

Our Ref: J27035

20 July 2010

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Maritime and Commercial Attorneys
On behalf of Squid Management Industry Association (SASMIA)

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Attention: Mr. Peter A. Edwards

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Dear Mr. Edwards

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

Your correspondence to the Department of Water and Environmental Affairs (DEA); The Deputy Director-General, Ms. Joanne Yawitch; with copies to Arcus GIBB (Pty) Ltd (GIBB), Ms. Jaana-Maria Ball and Ms. Bongzi Shinga (ACER) refers.

GIBB, the independent Environmental Assessment Practitioner (EAP), acknowledges receipt of the submission received from organisation on behalf of South African Squid Management Industry Association (SASMIA) discussing the above report. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station Environmental Impact Assessment (EIA) process. GIBB would like to respond as follows to your comments:

YOUR COMMENT (1)

We refer to the above matter and confirm that we act on behalf of the South African Squid Management Industry Association ("SASMIA") who has instructed us to make written representations on their behalf.

1. INTRODUCTION

One of the main objects of SASMIA is to advocate and protect the interests of the squid industry and make representations to Government about any matter, which concerns the squid industry.

SASMIA is a recognised industrial body in terms of Section 8 of the Marine Living Resources Act No. 18 of 1998 ("MLRA").

SASMIA's membership constitutes any persons (natural or juristic) or groups having a commercial interest in the squid industry. Accordingly the membership of SASMIA is made up of commercial squid fishing rights holders, squid vessel owners, squid traders and financial

institutions involved in the South African squid fishery. To be precise 96.4% of the commercial fishing rights holders in the squid fishery and 96.2% of the squid vessel owners involved in squid fishing are members of SASMIA.

Whilst a more comprehensive summary of the economic influence of the South African Squid fishery has already been submitted to yourselves in SASMIA's public response dated July 2007, it is important to reiterate the following:

- 1.1 The squid industry is primarily an Eastern Cape based industry with 85% to 90% of the economic activity relating to this industry occurring in this area.
- 1.2 The squid industry is of vital importance to the Eastern Cape economy with Port Elizabeth considered to be the centre of the commercial squid fishing industry but with St Francis Bay playing an integral role with approximately 40% of the fishing vessels based in St Francis Bay Harbour and with fishermen drawn from Jeffrey's Bay, Humansdorp and St Francis Bay.
- 1.3 High value processing, packaging, distribution and exporting facilities are to be found in Port Elizabeth, Port St Francis and the Humansdorp area which service the squid fishery.
- 1.4 The cost of a new fully equipped squid vessel ranges between R6 000 000,00 to R8 000 000,00, depending on the size of the vessel and a processing/cold storage facility could cost between R8 000 000,00 and R12 000 000,00, again depending on size.
- 1.5 Commercial banking and financial institutions have provided loan finance to many of the vessel owners and squid operators and have taken security inter alia in the form of Marine Bonds over vessels or the private assets of the principals of such squid companies.
- 1.6 The squid industry related employees who rely solely on income generated from this fishery amount to approximately 5 000 jobs in sea and land based enterprises. Furthermore, if one considers the families of such employees, it is further estimated that approximately 25 000 people are directly dependant on the squid fishery.
- 1.7 The squid fishery generates approximately R500 million in foreign exchange revenue per annum. Accordingly the squid fishery is one of the most valuable fisheries on the South African South Coast.

Due to the fact that between 28% to 37% of all squid catches in the squid sector occur within 10 nautical miles east and west of the proposed Nuclear-1 location, it is submitted that the squid industry, the majority of which is represented by our client, stands to be the most prejudiced by the construction of such a plant and even to the extent of facing complete closure.

RESPONSE (1)

Your comments are noted. Although the initial submission in 2007 was taken into account in both the Marine, Economic and Social studies the issues are being revisited and reviewed as part of the Revised Draft EIR.

YOUR COMMENT (2)

2. CONSULTATION ISSUES

2.1 Our client is an interested and affected party and therefore should have been placed on the Register of Interested and Affected Parties by the Environmental Assessment Practitioner ("EAP"), particularly since SASMIA submitted written comments already in July 2007.

2.2 The EIA regulations further provide that:

"A registered, interested and affected party is entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or the EAP managing an application, and to bring to the attention of the competent authority any issues which that party believes may be of significance to the consideration of the application..."

2.3 Furthermore, before the EAP submits a report to the competent authority, the EAP must give registered, interested and affected parties access to, and an opportunity to comment on the report in writing. These reports include basic assessment reports, scoping reports, amended scoping reports, specialist reports and environmental impact assessment reports.

2.4 Our client, as arguably one of the main interested and affected parties, has received no direct notification from the EAP inviting it to comment in writing or giving it access to and an opportunity to comment on any written submissions and/or reports submitted or to be submitted to the competent authority. Accordingly, it is recorded that there has been a material breach of the EIA regulations provided for public participation processes. A prime example of this is the current draft EIA report of which our client was not directly notified or sent a copy. Our client obtained extracts of such report through indirect means.

2.5 As well as being an interested and affected party, SASMIA serves on both the Squid Management Working Group and the Squid Scientific Working Group, both of which groups have been established and are run under the auspices of Marine and Coastal Management ("MCM") being a branch of the Department of Agriculture, Forestry and Fisheries previously a branch of (up to the beginning of 2010) the Department of Environmental Affairs and Tourism. As a result SASMIA is intricately involved in the squid fishery not only from an industry perspective, but also from a Scientific, Management and Government perspective.

2.6 Furthermore, there appears to have been no meaningful consultation with MCM and in particular the scientists and marine resource managers and directors responsible for the squid fishery. MCM is an organ of state which has jurisdiction over the squid fishery and the management and regulation thereof. From our client's attendance at the various management and scientific meetings at MCM it has become disturbingly apparent that

there has been no consultation with MCM as to the impact on the squid fishery of the proposed project. As such, it is submitted that this is a further material breach of the EIA regulations.

- 2.7 This lack of consultation and proper investigation into the impact of the project on the squid fishery is evident from the superficiality of certain comments made in “the Specialist” Marine Ecology and Economic Assessment Reports.
- 2.8 The potential seriousness of the environmental impact on the squid fishery has been conceded by the Marine Biology specialist, and recently the lack of proper investigation and information gathering to establish the affect on the squid fishery has in turn also been conceded by such specialist. These concessions will be referred to later herein when dealing with the recent public meeting regarding the draft EIA report, such meeting held at Sea Vista on the 25th May 2010.
- 2.9 Finally, with regard to the lack of consultation, we have recently established from Dr. Kerry Sink that the South African National Biodiversity Institute has also not been engaged in this EIA process. This is a further concern, particularly in light of the current and ongoing offshore Marine Protected Area project being conducted by SANBI as part of a systematic biodiversity planning to identify a potential offshore marine protected area network for South Africa.
- 2.10 This offshore MPA project emanates from the Convention on Biological Diversity of 1992 which convention has been given effect to in the National Environmental Management: Biodiversity Act, No. 10 of 2004 (“the Biodiversity Act”).

In terms of the Biodiversity Act a national biodiversity framework has been adopted and in terms of such framework priority areas for conservation action and the establishment are protected areas, including offshore marine protected areas, are to be identified. This lack of engagement and consultation with SANBI in respect of the national biodiversity framework and in particular the offshore marine protected area project in our view constitutes a further material breach of the EIA regulations. This omission is aggravated by the fact that in the acknowledgements paragraph of SANBI’s draft report on the OMPA project a thank you is given to *inter alia*, “Professors George Branch and Charlie Griffiths of the University of Cape Town for advice, input and workshop participation”. Therefore, both the author of the Marine Ecology Report and the peer reviewer thereof must have been aware of the offshore marine protected area project being undertaken by SANBI under the auspices of the Department of Environmental Affairs, but yet SANBI was not engaged in the compiling of the Marine Ecology Report and from our reading to date no reference has been made to such project in the EIA process.

RESPONSE (2)

2.1 ACER, the Public Participation Consultant, hereby confirms that SASMIA is registered on the Nuclear-1 EIA database. SASMIA has been on database since 14 June 2007.

2.2 and 2.3 According to ACER’s records, SASMIA should have received correspondence that has been sent to Interested and Affected Parties (I&APs) registered on the Nuclear-1 EIA database.

ACER's records show the following:

South African Squid Management Industry Association (SASMIA)

No	Name and Position	Contact Details	Entered on database	Meetings attended
1	Ms. Karen Humby Secretary	P O Box 658 St Francis Bay 6312 Tel: 042 294 0432 Fax: 042 294 1757 sasmia@ecweb.co.za	14 June 2007 Resigned and was replaced by Juanita Williamson Ref No of first communication: Letter 02E Date of first correspondence: June 2007	None
2	Mrs Juanita Williamson Secretary	Private Bag X13130, Suite 196 Humewood 6013 Tel: 041 582 1615 Fax: 041 582 1580 sasmia@ecweb.co.za	17 June 2008 Ref No of first communication: Letter 11E Date of first correspondence: 04 August 2008	None
3	Mr. Greg Christy Committee Member	P O Box 164 St Francis Bay 6312 Tel: 042 294 1977 Fax: 042 294 1987 Cell: 083 626 1893 christy@intekom.co.za	13 May 2010 Ref No of first communication: Letter 23E Date of first correspondence: 27 May 2010	Key Focus Group St Francis Bay 25 May 10 Public Meeting Sea Vista 25 May 10

Correspondence sent to Ms. Karen Humby to date:

POD/MTG ID	Description
L02E	Acknowledgement of Comments Received June 07
L04E	Letter 04E Scoping Extension 26 July 07
L05E	DSR Availability Letter - 28 Jan 08
L08E	DSR Comment period extension - 14 Mar 08

Correspondence sent to Ms. Juanita Williamson to date:

POD/MTG ID	Description
L11E	Final Scoping Report Availability - 4 Aug 08
L12E	Project Update Letter 22 Jan 09
L13E	Letter 13 Revised POS for EIA 18 May 09
L14E	Draft EIAR Availability 3 Mar 10
L17E	DEIAR Comment Period Extension 6 May 10

L23E	DEIAR Further Comment Period Extension 27 May 10
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Correspondence sent to Mr. Greg Christy to date:

POD/MTG ID	Description
L23E	DEIAR Further Comment Period Extension 27 May 10
L24E	Public Meeting Sea Vista Minutes Distribution 23 Jun 10
L25E	Key Focus Group Meeting St Francis Bay Minutes Distribution 23 Jun 10

2.4 All registered I&APs have received notifications regarding the availability of the various reports. Reports (CD/hard copies) have also been distributed to stakeholders who have requested them. All I&APs have continuously been notified of the project information which has been available as follows:

- The hard copies of the reports were made available for viewing at various public venues.
- CD copies of the reports were available for borrowing from the public venues.
- Reports are available on Eskom's website: www.eskom.co.za/eia under the "Nuclear 1-Generation" link, as well as on the GIBB website: <http://projects.gibb.co.za/> under the "Nuclear 1 EIA" link.

