Tshwane

Lynnwood Corporate Park
Block A, 1st Floor, East Wing
36 Alkantrant Road
Lynnwood 0081
PO Box 35007
Menlo Park 0102

Tel: +27 12 348 5880
Fax: +27 12 348 5878
Web: www.gibb.co.za

05 August 2015.

Our Ref: J27035
Your Ref: PAE/lm/4144
Email received 10 August 2011

Dawson, Edwards and Associates
Maritime and Commercial Attorneys
"De Hoop"
2 Vriende Street
Gardens
Cape Town

Email: lynn@dawson.co.za

Dear Ms Mc Laughlin

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

ARCUS GIBB (PTY) LTD

THE APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONER
ATTENTION: MS JAANA-MARIA BALL

PER E-MAIL: nuclear1@gibb.co.za
Cc: MS JAANA MARIA-BALL : jball@gibb.co.za

AND TO:

THE DEPUTY DIRECTOR GENERAL
THE DEPARTMENT OF WATER AND ENVIROMENTAL AFFAIRS
ATTENTION: MS TRUDI MALAN
PER E-MAIL: msolomons@environment.gov.za

Dear Sir/Madam

RE: REVISED DRAFT ENVIRONMENTAL ASSESSMENT REPORT FOR ESKOM HOLDINGS LIMITED'S PROPOSED NUCLEAR POWER STATION (NUCLEAR 1) AND ASSOCIATED INFRASTRUCTURE AT THE THYSPUNT SITE

Comment 1:

1 INTRODUCTION

We refer to the above matter and again confirm that we act on behalf of the South African Squid Management Industry Association ("SASMIA" or "our client") who has instructed us to make written representations on their behalf. We confirm that we previously made representations on our client's behalf in our detailed letter dated the 30 June 2010.

Our previous letter summarised our client's main objects, membership profile and official status as a recognised body in terms of the Marine Living Resources Act ("MLRA").

A reply to our written representations was received from yourselves in an e-mail dated the 28 April 2011 to which was attached a 40 page letter dated 20 July 2010. The said letter, although prepared on the 20 July 2010, was only e-mailed to us on the 28 April 2011 with no explanation for such delay.

We are instructed that a revised draft environmental impact report ("EIR") was made available for review and comment apparently from the 9 May 2011 until the 7 August 2011. As the 7 August 2011 is a Sunday we are assuming that the deadline is naturally extended to Monday the 8 August 2011 as was advised by yourselves to the Thyspunt Alliance (of which our client is a member).

Our client has again mandated us to make further representations on certain aspects of the purported consultation process and the said revised EIR read together with the response of the environmental assessment practitioner ("EAP") dated 20 July 2010. With regard to the revised EIR, due to time constraints theses representations focus predominately on the revised marine ecology report and the revised economic report.

1. SASMIA MAINTAINS ITS POSITION

Despite the content of the aforesaid response letter received from the EAP and the said revised EIR, our client maintains the stance as set out in detail our previous letter. These representations accordingly supplement our client's previous representations.

With a turnover of approximately R500 million (five hundred million rand) in foreign exchange revenue per annum and with employment of 5000 (five thousand) sea and land based jobs, not to mention the support of the families of such employees, the squid fishery is of vital importance to the Eastern Cape economy. At a time when South Africa is still feeling the effects of the global recession and in particular the fishing industry is struggling due to a strong rand and a depressed export market, the threat of the construction and operation of this nuclear power plant is extreme to the squid industry.

Our client maintains the view that there has been a lack of meaningful consultation (in the true meaning of the word) and proper investigation into the effect of nuclear 1 on the squid fishery. Particularly from an environmental and economic perspective, the risks of this project to a vital fishery in the Eastern Cape have not been sufficiently assessed and reported on.

In this regard it is submitted that the issues raised in our previous comments (dated 30 June 2010) have not been adequately dealt with at all and on the contrary the responses and revisions to the EIR serve to further confirm our client's fears.

As a consequence our client is led to believe that despite the declarations of independence by the relevant (specialists), their continued approach of claiming minimal disruption to the marine habitat and more importantly to the squid fishery without thorough investigation and consultation, shows a bias in favour of the Applicant (Eskom) who ultimately is responsible for the fees of these specialists.

]

Response 1:

The Marine Impact Assessment (Appendix E15 of the Revised Draft EIR) has comprehensively assessed the potential impacts of the proposed nuclear power station on the fishing industry, based on currently available knowledge from a variety of sources, including the reliable scientific resources.

The findings of the Marine Ecology Assessment are based on comprehensive oceanographic modelling of the effects of marine spoil disposal and cooling water release and on the extensive experience on the marine ecology specialists with monitoring of the marine environment at Koeberg Nuclear Power Station - a power station based on a similar technology (a Pressurised Water Reactor) to the proposed technology for Nuclear-1.

Response by the marine ecology specialists:

The marine specialists again confirm that they have no vested interest in the outcome of their study, whether this be in favour of any particular site, or indeed construction or not of Nuclear-1. The opinions given are their best professional advice, based on available data and consultation with no bias in favour of any party.

2. CONSULTATION ISSUES REGARDING THE EAP'S RESPONSE TO OUR PREVIOUS REPRESENTATIONS

Relating to the issue of lack of consultation, our client notes the EAP's responses without admission.

Comment 2:

Regarding the lack of consultation with SANBI, the response by the EAP is unacceptable as a project of this magnitude and with this potential impact on the biodiversity should have been investigated carefully with the head of SANBI in Cape Town. In the EAP's response they claim that a certain Mr Japie Buckle being the Eastern Cape provisional co-ordinator of SANBI has "participated in the EIA". Our client contests this statement and puts the EAP to the proof thereof, and in particular requires to see in writing what input Mr Japie Buckle on behalf of SANBI has in fact given.

Response 2:

According to the public participation records, provided to GIBB by ACER Africa, Mr Buckle registered as an interested and affected party and indicated his position as Provincial Coordinator of South African National Biodiversity Institute (SANBI) based in the Eastern Cape. The last record of his participation is his attendance of the Key Stakeholder Feedback Meeting held in Port Elizabeth on 12 April 2010.

Although the EIA public participation team can provide information to interested and affected parties, it cannot force these parties to submit written responses. It is the right of interested and affected parties to respond or not. So, for instance, although several meetings have been held with the Eastern Cape Department of Economic Affairs Environment and Tourism, as a key government stakeholder, this department has never provided a written comment on the EIA process. Similarly, no written response is available from Mr Buckle, apart from the record of his verbal comments in the

minutes of the above-mentioned meeting he attended. These minutes are available at the following website under Appendix D4:http://projects.gibb.co.za/en-us/projects/eskomnuclear1drafteir.aspx However, Arcus Gibb will engage with SANBI at a National level and request their input.

Response by the marine ecology specialists:

In respect of the marine environment specifically there is no suggestion that the projected development will have any impacts on biodiversity at the species level, since no species are known to be restricted to this site. Indeed marine species generally have much wider distributions than terrestrial species, so this impact would be unlikely. The consultants are also themselves among the leading marine biodiversity researchers in the region, and are both authors of the most recent marine biodiversity assessment for the region (Griffiths *et al.* 2010), so do not necessarily require input from SANBI to assess this matter. However, the marine specialists have consulted all relevant and reliable academic sources to assess the impact of Nuclear-1.

Comment 3:

The further excuse contained in the response that it is not always the responsibility of the EAP to identity and engage stakeholders is also unacceptable particularly as the SANBI MPA project has been well documented. It is not appropriate for SANBI and Dr Sink to merely be expected to comment as interested and affected parties in the EIA process. They should be actively consulted and their work on the MPA project investigated in order to see what impact nuclear 1 may have on it. Our client also denies the statement that the SANBI exercise is "indeed focused on offshore" (i.e. "continental shelf and beyond"). The SANBI project which ties in with the eco-system approach to fisheries of the Department of Agriculture, Forestry and Fisheries ("DAFF") looks at both offshore and inshore habitats.

Response 3:

Response by the marine ecology specialists:

We are well aware of and have participated in the SANBI MPA project and have been deeply involved in plotting biodiversity patterns on which the MPA network proposals are partially based. While submissions by SANBI are welcome we are not exclusively reliant on these to assess marine biodiversity impacts.

Comment 4:

Regarding the response from the appointed marine specialists Dr Tammy Robinson and Professor Charles Griffiths to the minutes of the Sea Vista meeting on the 25 May 2010, it would appear that the response of such specialists differs from what was recorded in the minutes of the meeting by the EAP. In this regard we hereby request you to confirm that the minutes of such meeting are accurate or whether in fact you have erroneously and negligently recorded what was said at such meeting. Please refer to page of 37 of our original representations.

Response 4:

The draft minutes of all public meetings are provided for comment to the attendees of the meeting for a period of two weeks. If no comments are received on these minutes, the minutes are taken as

an accurate reflection of what was said at the meeting. As such, the published minutes of the meeting are regarded as an accurate reflection of the meeting's proceedings.

Comment 5:

What is also more alarming about the latest response from the marine specialists is that as at the 20 July 2010 (the date of the EAP response letter) the EAP / Griffiths apparently maintain that: "the published scientific literature has been adequately reviewed and using the most up to date and scientifically sound information available a sound assessment of potential impact on the squid has been made."

This statement is factually incorrect for a number of reasons. Firstly, if one looks at the revised marine ecology report the references have changed with the insertion of a number of research papers on squid which were not previously contained in such references. It is submitted that as at the 20 July 2010 the draft EIR had not as yet been revised to include these further squid papers and accordingly it is submitted that the statement at the time that "the published scientific literature has been adequately reviewed" is not correct. It is doubted whether between the 30 June 2010 and the 20 July 2010 these papers were reviewed.

Response 5:

Response by the marine ecology specialists:

The period during which the marine ecology report was revised was between the dates stated above. As shown on the email correspondence with members of the Squid Working Group we contacted them during this period and it was through this interaction that some new papers were considered. In addition, at this time we re-reviewed additional published literature and added supplementary papers to the review presented in the report. The literature coverage in the report is thus a progressively improving with each iteration and the final report will contain yet more references than the previous one.

Comment 6:

This lack of research and consultation regarding the impact of the project on the squid resource is further uncovered by the following events. Only on the 20 June 2011 did the EAP present its EIA report for Thyspunt to the squid Scientific Working Group ("SWG") at DAFF in order for them to comment on the specialist study findings and outcomes relevant to the squid resource. The aid memoire to this meeting which was prepared by DAFF recorded that this was the first formal meeting for the SWG to consider this matter and contrary to normal practice no documentation had been circulated to the SWG (other than an e-mail listing comments by Greg Christy on various items in the EIA report). The aid memoire further records that the terms of reference / objectives of the meeting were unclear.

Only at this meeting did the EAP concede that they were now required to obtain the expert opinion / comment from the SWG on information which their consultants had used and the conclusions which they had made. However, despite the fact that this project has been on going from at least 2007, they requested formal comments / recommendations from the SWG already by the 7 August 2011.

