order to confirm the significance of the heritage resources in the areas where sampling was not possible during the initial investigation.*
- Pending SAHRA’s acceptance of the findings of these excavations, a comprehensive heritage mitigation plan must be drawn up by the appointed heritage specialist.*
- Eskom must make the necessary resources available to give effect to this mitigation plan. Steps that may need to be taken include the development of the necessary resources in South Africa through support for academic institutions, or the importation of heritage excavation personnel if the resources are not available in South Africa.*
- 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.*
- Excavation in an area needs to be complete prior to the commencement of clearing for construction purposes. In this respect, the construction of the power station could be phased to happen in parallel to excavations, but it must be ensured that excavation is complete before construction starts.*

Response 2:

Your comment is noted. There are, however, certain measures that can only be taken once it is confirmed:

- whether or not the projects is authorised; and
- which site is authorised.

Although the EIA team has recommended a site for authorisation, the authorisation decision is in the hands of the Department of Environmental Affairs. In the absence of this decision, Eskom cannot start preparing

all necessary mitigation measures (some of which require substantial investment) prior to certainty about the authorised site.

Furthermore, preparation of some of these mitigation measures could be interpreted to be tantamount to pre-empting the authority's decision. For instance, Eskom's purchase of additional properties around the Thyspunt site (in line with the ecological specialists' recommendations of creating a larger conservation area) has drawn criticism that it is pre-empting the authority decision.

It is to be noted, with respect to the heritage mitigation recommendations quoted above, that at the time of the release of the Revised Draft EIR for comment there was uncertainty about the occurrence of additional archaeological sites within this central area of vegetated dune and it was assumed that a large scale excavation of the site would be required prior to construction. However, in the time since the Revised Draft EIR was released for public comment, additional test excavations have been conducted at the Thyspunt site. These excavations were done under authority of a SAHRA a permit for test excavations. The finding of these test excavations (which will be released with the next revision of the EIR) is that the recommended location of the power station (within the vegetated dunes) has a much lower concentration of heritage sites than initially suspected, that large scale excavation of heritage sites would not be required and that heritage excavations could be completed with existing resources.

Comment 3:

With respect to these "Mitigations" it is specifically noted that the Revised Heritage Report conducted at Thyspunt as part of the DEIA for the proposed Nuclear 1 power station, has reconfirmed that , *"Thyspunt to be extremely rich in archaeological material, to the extent that almost the entire sequence of human development in Africa is to be found in the study area."*

It further notes:

" The archaeological and paleontological heritage is diverse and prolific. Mitigation without excessive impacts is going to be technically difficult to achieve due to the character of the site and difficulties with respect to accessibility, however the final location of the proposed facility will play a role in the degree of impact expected. "

And the *"The wilderness qualities of this portion of the coast in contiguity with the archaeological heritage are exceptional and make a substantial contribution to the character of the region. Given the mass and bulk of the proposed activity, un-mitigatable cultural landscape impacts are expected."*

Response 3:

Please refer to Response 2 above. The revised Heritage Impact Assessment, which considers the results of the above-mentioned test excavations is attached as Appendix E20 of the Revised Draft EIR (Version 2).

Comment 4:

Further to the above, SARHA do not support the development proposal, the Minister of Arts and Culture, (Parliamentary file number 7/1/2/B to written question number 360), 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."

Yet, the EAP recommends in Chapter 10, Conclusions and Recommendations, *"Provided that the SAHRA deems that the potential impacts on heritage resources at the Thyspunt site are acceptable it is concluded that all three sites are environmentally acceptable for a nuclear power station. The Thyspunt site is considered the preferred site and it is recommended that it be authorised by the DEA (with conditions) for Nuclear-1."*

Eskom must ensure that the required mitigation measures, particularly with regards to the mitigation of heritage impacts are effectively implemented. The pending authorisation from the SAHRA for test

excavations at Thyspunt, as well as the findings of the test excavation, are critical in this regard. It is therefore recommended that this additional excavation (once approved by SAHRA) must commence as soon as possible and that the results thereof must inform the development of the Thyspunt site. “

How can an “independent” EAP, in light of the above, recommend Thyspunt as the preferred site to be authorised by the DAE (sic) prior to these critical studies being completed and approvals being granted? These very critical and potential “fatal flaw” issues are taken through to the EMP for mitigation. This is considered inappropriate, disrespectful and totally unacceptable.