According to ACER's records, SASMIA has not specifically requested to receive reports related to the Nuclear-1 EIA. This is however not unusual as most stakeholders access information through other sources, such as websites, libraries and through interest groups.

2.5 It is submitted here that the Department of Agriculture, Forestry and Fisheries was formed on 7 July 2009. The preceding agencies are the (a) Department of Water Affairs and Forestry, (b) Department of Agriculture and (c) Department of Environmental Affairs, which are on the database and have been involved in the project to date through attending meetings and submission of comments.

The EIA Team (GIBB and ACER) will continue to consult with the relevant representatives of MCM under the new department, the Department of Agriculture, Forestry and Fisheries, and there will be opportunities for engagement as the Draft Environmental Impact Report (EIR) will be revised and distributed for public comment. The Team acknowledges the importance of engaging with the relevant departments including their provincial counterparts.

2.6 – 2.10 Again, according to ACER's records, information on the project has been continuously sent to Dr. Neil Malan of the DEA, Marine and Coastal Management since the commencement of the project.

According to our records, Mr. Japie Buckle, Provincial Coordinator of South African National Biodiversity Institute (SANBI) based in the Eastern Cape has participated in the EIA with his latest engagement being the attendance of the Key Stakeholder Feedback Meeting held in Port Elizabeth on 12 April 2010.

It is important to note that although there is a responsibility for the EAP to identify and engage stakeholders, there is also a responsibility for stakeholders to assist in the identification and

prioritisation of issues that need to be investigated as well as advising the EAP of other I&APs who should be involved in the process. To date, many stakeholders have greatly assisted with the identification and provision of information, to which we are appreciative. Furthermore, ACER, has been in contact with the organisations mentioned above to re-extend the EIA Team's offer of a Key Focus Group Meeting with them.

Please also find the response from the appointed marine specialists (Dr. Tammy Robinson and Prof. Charles Griffiths) below:

2.8 At the public meetings in the Eastern Cape Mr. Greg Christy of SASMIA stated that 30% of the squid stock would be lost should Thuyspunt be the site chosen for the development. At this point Prof. Griffiths said this information was not in the published scientific literature, but he was very willing to assess any such data and if appropriate include the information which Mr. Christy was referring to into a revised report. This information has never been forthcoming from SASMIA, despite numerous requests from the specialist, and given the many assumptions that need to be made to calculate the percentage of squid actually lost following such a development. It is maintained 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 impacts on the squid has been made. In addition, all relevant squid scientists including those working at Marine and Coastal Management and Bay World have been contacted. Their input is currently being included in an updated version of the marine ecology report.

2.9 and 2.10 It is not the responsibility of the marine ecology specialist to actively involve interested and affected parties in the EIA process. The Nuclear-1 EIA has been well publicised (both on a national, regional and local level) and has been through numerous public participation processes, during which time SANBI and Dr. Sink have been free to comment on the report. Their input, along with all other comments which have been received, are welcomed and will be incorporated into subsequent reporting. The appointed marine specialists are in any event fully aware of and have participated in the offshore Marine Protected Area (MPA) exercise, as you note in paragraph 2.10. Note also the SANBI exercise is indeed focussed on offshore i.e. continental shelf and beyond (the region under consideration in this report being inshore, which is already well protected in the Agulhas Bioregion by the De Hoop and Tsistikamma MPAs).

YOUR COMMENT (3)

3. SUMMARY OF CONCERNS OF THE IMPACT OF NUCLEAR-1 ON THE SQUID FISHERY

Other than the lack of consultation and proper investigation into serious issues, our client's concerns regarding the effect of the construction of the facility and the operation thereafter, are set out in summary form below. Due to the limited time frame within which to comment, these representations do not intend to be an extensive exposition on all the issues and as such our client's rights to investigate the relevant issues and submit more extensive submissions at a later stage remain fully reserved.

For ease of reference when dealing with our client's concerns we shall quote from the relevant specialist report and immediately thereafter set out our client's submissions thereon:

3.1 MARINE ECOLOGY REPORT

Executive Summary

- *“Disruption of surrounding marine habitats. When associated with the construction of the cooling water uptake and release system, this effect will be focused within the construction phase and will be localised and of short duration.”*

It is submitted by our client that this downplays the effect of the construction of the trench on the seabed. It is our client's view that the digging of the trench will cause irreversible damage to an area of up to 54 000 m². There is furthermore no definition of what the term “localized and short duration” mean. Therefore it is unlikely that the construction of the trench as proposed will simply “disrupt” the surrounding marine habitats for a “short duration”. The reality is that an area of marine habitat of up to 54 000 m² is to be totally destroyed without any possibility of re-growth.

- *“However, when associated with the potential discarding of spoil, disruption to the marine environment is significant and of high consequence. When mitigated by disposing spoil offshore (and by using only a medium pumping rate at Thyspunt), the impact is reduced to one of medium consequence, although the significance remains high.”*

The first point is that the word “potential” is misleading. The discarding of spoil into the offshore marine environment is currently the only option which the applicant is pursuing. Our client also notes that it is conceded that the discarding of the spoil and the disruption of the marine environment is “significant and of high consequence”.

Furthermore, our client submits that the mitigating measures do not in fact mitigate the admitted disruption due to the fact that 65 000 000 m³ of spoil will still be dumped from a single outlet into the adjacent sea (whether inshore or offshore). It is the spread of the spoil which is of grave concern to our client which concern is corroborated by the following statement contained in chapter 5.1.2 of the Oceanographic Specialist Report:

- *“The modeling demonstrates that halving the sediment discharge rate significantly reduces the suspended sediment concentrations. However, halving the sediment discharge rate does not reduce the sediment thickness, since the transport of the coarser sediment away from the disposal mound occurs on a much longer time scale than the disposal operation”. [Chapter 5.1.2 of the Oceanographic Specialist Study].*

As our client understands the above report, the sediment thickness which will ultimately be created on the seabed, will remain the same even when pumped out at a reduced discharge rate. Notwithstanding this admission in the Oceanographic Report, the Marine Ecology Report still makes the following conclusion:

- *“In contrast the impacts resulting from the discarding of spoil are of high consequence and high significance and will act over the long-term. Nonetheless, the placement of disposal sites offshore (and the use of a*

medium pumping velocity at Thyspunt) will mitigate these impacts to a point of medium consequence although significance will remain high”.
[Chapter 5.1.1 Marine Ecology Study].

Our client notes that, despite the mitigation measures, the significance of the impacts will still remain high.

Furthermore, our client places in dispute the assumption that the placement of disposal sites offshore and the use of a medium pumping velocity will mitigate the impacts “to a point of medium consequence from one of high consequence”, particularly due to the previous admission that the thickness of the sediment will be unaffected whether pumped at full discharge rate or medium discharge rate.

- *“The release of warm water used for cooling purposes. A tunneled design of the release system mitigates potential negative impacts through multiple points of release to aid dissipation of excess heat, by releasing cooling water above the sea bottom to minimise effects on the benthic environment and by utilising a very high flow rate at the point of release to maximise mixing with cool surrounding water. Comprehensive oceanographic modeling has demonstrated that the effects of elevated temperature are expected to be focused on the open water habitat. This is of particular relevance at Bantamsklip and to a lesser degree at Thyspunt, as it would help to mitigate impacts on abalone and chokka squid egg capsules respectively.”*

Our client submits that squid is an organism which appears throughout the water column depending on whether they are in feeding mode or spawning mode and also depending whether it is day or night. It is clear from the Oceanographic modeling of the movement of warm water that there are rises in the water temperature. Squid is a highly sensitive organism to changes in environmental conditions. Our client submits that the Marine Specialist has without substantiated evidence minimised this possible impact, yet at the same time has stated it to be an unacceptable risk to Abalone populations. Our client views the change in temperature dynamics as an unacceptable risk to the Squid populations in the same light as the risk to the Abalone population is viewed in the Bantamsklip vicinity.

Our client is further concerned that these contradictions in the reporting of the specialists may be an indication that they have been briefed not to comment unfavourably about the Thyspunt site which, if true, would be a breach of their declaration of independence.

Introduction / Background

- *“This specialist study was undertaken to assess the possible impacts of the development of Nuclear-1 on the marine environment at three potential sites along the coast. Impacts occurring during the construction, operation and decommissioning stages of development are considered. In particular, the impacts of disruptions to surrounding marine habitats during construction, the effect of abstraction of seawater for cooling purposes, the subsequent release of warmed water and the release of brine emanating from desalinisation, the implications of the creation of*

new habitat and the effects radioactive releases on the marine environment are evaluated .”

Our client is of the view that this background description does not adequately highlight the impacts of the habitat after and as a result of the construction. It is obvious that the dumping of the 6.37 million cubic metres of spoil will have an effect on the marine environment during the construction phase and then permanently thereafter. This is a vital omission as far as this background summary is concerned. Furthermore, our client is not satisfied that the specialist has properly and adequately assessed or evaluated “the implications of the creation of a new habitat”, especially with regard to the only viable and “high value” commercial fishery in the immediate vicinity which is to be affected.

Study Approach

- *“The information included in this report consists of dedicated field surveys at the proposed development sites, combined with a review of the extensive body of relevant scientific research that has been conducted along the South African coast, as well as information gained from international peer reviewed works in the field of marine biology. Additionally, the large body of knowledge that has been gathered following the establishment of Koeberg Nuclear Power Station (KNPS) offers insight into the impacts of a nuclear power station on the marine environment in a South African context.”*

Our client submits that most of the body of work which is mentioned or quoted is unfortunately not relevant to the squid resource and in any event some of which is over 20 years old. Many views and opinions may have been updated since then. In particular it is submitted that the research undertaken did not adequately or at all deal with our client’s two major concerns, namely the permanent changing of the bottom environment due to spoil sediment and turbidity during construction and after/during turbulent sea conditions.

