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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 Duynfontein 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