Response 4:

The comments from the South African Heritage Resource Agency (SAHRA) and the Minister of Arts and Culture regarding the suitability of the Thyspunt site for Nuclear-1 are noted. It is important to note that no formal application has yet been lodged with SAHRA for the excavation of the site and that any statement by SAHRA or the Minister in this respect are therefore premature, since not all the facts in respect of an archaeological excavation permit have been placed at SAHRA’s disposal.

The finding of these test excavations is as follows (from the Revised Heritage Impact Assessment):

*“The potential for destruction of Late Stone Age middens will be particularly acute with respect to areas within 300 m of the coast and very much less acute further inland in the vegetated dune areas. The location of the facility will be a key factor in determining the extent to which impacts will occur. Any facilities placed within 200 m of the rocky shoreline or crossing the rocky shoreline will result in impacts. **However, if a site were to be selected adjacent to Thysbaai beach, or within the vegetated dunes as proposed¹, the degree of impact will be greatly reduced** as Late Stone Age middens tend to be more common adjacent to rocky shores, and in areas where there are surface water sources.”* The central vegetated dune portion of the site where power station has been recommended to be placed also happens to be the area where the least other environmentally sensitive features occur.

It is the EIA team’s opinion, based on the findings of the Heritage Impact Assessment (including the findings of the test excavations completed in 2011) that the heritage issues at the Thyspunt site can be successfully mitigated.

Comment 5:

1.2.2 Wetlands

The DEIA states in Chapter 10, Section 10.2 that:

“Wetland mitigation measures that must be taken include the following key measures:

- Properties currently outside the Eskom-owned areas as specified by the wetlands specialist need to be acquired by Eskom for incorporation into the conserved area of the Eskom property. The acquisition of the Langefonteinlei wetland is critical in this respect.*
- A suitable hydrological cut off wall must be installed prior to groundwater drawdown to ensure that the impacts of groundwater drawdown on wetlands are mitigated.*
- Monitoring of groundwater levels must continue through the construction phase in order to determine the effectiveness of mitigation measures.*

Further investigations are required regarding the hydro-geological conditions of the site. Especially in the light of the recent flooding of the Sand River and the bridge wash away on two occasions.

Response 5:

¹ GIBB’s emphasis

Extensive monitoring of geo-hydrological conditions and wetlands was undertaken during 2010 and the findings thereof are contained in Appendix E12 of the Revised Draft EIR. This investigation found that the water table that feeds critical wetlands such as the Langefonteinvelei on the Thyspunt site is not geo-hydrologically linked to the water table where the power station excavation is proposed.

Comment 6:

1.2.3 Dunefields

No development (apart from the construction of the transmission lines between the power station and the HV Yard) is allowed within the Oyster Bay mobile dunefield. Construction of pylons and stringing of lines must be undertaken by helicopter (provided that safety considerations allow this). No permanent access roads may be constructed through the dunefield, and access for maintenance purposes during operation of the power station must be done with lightweight vehicles.

Further investigations are required regarding the hydro-geological conditions of the site. Especially in the light of the recent flooding of the Sand River and the bridge wash away on two occasions.

Response 6:

Please refer to Response 5.

Comment 7:

1.2.4 Access Road

Access to the site by Ultra Heavy and Heavy Vehicles should be by way of an access road developed around Humansdorp. No access for these vehicles must be allowed through the Humansdorp Central Business District.

This has not been addressed in the DEIA.