Furthermore, the comparison to Koeberg is also of limited significance due to it being in a totally different cold water marine environment on the South African West Coast. The heated water and any outflows occur into a coffer dam which is fundamentally different to offshore outflows directly into the Marine environment. Thus, the extent of offshore dumping of spoil is also not comparable and so to the impact of the discharge of heated water.

- *“Field surveys were undertaken between August and October 2007. Where possible at each site, an exposed and sheltered rocky shore was sampled, as well as a long open beach and a pocket beach. This was to account for well established differences in the biological communities which inhabit these physically different habitats”.*

From the above quotation it would seem that only the inshore environment was thoroughly surveyed during such field surveys and due to the omission or failure to mention the offshore studies, our client assumes that the offshore area and the affects of sedimentation and turbidity on the existing and diverse biological communities was not fully studied and commented upon.

The aforesaid omission is of further grave concern, particularly in light of the current initiative of Government to increase the offshore marine protected areas around the South African coast apparently to be in line with international biodiversity targets set by international convention.

Assumptions and Limitations

- *Para 2 “A safety exclusion zone will be imposed around the proposed power station but as far as possible access to the marine environment by the public will be maintained.”*

Our client is unhappy with the vagueness of the extent of such exclusion zone and as a result cannot properly comment or quantify the impact of such zones on the Squid industry.

- *“Although six alternative options for discarding spoil at sea were modeled by Prestedge et al. (2009a) and were subsequently assessed in this report, it is important to note that the logistical and economic feasibility of these options have not been established. As a necessity recommendations made in this report assume technical feasibility.”*

The aforesaid reference concerns our client as there has been no brief as to the exact locations which were modelled by Prestedge as disposal sites. With respect to the current proposal by the applicant for the disposal of spoil, it is submitted that “the logistical and economic feasibility” as well as the “technical feasibility” thereof has not been properly established and is merely assumed.

Our client notes with concern the precautionary tone of Prestedge’s findings and furthermore submits that the assumed feasibilities need to be done and should form part of the EIA, especially where this is a comparative process in which various sites are being compared to find the most economic and environmentally suited site.

Description of the Affected Area

- *“Due to the design of the proposed development the impacts on the marine ecosystem will be focused within the nearshore environment. A detailed description of the potentially affected marine habitats at the three alternate sites is given below”*

Firstly, our client is unsure as to whether the marine specialist has properly defined the nearshore zone.

Of greater concern is the negative impact as a result of the pumping of the spoil into the offshore area which over time will affect both the inshore and offshore environments. Therefore, if only the nearshore environments have been studied, then the full impacts of this project on the marine ecology has not been properly assessed and therefore the limited scope

of the study leaves a huge part of affected area without proper assessment. This, in the view of our client, leaves the EIA draft report and process severely flawed.

Disruption of the marine environment during construction

- *“As at the other sites, the construction of an intake and outflow system for cooling water will result in temporary disruption to the marine environment. Under such circumstances the benthic habitat and in particular egg beds of the chokka squid *Loligo vulgaris* are at risk of damage due to smothering, while turbidity may result in adults temporarily moving out of the area. This disturbance will be focused within the construction phase and is likely to be localised and of short duration.”*

With regard to the above quote, it is important to mention that, as our client understands matters, there are two processes when construction is referred to, they are:

- 3.1.1 The construction of the inflow and outflow pipes approximately 1km to 2km out to sea. This will be a disruption of a number of years whilst a trench 27m wide is dug out of the seabed and pipes are laid and covered up. This appears to be viewed as a temporary disruption although our client has not had site of the construction timetable for this. As stated previously, our client’s concern is that the marine environment in the vicinity of this massive construction undertaking will not be the same thereafter. If it is not going to be the same thereafter, then the disturbance must be seen as a permanent disturbance rather than a “temporary disruption”. Again it would appear to our client that the specialist has an agenda to downplay the severe effects on marine environment of the envisaged construction.
- 3.1.2 The construction of the actual power plant, believed to take approximately 9 years and the subsequent dumping of 6 370 000 m³ of spoil from the outflow pipe into the marine environment.

- *‘Additionally, potential discarding of an estimated 6.37 million m³ of spoil from the excavation of the intake tunnel, nuclear island and turbine hall poses a threat to the marine environment. As described for the previous two sites mentioned in this report both the physical and biological marine environment would be affected. From a biological perspective impacts would occur due to increased turbidity in the water column as a result of the suspension of fine particles and due to smothering of the benthic habitat by spoil placed on the sea floor. The characteristics of these two components and how they are affected by oceanographic conditions have been modeled by (Prestedge et al. 2009a). These models considered the disposal of both the full volume and half the volume of spoil at both a shallow and deep site. In addition both a medium and high discharge rate were included. At this site only Alternatives 5 and 6 (i.e. disposal of all or half the spoil at a deep site using a medium discharge rate) are considered **acceptable** from a marine ecology perspective.*

As we have highlighted previously, one of our client’s principal concerns is the devastating consequences for the Squid industry of the pumping of 6 370 000m³ of spoil into the marine

environment. It is admitted that this will result in turbidity and the smothering of the existing environment with spoil which is dissimilar to the current bottom environment which exists at present. In essence this disposal of the spoil would create an undersea desert or wasteland. It is disturbing to note how the marine specialist can consider this to be “acceptable” from a marine ecology perspective. This is especially in light of the fact that he has stated that the impacts would occur due to increased turbidity and the smothering of the benthic environment by spoil on the sea floor.

The report further refers to turbidity and suspension levels of 80mg/l of sediment to be inconsequential. However, our client questions this acceptance of being inconsequential especially due to the fact that the present turbidity levels in this area are between 2mg/l to 10m/l with an average of 3mg/l (refer to page 21 of the Oceanographic Specialist Report). Therefore, for the marine ecology report to suggest that the water which is 26 times more turbid than average as being of little consequence to the squid and the marine ecology in our client’s view shows that the report lacks credibility.

Furthermore, our client disputes the limited extent of the spread of the 5cm to 10cm sediment layer. In particular our client disputes the assumption that Seal Bay will not be affected by the spread of the sediment.

- *“While the initial disposal site will be lost as a breeding area to Chokka squid L. vulgaris the areas to which sediment spreads are unlikely to affect these squid as they lay eggs on both sand bottoms and rocky reefs”*

Our client submits that the above comment highlights the lack of any reasonable study and understanding of the squid species. The specialist presumes that Squid are not particular about their egg-laying habitat. However, in reality the egg-laying habitats of Squid are very specific as the egg-laying occurs in the same areas every year and as a result Squid only lay eggs and thrive where the environment is perfect. After and during the pumping of the sediment, the environment will now be smothered with sediment which sediment is dissimilar to the strata which it covers. So, if any growth does occur after 10 years, such growth will support “different” biotic communities. Accordingly not only will the sub-strata be different, but as the report itself admits, it will be loose and therefore will not support the anchoring of the Squid pods. As such, our client vehemently rejects the unsubstantiated, illogical and scientifically indefensible conclusions reached in the last six lines of sub-section 3.3.1 of the Marine Ecology Report.

Release of Cooling Water

- *“No input of warmed water comparable to that of the proposed development exists along this section of coast. As this site lies at the warm end of the Agulhas Bioregion it could be argued that a portion of species occurring here may be near the upper end of their temperature tolerance range and hence could be particularly vulnerable to further*

temperature increase. Although theoretically possible, this is however, unsubstantiated “

Our client submits that the release of this hot water together with the turbidity and sediment factor discussed previously, is going to collapse the current environment. In fact, the specialist states above that the species in this area could be “particularly vulnerable to further temperature increases”. Therefore, once this distinct possibility has been highlighted, the norm for environmental and ecology practitioners in such situations is to take the more favoured precautionary approach. In fact, this is the legislated approach adopted by the scientists and resource managers and industry in managing the Squid fishery. We will elaborate on this point later in this representation.

- *“The fishery of greatest importance in the Thyspunt area is the coastal jigging fishery for chokka squid *Loligo vulgaris*. The major spawning grounds of this species occur between Plettenberg Bay and Algoa Bay and it is here that these squid are targeted during the spawning season. Adult chokka squid are adapted to a wide temperature range of between 8 and 22°C and are able to cope with rapid changes in water temperature, which allow them to easily move through thermoclines (Augustyn et al. 1994). As such it has been recognised that temperature is probably not a primary factor affecting the distribution of adults, but rather the distribution of their food source. This is reflected in catches peaking following drops in temperature resulting from coastal upwelling (Sauer et al. 1991). It should be noted that it is not the drop in temperature which drives this change, but rather the process of upwelling. As such, elevated water temperatures resulting from the release of cooling water will not as a matter of course result in lower catches by the fishery. The egg capsules of this species are deposited directly onto the seafloor and develop optimally at temperatures between 12 and 20°C (Augustyn et al. 1994). At temperatures above 22°C egg development is retarded and mortality increases (Sauer et al. 1991) and above 24°C, 100% mortality is reached (Augustyn et al. 1992)”*

Our client submits that it is correct that the range of the Squid does extend beyond the affected area of Thyspunt and at times fish can be found as far east as East London and on some occasions off the Aghulas-bank. However, the catches in these areas are far from consistent and are only during certain times of the year for a few days at maximum when conditions have been conducive. Factors which account for the wider distribution of Squid at times is the abundance of food, correct water temperature as well as the correct bottom strata. The main point to make is that the percentage of Squid which is caught at these extreme ends would never be sufficient to sustain the commercial Squid fishery. Our client submits that the epicentre of the Squid fishery is in the region which is going to be most affected and impacted by the proposed construction of the nuclear power station. This is where industry catches consistently throughout the year. As such, this area obviously is where food source, water temperature and correct bottom strata occur more consistently. There is therefore a very high risk that if one of these parameters at the epicentre of this Squid fishery disappears or is detrimentally affected, then the fishery as a whole will collapse.

The marine specialist further states that temperature changes might not affect the adult Squid as they are known to move through thermoclines of warm and cold water, but the temperature changes will affect the food source on which they feed. The specialist states further that “elevated water temperature resulting from the release of cooling water will not as a matter of cause result in lower catches”. This is an unsubstantiated conclusion which again brings into focus the independence and impartiality of the marine specialist. Our client’s submission is that if there is no food, the bottom strata is changed due to the layer of sediment and turbidity is 26 times higher then there is no reason for Squid to remain in the area and as a matter of cause there will be lower or no catches at all.