Apparently a further internal meeting was held on 4 July 2011 between select members of the SWG but for some unknown reason our client was not invited to such meeting. Our client would have wanted its own expert Dr Berg to make his own contributions regarding the issues at such meeting.

A further meeting was called for on the 8 July 2011 between the SWG and the EAP. Unfortunately and of grave concern to our client, two scientists who have been at the cutting edge of squid research Mike Roberts and Warwick Sauer were unable to attend the second meeting despite them informing the secretary that the date for the meeting conflicted with a conference on Climate Change which they were both involved with.

Response 6:

The EIA team does not have control over the composition of the Squid Working Group (SWG) in general or over the attendance of particular members of the SWG at specific meetings of this group. The EIA team requested a meeting with the SWG through Dr Jean Githaiga-Mwicigi, the convenor of this group and relied on the convenor to invite the members of the group. The EIA team does not have a mandate to invite individual members of the group to specific meetings. If the EIA team did that, it could be accused of manipulating the outcome of the meetings by inviting only members who may be in support of a finding of low impact from Nuclear-1. Thus the EIA team did not extend invites for this meeting directly to Prof. Sauer, Dr Roberts or to any other members of the SWG.

Prof. Sauer is on the Nuclear-1 interested and affected party database and has taken part in a number of key stakeholder meetings and public meetings in the Eastern Cape. As such he has been kept informed of the Nuclear-1 EIA process and could have responded in his personal capacity or raised his concerns through the Squid Working Group, of which he is a member. Dr Roberts is recognised as a widely published marine scientist and thus the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) quotes from a number of his publications on marine ecology.

Comment 7:

Of further concern to our client is that at the meeting of 4 July 2011 it would appear that the agenda for the 8 July meeting was set and unbelievably certain aspects of the dumping of 6,3 million cubic metres of sand into the offshore environment was taken off the table as a discussion point and the main focus was on possible turbidity events. This is a key issue which requires much more investigation into its impact.

Response 7:

The agenda of Squid Working Group (SWG) meetings is controlled by the group itself and not by the members of the EIA team. The change in the agenda of the particular meeting was controlled by the SWG, which comprises most of the experts on this topic. . At the meeting the Nuclear-1 EIA team members were informed that the DAFF scientists deliberated the issue and felt that the placement spoil on the sea floor was not of grave concern with relation to the squid fishery due to its limited spatial extent. The SWG maintained that the turbidity related to this disposal required further consideration and this is being expanded on in further revisions of the Marine Ecology report.

Comment 8:

In any event from the *Aid Memoire* of the meeting held on the 8 July 2011 it would appear that there is still research to be undertaken by the SWG who must then submit a report and recommendations to the EAP by the 7 August 2011.

It is submitted that this time constraint on the SWG is wholly unreasonable taking into account the length of time this project has been on-going and the fact that the SWG should have been consulted properly years ago.

Response 8:

The Nuclear-1 marine ecology team contacted Dr. Mike Roberts, Dr. Jean Mwicigi, Dr. Hans Verhey, Ms. Nicola Downey and Prof. Warwick Sauer, all recognised marine ecology specialists, during the course of the Nuclear-1 EIA since the specialist's appointment in 2007. GIBB indicated to the SWG in a meeting held with them that they should not feel pressurised by time constraints and should submit comment as and when they can. The comment received by the SWG on the Revised Draft EIR (version 1) was received by GIBB and will be included in the IRR.

Comment 9:

In addition and more importantly, our client as the legally recognised industrial body in the squid industry, is entitled to be consulted on the SWG's report and recommendations prior to the submission thereof to the EAP. Furthermore it is submitted that in terms of Section 80 of the MLRA, in the event of our client being unhappy with any findings or recommendations reached by the SWG, our client will be entitled to appeal such findings. Pending the outcome of such appeal process where our client will be entitled to present its own expert evidence, the recommendations or findings of the SWG cannot be taken into account in any revised EIR.

In this regard our client's rights remain fully reserved.

As such our client must reserve its rights to supplement these comments once the scientific working group recommendations / findings have been finalised.

Response 9:

Your comment is noted.

It is to be noted that SASMIA is an observer member of the SWG and thus had ample opportunity to express its opinions at the various meetings of the SWG. These views will thus have been heard by and taken account of in the SWG comments to the Nuclear-1 EIA team.

Section 80 of the Marine Living Resources Act, 1998 (Act No. 18 of 1998) [MLRA] provides an opportunity for appeal against an administrative decision taken in terms of a delegation under that Act. As such, it is unclear how this right of appeal has a bearing on the SWG's inputs into the Nuclear-1 EIA process, as the SWG has not taken any administrative decision in terms of the MLRA for the Nuclear-1 EIA process. It is our understanding that the SWG is a scientific advisory body to the Department of Agriculture Forestry and Fisheries (DAFF) and therefore does not have administrative decision-making authority. Therefore, the nature of the SWG's inputs to the Nuclear-1 EIA process does not amount to an administrative decision under the MLRA.

Comment 10:

3. THE MARINE ECOLOGY REPORT

Firstly we deal with in summary fashion certain of the responses apparently from the appointed marine specialists to our client's previous comments contained in our letter dated the 30 June 2010.

Comments on marine specialist responses

Under general comments it is stated that "the main objective of the marine ecology report is to assess the potential impacts of the development on the marine biota and hence the squid as a species (a biological issue) and not the economic impacts on the fishery (an economic issue)." The specialists continue that "since squid occurs from Southern Namibia to approximately East London impacts which may have a significant negative impact on the fishery may have far less effect on the species." The specialist then states that his report should be read in this context and readers are referred to the economic report for details on the economic impacts.

This superficial distinction between the species and the fishery in our clients view causes a substantial flaw in the assessment of Thyspunt in the EIR. This is because the economic report relies heavily on certain aspects of the marine ecology report regarding its determinations on the economic impact the project will have on the squid sector. Therefore the down played conclusions regarding the overall effect on the species as found in the marine ecology report have fed into the economic report. This is clearly evidenced by the fact that the economic report only calculates losses based on a reduction of 1.8% of squid catchers due to the exclusion zone and the proposed dimensions of such zone. The economic report makes no provision for the potential huge losses of catches due to the dumping of spoil and the increased turbidity not to mention the temperature changes due to the outflow water.

In any event our client does not concede that the project and particularly the construction phase will have a minimal effect on the species as a whole.

Response 10:

Response by the marine ecology specialists:

We maintain our position that the marine ecology report is required to consider ecological impacts and is not focussed on impacts of the economics of the fishery, which is the domain of economists and not marine ecologists. Nevertheless we are going to great lengths (aided by valuable input from the Squid Working Group) to provide a clear indication of the potential impacts on the squid populations (not just the species) which are targeted by the fishery in the Thyspunt area and this is providing the data (such as percentage loss in catch) needed for a proper economic analysis.

Response by the Environmental Assessment Practitioner:

The Economic Impact Assessment (Appendix E17 of the Revised Draft EIR) has estimated the economic value of the impacts on the squid fishery, based on the findings of the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR).

The Marine Ecology Report bases its assessment of the significance of the impacts on all potential sources of impact, including the marine exclusion zone, the release of warmed cooling water, the increase in turbidity in seawater and the disposal of spoil on the seafloor. However, the recommendations of this report are that spoil must be released at a disposal site deeper than the relatively shallow spawning grounds of chokka squid. This report found that the maximum suspended sediment concentration (based on a medium discharge rate of 2.06 m^3/s) is not expected to reach levels above the critical 80 mg/l (above which definite impacts can be expected) near the water surface at any time during or after spoil disposal and will be confined to less than 1.4km^2 near the seafloor. In addition, these turbidity levels will be temporally limited outside the

actual disposal site, occurring for a maximum of two days throughout the entire disposal period. Therefore, the impacts of increased turbidity on chokka squid are predicted to be very limited.

Furthermore, the Marine Ecology Report concluded, based on oceanographic modelling, that a near shore outfall for warmed cooling water would result in an average increase of 3ºC near the seabed over an area of roughly 0.2 km² (2 ha) around the outlets and an area of 0.7 km² will experience a maximum increase of 3ºC or more at any time. Given this limited spatial extent of impact, it is reasonable to conclude that the significance of the potential impact on chokka squid would be insignificant.

Comment 11:

Under the executive summary reference is made to the turbidity being mitigated by the reduction of pumping speed of the discarding of spoil. It is stated that by reducing the pumping speed the consequence and significant impact will go from high to medium. Our client does not concede this academic and untested conclusion. The clear fact of the matter is that over two tons per second of building spoil is going to be pumped out of the end of the disposal pipe and will in time cover the bottom environment. Even if a medium consequence and impact is accepted, in our view this is sufficient for the precautionary approach to apply and for the project to be abandoned at this site. We also point out that the engineering feasibility study has as not yet been proven and without this feasibility study our client cannot understand how these conclusions can be drawn in a vacuum.

Response 11:

Response by the marine ecology specialists:

Based on the assessment criteria provided to us, the change in pumping speed decreases the significance of the impact rating as it dramatically reduces the turbidity associated with the disposal process. SASMIA are referred to the PRDW Oceanographic Modelling / Coastal Engineering Report (Appendix E16 of the Revised Draft EIR) for details With regards to the impact on chokka squid. It must be borne in mind that spoil will be disposed at an offshore site deeper than the depths at which chokka squid spawn. Construction of a pipeline 6 km offshore will not be without its challenges but based on international experience with the construction of nuclear power stations, and liaison with construction and marine engineering companies, such a disposal system for spoil is considered feasible.
i

Comment 12:

The marine experts responded further to say that the squid stock is currently well managed and not under threat from over exploitation and that as squid is mobile it can move great distances both along shore and offshore to avoid adverse conditions at a particular location.

Our client submits that whilst the stock is well managed, it is well managed on an eco-system basis and should an area in which at least 30% of squid catches are made be rendered unsuitable as a squid spawning ground, it is highly unlikely that this will not have a severe impact on the squid stock. There is no indication or research done as to whether or how long it will take for this stock to recover. Certainly from an economic point of view if the industry loses one season of profitable fishing many businesses particularly those with bank finance and mortgage bond repayments on their vessels may be liquidated. As mentioned previously the global economic climate and the strong rand has already impacted severely on the entire fishing industry including the squid sector.

Response 12:

Response by the marine ecology specialists:

The 30% figure quoted by SASMIA appears to have been calculated using only four selected vessels – a gross under-representation of the chokka squid fleet. Data for the same area provided by DAFF (i.e. the commercial database) showed that 14.7% of total catches are taken in the wider area (two quarter degree squares of approximately 22 x 27 km each) around the proposed site – itself a much larger area what will in fact be impacted. In this regard, please refer to Response 10, which indicates that the total area affected by a temperature increase of 3ºC or more will be less than 1km^2. In the current revision of the report the area potentially lost to the fishery (based on the commercial info provided by DAFF) is presented. While still under review, this figure ranges from 2.86% (worst-case scenario) to 2.53% (least-case scenario) to the fishery in the **local area** under question, and between 0.42% and 0.37% for the fishery as a whole. The 30 % figure used by SASMIA is therefore not supported by independent information on the total chokka squid fishery that has been provided by the DAFF and the SWG.