Response 7:

The Transport Assessment (Appendix E25 of the Revised Draft EIR) was substantially revised after the release of the Revised Draft EIR. One of the most significant recommendations of this report is that construction traffic must be routed around Humansdorp via a new interchange on the N2 to the west of Humansdorp and that construction traffic must access the Thyspunt site from here via the Oyster Bay Access Road. It is further recommended that only labour transport and an estimated 21 ultra-heavy loads over the nine-year construction period may use the R330 through St. Francis.

Comment 8:

"10.4 Way Forward.

Should the DEA authorise the proposed nuclear power station, it is recommended that it be authorised strictly according to the conditions as indicated above and according to the requirements of the EMP. Should some of the required mitigation measures not be implemented prior to the start of construction, as recommended (e.g. the conditions with respect to excavation of archaeological and palaeontological sites), then construction should not be allowed to commence."

This is a serious issues and an EIA should not be issued until this is resolved.

Should there be any substantive changes to the design of the proposed power station after submission of the Final EIR to the DEA for decision-making, a re-assessment of the environmental impacts may be required. The assumptions with respect to technical details of the power station (as detailed in the

Consistent Dataset – Appendix C) are key in this respect. Once a nuclear power station vendor has been identified, it must be confirmed that the specifications of the power station continue to conform to the Consistent Dataset, which acted as the basis for this EIA process. It is recommended Eskom must provide such confirmation to the DEA well prior to construction of the power station.

This is considered a fatal flaw as detailed plans, vendor, etc, should be determined prior to the EIA process so that appropriate assessment can be undertaken. An Environmental Authorisation should not be issued until this has been undertaken.

Response 8:

As indicated in Response 2, the required excavations of archaeological sites can be achieved with existing resources and the assumptions that were made in the Revised Draft EIR about an extensive and time-consuming heritage mitigation programme are no longer valid.

Your comments regarding selection of a vendor prior to the issue of an authorisation are noted. It is common practice in EIA processes, especially for installation of industrial plants, to consider the performance of the systems and type of technology proposed to be installed, without referring to specific suppliers or manufacturers of this technology, of which there may be a range available in the market. As long as the inputs and outputs of the proposed technology are known and the environmental impacts can be predicted or deduced from these inputs and outputs with reasonable certainty, it is not necessary to know the brand name of the technology.

As has been done in other issues and response reports, it may be appropriate to explain the envelope of criteria in colloquial terms, as has been done in public meetings during the Nuclear-1 EIA process. If the envelope of criteria is compared to the specifications for buying a vehicle, this envelope may contain requirements with respect to top speed, fuel type, fuel efficiency, catalytic convertor performance, type of tyres and wheels, fuel tank size, effective range, CO₂ emission limits, cruise control, numbers and positions of airbags and a number of other safety systems such as ABS and EBD. The only thing that isn't specified is the brand of vehicle. Providing such a list of criteria would ensure that only a luxury vehicle with certain characteristics could qualify, but that a base model (entry-level vehicle) would not qualify. Similarly, if a vendor proposes a power station design that fails to comply with the criteria established in the Consistent Dataset, that design will not qualify for consideration

Comment 9:

2 Draft EMP

2.1 Gaps in Knowledge / Residual Environmental Issues

Many "mitigations" that have been proposed in the specialist studies, which are actually information gaps and investigations that should be done during the planning stage as part of the EIA and assessed accordingly, have been taken through to the EMP. These gaps have been termed "Residual Environmental Issues". It is not appropriate to forward these items to the EMP with the assumption that an Authorisation will be granted for an EIA. This needs to be amended.

As stated in the DEMP, "Residual Environmental Issues are issues that have been identified during the EIA, but are considered unresolved at the time of compilation of this EMP. (or for that matter the EIA). These issues are as such therefore not yet addressed or not yet fully addressed by the mitigation measures derived in the EIA. Opposed to 'resolved' issues, specific environmental specifications for Residual Environmental Issues were thus still outstanding at the time of compiling this EMP. The reasons for residual issues vary, but are generally associated with lack of information at the time; e.g. lack of project design details, Environmental Authorisation conditions, contractor specific designs, etc. However, Eskom shall resolve Residual Environmental Issues as the Nuclear-1 project unfolds; most notably during the Pre-construction Planning and Design Phase. This will be done through e.g. additional specialist studies followed by appropriate amendments to the EMP (and associated environmental specifications) and/or through Method Statements or Standard Operating Procedures.