With regard to the egg mortality, the experiments referred to were all lab experiments done as far back as 1992 and to the best of our knowledge the study has not been repeated since. However, it is submitted that in the unlikely event of Squid continuing to lay eggs in this affected area then the egg development will be retarded and mortality will increase substantially due to higher water temperatures (i.e 24° 100% mortality).

- *“...a certain amount of egg mortality is expected, although precise estimates cannot be made as the exact location of egg beds is not known. Nonetheless, the area to be affected is in fact a tiny portion of the spawning ground which is centered between Plettenberg Bay and Algoa Bay (Augustyn 1991). In order to minimise impacts on egg beds the cooling system outflow should be located at a depth of more than 50m.”*

Our client is astounded that the marine specialist involved in this study did not ascertain where the Squid beds are. This would be a simple exercise and if the industrial bodies or scientific working groups had been approached the GPS positions of the Squid beds could have been tabulated from the fishing vessel catching data base. Our client disputes the comment that only a tiny portion of the spawning ground will be affected in that as stated previously, the area affected is the epicentre of the traditional Squid catching area and as such a detrimental effect to this area could lead to the closure of the entire Squid fishery.

- *“As at Bantamsklip, the release of warmed water is not predicted to have a significantly negative effect on fish, or marine mammals. This is due to their mobility and ability to avoid the localised warm water plume. In addition all of these species have wide-ranging distributions which extend far beyond the Thyspunt area. Although these species are likely to avoid the elevated temperatures immediately around the outfall, they are not expected to avoid the area in general.”*

Our client submits that this appears to be the only paragraph in the entire paper which deals with the effect on marine fish and mammals and as such it is further evidence of the superficial nature of the specialist report. The effects on the reef fishes just like the effect on the Squid fishery have not been properly assessed. Our client submits that the same distribution effects of the Squid will occur with the fish species. As stated previously, where the bottom strata is smothered by sediment and turbidity is increased by 26 times the norm, then the food source is going to be absent which in turn will cause the entire food chain to be broken and as such the entire marine ecosystem from Oyster Bay to Seal Bay would be under severe threat.

- *“..These guidelines will be met by this development during the operational phase. Although they will not be met during the construction phase, dilution will occur within 110 m of the point of release.*

Our client's concerns regarding the desalination process is that the mixing of chemicals in such process will during the construction phase not be diluted prior to release into the ocean. The construction phase is 8 to 9 years. Therefore, due to the increased density, the brine/chemical layer will sit on the bottom and the effects thereof have not been comprehensively addressed by the marine specialist. The brine will contain chemicals which could be detected in unacceptable levels when sent for micro biological and chemical analyses. Should this be the case, then the marketing of Squid products in the international market would be disastrous.

- *“Development of a power station at this site will, however, prevent future exploitation of marine resources within any safety exclusion zone. This exclusion zone is not anticipated to significantly affect the chokka squid fishery, due to its small size relative to the vast area over which this fishery operates (efforts are focused but not restricted to the area between Plettenberg Bay and Algoa Bay (Augustyn et al. 1992)). This impact would act throughout the operational, decommissioning and closure phases of the development.”*

Our client submits that, as there is no firm proposal as to the exact extent of the exclusion zone and in particular the exact measurements thereof (i.e. from where to where), it is completely premature for the marine specialist to be making the conclusions and assumptions which are made in the above paragraph.

Our client submits that the statements by the marine specialist are misleading in that it is not the exclusion zone which potentially threatens the entire Squid fishery, but rather the effective natural closure of the Squid fishery due to the degradation of the sea sub-strata together with the uncertainty of the possible nucleotides which might be omitted from the cooling water resulting in the natural closure of over 30km of Squid fishing grounds. Accordingly our client refutes the perceptions and conclusions allegedly reached by the specialist in the above paragraph. Our client reiterates that the occasional catch of Squid on the outer limits of the distribution of this species could not support the Squid fishery.

- *“Due to the absence of other pressures on the marine environment at this site, the cumulative impact is rated as low for all identified impacts”.*

Our client disputes the validity of the above statement in that it is submitted that the commercial Squid fishery impacts and places sustainable pressure on this existing marine environment and as such the cumulative impact of the nuclear plant and existing pressures is not low.

- *“This impact of disrupting the marine environment during tunneling and laying of pipes for the cooling system will have a negative effect on benthic marine habitats due to physical damage and smothering or organisms. This impact will act in the medium term. This impact will be restricted in extent to the area in the immediate vicinity of the cooling*

water system infrastructure. The intensity of the impact is, however, rated as low. Thus, it is considered to be of low consequence. Disruption to marine habitats will definitely occur during the construction phase and this impact is rated as having medium significance (Table 4)".

Our client reiterates that an area of up to 54 000m² will be totally destroyed and not simply negatively affected or impacted in the medium term. It is submitted that the intensity of this impact has not been properly assessed and there has been no definition of the "immediate vicinity" of the cooling water system infrastructure. Before our client can make any further comments on this particular point, exact details regarding the method of construction, the time period involved and the equipment to be used is required.

- *"This impact will negatively affect the marine environment. Acting with high intensity, the discarding of spoil will have long term effects resulting in this impact being rated as having high consequence and high significance".*

Our client notes the concession that the disruption on the marine environment due to the discarding of building spoil will be an impact which will negatively affect the marine environment and act with high intensity, have long term effects and have an impact rated as of high consequence and high significance. As stated previously and as reiterated later herein, our client refutes the marine specialist's proposal on how to mitigate these impacts i.e. by disposing offshore and by pumping at medium velocity.

- *"Recommended Mitigation measures"*

The fact that there are recommended mitigation measures is in essence a concession that the marine environment will be severely impacted and in our client's view to a great extent destroyed by the proposed activity in the area.

It is submitted further that there is no mention as to what the actual mitigation targets are and whether they are achievable. No explanation is given as to the level of certainty as to the achievement of such mitigation and as such what commitment has Eskom given that the targeted objectives will be met.

- *"The impacts associated with tunneling for intake pipes and laying of outlet pipes will occur only within the construction phase. No mitigation measures are possible but due to the localised and short-lived nature of this impact this is considered acceptable".*

Our client notes that no mitigation measures are possible, but disputes that the impact will be localised and short lived and as such "considered acceptable". Firstly, where the trench will be constructed, will be totally destroyed and irreparable. Furthermore, as our client sees it, the extent of the disruption to the environment and the marine sub-strata could be compared to placing a 27m wide road stretching for 2km over a sensitive dune area. Our client doubts whether such a road would be rated as "acceptable". The fact that the trench would be out of sight under the water in our client's view does not mean that it is insignificant and of low consequence. Our client further submits that as the environmental study only focused on the nearshore area, it is scientifically questionable whether true assessment has been done of the

impacts of such a trench as it is not scientific good practice to simply extrapolate inshore data to the offshore scenario and then draw conclusions.

- *“In contrast the impacts resulting from the discarding of spoil are of high consequence and high significance and will act over the long-term. Nonetheless, the placement of disposal sites offshore (and the use of a medium pumping velocity at Thyspunt) will mitigate these impacts to a point of medium consequence although significance will remain high”.*

This proposed mitigation measure purports to imply that if the spoil is pumped out deeper and slower it will downgrade the consequences/impact to “medium”. Our client vehemently refutes this assumption. Despite a different pumping rate, the same volume of spoil will be pumped out into the sea. The fact that it is pumped into a deeper area means that it will now affect the deeper bottom ecology of which no assessment has been done. Furthermore, the spoil dump over time will spread inshore and eastwards (as per the current reports done by Prestedge and Retief). Therefore the deeper and slower the spoil is pumped merely delays the inevitable for the inshore and nearshore regions between Thyspunt and Seal Bay. Furthermore, the mitigation measures discussed by the marine specialists do not mention the halving of the spoil volume which is an option (“alternative five”) discussed and assessed previously but now apparently completely ignored as a mitigation measure even though it has the possibility of reducing the environmental impact.

At the end of the day none of the mitigation measures proposed are going to prevent the covering of the seabed from Thyspunt to Seal Bay in 5cm to 10cm of sediment over a 10 year period. The Oceanographic Report (paragraph 5.1.2) states “halving the sediment discharge rate does not reduce the sediment thickness”.

To simply downgrade the high consequence and high significance of the impacts to a medium consequence as a result of such mitigation measures is scientifically bad practice and again calls into question the impartiality of the report. The mitigation measures will not change the ultimate consequences which will be the same, but may take a slightly longer period to manifest. Notwithstanding the above proposed mitigation measures, our client submits that the sea benthic and the mid- to surface temperatures from Oyster Bay to Cape St Francis will be affected and as a result will have a consequence on the marine ecology. Due to the scope of the marine ecology report only concentrating on the nearshore and the area of the pipe which dissipates the water into the offshore, it is submitted that this consequence of increased temperatures has not been properly assessed.

- *“Prior to disposal of spoil at sea, benthic communities at the disposal site, and in the areas predicted to be affected by spoil in the first ten years following disposal (Prestedge et al. 2009a) should be sampled for at least two years”.*

Our client submits that the exact spoil site and depth thereof has not yet been determined as the current report refers to “1km to 2km off shore”. Furthermore, the marine ecology report states that the area from Thyspunt to Seal Bay will be affected in the first 10 years. As such it is safe to assume that the benthic community in this larger affected area has not been monitored or sampled during the past two years.

Monitoring and sampling must of necessity be done before any recommendation on the proposed site is made. It is noted in the letter from Prof. George Branch of UCT (appendix 3 of EIA) who appears to be in the same department as the author of the marine ecology report, states that such a monitoring and sampling would be an “arduous process” and would take “several years”. This comment is in stark contrast to the precautionary approach which by law must be adopted in these circumstances. With respect, the decision to build a nuclear power station was taken several years back already and our client submits that no matter how arduous the task, it needs to be undertaken prior to any decision being taken. This is especially so where it has been conceded that the Squid fishery will be negatively impacted by the activity and as stated previously, this industry brings in R500 million of foreign exchange into primarily the Eastern Cape economy and creates jobs for 5 000 people. This prior research is therefore imperative.

- *“The development of a nuclear power station at Duynefontein, Bantamsklip or Thyspunt will have a variety of potential impacts on the marine environment”.*

Our client does not view the impacts on the environment as “potential” impacts but rather as definite impacts as there is no question that they will occur. It is the extent of these severe impacts and the purported attempts to mitigate them which are under debate.