Comment 13:

Furthermore, the statement that squid occur from Southern Namibia to approximately East London misrepresents the position. The commercial harvesting of this species is only possible in a very small area off the Eastern Cape coast with the prime grounds falling on the coast of the proposed Thyspunt site. If these primary breeding grounds are destroyed or compromised it is not for the fishing industry simply to pick another area to fish from between East London and Southern Namibia. The industry is based in Port Elizabeth and St Francis Bay and there are no viable catching areas other than the very limited area within which the vessels currently catch. Our client also states that in its view the species of squid found in the southern Namibia area are most likely a sub species and not the same species of squid found off the Eastern Cape Coast. This is backed by current scientific research presently being undertaken by Dr Warwick Sauer. Furthermore the occasional occurrences of squid off East London does not accurately depict the extent of the resource in that area.

Response 13:

Response by the marine ecology specialists:

The overall distribution of the species (as clearly articulated in the wording of the report repeated above) is indeed quite different from that of the economically viable resource. The marine ecology report clearly acknowledges that and says that 'Coastal spawning is largely focused in shallow bays along the South African south coast (Augustyn 1991), with the most important coastal spawning grounds occurring between Plettenberg Bay and Algoa Bay (Downey et al. 2010). Recently there has also been recognition of offshore spawning grounds in the mid-shelf region of the eastern and central Agulhas Bank (Roberts and Mullon 2010)'. We acknowledge the comment regarding the potential distinction of a subspecies in southern Namibia and will contact Prof Sauer for confirmation of this. However, such a distinction does not change the conclusions of the report.

Comment 14:

The response continues to state that "while the initial disposal site will be lost as a breeding area to squid, the areas to which sediment spreads (the new habitat referred to in the submission) are unlikely to affect these animals as they lay eggs on both sandy bottoms and rocky reefs."

This response in our clients view highlights the complete lack of understanding of the squid species. Squid are very specific as to their breeding area and this is evidenced by the fact that they do not breed throughout the region and will only breed in specific grounds where our client's members catch the species. There are specific reasons why squid attach their eggs in this region and this point appears to be ignored by the marine specialists, or for some reason they do not deem it necessary to research further. Previously industry and research has shown that there are specific breeding areas where the sub-strata lends itself to the attachment of the egg pods. The "new" bottom environment will be dissimilar and perhaps more like loose gravel which can in no way support the same biotic environment. In fact Professor Griffiths mentions this in his report.

Response 14:

Response by the marine ecology specialists:

Taking into account discussions with the SWG this specific wording will be clarified in the final revision of the report. However the exact substratum on which squid in fact lay their eggs is not material to the way in which the impact has been calculated, since a 'worst case scenario' assumption has been applied that the entire region impacted by only 5mm of sediment will be lost as a breeding area. The loss of breeding area has been calculated on that basis.

Comment 15:

The crux of the matter is that the main area which is to be affected is the area with the highest catch per unit effort for the squid species. Data has been submitted to Professor Griffiths to prove this.

In the response (dated 20 July 2010) under study approach a statement is made that the marine ecology report made use of all appropriate information available.

This is denied as it is only recently after SWG meetings with the EAP that the EAP have accessed published scientific literature which now appears in the references of the revised EIR.

The response actually confirms this by stating further that the current review of the marine ecology report has been "offered the welcomed opportunity to include more recent references and the opinions of South African squid experts". With respect this should have been done years ago and a proper investigation conducted rather than a "rush job" immediately prior to comments having to be submitted on this latest revised EIR. This is again evidence of improper consultation with the relevant experts in the field.

Response 15:

Response by the marine ecology specialists:

The data provided to us by SASMIA reflects the catch positions of four vessels and does not reflect catch per unit effort. Much more complete data has been provided by the SWG. The comment about literature which is included in the report is unclear. While we included all literature we deemed

appropriate at the time in the version of the report currently in the public domain, the recent interaction with the SWG has provided further insight and literature that we are currently including in the revision of our report. The more recent data supports our conclusion that the impact will be minimal

Comment 16:

Furthermore, in the response a reference is made to the Koeberg experience. Firstly, the Koeberg power station is three times smaller than the proposed nuclear 1 and is in a completely different eco-environment. As such our client and other experts for that matter deem this comparison irrelevant.

The response concedes that no benthic surveys were done in the near shore environment with no sampling done whatsoever. It is submitted that this research was essential as the inshore will be effected by temperature changes, brine and chemicals from out flowing water whereas offshore will be effected through the sub tidal pipe which is proposed to extend 6 kilometres out to sea for the pumping of building spoil. Under the assumptions and limitations heading, the response states that "the impacts of spoil on the benthic environment and particularly on squid at Thyspunt have been clearly described and assessed in the report ….. "

This statement is simply untrue which is confirmed by the very recent and rushed purported consultation with the squid experts within the SWG who have not as yet even submitted a report to the EAP or the marine specialists.

Response 16:

Response by the marine ecology specialists:

As stated in our previous response to SASMIA, while there are obvious differences between the marine environments around Thyspunt and Koeberg Nuclear Power Station, these are taken into account. However, the Koeberg experience still provides an equivalent South African study as the KNPS uses similar technology (pressurised water reactor) to the proposed Nuclear-1 and the cooling systems work on the same principle, although the water volumes used for cooling will be greater at Nuclear-1. Monitoring at the KNPS is on-going, representing a large body of work over more than 20 years. It would be neglectful not to consider its findings and it is furthermore a requirement of the DEA that the Koeberg Nuclear Power Station experience should be considered.

Koeberg has a capacity of 1 800 MW, which is approximately half of Nuclear-1's generation capacity. Although the application for Nuclear-1 is for 4 000 MW, this is the maximum capacity to deal with the potentially different capacities provided by different vendors as there are a range of possible reactor configurations (e.g. three reactors of smaller capacity or two reactors of larger capacity).

It is not correct to say that no sampling was done as both rocky and sandy shores were sampled. Sampling of the nearshore is not useful at this stage as there has been relatively sparse sampling of the nearshore subtidal benthos off the South African coast and as such it would be almost impossible to say how representative the habitats present at each of the proposed Nuclear-1 sites might be. A list of benthic species that would be obtained by sampling would not serve to inform decision-making any better than the current information that is available. This is not considered a fatal flaw as:

(1) sufficient information relating to commercially important benthic resources exists to enable a scientifically rigorous evaluation the relative importance of the sites; and
(2) warmed cooling water from the proposed development will be concentrated near the surface and is unlikely to impact these habitats.

Therefore it is thus highly unlikely that benthic surveys would have revealed information that would influence the conclusions of this study. This approach has been endorsed by Professor GM Branch (Appendix 3 of the Marine Ecology Assessment).

Specifically with reference to squid there are also several published surveys that include this region.

Comment 17:

Regarding the comment that it is irresponsible of SASMIA to describe the impact of the spoil as "creating an undersea dessert or wasteland", this is exactly what has happened in the area which was used as a dumping ground in the Kouga[1] (sic) Project. It has negatively affected both the pelagic, squid and line fishery and it has been nicknamed as the "wastelands". This was a productive area before but no longer.

Response 17:

Response by the marine ecology specialists:

While the experiences of the fishing industry in the Coega Harbour area are acknowledged, this has not been scientifically documented and thus no hard data are available on which to base a comparison. The fact that a number of construction activities took place in the area, besides disposal of spoil, also means that it cannot be conclusively said that that spoil disposal is to blame. It was also noted at SWG meetings that the Niuclear-1 marine specialists attended that there has been no decline in the squid fishery subsequent to the Coega Harbour development.

Comment 18:

Regarding the proposed mitigation of the disposal of the sediment by reducing the pump speed as proposed in "alternative 6" even on this version it is admitted that there will be a 5 to 10 millimetres covering which will be "colonised by organisms". The response further states that "the communities supported here are however, expected to be different from original communities". Our interpretation of this is that they admit that the existing biota will be destroyed and there is no certainty as to what will take its place and how long this will take. They have in any event not done any transect studies to prove their assumptions.

Response 18:

Response by the marine ecology specialists:

The marine ecology report acknowledges that current biotic communities will be lost in the spoil disposal area. Biota will, however, recolonize the area through time. It is important to note that the spatial area affected by spoil disposal is limited. Sampling current biota would merely provide a species list and no information that could be used to predict recovery of communities or refine the

[1] Presumably with reference to Coega (also called the Port of Ngqura)

assessment of the potential impacts that are considered. The marine ecology report recommends that should Thyspunt be chosen for the placement of the proposed development, sampling be undertaken to track initial changes and recovery of communities through time. This would provide a valuable measure of this kind of disturbance in the south coast context.

Comment 19:

A further point is that in their response the specialists state that in this area there are "no species of special conservation status". This is blatantly untrue as both abalone and red steenbras exist in this marine environment and both enjoy maximum protection under our existing legislation. The non-disclosure of the existence of these species in the area further undermine the credibility and impartiality of the specialists.

Response 19:

Response by the marine ecology specialists:

The wording here implied that there are no species of special conservation status **restricted to, or with nationally significant populations in** this area and will be changed this. Both species indicated above have wide distributions with ranges over 1000 km long. While any abalone in the immediate localised vicinity of the outfall may be affected, steenbrass would be able to move out of the immediate site.

Comment 20:

Regarding the spread of sedimentation to Seal Bay it is submitted that contrary to the specialist response, alternative 6 states this clearly and our client accordingly refers you to your specialist's modelling.

Response 20:

The meaning of SASMIA's comment in this regard is unclear.

The Surf Breaks Addendum (Appendix I of the Revised Draft EIR) to the oceanographic modelling report predicts the distribution of sand on the ocean floor due to the off-shore disposal of spoil from the power station. This Addendum indicates that the disposal of spoil at a deep disposal site would result in a column of sand between 0.005 m (0.5 mm) and 0.01 m (1 cm) thick extending towards Seal Point from the deep offshore disposal site, with another small portion of spoil settling in the bay (at approximately 10m depth) between Seal Point and Cape St Francis five years after the disposal has taken place.

Comment 21:

In the response a reference is made to "recent communications with leading squid expert Dr W Sauer" where he allegedly indicated that "marked squid have been recorded spawning on various spawning grounds". Our client hereby requests a copy or record of such communications indicating exact dates and times of any meetings or telephone conversations and / or copies of e-mails.