In summary, key Residual Issues include the following:

- *Geo-hydrological monitoring to model the impact of the abstraction of groundwater on wetlands and the interpretation of these results by the geohydrological and wetlands specialists;*
- *Data from additional fieldwork for invertebrates; and*
- *The excavation of heritage features from the sites prior to construction of the power station.*

This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted.

Response 9:

As indicated in the above responses, further geo-hydrological monitoring and test excavations of archaeological sites have been completed. Additional invertebrate monitoring has been completed by Eskom with the intent to inform the EMP. The archaeological excavations have been completed and confirm that there are not archaeologically sensitive sites where the nuclear footprint is planned for. The excavation of archaeological finds would not be carried out unless approval was obtained to construct on the site.

Comment 10:

2.2 Pre-construction Planning and Design Phase (page 22)

It is stated in the EMP that:

“ Due to the sensitivity of the environment, the complexity of the environmental requirements for the Nuclear-1 project and the fact that a number of Residual Environmental Issues remain (refer to Section 2.6 for the latter), it is important for Eskom to consider environmental management requirements during the Preconstruction Planning and Design Phase of the project. It is for this reason that such a phase is specifically covered in this EMP and associated environmental specifications.

The key activities undertaken during this phase involve:

- *Undertaking additional specialist studies and/or investigations to address any residual environmental issues; - This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted.*
- *Final planning and design of the site layout/ footprint and nuclear power station; This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted.*
- *Development of a set of site management master plans, e.g. for stormwater, water supply, facilities, waste, remediation, etc. (as indicated in Section 7). This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted.*
- *Tendering, adjudication and induction of Contractor/s; and*
- *Addressing certain environmental requirements, concerns, roles and responsibilities in preparation for the construction phase; e.g. through contract negotiations.*

Response 10:

Your comments are noted and have been addressed in preceding responses.

Comment 11:

2.3 Additional Specialist Studies

“Additional specialist studies, (Section 3.1.1) will be undertaken to address Residual Environmental Issues (refer to Section 2.6) in accordance with and based on recommendations of specialists and direction from the relevant environmental authorities..... Considering that extensive specialist studies have already been undertaken, these studies are in effect a ‘fine tuning’ of information to aid detail site layout planning and design. Specialists will thus as such also assist Eskom in such planning and design.

The following additional studies are required:

- *Monitoring of the interaction between water levels in wetlands and groundwater, in order to model the impact that the drawdown of groundwater (during excavation of the foundations of the power station) would have on wetlands at the site; and*
- *Invertebrate studies.*

This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted.

Response 11:

As indicated in the above responses, additional groundwater and wetland monitoring has taken place.

Comment 12:

2.4 Layout

Further detailed studies that should form part of the EIA that have been taken through to the EMP include as listed in Section 3.1.2, Walk-down Assessment, which states:

“After authorisation, but prior to decisions about the detailed location of elements of infrastructure on the site, a team of specialists must perform a detailed “walk-down” assessment of the site. This assessment must investigate, in detail, the recommended footprint for the power station (in accordance with the recommendations of the Final EIR) and associated infrastructure, as well as all elements of the construction site.

In addition to the Eskom project representatives, the walk-down team must consist of appropriately qualified and experienced specialists from the following fields:

- *Archaeology / Heritage*
- *Wetlands;*
- *Vertebrate Fauna;*
- *Vegetation;*
- *Dune Geomorphology; and*
- *Invertebrates.*

Should the ECO be appointed at this stage he/she should also form part of the walkdown team. Based on the findings of the walk-down assessment, the layout of the power station and elements of construction infrastructure must be planned and placed on site to ensure that environmental impacts are minimised. The layout plan produced at the end of this process must be regarded as binding on Eskom and the contractor and may not be changed without their approval.”