- *“These include disruption of surrounding habitats during the construction phase”*

The reference to the word “disruption” of surrounding habitats is again misleading as it is clear that a large area (at least 54 000m²) of marine habitat will be totally destroyed.

- *“Firstly, the construction the cooling water intake and outflow system. This impact will be localised and of short duration”.*

There is no definition of the words “localised” and “of short duration”. Before meaningful comment can be made, the exact or estimated time period must be given and also the area which will be affected by the construction.

- *“Secondly, disturbance will be associated with the potential discarding of spoil from excavation of the take tunnel, intake basin, nuclear island and turbine hall. This impact will have a highly significant and negative effect on the marine environment which will act in the long term”.*

Again the word “potential” is used with respect to the discarding of spoil. This is again misleading as this is the only option of discarding the spoil which has been tabled. Our client notes that the impact will have a highly significant and negative effect on the marine environment and will act in the long term.

- *“In an effort to minimise this impact, it is recommended that spoil only be discarded offshore and that at Thyspunt only a medium pumping rate be used. This would limit ecological impacts particularly on abalone at Bantamsklip and chokka squid at Thyspunt.”*

As stated previously, our client disputes the mitigation measure being the discarding of the spoil offshore and at a medium pumping rate. Ultimately, the volume of spoil to be dumped will be the same and a 5cm to 10cm sediment dissimilar to the existing environment will be spread over the seabed.

- *“Comprehensive oceanographic modeling has demonstrated that the effects of elevated temperature are expected to be focused on the open water habitat if a tunneled release system is used. This is of particular relevance at Bantamsklip and to a lesser degree at Thyspunt, as it would help to mitigate impacts on abalone and chokka squid egg capsules respectively.”*

Notwithstanding that the cooler water outflow and elevated temperatures may be focused on the open water habitat, the Oceanographic Report does show that there will be a warming effect on the bottom albeit not as widespread due to it being in the open water habitat.

RESPONSE (3.1)

Your comments are noted. Please find the response from the appointed marine specialists (Dr. Tammy Robinson and Prof. Charles Griffiths) below.

General Comments:

As a starting point we note that this document several times alludes to the consultants being ‘biased’ or ‘instructed’ to favour the Thyspunt site, an allegation that was also raised at the Specialist Key Focus Group Meeting held in St. Francis Bay. This is absolutely not the case and the consultants (EAP and specialists) have no vested interest whatsoever in any particular site (indeed in the case of the marine report the site offering the least impacts is Duynefontein). Further it should be noted 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). Since *L. reynaudi* 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 report should be read in this context and readers are referred to the economic report for details on economic impacts.

3.1 Executive Summary

- As defined in the section of the main report dealing with the assessment criteria, a localized effect is one which is ‘site-specific and/or affects the immediate surrounding areas’. It is noted that the wording ‘short duration’ was mistakenly used in the executive summary. Please note that the correct duration (i.e. medium duration) was used in the assessment of the impact and in the assessment table. This will be corrected in the final report.
- It was incorrect that the word ‘potential’ was used when referring to the disposal of spoil. This will be corrected in the report. The significance of this impact has never been concealed. The fact that it is rated as having a high significance is not conceded but openly stated.
- SASMIA (and the oceanography report) are totally correct that changing the pumping speed will not affect the volume of spoil which is disposed. It will, however, dramatically affect the turbidity associated with the disposal process (the higher the pumping rate the more fine sediment is suspended, causing elevated turbidity). As squid are sensitive to turbidity, the

marine ecology report is trying to mitigate this affect by reducing the pumping speed. Due to the turbidity issue, spoil disposal using a high pumping speed is rated as a high consequence and high significance impact, with mitigation (in the form of reduced pumping speed) this is reduced to a medium consequence impact with high significance.

- It is vital to note that the status of abalone (*Haliotis midae*) at Bantamsklip and squid (*Loligo reynaudii*) at Thuyspunt differ in a number of very important ways. Firstly, abalone stocks have been dramatically reduced in recent years. This species has been the focus of intensive harvesting by commercial, recreational and illegal sectors, which together with considerable environmental change have reduced populations by over 80% between 1995 and 2007 (G. Maharaj, Marine and Coastal Management, DEA *Pers Comm.*). Secondly, the area around Bantamsklip (Quoin Point to Danger Point) has been identified by Marine and Coastal Management for total protection in an effort to allow rebuilding of stocks. This area is one of few which still contain viable abalone populations that have the potential to recover to significant levels. Thirdly, abalone are unable to move away from unfavourable conditions, even at a local scale. In contrast, *L. reynaudi* occurs from southern Namibia to approximately East London and while it is noted that the fishery is focused between Plettenberg Bay and Algoa Bay, the emphasis in this report is on the species rather than the fishery. Additionally, as often stated by SASMIA, the squid stock is currently well managed and not under threat from over exploitation. Lastly, squid are mobile, moving great distances both along-shore and off-shore, and are able to avoid adverse conditions at a particular location. It is these stark contrasts which are reflected in the marine ecology report and the perceived 'contradictions' between assessment of the risks to abalone and squid by SASMIA are unfounded.
- The impact of elevated water temperature on squid has been carefully considered. As stated in the marine ecology report (and referenced from published scientific works), adult chokka squid are adapted to a wide range of temperatures and are able to cope with rapid changes in water temperature, which allow them to easily move through thermoclines. As such it has been recognised that temperature is probably not a primary factor affecting the distribution of adults and elevated water temperatures resulting from the release of cooling water will not as a matter of course result in lower catches by the fishery. Nonetheless, adults would be able to avoid areas of elevated temperature if they found them undesirable (not a negative impact on the species). In contrast the egg capsules of this species are deposited directly onto the seafloor and are unable to move. Thus, the marine ecology report has focused on minimising impacts on this segment of the population. To this end, it has been stated in the report that the warm water outflow should be released at depths of greater than 50 m. It should be noted that warm water is less dense and will thus rise off the bottom, minimising impact on benthic eggs. Also in the event of adult squid avoiding the small area experiencing temperatures raised by 3 °C or more (i.e. 0.5 km² if a nearshore pipeline outfall is used and less than 2.5km² if a channel outflow system is used), this would not represent a negative impact on the species. As these squid occur from southern Namibia to approximately East London and individuals do move between spawning grounds, the loss of such a small area of habitat is not deemed a threat to the species.

Introduction / Background

- Appropriate and detailed descriptions of the environment are given in the report. These are based on site visits, review of the numerous published works on the distribution patterns of the South African marine biota and the considerable experience of Prof. Griffiths concerning

marine invertebrate distribution patterns. In addition, changes in the environment following the development are well described in the Section 3 of the report. Particular reference is given to the fact 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 sand bottoms and rocky reefs. Again it should be noted that this species occurs throughout a very large area and any negative impact related to the disposal of spoil at Thuyspunt essentially affects only a fraction of the distribution range of the species (although it is noted at a large portion of the catches made by the fishery are taken within 10 nautical miles east and west of the proposed Nuclear-1 location).

Study Approach

- The marine ecology report made use of all appropriate information available. There is no justification for disregarding research papers simply because they have not been published recently, quality and relevance are the criteria used, not age. In any event the Koeberg work remains ongoing (although recent components, authored by ourselves, are unpublished). It is of interest also to note that similar dramatic claims made at the time of construction of Koeberg (e.g. 'Sealife doomed by Koeberg' *Cape Argus* 2 June 1983) have proved completely unfounded. As is good scientific practice, the marine ecology report referenced the original publication in which all information was published. Baseline information such as basic species biology and distribution are normally the first to be published about a species (resulting in these being the earliest references). The current review of the marine ecology report has offered the welcomed opportunity to include more recent references and the opinions of South African squid experts. The concerns of SASMIA regarding the effects of spoil sediment and turbidity have been addressed using the most up-to-date information available and the very detailed oceanographic modelling report considering the disposal of spoil which undertaken as part of the EIA process. As detailed in the modelling report the impact of storms and natural turbulence within the water column were taken into consideration in the modelling process. Due to the rigorous conditions set within these models they are considered a reliable reflection of what will happen to the spoil following its disposal.
- Of course it is realized that the south coast sites are different to Duynfontein on the west coast and take this into account. However, the Koeberg experience still provides the only equivalent South African study and is ongoing, representing a massive body of work over more than 20 years. It would be foolish not to consider its findings.
- As detailed in Section 2.1.3 the nearshore environment was not sampled as part of this study. This is due to the fact that 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, even if they were sampled. 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) warm water effluent from the proposed development will be concentrated near the surface and is unlikely to impact these habitats. Most benthic species also have wide distribution patterns and widely dispersing pelagic larvae (allowing rapid recolonisation following disturbance). 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 Prof. GM Branch (Appendix 3 of the report).

- The assumption that 'the offshore area and the affects of sedimentation and turbidity on the existing and diverse biological communities was not fully studied' is baseless. Sampling of the benthic habitats would not have aided assessment of this impact and would merely have provided an inventory of the species present.
- As mentioned above the initiative to create offshore MPAs refers to much deeper habitats, not the immediate subtidal.

Assumptions and Limitations

- The information included in the report regarding the safety exclusion zone was provided by Eskom. It is also our understanding that from a security perspective there is a legal requirement for Eskom to be able to protect the power station from attack from the sea and land. As the station will be offset from the coast this will be possible without the exclusion zone currently imposed at Koeberg Nuclear Power Station. The dimensions of the exclusion zone are dependent on a recommendation by the National Intelligence agency. However, this will only be confirmed after detailed security studies.
- The exact positions of the disposal sites are given in the oceanographic modelling report. The procedural issues regarding technical and economic feasibility of the disposal of spoil fall outside of the speciality of marine ecology and will not be commented on in that report.

Description of the affected area

- The 'nearshore environment' is a generic term used to describe coastal habitats and is commonly applied within the field of marine biology. In Section 2 of the report the environment is described in more detailed terms with specific reference to the intertidal, benthic and open water environments.
- The impacts of spoil on the benthic environment and particularly on squid at Thuyspunt have been clearly described, and assessed in the report (and additional clarification given in the statements above). The semantics around offshore vs nearshore environments should not be used by SASMIA to distract from the fact that the impact has been fully and openly assessed.