In any event our client has never refuted that there may be multiple spawning grounds used. During specific environmental and seasonal conditions the squid will choose to spawn in an area, which means that when spawning occurs it does not occur all at once on all of the spawning grounds. They will only spawn on certain grounds which are suitable. However, what is uncontested is that they only spawn where conditions are perfect for spawning and that these perfect spawning conditions only occur in limited areas during certain time frames. This can be deduced from the fact that squid tend to come back to exact locations for spawning and hence the industry's reliance on GPS plotters. Our client further submits, and was supported by Dr Warrick Sauer at a recent SWG meeting held on the 20 June 2011, that although squid might choose another known breeding ground, the rate of successful spawning may be compromised due to competition. The SWG will confirm this submission.

Response 21:

Response by the marine ecology specialists:

As there is no dispute as to the facts (para 2 above) which are indeed published (Sauer *et al* 2000) and referred to in the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR), there is no need to release personal correspondence..

Comment 22:

Under the heading the release of cooling water, the specialist quotes the experience at Koeberg as a reason for not applying the precautionary approach in this case.

As stated previously Koeberg as a comparative is totally unacceptable due to the fact that the current plant will be three times the size of Koeberg with the environment and biozone around Koeberg being totally different. Furthermore, at Koeberg, the release of warmed water is based on completely different methods and technology, and in particular there are no squid spawning grounds in the surrounding Koeberg area.

In fact the revised marine ecology report states that "there is a complex interplay between a variety of factors such as dissolved oxygen, temperature, turbidity and swell size is thought to be important". It is submitted that due to this very "complexity" one is obliged environmentally and legally to adopt the precautionary approach and a more in depth study is mandatory.

Response 22:

Response by the marine ecology specialists:

At no point does the Marine Ecology Assessment suggest that the precautionary approach should not be applied and indeed a precautionary approach has been used, since a worst case scenario has been applied to the prediction of impacts (e.g. refer to Response 14). The relevance of the Koeberg experience is explained above in Response 16. The limited area in which significant changes in water temperature and turbidity are predicted to occur result in a more in-depth study being superfluous, as we are assuming the unlikely 'worst case scenario' that the affected area will be lost as a squid ground, However, even then the overall impacts on the species and on the fishery are minimal.

Response by the Environmental Assessment Practitioner

As indicated in Response 16, the generation capacity of Koeberg Nuclear Power Station (KNPS) is 1,800 MW, which is roughly half of that of the proposed Nuclear-1, since Nuclear-1's capacity will not be exactly 4,000 MW. The environmental application provides for a generating capacity of 4,000 MW maximum to cater for different reactor configurations, which will in effect be anywhere between 3,000 and 4,000 MW.

The KNPS experience with release of warmed cooling water is indeed relevant to Nuclear-1, since Nuclear-1 will be based on a Pressurised Water Reactor, the same as the KNPS. Although the KNPS's mechanism of release of cooling water is not exactly the same as the proposals for Nuclear-1, the KNPS experience provides valuable information on the impacts that can be expected from the release of warmed cooling water. It is, furthermore, a requirement of the Department of Environment Affairs that the EIA must assess environmental impacts with reference to the monitoring results obtained from the KNPS.

Comment 23:

The response furthermore acknowledges that the "area around Thyspunt is very important for the squid fishery". The marine specialist then continues "it needs to be remembered that it is the mandate of the marine specialist report to consider the impacts on the squid and not the fishery." This statement points to a fatal flaw in the marine ecology report. The squid resource and the fishery are inextricably linked and are managed as a whole. In fact as would have been apparent to the marine specialist had they properly consulted, the effort determination in the squid fishery is determined by the state of the resource. At this juncture one wonders whether the marine specialist has in fact perused the squid sector policy published in 2005 which sets out the main management principles for this resource.

From the industry point of view squid is targeted when it aggregates on in-shore spawning grounds and hence the fishing grounds and areas of catches correlate very closely to spawning grounds and spawning activities. Our client stresses that the spawning grounds in question being Thyspunt, Mosterts, Seal Bay and Oyster Bay have never been mapped or the extent of them studied by this marine ecology report. This should have been a vital focus on the marine ecology report but it has been ignored. There may well be some minor breeding occurrences which occur at certain times of the year in the far flung regions of Mossel Bay and Port Alfred but the primary and most consistent breeding area of this species is concentrated around Thyspunt. This is uncontestable.

The importance of this area for the fishery and therefore also for the fish stocks is made abundantly clear if one noted the percentage of catches taken 10 kilometres taken either side of the proposed outfall pipe (i.e. +/- 30 – 40%). The reason for the high abundance in this area and the consistency as to breeding and catching has not been fully analysed by this report. The risk of substantial damage to the fishery and the resource as a whole is too great for the precautionary principal (sic) not to be applied.

Our client does not accept that the impacts are "spatially and temporally limited – not posing an important threat to the species." This comment flies in the face of the previous assessment of the impact being of high consequence and significance which is only reduced to medium because of the pumping rate of sediment. This reduction in pumping rate so as to mitigate the high consequences has not been tested and an error on this issue has as a consequence the closing of an entire fishery supporting thousands of livelihoods in the Eastern Cape area. The bottom line is that the development is going to be under construction for 9 years (historical data on the

construction timeframes of nuclear power plants suggests much longer) and during this period there will be turbidity, sedimentation, severe disturbing of bottom strata and effluent pumped into the sea. After construction and during operational phase the sedimentation issue will still exist as the dumped spoil is not going to disappear. Furthermore during the operational phase turbidity could still be an issue depending on sea conditions, and cooling water discharge together with the brine and anti fouling chemicals will all have a negative impact. The impact during the construction and operational phase is unfortunately in the most productive squid breeding and catching area in South Africa.

Response 23:

Response by the marine ecology specialists:

While we are acquainted with the sector-specific and general fisheries polices guiding the management of the squid fishery, SASMIA is using the words 'squid resource' as a synonym for the species *Loligo reynaudii.* This is incorrect. While the species has a wide distribution, the squid industry is based in Port Elizabeth and St Francis Bay and targets the resource in these areas. The resource is that portion of the species which is able to support a fishery. Just because the cost vs. income of fishing in a certain area restricts the fishery does not mean that it restricts the distribution of the species.

The marine ecology should and does consider ecological issues, including the population status of squid. The impact this has on the economics of fishery is in fact an economic issue, and has been considered in turn in the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). Through consultation with the SWG, discussion on the exact location of the squid egg beds will be included in the current revision of the report for completeness sake. It should be noted that the spatial extent of the potential impacts is very limited (as shown in the report and presented at the SWG meeting where SASMIA was present). The data provided by DAFF is currently being used to calculate the area that may be impacted vs. the catch taken by the fishery in the area. While still under review, it appears that losses by the fishery in the area will range between 2.5 % (least-case scenario) to 2.9 % (worst-case scenario) and to the fishery as a whole between 0.42 % and 0.37 %.

Again we draw attention to the fact that the figures provided by SASMIA for percentages of catches made (30-40%) in the area are not factually correct. The independent figure provided by the SWG and the DAFF is 14.7 %. SASMIA was present at the SWG meeting at which this figure was provided and the 30 % figure quoted by SASMIA was refuted at this meeting.

As specialists we are required to use a predetermined assessment procedure when assessing impacts associated with the proposed development. Based on review by internationally experienced peer reviewers these criteria were changed for the Revised Draft EIR to make them more rigorous and consistent with international best practice. Based on current criteria, the various impacts assessed in the marine report can only be assessed as spatially and temporally limited – they are local in extent (i.e. limited to the site and the immediate surroundings within a 10 km radius) and some impacts (e.g. turbidity above 80ml/l) are expected to occur for less than a week.

The assessment has been done based on extensive oceanographic modelling (Appendix E16 of the Revised Draft EIR) and we have to base our analysis on those objective scientific data.

Comment 24:

The marine specialist seems to be taking the view that as long as the squid species is not made extinct or endangered through this project then the project does not have a significant impact on the resource. However, the economic report assumes that this means that if the species survives that the industry will also survive. This is clearly not the case and industry will confirm that it can take just one season of record low catches to close down many businesses in the sector.

Response 24:

Response by the marine ecology specialists:

The Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) does not state that extinction or endangerment are criteria for measuring impacts of a specific development and it would be ridiculous to do so. Indeed the impact on the stock is discussed in detail (and will be expanded on further in the revised report based on additional inputs from SWG). The report thus deals mainly with impacts on the resource.

Comment 25:

It is unacceptable that the marine specialists use logistical, time and economic restraints as excuses for not doing detailed surveys of egg beds as the marine ecology report is the basis for the economic report regarding the squid industry, which could find itself closing should the project impact severely on catches. The marine ecology report should not have been prevented by time and economic constraints from doing this necessary research. This lack of research and lack of budget could have even costlier implications for the squid fishery.

Response 25:

Response by the marine ecology specialists:

Every environmental impact study and research project is constrained by time and money, but the report is based on far more than the research done specifically for this EIA. Indeed it draws on many man years of research on the taxonomy, biodiversity, distribution and ecology of marine species in the region, including a large amount of work specifically on squid. It should also be borne in mind that cost and effort need to be weighed against the value of the information that would be gained for decision-making.

Instead of doing new work as part of the current review we are liaising with the SWG and DAFF scientists who have worked in the area. We are applying a worst case scenario of assuming that all squid egg beds will be lost in the areas that will be directly impacted. By applying such a precautionary approach and working with a worst-case-scenario we are able to envelope the impacts and give them proper consideration without spending additional time and money on new studies that would not result in better information for decision-making.

Comment 26:

Regarding our client's comments on the suitability of the peer reviewer of the marine ecology report, our client maintains its viewpoint that it is not acceptable where a report could have such wide

ranging effects on social and economic conditions in a region that the reviewer is in the same department at the same university. Our client vehemently objects to this.

Revised marine ecology report

At the outset we submit that many of the comments and concerns of our client have been dealt with previously herein when dealing with the responses of the marine specialists and in addition are the same concerns set out in our previous letter dated 30 June 2010. As our client believes that its concerns and comments were not at all adequately dealt with either in the response from the marine specialists or in the revised marine ecology report, our client accordingly maintains its previous position on the marine ecology report.

In summary, our client objects to the assumptions, conclusions and ratings determined in the marine ecology report, and maintains that such report has been compiled without sufficient investigation into the effect of the proposed project on the squid stock. In particular the report has failed to take into account that 30-40% of the industry's catches occur in the area which will be impacted during the construction and operational phase of the project.

Response 26:

Response by the marine ecology specialists:

Your comment is noted and indeed the key sections of the report that deal with squid have now been through an extremely rigorous review, by not the usual one or two, but a whole team of squid researchers, in the form of the SWG. This goes far beyond the usual scientific review process.

As indicated in other responses above the figure of 30-40 % of industry catches quoted by SASMIA is not supported by the DAFF's independent figures or by the SWG.

Comment 27:

The report in essence attempts to motivate that there will be a limited impact on the overall squid stock due to the fact that squid occurs naturally over a large area from East London up to Southern Namibia but ignores the fact that the viability of the squid fishery depends on the spawning and catches of squid in the area directly impacted in the construction and operational phase of the project.