This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted. It is necessary to have a detailed project layout prior to authorisation.

Response 12:

Your comments are noted. Please refer to Response 1.

Comment 13:

2.5 Additional Information

For a project of this magnitude, additional project information and studies that should be undertaken prior to an Authorisation being granted have been deferred by the EAP to the EMP as described in Section 3.1.3: Integration of Environmental Considerations into Project

Design as follows:

“The Library of Specifications in accordance with Section 7 includes several specifications that must already be considered during pre-construction planning and project design in order to prepare for effective and consistent environmental management. These include, for example, specifications relevant to siting of the nuclear power station and associated facilities and infrastructure; access route planning; development of various master plans (e.g. stormwater management, rehabilitation, emergency procedures); community sensitisation, etc).”

This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted. It is necessary to have a detailed project layout prior to authorisation.

Response 13:

Your comment is noted. The approach in the EMP is consistent with the proposed “walk-down” as indicated in Response 1.

Comment 14:

2. 6 Library of Environmental Specifications to address specific aspects and impacts

As stated above, the EAP intends to include many unresolved issues as “mitigations” and “residual environmental Impacts” into the EMP into the Planning and Design phase. This phase (indicated as a blue colour coded bar) spans the pre-construction phase, including master planning and detailed site surveys / investigations. This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted. It is necessary to have a detailed project layout prior to authorisation.

Most of the items assigned with a blue colour coded bar require consideration in the EIA. Examples of this as listed below:

Section 7.1.1 Geology and Dunes, points 1 – 5, 8 – 11, 9 out of 14, all require further planning, buffers, site plans, no-go areas,

Response 14:

Your comment is noted.

Comment 15:

Section 7.1.2 Hydrology, Erosion and sedimentation and surface water quality, points 1-9, 9 out of 12 require planning input, more detailed planning, stormwater management plan

Response 15:

Your comment is noted.

Comment 16:

Section 7.1.3 Groundwater and geohydrology, points 1- 5, 7-17, 16 out of 17 require planning, site plans, dewatering and draw downs,

Response 16:

Your comment is noted.

Comment 17:

Section 7.1.4 Loss of Habitat Compensation (page 59), points 1-8 all require planning. It is noted that An Off Set is not a mitigation. This is unacceptable and these issues are to be incorporated into the EIA process prior to an Authorisation being granted "Develop a Loss of Habitat Compensation Plan in accordance with the recommendations of Fauna Specialist Study of the EIA and that meets the requirements of the relevant environmental authorities; and ensures that this plan addresses the areas that have been proposed to be added to the conserved Eskom property following the Construction Phase to secure the conservation of wetland habitats."

Response 17:

Your comment is noted. CapeNature, as one of the interested and affected parties for the proposed Nuclear-1 sites is the Western Cape, has specifically requested offset mitigation to be considered. All the biophysical specialists on the Nuclear-1 EIA team are in agreement about the value that conservation of the site around the proposed power station would achieve.

Comment 18:

Section 7.1.5 Wet areas and Wetlands, points 1-17, 17 out of 19 require planning input, detailed planning, delineation and buffers.

Response 18:

The Freshwater Ecology Assessment (Appendix E12 of the Revised Draft EIR) accepted the currently available information (including data from the wetland and groundwater monitoring undertaken in 2010) as sufficient for assessing the potential impacts on wetlands.

Comment 19:

Section 7.1.6 Flora, points 1-11 require further planning, Search and Rescue,

Response 19:

Your comment is noted.

Comment 20:

Section 7.1.7 Point 12, 13, corridors in master planning should be included in up front planning, points 14, 19, 20, detailed planning.

Response 21:

Your comment is noted.