Disruption of the marine environment during construction

- As explained before, the wording 'short duration' was mistakenly used to describe this impact. Please note that the correct duration (i.e. medium duration) was used in the assessment of the impact and in the assessment table. The information provided to the marine ecology specialist has indicated that the disruption due to construction will fall within this time scale. The specialist has carefully considered the ecological implications of the temporary construction impacts associated with the cooling water system and feels that the assessment is appropriate.

- It is agreed that two processes are important with regard to marine ecological impacts and the disruption of the environment during construction. 1. Construction of the cooling system and 2. Construction of the building of the plant and the resulting spoil disposal.
- It is irresponsible of SASMIA to use provocative descriptions of the impacts associated with spoil like 'create an undersea desert or wasteland'. These claims are without any scientific basis. The marine ecology report fully describes the impact and says that 'following disposal on the seafloor, roughly 3 m of sediment will cover an area of 1.5 or 3 km² depending on whether only half or the full volume of sediment is disposed of. Following disposal, local water movement will result in shifting of the spoil in a north easterly direction towards Seal Point. Within the first five years following disposal the sediment is likely to spread to cover an area of between 8.3 km² (Alternative 5) and 6 km² (Alternative 6) in sediment of between 5 and 10 cm. In the next five years loose sediment originally placed on the disposal site is expected to continue to spread in towards Seal Point. If Alternative 5 (i.e. disposal of the full volume of sediment) is employed this spoil is likely to spread to cover a small area in the small bay east of Seal Point in 5 – 10 cm of sediment. If Alternative 6 (i.e. disposal of only half the volume of spoil) is utilised, this area will not be affected.' Due to the slow spread of the sediment and the shallow covering (only 5 – 10 cm) this area will be colonised by organisms and will be no means be a 'desert or wasteland'. The communities supported here are, however, expected to be different from original communities. The marine report by no mean condones the destruction of a large area of precious marine habitat. Instead it acknowledges that the loss of a restricted area which supports habitats which are well represented along the coast and no species of special conservation status is acceptable under conditions which minimise negative impacts (i.e. restriction spoil disposal to Alternative 5 or 6 resulting in disposal of all or half the spoil at a deep site using a medium discharge rate).
- The marine report deals with the commonly used 80 mg/l limit (although it comments that in some EIAs the 100mg/l limit has been used). The report states that the limit 80 mg/l limit is predicted to be exceeded during spoil disposal and the areas, which could be affected by elevated turbidity are given (for the benthic region and the water surface). The report does not consider this impact to be minor and even in the executive summary states it as 'significant and of high consequence'.
- It is not 'assumed' that Seal Bay will not be affected by the spread of the sediment. This prediction came from very rigorous oceanographic modelling of the spoil disposal options. There is no basis for SASMIA to dispute the limited extent of the spread of the 5cm to 10cm sediment layer.
- The information which is provided by SASMIA on the spawning habits of the squid is simply contrary to all published information of the subject. In fact, recent communications with leading squid expert Dr. W Sauer indicated that marked squid have been recorded spawning on various spawning grounds. Indicating that there is no reliance of individuals on a specific areas or natal spawning grounds. It would be irresponsible, not to mention unethical, to base assessments on data or information that is not published, peer reviewed and accepted by the scientific community. As such, the marine ecology report has gone to great lengths to base assessments of potential impacts on strong information sourced from both the South African marine science community and international published works.

Release of Cooling Water

- The scientific evidence upon which the assessment of the thermal plume and the disposal of spoil associated with the development is detailed and substantive (see full descriptions in the marine ecology report and the report detailing modelling of the sediment disposal options). The assessments have been based on published scientific research and over 20 years of monitoring the impacts of the thermal plume at Koeberg Nuclear Power Station. As such, the marine ecology report is based on strong information sourced from both the South African marine science community and international published works and it is not necessary to apply the 'Precautionary Approach'.
- It has repeatedly been acknowledged that the area around Thuyspunt is very important for the squid fishery. However, 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. The latest published work on the subject (Roberts and Mullon 2010, currently being incorporated into the report) shows that egg cases of this important species are recorded across a wide area (west of Mossel Bay to Port Alfered (i.e. throughout the area considered by the study). An important spawning area has been noted to the east of the site in St Francis Bay, but this is outside the area which will be impacted by the development.
- The marine specialist report goes to lengths to describe the impacts on squids and says that squid may leave the immediate area during construction. As for the impacts on eggs, these are fully described and there is no scientific reasoning to disregard the published work considering the affects of temperature on development. SASMIA is choosing to ignore the fact that the impacts which they are concerned about are expected to be spatially and temporally limited – not posing an important threat to the species.
- Due to logistical, time and economic constraints detailed surveys of egg beds were not possible. This is, however, not considered a flaw as the species is know to spawn and lay eggs across a wide geographic area and any losses in the immediate area around the development will not adversely impact the species as a whole. In addition, the latest research (published in 2010 and currently being incorporated into the report) reaffirms that egg beds are well dispersed along the south coast.
- As stated previously, the impacts under question will be localised and will affect habitats which are well represented along the coast and no species of special conservation status is known to be dependent on the affected area. The loss of some habitat and species is acknowledged and should not be taken out of context.
- Since fish and mammals are mobile and are thus expected to move away from any areas of unfavourable turbidity or temperature, plus are wide ranging species these groups are not dwelled on in the marine specialist report. The marine specialists consider immobile benthic species more at risk.

Desalinisation

- As explained (in the exerpt quoted by SASMIA) dilution of desalinisation effluent will occur within 110 m of the point of release during the construction phase. Mixing in the surf zone will prevent the settling out of a saline layer on the sea bottom. See oceanographic modelling report by Prestedge *et al.* (2008) for more details.

Exclusion zone

- Reference to the impacts of an exclusion zone on the fishery will be removed from the report.

Assessments of impacts

- The comment by SASMIA regarding pressures on the marine environment at Thuyspunt reflects a lack of understanding of this assessment criterion. Reference to the squid fishery will be added, but the overall rating of the cumulative impact of the nuclear plant remains low.
- As explained earlier, the definitions of the terms used in the assessment procedure are contained in the main body of the EIR and were used by all specialists. The information provided to the marine ecology specialists has indicated that the disruption due to construction will fall within this time scale. The specialists have carefully considered the ecological implications of the temporary construction impacts associated with the cooling water system and feel that the assessment is appropriate.
- The comment by SASMIA regarding impacts of soil and the mitigation measures are acknowledged. The mitigation measures detailed in the report aim to reduce impacts on squid by placing spoil deeper than 50 m of depth (as the fishery focuses catches at shallower depths), implementing a medium pumping speed (to minimise turbidity).

Mitigation measures

- The marine ecology report clearly states what impacts may be associated with the proposed development. Despite the insinuation by SASMIA this has never been hidden and mitigation measures are deemed very necessary by the marine specialists. As the recommended mitigation measures take place during the construction phase and reduce the severity of the particular impacts it is not possible to define mitigation targets or measure 'success' of these measures. The marine specialists have taken the approach that it is better to minimise impacts, rather than allow them to happen and then try to correct / rehabilitate the environment.
- It is the understanding of the EAP and technical specialists that all recommendations made by the specialists will be written into the record of decision made by the authorities, and that Eskom would be legally bound to implement these, should the development take place.
- The perceived impacts of the construction trench show a lack of understanding of the ubiquitous nature of marine systems and the extent to which this area would recover. The specialist has carefully considered the ecological implications of the temporary construction impacts associated with the cooling water system and feels that the assessment is appropriate.
- No assumptions have been made in the assessment of the impact of the disposal of spoil, or of the mitigation measures which were recommended. The assessment has been based on sound scientific information and the oceanographic modelling report. SASMIA is making unfounded assumptions regarding the spread of the spoil.
- The comment that the impacts of changes in water temperature have not been properly assessed is simply unfounded. This assessment has been made based on published scientific research, 20 years of experience and data on the impacts of the warm water plume at Koeberg Nuclear Power Station and extensive experience by the marine specialists.
- As previously stated, spoil will be placed at the exact sites considered in the modelling report. We are happy to clarify this in the text of the report.

- With regards to sample collection and monitoring. As explained in the report, the collection of benthic samples during the assessment phase (note: this would have involved sampling at all potential sites) was not considered necessary to make an evaluation of relative impacts. 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) warm water effluent from the proposed development will be concentrated near the surface and is unlikely to impact benthic habitats. While sample collection would not have aided in the relative assessment of impacts between sites, it is clearly stated in the section regarding monitoring, that sampling should be conducted at the chosen site before construction, after construction (but before the onset of the operational phase), annually during operation and then for a minimum of five years after closure of the power station.
- The insinuation behind the comment that the consultants and technical peer reviewer are based at the same department has no bearing on the quality of the report and simply reflects the exceptionally high standard of marine science undertaken at the University of Cape Town.

Conclusions and recommendations

- The marine specialists note the comment that we have described some impacts as potential in that the construction of a power station at this site is itself potential and that the impacts will occur should a power station in fact be constructed there. Other impacts remain potential impacts even if construction does take place. We undertake to clarify this wording in the text.
- The issue regarding 'disruption of the environment during construction' has been repeatedly dealt with above.
- As stated a number of time above the definitions used are contained within the main body of the EIR.
- As stated above, wording will be clarified in the marine specialist report.
- The issue of mitigation of the disposal of spoil is fully dealt with above.
- The marine specialist report does not say that temperatures will remain unchanged at the sea floor but states that 'the effects of elevated temperature are expected to be focused on the open water habitat if a tunnelled release system is used.

In summary, the concerns of SASMIA are acknowledged and appreciated and based on earlier comments made at the public participation meeting, the revised marine specialist report will contain additional information regarding squid (chokka), expanding on and clarifying several of the issues raised here. The marine specialists are also happy to make additional corrections and clarifications of wording based in the comments made in this submission and continue to be willing to accept any corrections for which there is substantial verifiable evidence. The revised marine specialist report will include addition of the most up-to-date (2010) published and peer reviewed information, and information derived from direct consultation with leading South African squid experts.

YOUR COMMENT (3.2) AND RESPONSE

3.2 ECONOMIC IMPACT ASSESSMENT REPORT

COMMENT

Executive Summary

- *“The objective of the study is to analyse the economic cost-effectiveness of the three sites from a broader community prospective. This includes the capital and operational costs of the service provider as well as the costs to the community, taking into account the positive and negative externalities on the economy and the environment”*

SASMIA places in dispute the veracity of the economic impact assessment report and in particular whether the report has in fact taken proper account of the impacts of Nuclear-1 on the Squid fishery.

RESPONSE

Your comment is noted.