The thrust of the marine ecology report's submissions can be summarised in a statement contained in the executive summary which reads as follows:

"The temporal and spatial limitations of the impacts associated with the disposal of soil on Chokka Squid at Thyspunt will have limited impact on the overall squid stock, when taken within the context of the extensive area over which this species spawns."

Response 27:

Response by the marine ecology specialists:

Your comments are noted. However, we maintain our position based on the objective scientific evidence available. In the current revision we will provide greater clarity to show how the impacts are limited through time and space. It is surprising that SASMIA still holds this view after attending

the detailed presentations made at the SWG meeting, which made it quite clear that the impact would be limited.

Comment 28:

On the marine experts own version it is conceded that "when associated with the discarding of spoil, disruption to the marine environment is significant." Their only mitigation which they feel reduces the significance of the disposal of spoil is a medium pumping rate. Even on their own version with a medium pumping rate the impact is reduced to medium consequence and medium significance. It is also conceded by the report that the impact will be at least 10 kilometres either side of the outlet pipe although our client argues that due to current and wave action this area will be further extended.

Response 28:

Response by the marine ecology specialists:

In the area where spoil will be deposited the impact will be significant, this has never been disputed. However, when the assessment criteria are applied, the spatial and temporal aspects of the impact result in the assessment rating provided in the report. Nowhere in the report does it say that the impact will be at least 10 kilometres either side of the outlet pipe. Maybe SASMIA is misconstruing the meaning of the extent rating applied. The rating of this impact criteria is given as Medium, this is defined as 'Local (limited to the site and its immediate surroundings including the surrounding towns and settlements within a 10km radius)'. This means that the extend of the impact is greater than the development footprint (Low rating) but will not exceed a 10 km radius. In the report details of the impact are given and the extent is in fact much less than 10km but as it falls outside the development footprint the extend rating is correctly given as medium.

Comment 29:

Furthermore regarding the release of warm water used for cooling purposes, it is conceded by the report that the water temperatures which are elevated above the thermal tolerance range of squid will cause the squid to avoid the area. Without any proper research the report then assumes that this affected area represents less than 1% of the coastal spawning ground. While we disagree with such percentage and put the scientists to the proof thereof, our client also states that whilst there may be other spawning grounds for squid this is the primary spawning ground which supports catches which in turn allow for a viable squid industry.

The report in terms has admitted that it focuses on the survival of the species rather than the fishery. Therefore, yes the squid species may survive notwithstanding the project but it is our client's view that the viable squid fishery will not survive as the project will effectively wipe out the prime catching area. What follows is our clients summarised concerns and queries regarding the balance of the revised marine ecology report.

Response 29:

Response by the marine ecology specialists:

The figure of 1% is based on published work by Dr Mike Roberts, one of the scientists that SASMIA acknowledges in Comment 6 as being 'at the cutting edge of squid research'. This figure has been

backed by information provided by DAFF at the SWG meetings. Reference to the SWG meetings will be included in the revision of the marine ecology report. Note also that the warmed water is less dense and then rises to the surface, so has little or no effect on organisms deeper in the water column or on the bottom, such as squid.

The Marine Ecology Assessment does consider the stock, not only the species and its findings are that the impacts on the catching area around Thyspunt are minimal.

Comment 30*:*

"Study approach"

As stated previously the reference and reliance on Koeberg to offer insight into possible impacts is objected to as the proposed plant is three times the size of Koeberg with water intakes, outflows, spoil discharges and design entirely different. Furthermore the proposed project at Thyspunt is also in a totally different marine eco-system.

Response 30:

Your comment and previous comments regarding Nuclear Power Station (KNPS) are noted. Please refer to Responses 16 and 22 above.

Comment 31:

Regarding the listed marine experts which have now been inserted in the revised version of the report, our client poses a question whether such experts were actually consulted in the true meaning of the word or merely interacted with informally. Our client requests copies of all correspondence to such experts and their replies thereto together with any other documentation generated during this so called consultation process.

Response 31:

Response by the marine ecology specialists:

These and other squid researchers have not only been extensively consulted, but directly involved in providing detailed inputs to the report. As SASMIA were present at the meetings of the SWG, of which these researchers are members, SASMIA is aware that the report has been reviewed by the squid research community and that the findings of the report are consistent with scientific data and information.

Comment 32:

Our client is of the further view that three months of field surveys between August and September 2007 spread over three different sites is wholly insufficient bearing in mind the potential impact of this project.

Response 32:

Response by the marine ecology specialists:

Sampling is not the only form of research that offers insight into the ecological issues surrounding this development. As explained above sufficient sampling has been undertaken and when combined with extensive research into the South African and international scientific literature, this enables a high level comparison of impacts between the three sites and assessment of the potential impacts. It is clearly stated in section 5.5.2 of the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR) that in depth sampling and monitoring programs be instituted at the selected site prior to the commencement of the proposed development. This would enable monitoring of both changes in biological communities and future recovery thereof.

Comment 33:

Furthermore in the study approach there is no mention of any offshore study done. This is another omission in the marine ecology report.

Response 33:

Your comment is noted. Please refer to Response 18.

Comment 34:

"Assumptions and limitations"

Regarding the proposed exclusion zone our client has been advised that they will have to be in accordance with international norms and any promises by Eskom as to special concessions are therefore misleading and are falsely raising expectations.

There is also a reference that if disposal constraints are not met then there will be a "refinement of current models". It would appear that already at this stage there is an expectation that the disposal of spoil at sea may not be within the constraints set. The problem with refining the current models at the stage when the constraints have not been met is that the proverbial "horse would have bolted" and the damage done to the marine environment. Accordingly the refinement of current models regarding disposal should be finalised now prior to the submission of the EIA as this could change impact ratings and significance levels.

Response 34:

Response by the marine ecology specialists

Section 1.2.1 of the Marine Ecology Assessment says that the current assessment is based on the oceanographic modelling of spoil disposal. As this model only holds within the limitations of the parameter currently considered (i.e. exact location of disposal site, the volume to be disposed, etc.) should any of these parameters be changed later the current assessment would no longer be applicable. The wording of this section will be clarified but it is providing a safety net, not an opportunity for the applicant to change its design.

Response by the Environmental Assessment Practitioner

As indicated by Item 3.20.3 of the Revised Draft EIR, the size of the marine exclusion zone will be determined by the National Intelligence Agency in terms of the National Key Points Act, 1980 (Act No. 102 of 1980). This exclusion zone is, therefore, not dependent on any international standards.

Should an environmental authorisation be issued to Eskom, it would bind Eskom to the parameters, assumptions and limitations currently considered as they authorisation is issued for a particular design as specified in the EIR. Should any of the key assumptions in the EIR prove to be incorrect, then the EIR would cease to be valid and a re-assessment would need to be undertaken based on the new facts.

Comment 35:

As regards the technical feasibility study which is apparently underway regarding spoil disposal options, this needs to be finalised and scrutinised prior to any marine ecology report being completed as it may also affect the impact levels substantially.

Response 35:

This has been finalised with no technical flaws being found (Eskom 2011).

Comment 36:

"Description of affected environment"

It would appear that the only study relied on is one by Jackson & Lipschitz of 1984 and our client poses the question whether any more recent studies have been undertaken.

Response 36:

Response by the marine ecology specialists

In the section describing the affected environment at Thyspunt the Marine Ecology Assessment makes use of 15 studies ranging in date from 1984 to 2010. All these references are fully referenced in the report.

Comment 37:

"Benthic environment"

With regard to this environment, our client submits that there has been no mention of any recent studies done and that this is a vital zone with regard to this project. In particular the fact that there is no mention of abalone suggests that this zone has not been fully studied or investigated by the specialists.

Response 37:

Response by the marine ecology specialists

The fact that the benthic information was collected in 1988 does not render it any less useful. The current revision of the study will reflect the presence of abalone.

Comment 38:

"The open water environment"

The specialists quote a report by Dr Augustyn of 1989 regarding the occurrence of the squid species from Southern Namibia to East London. This report is 22 years old and our client poses the question whether this study has in fact been replaced and in particular by Warrick Sauers later study. On the strengths of Dr Warwick Sauers study our client submits that in its view the species found up the West Coast may in fact be a sub-species of squid.

Response 38:

Response by the marine ecology specialists

As Prof Sauer's study has not been published he will be contacted for comment and the Marine Ecology Assessment will be amended as necessary. Whether the west coast species is genetically distinct or not is, however, not central to the question of whether this development will impact significantly on the South Coast stock, which is the key issue addressed here.

Comment 39:

Regarding egg laying, it is not strictly accurate to say that squid lay their eggs on the bottoms of "relatively large sheltered bays". They do lay eggs in other areas other than such bays. Thyspunt is in fact outside of both Oyster Bay and Kromme Bay.

Response 39:

Response by the marine ecology specialists

Your comment is noted. The Marine Ecology Assessment says 'spawning is **largely** focused in shallow bays along the South African south coast'. This agrees with the comment above that other areas are also used for spawning.

Comment 40:

Regarding the report of Roberts and Moulon our client submits that while the area from Plettenberg Bay to Port Alfred might be the extent of the catching area, the central and primary area of the industry is a much narrower defined area which centres around Thyspunt.

Response 40:

Response by the marine ecology specialists

The industry derived data provided to us by the DAFF agrees with Roberts & Moulon (2010) and shows that 14.7% of catches are taken in the area immediately surrounding Thyspunt. This will be elaborated on in the current revision of the report.

Comment 41:

Our client also submits that there is no reference to any effects in the open water environment to pelagic fish. Our client raises this concern because there is a growing pilchard fishery with vessels operating out of Port St Francis. This fishery may also be severely impacted the further offshore the spoil outfall pipe is placed during the construction phase.

Response 41:

Response by the marine ecology specialists

Your comment is noted. The limited spatial and temporal extent of turbidity related to spoil disposal and the fact that pilchard catches are not taken in the immediate area negates any significant impact on the pilchard fishery.

Comment 42:

Furthermore, the report also omits to confirm that whales and dolphins are seasonally in abundance in this area to the extent that a whale watching permit has been issued to an operator out of Port St Francis. The spoil disposal and construction of the pipelines in our clients view could have a major impact on the migration routes of these marine mammals especially as this point is the second furthest point in Africa.

Response 42:

Response by the marine ecology specialists

Marine mammals are dealt with in section 2.3.4 of the report. The occurrence of whales and dolphins around the Thyspunt site is dealt with this section of the report.

Comment 43:

"Disruption of the marine environment during construction"

This part of the report concedes that during the construction period there will be a severe localised disruption to the marine environment. The report concedes further that under these circumstances the benthic habitat and in particular egg beds of the Chokka Squid are at risk of damage due to smothering, while turbidity will result in adults temporarily moving out of the area. The report confirms further that this disturbance will be focused within the construction phase (i.e. 9 years) and is likely to be "localised and of short duration". History shows that the construction period of nuclear power plants have always considerably exceeded original estimates.