Comment 22:

Section 7.1.8 Oceanographic and Marine Systems, notes that:

“The marine-biology assessment also found spoil disposal at sea to be a viable and the preferred option as it will greatly reduce the footprint of the development in terrestrial habitats. Ensure that results of any new engineering solutions for offshore outfall of heated seawater are either optimised or equivalent to the current design proposal; should the engineering solution be amended.”

This is technically very challenging so these issues are to be incorporated into the EIA process prior to an Authorisation being granted

Response 22:

The quoted section from the Environmental Management Plan indicates that the current designs for the heated cooling release are acceptable, but that if any changes to these designs are considered, it must be similar to the current designs. This is stated to provide for any (as yet unknown) design changes.

Comment 23:

Section 7.2.3 Public and Social Services and Service Infrastructure Use and Impact

A project of this magnitude will place a high demand on local and in some cases even regional and provincial public and social services, and would thus also impact on such services. Appropriate planning well in advance of such demands or impact is essential.

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation.

1. Negotiate with local authorities, well before construction, to determine what the needs are for upgrading of essential infrastructure such as sewage treatment plants and waste disposal sites that the Project will utilise and/or impact on; including inter alia to what extent Eskom will, in co-operation with the local authority, provide resources to assist with the upgrading of these facilities to ensure that they are capable of providing in the needs of the peak number of construction personnel.

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 24

Your comment is noted. In this regard, please refer to Response 2.

Comment 25:

2. Liaise closely with the relevant municipal, provincial and other authorities on all matters related to potential use of or impact on public services or service infrastructure, e.g. roads, pipelines, telecommunication, waste facilities, health services, emergency services, law enforcement services, etc.; including development and mitigation plans.

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 25:

Your comment is noted. In this regard, please refer to Response 2.

Comment 26:

5. Provide for and ensure adequate capacity of medical facilities are available:

- *Base planning for provision of medical facilities on the sustainable human settlement strategy; which implies that the provision of health facilities for all staff involved as proposed for the Construction Village and Staff Village will be vital to ensure a sustainable human settlement; and*
- *Make the relevant Department of Health aware of the requirements.*

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 26:

Your comment is noted. In this regard, please refer to Response 2.

Comment 27:

6. Ensure that adequate capacity for law enforcement is made available by notifying the involved authorities, local municipality as well as the SAPS about additional needs for law enforcement services as based on the sustainable human settlement strategy.

Need this information during the EIA phase and prior to the issue of an Environmental authorisation.

Response 27:

Your comment is noted. In this regard, please refer to Response 2.

Comment 28:

7. Eskom must enter into negotiations with education authorities in order to allow these authorities to plan to ensure local schools have sufficient capacity. The following actions need to take place in this respect:

- *Make provision of schools for the children of all staff involved, as proposed for the staff village (and possible other areas), as vital to ensure a sustainable human settlement;*
- *Provide for schools to accommodate children (number to be confirmed) into the area of the nuclear power station, signifying that either existing schools should be enlarged, or a new schools should be built in the area where staff will be residing; and*
- *Make the relevant Department of Education aware of the current schooling needs in the area as well as the potential impact that the proposed development will have on the status quo.*

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

8. Provide for and ensure adequate capacity of sports facilities, as follows:

- *Make provision of sport facilities for all staff involved as proposed for the Construction Village and Staff Village, as vital to ensure a sustainable human settlement.*
- *Develop or contribute to recreational facilities and sport facilities, in order to cater for the increase in population in specific areas.*

The Eastern Cape, has poor service delivery with enormous backlog, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 28:

Your comment is noted. In this regard, please refer to Response 2.

Comment 29:

7.2.5 Construction Village, Staff Village and Vendor Housing

1. *Conduct a detailed assessment for a new residential development, once the preferred nuclear power station location, as well as the location for residential and accommodation needs are finalised.*

The Eastern Cape, has a huge housing back-log and poor service deliver, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 29:

Your comment is noted. In this regard, please refer to Response 2.