COMMENT

- *The two most sensitive industries in terms of their perceptions about the impacts of Nuclear-1 on their activities are fishing and tourism. However, the analysis shows that any negative impacts are likely to be slight and that in fact there would be overall.....”.*

Our client is dumbfounded as to how the economic specialist reached the conclusion that the negative impact on fishing would be “slight”. Notwithstanding the defects of the marine ecology report as referred to previously, this economic report does not take into account certain of the findings set out in such marine report, particularly regarding the impact of the discarding of the building spoil. In fact, it would almost appear as if the economist has not taken into account the effect of the discarding of the building spoil and the impacts thereof on the Squid fishery and the resultant economic impact.

RESPONSE

The Economic and Marine Assessment are being revised and any 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.

COMMENT

Scope of this study / Assumptions

- *“In total 47 man-days were spent in the field with 15 spent at both Thyspunt and Bantamsklip, and 17 in Cape Town. The members of the study team were also able to visit the three sites”.*

Our client submits that 15 man-days by a team does not amount to sufficient field work for a project of this magnitude.

RESPONSE

Your comment is noted.

COMMENT

- *“The impacts shown in the Tourism and Agriculture Specialist Reports are accepted”.*

It is of concern to our client that the marine ecology report is not referred to or accepted. As such, once the marine ecology report has been properly compiled taking into account the glaring omissions referred to previously herein, it must also be referred to in this economic report, particularly regarding the severe economic impact on the Squid fishery.

RESPONSE

In compiling the economic report a discussion with the 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. .

COMMENT

Limitations

- *“Although Eskom has informed the authors that it is confident that the road network is capable of handling the abnormal loads that would be involved, the authors are far less sanguine and believe that this issue must be included as a limitation”.*

It would appear that the authors of this economic report are themselves questioning the suitability of the existing road infrastructure for the Thyspunt site.

RESPONSE

Your comment is noted.

COMMENT

- *“The capital cost of a fully equipped vessel is between R2.5-R6.0 (R8m) million with an average cost of R3 million (R4m) for boats in Port St.Francis”.*

The costs of Squid fishing vessels have obviously increased since this information was furnished to the economist. The cost of a fully equipped vessel is more likely to be between R6 000 000,00 and R8 000 000,00.

RESPONSE

Your comment is noted.

COMMENT

- *“Data for commercial fishing”.*

The data obtained for commercial fishing being “Marine and Coastal Management, 2008” is inadequate and has shortcomings. This has previously been pointed out to MCM by our client and the scientific working group within MCM has conceded such shortcomings and inadequacies. The database is in the process of being rectified with correct catches being properly captured. The specialist economist needs to access the correct information from MCM and it is concerning that MCM was not interviewed in the process.

RESPONSE

Your comment is noted. The Economic Assessment is being revised and any new relevant data, if found, will be addressed in the revised report. The revised report together with the revised Draft EIR will again be made available for public review and comment.

- *“The industry does not have sufficient information on the effects of a NPS on marine life, but is concerned about possible impacts on pelagic (hake) and inshore (squid) catches. It does not believe there would be any effect on demersal (deep-sea) fishing. Its main concern relates to the demarcation of an exclusion zone at Thyspunt of an assumed similar size to that at Koeberg which is 3.2 km wide and extends 2 km into the ocean from the shore”.*

The exclusion zone is obviously a concern to our client, but is not the “main” concern of our client. As referred to previously herein, the major concern of our client is the changing of the bottom environment during construction of the trench and during the pumping of the building spoil into the offshore area which ultimately will affect a very wide area from Oyster Bay to Seal Bay. This would lead to a closing of fishing and Squid breeding in this much larger area. Therefore the area of the exclusion zone is not as significant as the fishing and Squid breeding area which stands to be lost to the industry. As such, this economic report is blatantly flawed in that it does not take into account the most important concern of the Squid industry.

RESPONSE

The Economic and Marine Assessment are being revised and any 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.

Comment

- *The more significant impact would be on the chokka squid industry but even then it would be slight. The concentration of squid shifts according to month and weather conditions, and the chokka squid catch fluctuates*

from year to year depending on sea temperature and wind conditions. Over the last 20 years the annual catch has ranged between 2 000 and 14 000 tons in the Eastern Cape with an average of 7 000 tons. The Port St. Francis-based companies average about 1,000 tons per annum. Squid is the most viable fishing industry in the area, almost the entire catch being exported to the EU at an average price of about €7/kg. According to the information supplied by the South African Squid Management Industrial Association (SASMIA) (2007), between 1999-2005 an average of 33.2% of the total annual Eastern Cape catch originated in the area between 10 nautical miles (18.52 km) east and west of the proposed Thyspunt NPS site. Thus, an exclusion zone of 1 km width would account for roughly 1.8% of the total catch. This would amount to about 127 tons per annum with an export value of €0.88 million per annum.

Our client vehemently disputes the above assumption. The effect of the project on the Squid fishery would not be "slight". As stated previously, the exclusion zone is not the main issue and to make calculations based only on the size of the exclusion zone (which has not actually been determined in extent as yet) is misleading and constitutes a gross irregularity in the economic report. The construction and pumping of building spoil together with the change in temperature will totally change the underwater habitat over a wide area in which between 30% and 40% of Squid catches are made. This area could be lost to the Squid industry as it would be rendered unfishable and totally unproductive.

Therefore at the very least the economist must of necessity use the figure of 33,2% (being the total annual Eastern Cape catch originated in the area) in his cost comparison calculations as tabled. Our client also questions and disputes the amount of 1000 tons as quoted as being the average landings of Port St Francis based companies. The corrected figure should be at least 3500 tons and our client once again questions the validity of the Economists source of information.

RESPONSE

The Economic and Marine Assessment are being revised and any changes necessary, will be addressed in the revised reports if found to be relevant. The revised reports together with the revised Draft EIR will again be made available for public review and comment.

COMMENT

- *"The fears of the local fishing industry appear to be groundless given an exclusion zone as small as 1 km², and this would be mitigated into if Eskom were to successfully apply for access to be granted to commercial fishing vessels (as it has indicated to the authors that it intends doing). Nevertheless, the fears expressed by the industry are described here for the record".*

As previously explained the economic impact on the Squid fishery has been grossly miscalculated and under estimated. We are uncertain as to the reason for the flaws in the

economic report, but it may be that they result from the flawed marine ecology report and the shortcomings therein (which as will be explained later, have been admitted by Prof. Charles Griffiths at the recent key focus group meeting).

RESPONSE

The Economic and Marine Assessment are being revised and any changes necessary, will be addressed in the revised reports if found to be relevant. The revised reports together with the revised Draft EIR will again be made available for public review and comment.

COMMENT

- *“The largest company at Port St. Francis also operates a fish processing factory in Humansdorp. The capital cost of a fully equipped factory (including cold storage) is between R8-10 million.”*

It is important to note that there are also other fish processing factories in Humansdorp and not only one factory. Furthermore, there is also a fish processing factory at Port St Francis run by Balobi Processors which employs very similar amounts of people as to the Humansdorp factory and also has a multi-million Rand infrastructure.

RESPONSE

Your comments are noted.

COMMENT

- *“However, the industry is not universally popular in the area. It receives continuing criticism that the lights on the boats are so bright that they destroy the sense of place of the local inhabitants, especially those at Cape St. Francis and Oyster Bay”.*

This comment clearly places in question the impartiality and the declaration of independence given by the specialist economist. The words “continuing criticism” is a gross misstatement and is untrue. Our client has received one complaint from a resident in Nature’s Valley, Plettenberg Bay in the early 1990, and this incident was addressed at the time. This can hardly be termed “continued criticism”. In any event, light pollution is one of the factors taken into account by MCM when determining vessel effort in the Squid sector, and as such has been successfully controlled over many years.

RESPONSE

Your comment is noted.

COMMENT

- *“Apart from the size of the exclusion zone, the other concern of the industry regarding a NPS at Thyspunt relates to perceptions in the foreign*

market with regard to fish caught in the vicinity of a nuclear facility. South African squid are regarded as the second best in the world behind Morocco. The industry concedes that it has no clear idea of what the impact would be, but stresses that perceptions rule in the marketplace. Chokka squid is a high-value commodity and is very sensitive to market perceptions. The industry points out that the lobby in foreign markets for environmentally friendly and contaminant -free fish products is growing, and this lobby could exploit the close proximity of the Thyspunt fishing grounds to a nuclear site (especially with regard to the release of coolant water into the ocean). The international market is very competitive, and it would be easy for competitors to exploit the contamination issue no matter how remote the possibility of such an event might be. If this were to happen and the market were to be lost, the local fishing industry as well as the fish factories in Humansdorp would be affected and probably would be forced to close. As with the exclusion zone, this fear of negative market perceptions appears to be mitigable. The production and distribution of scientific evidence should be sufficient to dispel such perceptions”.

As stated previously the size of the exclusion zone is not the major concern of the Squid industry. Furthermore, the specialist appears to be trying to downplay the perceptions which will be created in the foreign market with regard to fish caught in the vicinity of a nuclear facility. Despite the comment of the specialist that the production and distribution of scientific evidence should be sufficient to dispels such perceptions, our client sees no research having been conducted by the specialist to support this conclusion. Has the specialist approached overseas agents and markets to establish this, or has the specialist interviewed the major exporters of Squid in South Africa or any other experts for that matter? Our client submits that its concerns of negative market perceptions are well founded and having been involved in this industry on a day to day basis our client is certain that a negative market perception would be created which would be impossible to mitigate. The proximity of a commercial fishery in the shadow of a nuclear power station and warm water outflow pipe is unprecedented in the world and to dispel these negative perceptions would be an impossible task which in our client's view would lead to the closure of the industry as the industry relies exclusively on the export of its product into the highly competitive foreign markets.

RESPONSE

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.

COMMENT

Cost-effectiveness Comparison Of The Three Sites

- “Commercial fishing is discussed in separate sections of this report, and therefore Table 3.22 only presents the impacted values as used in this

study. In the case of Thyspunt, only the value of squid is used as it is perceived that it is the one segment which could be negatively impacted. It is perceived that during the construction phase no negative impact would be encountered'.