The report continues to state that "the discarding of an estimated 6.37 million cubic meters of spoil from the excavation of the nuclear island, turbine hall and contractors yards fill poses a threat to the marine environment". Furthermore, "both the physical and biological marine environment would be affected". Therefore on the specialists own version this is an absolute given and it is just the extent of the disruption which is in debate.

The report further confirms that such impacts would occur due to “the increased turbidity in the water column as a result of the suspension of fine particles and due to the smothering of benthic habitat”.

After making these concessions the report tries to downplay the effect of the disposal of 6.3 million cubic meters of spoil by posing different discharge rates. The marine specialists apparently recommend alternatives 5 and 6 as the suspended sediment concentration is not expected to reach levels above 80mg/l near the water surface at any time during, or after disposal. Regarding turbidity levels of 80mg/l, this must be compared to the natural average of only 5mg/l. Our Client has requested that the modelling depicts the turbidity level modelling depicting turbidity levels of 10mg/l >. These modelling results have still not been presented.

The report continues to state that at using these alternatives the turbidity levels will be very temporally limited outside the actual disposal site appearing for a maximum of two days throughout the entire disposal period. As the construction of the project is over a period of 9 years (at the very least) we place in dispute this estimate and consequent downplaying of the effect of the disposal of building spoil into the ocean. The uncertainty as to the effects of this occurrence call out for the application of the precautionary approach.

Response 43:

Response by the marine ecology specialists

The comments as given above are loaded with inferences and innuendo (‘concede that’, ‘downplay’ etc.). From a scientific point of view such inferences are regrettable. The authors of the Marine Ecology Assessment have attempted to provide an unbiased analysis, based on the scientific information provided by experts, including other consultants in the team.

The Marine Ecology Assessment has always been clear about the impacts associated with the construction phase and a large project like this will always have impacts (which have to be evaluated against the benefits gained). The EIA team would be legally amiss if we did not recommend mitigation measures wherever possible.

There are two aspects to the potential impact of spoil disposal that need to be understood. Firstly, the actual deposition of the sediment on the seafloor and secondly, the turbidity associated with the disposal process. As described in our report the deposition of the spoil can only be mitigated by disposing the spoil deeper than 50m so as to avoid squid spawning sites. Hence the marine ecology report does not consider disposal at a shallower site where it would impact on squid spawning grounds. The elevated turbidity can in turn be mitigated by reducing the pumping speed, hence the recommendation in our report.

It should be noted that as was pointed out by Dr Robinson at the SWG meeting held on 2 August 2011, the background turbidity level of 5mg/l was measured at depths of 5-30m. As the area under question is much deeper (84m) this figure may not be representative of the true background turbidity. The consultants are currently awaiting information on background turbidity levels at the appropriate depth from Dr Mwicigi of DAFF.

The level of 80 mg/l is referred to since this has previously been identified as a threshold above which probable adverse ecological effects will occur, while 100 mg/l has been used as a critical value above which proven negative impacts will occur. Nevertheless, information regarding the extent of turbidity levels lower than 80mg/l is in the process of being generated by the

oceanographic modellers and will be included in the current revision of the Marine Ecology Assessment.

As explained at the final SWG meeting, pumping of spoil will be continuous and will be completed in 143 days if Alternative 5 is chosen and 72 days if Alternative 6 is chosen. Should SASMIA have any scientific basis to question expert modelling conclusion that turbidity will only rise above 80 mg/l for two days during this time, the EIA team would amend its reports accordingly. To assert otherwise is purely speculative.

Comment 44:

On the marine specialists own version "following disposal on the sea floor roughly three metres of sediment will cover an area of 1.5 or 3 kilometres squared depending on whether only half or the full volume of the sediment is disposed of." Three meters is about one story high over an area of three kilometres squared. Over the next 10 years this spoil is going to spread. The report admits that while the initial disposal site will be lost as a breeding area to squid, "the areas to which sediment spreads is unlikely to affect the squid permanently as they lay eggs on both sand bottoms and rocky reefs". The word "unlikely" is used which in our client's view shows a strong element of doubt. The report presupposes that because the squid lay eggs on sandy bottoms and rocky reefs they should also lay eggs on the new sea bed covered with building spoil. Building spoil is completely different in make up to the current sea bed. Therefore this assumption is untested and for a marine specialist to simply make this conclusion is irresponsible not to mention unethical.

The words "unlikely to affect squid permanently" are also used. Thus according to the report, the areas to which the sediment spreads are definitely going to affect the squid negatively but not permanently. No time period is given for any such recovery which is a further ground for the precautionary approach to be applied. Perhaps the marine specialist is hoping that after say ten years the squid in this affected area will recover, however by that time the squid industry would have been long ago decimated by the impact on its prime catching area.

In particular our client vehemently denies the assumption that "the inshore jig fishery is unlikely to be greatly affected by the disposal of spoil as only a small portion of catches are taken in the area expected to be impacted." Our clients have stated categorically that between 30-40% of their catches are caught in the area impacted. It is highly unethical and irresponsible for the marine specialist who has stated that he is only analysing the species and not the fishing industry to state in his report that it is unlikely that the jig fishery is to be greatly affected by the disposal of spoil.

It is further irresponsible for the marine specialist to state that although the species will be affected "recovery is expected once the benthic community re-establishes." After the disposal of soil there will be a completely different benthic environment and it is highly unlikely that squid who require special conditions for laying eggs will return to this area. In any event how long will it take for them to recover? The industry does not have the resources to compromise its fishing for 9 years or even one year or six months for that matter.

Response 44:

Your comments are noted.

Response by the marine ecology specialists

Firstly it is important to note that it is not building spoil that will be disposed of and the sediment is not totally different to what is already there. As has been stated in the Marine Ecology Assessment, the oceanographic modelling report considers the fate of the spoil in the marine environment and as was explained at the SWG meetings that SASMIA attended on 20 June, 8 July and 2 August 2011), the sediment that will be disposed of will come from the dune sands that will need to be excavated during the construction phase – not building rubble. The median grain size of sediment to be disposed is 0.23 mm. Data collected at Thyspunt as part of the Site Safety Study at Thyspunt (PRDW 2009) has shown that naturally occurring sediments in the area have a median grain size ranging from 0.17 mm to 0.58 mm. The fact that we apply a precautionary approach is evident in the fact that we bring attention to the fact that despite similarities in median grain size, the habitat offered by the spoil will be dissimilar to natural sediments as at it will not be consolidated with a rippled veneer as is the current benthic sediment (based on sidescan sonar measurements).

It is not possible to give an exact figure with regards to recovery time. The fact that it will occur in the long term is certain. This is reflected in the duration of this impact being rated as High (i.e. more than 15 years to permanent). Please note there are two aspects to this impact: the recovery of the area where spoil is placed on the one hand (which will be of long duration) and increased turbidity (which will be of short duration). This distinction will be clarified in the current revision in the report.

The area chosen for spoil disposal was particularly chosen so as to avoid the inshore area that is most important to the fishery.

Again we point out that the figure provided by SASMIA of 30-40% of catches which come from the area under question is exaggerated. The figure provided independently by the DAFF is 14.7%. In this regard please refer to Responses 14, 23 and 40.

It should be noted that the 3km² where spoil will be placed is much deeper (84m) than the area fished by the fishery (shallower than 50m). As a worst-case-scenario, the area to which to the spoil has been modelled to move in 10 years represents an area accounting for only 2% of catches taken in the immediate area, and 0.3% of catches taken by the fishery as whole. Should any new figures be provided by DAFF in the course of amending the Marine Ecology Report they will be reflected accordingly.

Comment 45:

"Abstraction of cooling water"

The report concedes that squid will be impacted by the release of warm cooling water. It admits further that adults will avoid the area and there will be a certain amount of egg mortality. However, the report incorrectly states that only 1% of the coastal spawning ground centred between Plettenberg Bay and Port Alfred will be affected. This is an unsubstantiated remark. Whilst there are other spawning grounds in the area mentioned, the spawning ground at Thyspunt is the prime spawning ground for squid and once this area is eliminated a viable squid fishing industry will be eliminated simultaneously. The report simply assumes that adults will avoid the warm water plume and move to other spawning grounds. If this is true how will the squid fishing industry react to this? Squid industry records depict catches in certain areas at certain times year after year. If this project goes ahead the entire squid fishery and the management of the resource will be severely affected, and in all likelihood rendered unviable.

Response 45:

Response by the marine ecology specialists

The figure from the Marine Ecology Assessment is not unsubstantiated as it is based on the work by Dr Mike Roberts (i.e. Roberts Moulon (2010) as referenced in the report). This has also been backed by industry derived data provided by DAFF. Consultation with Prof Warwick Sauer, a scientist that SASMIA recognises as 'at the cutting edge of squid research') indicated that any squid that avoid the plume will move to other spawning grounds, rendering the impact of little overall significance to the species or to the fishery. In order to aid the assessment of impacts on the fishery, the current revision of the marine ecology report will provide a cumulative measure of catches that may be lost to the industry based on commercial data provided by DAFF.

Comment 46:

"Closure of the site to exploitation"

The closed zones are not the main issue which needs to be assed (*assessed?*) (sic). The environment which is no longer suitable for squid catching due to changes in the benthic environment over a large area is of importance and has not been properly investigated and in a sense ignored.

Furthermore, as stated previously, although Eskom appears to be proposing a smaller exclusion zone, these zones are apparently governed by international standards and Eskom may not have the required control to give such guarantees.

Response 46:

Response by the marine ecology specialists

As indicated in several responses above, figures provided by the DAFF and the SWG show that predicted losses to the fishery in the immediate area around Thyspunt range from 2.53 % to 2.86 % while losses to the fishery as a whole are expected to be in the range of 0.37% to 0.42% for the fishery as a whole. These figures will be reflected in the revision of the Marine Ecology Assessment.

Response by the Environmental Assessment Practitioner

As indicated by Item 3.20.3 of the Revised Draft EIR, the size of the marine exclusion zone will be determined by the National Intelligence Agency in terms of the National Key Points Act, 1980 (Act No. 102 of 1980). The size of this exclusion zone is, therefore, not dependent on international standards.

Comment 47:

"Relevant legislation"

Regarding relevant legislation a glaring omission is the Marine Living Resources Act of 1998 ("MLRA") which is not referred to. With regard to marine living resources (e.g. squid), the MLRA in fact takes precedence over other legislation. This is of vital importance to our client in that in

Section 2(c) of the act it states “the need to apply precautionary approaches in respect of the management and development of marine living resources”.

Even on the marine specialists own version, there is going to be a significant effect on the squid species in the area concerned which in turn will have a knock on effect on the management of such resource. The precautionary approach will have to be applied in the circumstances.