Comment 30:

2. *Establish the construction village, staff village and staff and vendor housing (if any) as follows (subject to the conclusions and recommendations of a project-specific EIA for such developments):*

The Eastern Cape, has a huge housing back-log and poor service deliver, so this information is required during the EIA phase and prior to the issue of an Environmental authorisation. Imperative to ensure that the local communities dire requirements and poor service are not exacerbated by influx.

Response 30:

Your comment is noted. In this regard, please refer to Response 2.

Comment 31:

7.3 Protection of Heritage Resources SAHRA has not approved this application so no mitigations is appropriate.

As stated above With respect to these "Mitigations" it is specifically noted that the Revised Heritage Report conducted at Thyspunt as part of the DEIA for the proposed Nuclear 1 power station, has re-confirmed that *"Thyspunt to be extremely rich in archaeological material, to the extent that almost the entire sequence of human development in Africa is to be found in the study area."* In addition, SARHA do not support the development proposal, the Minister of Arts and Culture, (Parliamentary file number 7/1/2/B to written question number 360), 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. These very critical and potential “fatal flaw” issues are taken through to the EMP for mitigation. This is considered inappropriate and unacceptable.

Response 31:

Your comment has been noted above. Please refer to Response 4.

Comment 32:

7.4.2 Geological and Seismological Risk Profiling and Geotechnical Suitability Assessment

Need this information during the EIA phase and prior to the issue of an Environmental authorisation.

Response 32:

The seismic information contained in the EIR is regarded as sufficient for decision-making for a preferred site for Nuclear-1.

Comment 33:

7.4.3 Site Elevation and Footprint Development, Layout Planning and Establishment

Points 1, 2, 3, 4, 6, 8,9, 10, 11, 12, 13.

Need this information during the EIA phase and prior to the issue of an Environmental authorisation.

Response 33:

Your comment is noted. Please refer in this regard to Response 1.

Comment 34:

7.4.6 Access Roads Development, Maintenance and Use

Points 1, 2, 3, 4,

Need this information during the EIA phase and prior to the issue of an Environmental authorisation.

Response 34:

Your comment is noted. Please refer in this regard to Response 1.

Comment 35:

7.4.8 Water Supply Abstraction Point 1, 4, 5,

Need this information during the EIA phase and prior to the issue of an Environmental authorisation.

Response 35:

Your comment is noted.

Comment 36:

7.4.11 Stormwater Management

Consider Stormwater Management Plan prior to Environmental Authorisation.

Response 36:

Your comment is noted.

Comment 37:

7.4.12 Wastewater Management

Consider Wastewater Management Plan prior to Environmental Authorisation.

Consider radioactive emissions prior to the issue of the Environmental Authorisation.

Response 37:

Your comment is noted. Radioactive emissions are subject to nuclear licensing in terms of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

Comment 38:

7.4.13 Brine Management

Consider Desalination Plant and Brine Management Plan prior to Environmental Authorisation.

Response 38:

Your comment is noted.

Comment 39:

7.4.14 Air Quality

Consider radioactive emissions prior to the issue of the Environmental Authorisation, Especially in the light of the Fukushima Accident in March 2011.

Response 39:

The final plant to be selected will be reviewed to ensure that it has taken cognisance of the basic nuclear power plant design objectives and the recent events related to Fukushima. Also see Appendix E33 of the Revised Draft EIR (Version 2) for an in depth discussion.

In addition, 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, all contributing to best practice or significant such as Fukushima.

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Comment 40:

7.4.17 Emergency Preparedness and Response

Consider radioactive emissions prior to the issue of the Environmental Authorisation. Especially in the light of the Fukushima Accident in March 2011.

Response 40:

Emergency preparedness and response is within the ambit of the nuclear licensing process in terms of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

Comment 41:

7.4.18 Fire Prevention and Response

Consider radioactive emissions prior to the issue of the Environmental Authorisation. Especially in the light of the Fukushima Accident in March 2011.

Response 41:

Please see Appendix E32 and E33 of the Revised Draft EIR for a detailed discussion.

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