Our client disputes the perception that during the construction phase, no negative impact would be encountered. This is in contrast to the Marine Ecology Report even in its current flawed state. The construction phase is viewed by our client as having the most significant and severe impact on the Squid fishery as this is the stage where the sediment and spoil is pumped out creating turbidity in the water and ultimately an underwater sediment desert covering a wide area of seabed. Furthermore, the data contained in the Impact Table at 3.22 is incorrect data from Marine and Coastal Management which needs to be corrected. In addition, the calculations therein are only taking into account the exclusion zone and not as stated previously the entire area affected. As such, if the correct figures were used then the impact would be say 32%. Using this percentage the estimated yearly impact from year one being the start of the construction to at least year 20 would be approximately R156 800 000.00 per annum being an average loss of approximately R3,136 billion over 20 years.

RESPONSE

Your comment is noted.

COMMENT

- *“The detailed results, as obtained from the cost comparison model, for the three proposed nuclear sites are reflected in Table 3.24”.*

Again this figure also needs to be adjusted and once the correct figures are inserted then it is submitted that the cost-effectiveness of Thyspunt as a potential site will be questionable.

RESPONSE

Your comment is noted.

COMMENT

- *“The main conclusion of the analyses is that there is no significant difference in the cost-effectiveness comparison between the three sites”.*

As stated previously our client submits that the conclusion that there is no significant difference between the sites will most definitely change once the correct Squid fishery impacts are included in the analyses.

RESPONSE

The calculations in the economic report were based on data made available by the squid industry at the time of fieldwork and analysis. Field interviews were held with the squid industry at St Francis and MCM in Cape Town. On the basis of available data the conclusion was made.

COMMENT

Summary of Qualitative Analyses

- *“Overall, the Thyspunt economy would be likely to suffer fewer disturbances than that at Bantamsklip”.*

It is submitted that the correct marine ecology assessment of the Squid fishery and the correct economic analyses of potential losses to the Squid fishery would most certainly render this assumption to be incorrect.

RESPONSE

It is not possible to comment on this assertion in the absence of any other information regarding marine ecology. To reiterate, the economic analysis use the data available at the time. The economic assessment is however being revised and any changes necessary, will be addressed in the revised report if found to be relevant. The revised report together with the Revised Draft EIR will again be made available for public review and comment.

COMMENT

Key Impacts on the Economic Environment

- *“The study team undertook visits to each of the sites in order to obtain an overview of the potential risks and key impacts associated with the proposed NPS. Based on the findings of the site visits, field interviews and macroeconomic analysis, the team identified potential impacts and risks associated with the proposed NPS. Potential economic impacts identified include:
 - *changes in land use and agricultural output;*
 - *marine ecology disturbance and the impact on fishing and aquaculture;”**

It is submitted that with regard to the above quote the study team needed to have included the entire loss of revenue and income of all those involved in the Squid fishery utilising the correct data and percentages.

RESPONSE

It is not possible to comment on this assertion in the absence of any other information regarding marine ecology. To reiterate, the economic analysis use the data available at the time. The economic assessment is however being revised and any changes necessary, will be addressed in the revised report if found to be relevant. The revised report together with the Revised Draft EIR will again be made available for public review and comment.

COMMENT

Assessment Scales

- *“Differences in the quantitative economic impact among the three sites are not large, and any site would have a positive impact on the immediate area as well as the particular province in which it is situated”.*

Again our client questions this assumption particularly taking into account the negative impacts which will be felt by the Squid fishery as a result of the destruction of its fishing grounds in this area.

RESPONSE

Your comment is noted.

COMMENT

- *“Some compensation might be considered in cases where it can be conclusively proved that revenue has been lost as a result of the exclusion zone at the Nuclear-1 sites. Most mitigation measures identified are aimed at avoidance. We reiterate that the differences in economic impact among the three sites are marginal”.*

Our client raises the question as to why compensation is only considered with respect to revenue lost as a result of the exclusion zone. This question should also be considered with regard to the loss of revenue from the pumping of building spoil into the offshore area and the destruction of fishing grounds in which the Squid fishery catches over 30% of its annual catches. Again our client also reiterates that the differences in economic impact among the three sites would not be marginal if the correct economic figures were used in calculating the impact on the Squid fishery. If the correct figures were used, it is submitted that Thyspunt would be unviable economically.

RESPONSE

It is not possible to comment on this assertion in the absence of any other information regarding marine ecology. To reiterate, the economic analysis use the data available at the time. The economic specialist had no indication that there would be any impacts outside the exclusion zone. The economic assessment is however being revised and any changes necessary, will be addressed in the revised report if found to be relevant. The revised report together with the Revised Draft EIR will again be made available for public review and comment.

YOUR COMMENT (4)

4. **PUBLIC MEETING AT SEA VISTA ON 25TH MAY 2010**

A representative of our client, Mr. Greg Christy was present at a public meeting relating to the draft EIA report on 25th May 2010. Unfortunately the economic specialist was not present to answer the questions raised previously herein.

We deem it appropriate to quote a question put by our client's representative at the meeting to Prof. Griffiths (the marine specialist) and Prof. Griffith's response thereto:

Summary of Question by Mr. Greg Christy of SA Squid Management Industrial Association as recorded in Minutes of the Meeting:

"Prof Griffiths is an expert Marine Biologist but Mr Christy is concerned that there have been no experts in the Chokka/Squid Industry doing any studies on the effects of this project on the Squid Industry. This industry employs the fishermen in this area. Mr Christy is concerned that 32% of the Chokka is caught in this area. Eskom will be pumping 6,5 million cubic metres of sand into the sea. This will be pumped up to the 30 m mark which is where the squid lays its eggs. In 5 – 8 years time, the bottom of the sea will have 15 cm of sludge and sediment in this area. A squid scientist has done research that has shown that squid do not breed in the area where there is turbidity. A bigger concern than the hot water issue, is the turbidity that is going to be caused by the soil that is going to be pumped out into the sea. The squid will not spawn and avoid this area. There is a high percentage of squid that occurs in this area and this will have a detrimental impact on the squid industry in this area. The majority of the community in this area is involved in the squid industry and depends on it. Mr Christy added that if the industry lost this area, the squid industry would become unviable and will have to close down".

Summary of response by Prof. Griffiths as contained in the Minutes of such meeting:

"Prof Griffiths responded that this could be the most serious environmental impact if the power station is built on this site. The current report has information about the area and volume of sand that will be pumped into the sea as well as the area it would effect. the report did not have good information about the exact percentage of squid that will be affected. This has been discussed with Prof. Warrick Sauer, a scientist with expertise in this field, and his input will be incorporated into the final specialist report. Prof Griffiths replied that Mr Christy had explained the worst case scenario of what might happen. No-one really knows exactly what percentage of chokka stock in the area was going to be affected. It is also unknown whether the stock will completely disappear or whether they will move to an adjacent area which is not affected by the power station. More information is required regarding the squid industry. If there is a complete negative impact that threatens the entire industry then the power station will have to be built in another area. The decision to build must be based on good data."

The admission made by Prof. Griffiths is that the EIA report does not have good information on the effect of the project on the Squid industry and that such information still needs to be obtained.

Prof. Griffiths furthermore conceded that our client's concern was a worst case scenario and that "no one really knows exactly what percentage of chokka stock in the area was going to be

affected". He also stated that "it is also unknown whether the stock will completely disappear or whether it will move to an adjacent area which is not affected by the power station".

RESPONSE (4)

Your comments are noted.

YOUR COMMENT (5)

5. **LEGAL OBLIGATION TO FOLLOW THE PRECAUTIONARY APPROACH**

It is submitted that what is known is that the sea area adjacent to the proposed site constitutes the epicentre of the Squid sector catching grounds where over 30% of the annual Squid catches are made. What is unknown as admitted by Prof. Griffiths is whether this stock will completely disappear or move to an adjacent area due to the building of the power station and its operation.

It is submitted that in these circumstances, save for any definite answers coming to light, there is an environmental and legal obligation to apply the precautionary approach and consequentially to rule out the Thyspunt site as a proposed site for the building of the nuclear power plant.

As your department should be aware the precautionary approach principle is incorporated into many international conventions relating to climate change, marine fisheries, hazardous waste and chemicals. In our own domestic legislation NEMA state at section 2(4)(a)(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*".

Furthermore at section 2(c) the MLRA states: "*the need to apply precautionary approaches in respect of the management and development of marine living resources*".

In addition, Section 4 of the MLRA states as follows:

"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".

In the circumstances, in light of the admissions made by Prof. Griffiths and the legal obligation to apply the precautionary approach, it would be unlawful for an environmental authorisation to be granted for the construction of Nuclear-1 at Thyspunt based on the current reports.

RESPONSE (5)

Your comments are noted.

YOUR COMMENT (6)

6. **SUPPORT OF SUBMISSIONS BY THE THYSPUNT ALLIANCE**

Our client further confirms that, as a member of the Thyspunt Alliance, in addition to the representations set out in this letter, it fully supports the submissions and objections raised in the response submitted by such Thyspunt Alliance dated 30 June 2010 in respect of the draft Environmental Report for Nuclear-1.

RESPONSE (6)

Your comments are noted.

YOUR COMMENT (7)

7. **ACTION GOING FORWARD**

Based on the material irregularities of the EIA process and the draft report currently tabled, it is our client's request that the current report be withdrawn and that our client and all relevant scientific bodies be directly consulted by the EAP for the project in the redrafting of such report and in particular those aspects relating to the Squid industry. In this regard there has only been telephonic confirmation by Arcus Gibb that the EIA report will be revised and circulated thereafter for further public comment.

A meeting must be arranged with all relevant scientific bodies and specialists together with our client at a mutually convenient date and time to discuss matters further. Our client also requests that it be noted at this stage that it may also require time to consult its own environmental and scientific squid experts to advise it on the process going forward. This is especially relevant in the light of the Minutes of the Key Focus group meeting only being circulated 7 days prior to the closing of the comment period.

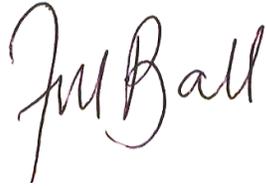
RESPONSE (2)

Your comments are noted. We refer you to the response from the marine specialists in the preceding sections regarding consultation with the squid industry and other scientific groups as well as the revision of the report. GIBB hereby confirms that a revised version of the Draft EIR will be made available for public review and comment.

We thank you for providing us the opportunity to respond to these comments. Please do not hesitate to contact us should you require any additional information regarding this proposed project.

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

Yours faithfully
For Arcus GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to read 'JMBall', written in a cursive style.

Jaana-Maria Ball
Nuclear-1 EIA Manager