Response 47:

Response by the marine ecology specialists

The Marine Ecology Assessment does not indicate there will be a significant effect on the squid species as a whole. As indicated in our above responses all the impacts are localised and not of threat to the species. With regard to the implications for management of the resource, the current revision of the report will be guided by the recommendations of the SWG. However, it should be borne in mind that the Marine Ecology Assessment has no input into the management of the squid resource. As such this report is guided primarily by the overarching legal framework of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA], in terms of which the Nuclear-1 EIA process is being conducted.

Response by the Environmental Assessment Practitioner

The MLRA is referred to in section 6.4.10 of the Revised Draft EIR.

Section 2(4)(a) of the NEMA similarly requires that “sustainable development requires the consideration of all relevant factors, including the following:
(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions”. This is similar to the MLRA’s requirement that a precautionary approach should be followed.

It is for this very reason that the Marine Ecology Assessment and other assessments have, where relevant, assumed a “worst case scenario” impact. The application of the worst case scenario assumption to the assessment of marine impacts is referenced in several responses above.

With regards to your assertion that that MLRA takes precedence over any other Act, it is presumed that you refer to Section 4 of the MLRA, which states “*If any conflict relating to marine living resources dealt with in this Act arises between this Act and the provisions of any other law, save the Constitution or any Act expressly amending this Act, the provisions of this Act shall prevail.*” It is to be noted that the precedence of the MLRA is context-specific, as it relates expressly to a matter regarding marine living resources dealt with in the MLRA. Such precedence does not extend to all forms of decision-making regarding activities in the marine environment. It is to be noted that Section 4 of the MLRA does not confer power on the DAFF to overturn a decision taken by an environmental decision-making authority that has been delegated to it in terms of NEMA. However, in reaching a decision on the application for EIA authorisation, the DEA is required to consult with other departments such as the DAFF. Section 24O(2) of NEMA requires the Minister and an MEC or identified competent authority to “*consult with every State department that administers a law relating to a matter affecting the environment when he or she considers an application for an environmental authorisation*.”

Comment 48:

"Mitigation measures"

Our client notes that there will definitely be impacts during the construction phase and would like to point out that this construction phase is a period on nine years at least and any recovery referred to will only occur after such nine year period if it does in fact occur. The report again admits that the discarding of the building spoil will act over the "long term". However, the marine specialist is of the belief without any testing or research that a medium pumping velocity will mitigate against the severe impact on the benthic environment. In addition the engineering feasibility study has still not been completed regarding the disposal of the building spoil and this may in fact impact on this part of the environmental assessment.

Regarding the purported mitigation of pumping the spoil into a deeper area, our client is of the view that this does not change the fact that huge volumes of spoil is being pumped out into the ocean and will ultimately settle on the sea bed and effect the benthic environment.

Response 48:

Response by the marine ecology specialists

As explained in previous responses, and to Mr Christy at the SWG meeting that took place on 20 June, 8 July and 2 August 2011, the reduction in pumping velocity during the disposal of spoil does not affect the total volume of spoil. What it does mitigate is how much turbidity is released into the water column. As turbidity is a concern with regards to the formation of spawning aggregations, the marine ecology specialists recommended that a reduction in the pumping speed is a vitally important mitigation measure. Applying the precautionary approach requires that turbidity be minimised, hence reduced pumping is recommended by the specialists.

Should SASMIA have any verified evidence that contradicts the findings of the very detailed oceanographic modelling that was done to investigate the fate of the discarded spoil, this would be considered by the EIA team and if necessary the EIR and relevant specialist studies would be revised. If SASMIA can raise specific concerns then these can be answered by the scientists who completed the work.

Comment 49:

"Monitoring and evaluation programmes"

It is submitted that the research and sampling of the benthic and inter tidal habitats in the area should actually be conducted now at EIR stage rather than before construction or after construction when it will be too late. It is also submitted that these studies should also be conducted from Oyster Bay to Seal Bay.

Response 49:

Response by the marine ecology specialists

As stated in Response 16 above: Sampling of the nearshore is not useful at this stage as there has been relatively sparse sampling of the nearshore subtidal benthos off the South African coast and as such it would be almost impossible to say how representative the habitats present at each of the

proposed Nuclear-1 sites might be. A list of benthic species that would be obtained by sampling would not serve to inform decision-making any better than the current information that is available. This is not considered a fatal flaw as:
(1) sufficient information relating to commercially important benthic resources exists to enable a scientifically rigorous evaluation the relative importance of the sites; and
(2) warmed cooling water from the proposed development will be concentrated near the surface and is unlikely to impact these habitats.

It is thus highly unlikely that benthic surveys would have revealed information that would influence the conclusions of this study. This approached has been endorsed by Professor GM Branch (Appendix 3 of the Marine Ecology Assessment).

The location of the sampling undertaken at the chosen site will include areas which will be affected as well as control areas for comparative purposes. Should Thyspunt be the site chosen, it would be recommended that the area between Oyster Bay and Seal Bay should be included.

Comment 50:

"Conclusions and recommendations"

Our client again denies that the disposal of the spoil will result in little potential impact on the squid and that the inshore jig fishery is unlikely to be seriously affected. These conclusions have not been properly investigated. The report refuses to address that this is a major spawning ground which is consistently producing egg beds and is the most important area in the viability of the species and the industry.

Response 50:

Your comment is noted. Please refer to Responses 7, 14, 15, 23, 25 and 27.

Comment 51:

Our client again also denies the statement that the elevated water temperatures will only affect less than a percent of the coastal spawning ground. Furthermore it is submitted that the conclusions fail to address the possibility of the effects of chemicals which would be added to the cooling water to stop entrainment and growth on the intake and heat exchanges. No quantification of the chemical concentrations have been given and we would presume that there must be some international standards which should apply.

Finally regarding the revised marine ecology report we note that it is date (sic) the 24 March 2011. This is long before the meetings held with the SWG commencing on the 20 June 2011. Accordingly the marine specialists have reached their conclusions on the effect of the project on the squid species and fishery without having properly consulted those responsible for the management of the fishery.

Response 51:

Your comment regarding the size of the area to be impacted is noted. Please see Responses 12, 23, 29 and 45.

Please refer to Response 8 regarding the dates since when marine scientists, who serve on the SWG, have been consulted.

Comment 52:

4. THE ECONOMIC REPORT

Response by EAP to letter dated 30 June 2010

The response by the EAP to clients' previous representations on the 30 June 2010 relating to the economic impact assessment report are minimal to non-existant. Either they merely note our comments or state that:

"the economic and marine assessment are being revised and omissions, if found will be addressed in the revised reports. The revised reports together with the revised draft EIR will again be made available for public review and comment."

Response 52:

Your comment is noted. The Economic Impact Assessment (Appendix E17 of the Revised Draft EIR) was revised in response to the comments received in 2010 and includes a quantification of the impacts on the fishing industry.

Comment 53:

Furthermore, an interesting and staggering response relating to the market perceptions of a fishing ground near a nuclear plant is made as follows:

"One needs to consider why the same negative market perceptions not applied in the case of fresh produce grown around nuclear power stations in France, for example? At the Koeberg nuclear power station, vessels trespass into the exclusion zone from time to time to catch fish in the proximity of an outflow pipe. The economic specialists stand by their argument that perceptions can be overcome by appropriate marketing using scientific evidence."

The very superficiality and naivety of this comment in our view illustrates the biased attitude of the authors of the economic report. Clearly these specialists have done little to no research on this marketing aspect. For instance we reiterate that the specialist has not approached overseas agents and markets to establish this viewpoint and furthermore has not properly interviewed the major exporters of squid in South Africa.

In this regard it is submitted that our comments on this aspect stand along with our other comments on the report.

Response 53:

The quoted comment from the Economic Impact Assessment is borne out by the fact that organic wine farming takes place within sight of the Koeberg Nuclear Power Station with no apparent negative impact caused by proximity to the power station.

Comment 54:

A further quote from the response is as follows:

"In compiling the economic report a discussion with a marine specialist, during which no fatal flaw for the economic study was indicated, was taken into account. No more work could be done with the information that was available at the time."

It is submitted, in this event, that either the marine ecologist or the economic specialist chose to ignore the severe effect of the disposal of 6.3 million cubic metres of building spoil on prime fishing grounds and the potential loss of income to be caused to the fishing industry. This loss of income is not reflected at all in the revised economic report. It is a glaring omission.

Revised Economic Report

It is submitted that the economic report has not been substantially revised as undertaken in the response by the EAP to our letter dated 30 June 2010. Due to the very few changes made to the economic report, our client simply refers the EAP to the comments made previously on the economic report in its letter dated 30 June 2010 and request that they be incorporated by reference.

Response 54:

Your comment is noted. Please refer to Responses 7, 14, 15, 23, 25 and 27 above. These responses and the Marine Ecology Assessment (Appendix E15 of the revised Draft EIR) clearly indicate that the impacts of spoil disposal will be minimal, provided that the recommended depth of disposal, distance of disposal from shore and a medium pumping rate are maintained.

The estimated economic impact on the fishing industry is assessed in section 3.2.1.3.10 of the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). The Economic Impact Assessment has been substantially revised since 2010, based on the revisions to the Marine Impact Assessment and other specialist assessments.

Comment 55:

Furthermore, our client raises the following further points:

Under paragraph 2.1.4 the specialist references to information in this section being drawn from an interview with the largest commercial fishing company in Port St Francis, interviewers with researchers at marine and coastal management and the report of the South African Squid Management Industrial Association dated 2007;

Firstly the scope of the economic study should not be a twenty kilometer radius from the site but should include Port Elizabeth where the largest percentage of squid vessels operate from and where there are further processing factories and infrastructure relating to the industry. These vessels also fish in the affected area and as such the economic impact will be felt not only in the twenty kilometre radius of the site but also in the Port Elizabeth area. The specialist should also have interviewed some of the other major squid fishing companies based in Port Elizabeth to get a more detailed understanding of the squid fishing industry. In this regard the report lacks necessary detail regarding catching costs, closed seasons, financing of vessels, market price deviations/conditions, margins and details of investment in the sector. Furthermore we request copies of the notes of any interviews with researchers at Marine and Coastal Management including

names and dates of the interviews. In this regard it is denied that the specialist obtained accurate catch data regarding catches in the affected area which data could be translated into potential losses. When referring to the affected area we are referring to the area affected during the construction phase and during the period when 6.3 million cubic meters of building soil is going to be pumped onto the ocean floor in the prime catching area of the South African squid industry where between 30-40% catches are made.

Response 55:

Your comment is noted. It is unclear what further value information about fishing vessels operating from Port Elizabeth would add to the value of the potential economic loss to the squid fishing industry, since this loss has been based on the total area around the Thyspunt site that would be potentially affected by the construction and operation of the power station.

As indicated in the above responses by the marine specialist team, accurate statistics regarding the extent of the fishing areas and catches were obtained from the SWG and the DAFF. Your quoted figure of 30-40% catches being made in the St. Francis region is not supported by independent data provided by the SWG and DAFF, which indicates that 14.7% of total catches are taken in the wider area (two grid squares of approximately 22 x 27 km each) around the Thyspunt site (see Response 12).

Comment 56:

Our client submits that an analysis of the catch data information from DAFF will indicate that between 30-40% of catches of squid are made in the area to be directly affected by the disposal of building soil during the construction stage of the project. Accordingly we report that this economic report is fatally flawed by only referring to losses incurred due to the post construction exclusion zone apparently to be of a one kilometre width. Due to this exclusion zone the specialist has only calculated 1.8% loss to catches of squid. As we have previously done in our 30 June 2010 representations, using the economists calculation method, with catch losses of say 32%, the estimated yearly impact would be around R156,000,000.00 (One Hundred and Fifty Six Million Rand) per annum which translated over twenty years would be about R3.136 billion Rand.

Response 56:

Your quoted figure of 30-40% catches being made in the St. Francis region is not supported by independent data provided by the SWG and DAFF, which indicates that 14.7% of total catches are taken in the wider area (two quarter degree grid squares of approximately 22 x 27 km each) around the Thyspunt site (see Response 12). The calculation of potential economic losses in the Economic Impact Assessment is based on the total potential affected area assessed in the Marine Ecology Assessment. The area on which spoil will be dumped is not considered to be part of the affected area, since this disposal area is deeper than the zone shallower than 50m where squid are known to spawn.

Comment 57:

Accordingly, we dispute as irresponsible and unprofessional the statement by the specialist that “the fears of the local fishing industry about lost catches of squid appear to be groundless, given the conclusions of the marine ecology impact assessment report”:

Response 57:

The conclusions of the Economic Impact Assessment, and those of the Marine Ecology Assessment on which it is based, are founded on objective information obtained from published academic sources and other information obtained through the SWG and the DAFF.

Comment 58:

This is a further flaw of the economic report. It relies on only certain conclusions in the marine ecology report but ignores others. The marine ecology report in turn categorically states that it is analysing the effects on the species as a whole and not the fishery. Accordingly as we understand the marine ecology report, although the species will be impacted and that spawning grounds will be lost and the squid will move to other areas, the species will survive. The economic specialist appears to have translated this conclusion into an assumption that the negative effects on fishing will be "slight". The economic specialist needs to independently analyse and investigate the effect of the project on the squid fishing industry and not rely on isolated comments of the marine specialist taken out of context.

Response 58:

Your comment is noted. Kindly refer to Response 23, which has been reproduced here for ease of reference.

The marine ecology should and does consider ecological issues, including the population status of squid. The impact this has on the economics of fishery is in fact an economic issue, and has been considered in turn in the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). Through consultation with the SWG, discussion on the exact location of the squid egg beds will be included in the current revision of the report for completeness sake. It should be noted that the spatial extent of the potential impacts is very limited (as shown in the report and presented at the SWG meeting where SASMIA was present). The data provided by DAFF is currently being used to calculate the area that may be impacted vs. the catch taken by the fishery in the area. While still under review, it appears that losses by the fishery in the area will range between 2.53 % (least-case scenario) to 2.86 % (worst-case scenario) and to the fishery as a whole between 0.42 % and 0.37 %.

Comment 59:

Regarding the perception of squid caught in waters opposite a nuclear power plant we have already commented on the naïve comments of the specialist where an attempt is made at comparing the position of agricultural and live stock near similar facilities in France. In fact the specialist goes further to state "the main market for squid is the EU and it must be questioned whether consumers in a country such as France, for example would react differently to squid as opposed to fresh produce in terms of their proximity to a nuclear power station."

This comment is made without any research having been done. Squid exported into the EU is far different from agricultural produce grown in France. The export market of squid to the EU is fickle and any negative perceptions can affect the market price. Another difference is that the vegetables do not come into contact with any of the cooling water discharge which contains chemicals and nuclides in varying concentrations. Squid and Marine organisms on the other hand would be swimming and breathing in this tainted water.

The purported mitigation measure proposed at paragraph 5.2 of the report is preposterous. It proposes an extensive and expensive advertising campaign to international markets and including regular testing of squid for contamination and the issuing of certificates stipulating that the product is free of contamination. It is submitted that such a process would in fact do the very opposite and exacerbate the negative perceptions already created. We repeat the submission that this measure has clearly not been researched and the economist again appears to be "shooting from the hip". Recent fish marketing woes of the Japanese fishing industry, especially those in the vicinity of Fukushima and its surrounding waters are documented in the latest publications of the Seafood International – a trade magazine for the fishing industry.

Response 59:

Your comments are noted. In this regard, please refer to several responses above where the monitoring of marine conditions at Koeberg Nuclear Power Station (KNPS) are referenced. These monitoring programmes, which have been in place for more than 20 years, have indicated no significant impact from the nuclear power station. Although radionuclides are found in marine species at this site, it was concluded, based on the very few affected 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 (Section 3.1.5 of the Marine Impact Assessment). Furthermore there is no known negative market perception associated with marine products caught offshore of the KNPS.

Comment 60:

Under paragraph 3.2.1.3.10 of the report a reference is made to the "fishing impact". The specialist states that "in the case of Thyspunt only the value of squid is used as it is perceived as the one segment that could be negatively impacted". He goes further to state that "the figures used however could be overstated and the marine ecology impact assessment report found that a nuclear power station would have no significant impact on squid."

Firstly, as stated previously the specialist has not taken into account the effect on the industry of the discarding of building spoil during the construction phase and the fact that the spoil is to be dumped on a prime catching site where between 30-40% of catches are made annually. We have referred to the potential losses previously herein. Secondly, the specialist has again taken a statement of the marine specialist out of context where the marine specialist was discussing the squid species rather than the squid fishery. Rather than being overstated it is submitted that the losses to the squid fishing industry have been grossly understated and in fact the economic report should have concluded that there was a high probability that a low volume (but expensive) yet viable squid fishing industry could be terminated by the impact of this project.

In conclusion with regard to the economic impact of the project at Thyspunt, our client wholly rejects the economic report as totally inadequate and failing to investigate and analyse the true extent of the losses on the squid fishery and particularly during and caused by the construction phase.

Response 60:

We take note of your comment but stand by the figures as they are based on objectively evidence.

Your quoted figure of 30-40% catches being made in the St. Francis region is not supported by independent data provided by the SWG and DAFF, which indicates that 14.7% of total catches are taken in the wider area (two quarter degree grid squares of approximately 22 x 27 km each) around the Thyspunt site (see Response 12). The calculation of potential economic losses in the Economic Impact Assessment is based on the total potential affected area assessed in the Marine Ecology Assessment. The area on which spoil will be dumped is not considered to be part of the affected area, since this disposal area is deeper than the zone shallower than 50m where squid are known to spawn.

Comment 61:

5. INFORMATION OUTSTANDING

Our client has recently been advised by Dr Tammy Robinson that the revised marine ecology report is going to be substantially amended due to further information to be provided by DAFF / the SWG *inter alia* regarding catches and the effects of turbidity on the squid species. Furthermore, DAFF has not forwarded its written report with recommendations and findings after its recent meetings with the EAP during July 2011. As stated previously herein our client reserves the right to appeal any findings or recommendations by DAFF in terms of Section 80 of the MLRA. Our client also submits that due to the expected substantial changes which are envisaged by the authors of the Marine Ecology Report, this report should be opened for a further mandatory comment period of 45 days before the report is finalised.

Response 61:

Your comment is noted.

Please note that the comment regarding what Dr Robinson is claimed to have said is factually incorrect. Dr Robinson said that **IF** the marine ecology report is substantively changed, then there is a legal requirement that it be re-released back into the public domain for comment. Should any substantive changes be made to any of the specialist reports or the EIR, these documents will be released into the public domain for further comment.

The DAFF, as an independent organ of state, cannot be forced to provide any written comments or recommendations to the Nuclear-1 EIA team. The DAFF and the SWG are interested and affected parties in the Nuclear-1 EIA and they are free to comment or not comment on the EIA as they choose. Nevertheless, the meetings and other interactions between the marine specialists, the SWG and the DAFF have provided valuable information and recommendations that will be applied in the revision of the Marine Ecology Assessment and the Nuclear-1 EIR.

With regards to your potential appeal against findings or recommendations of the DAFF in terms of Section 80 of the MLRA, you are referred to Response 9, copied here for ease of reference.

Section 80 of the MLRA provides an opportunity for appeal against an administrative decision taken in terms of a delegation under that Act. As such, it is unclear how this right of appeal has a bearing on the SWG or the DAFF's inputs into the Nuclear-1 EIA process, as neither of these bodies has taken an administrative decision in terms of the MLRA during their inputs to the Nuclear-1 EIA process. It is our understanding that the SWG is a scientific advisory body to the DAFF and therefore does not have administrative decision-making authority. Therefore, the nature of the SWG's inputs to the Nuclear-1 EIA process does not amount to an administrative decision under the MLRA.

Comment 62:

6. RECAUTIONARY APPROACH

We have referred you to the well documented and legally applicable precautionary approach in our previous submissions. We record that the EAP made no comment regarding this aspect of our representations. Due to the current reports as they stand and the on-going deliberations thereon, it appears on a balance of probabilities, that a sufficient level of uncertainty now exists regarding the impact of the project at Thyspunt on the environment and particularly the squid fishery, for the decision maker to apply the precautionary approach and to determine Thyspunt as a "no go" site.

Response 62:

At no point does the Marine Ecology Assessment suggest that the precautionary approach should not be applied and indeed a precautionary approach has been used, since a worst case scenario has been applied to the prediction of impacts (e.g. refer to Response 14).
With regards to the application of the precautionary principle, you are referred to Response 47, reproduced here for ease of reference:

Section 2(4)(a) of the NEMA similarly requires that "*sustainable development requires the consideration of all relevant factors, including the following:*
(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions". This is similar to the MLRA's requirement that a precautionary approach should be followed.

It is for this very reason that the Marine Ecology Assessment and other assessments have, where relevant, assumed a "worst case scenario" impact. The application of the worst case scenario assumption to the assessment of marine impacts is referenced in several responses above.

Comment 63:

7. FURTHER SUPPORT OF SUBMISSIONS BY THE THYSPUNT ALLIANCE

As per our previous submission we again confirm that our client as a member of the Thyspunt Alliance, in addition to the representation set out in this letter, fully supports the submissions and objections raised in the responses submitted by the Thyspunt Alliance in respect of the revised Draft Environmental Impact Report for Nuclear 1.

Response 63:

Your comment is noted.

8. CONCLUSION

Comment 64:

In conclusion, our client looks forward to the information requested throughout our submissions and reserves its rights should such information not be provided, and in addition reserves its rights to

supplement these comments should any further information be submitted to the EAP and / or should the EAP revise any of the reports forming part of the EIR.

Response 64:

Your comment is noted.

Yours faithfully
for GIBB (Pty) Ltd

_____
Nuclear-1 EIA Team