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Thyspunt Alliance  
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Dear Mr Thorpe, Thyspunt Alliance and its members, the St. Francis Bay Resident's Association and the St. Francis Kromme Trust

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

**COMMENT ON IMPACT ASSESSMENT METHODOLOGY, CHAPTER 7**

Response compiled by H. Thorpe and submitted on behalf of the St Francis Bay Residents' Association, the St. Francis Kromme Trust and the Thyspunt Alliance

**Comment 1:**

Impact Assessment criteria are essential components in the EIA process, and indeed appear to determine whether or not there are fatal flaws. Specialists are required to evaluate impacts on their areas of discipline in terms of these criteria.

The Peer Group Assessment, Appendix H, section 2.3.1, pages 13 – 15, comments in the last paragraph of p.14 that "the use of the rating criteria is complex, inconsistent and in some instances very difficult to understand." On p. 15 para 3 he states: "The net effect of all of the above is that it is very difficult to determine which impacts are really significant for decision-making and which are not. With the significance rating presented as it is currently, none of the sites appear suitable for the development, yet the conclusion is still drawn that all are suitable."

DEIR 2 has made a number of changes to the criteria in Table 7 – 16 of the Revised Report. This is in response to a complaint by I&APs in the first draft that the criteria as published in Table 7 -10 did not allow anything more than "medium" significance where "extent" and "duration" were medium or lower. "Extent" could only be high if it was regional or national, and "duration" could only be rated above low if it was for more than 9 years. This impacted on all the other categories further down the scale, and meant that the highest possible significance was "medium". This was clearly not acceptable.

**Response 1:**

In response to the Peer Group reviewers' comments on the Draft EIR, the criteria for rating of impact significance were accordingly changed to provide a more realistic assessment of impact significance and to prevent a situation where, as stated above, impacts are rated as high, in spite of the specialists not identifying any fatal flaws. The concern behind the statement of the reviewers was that the specialists tend to rate impacts unnecessarily high as a precaution. For instance, specialists would assume that the most sensitive elements of the site would be destroyed, without having regard to the fact that the proposed development footprint would avoid such sensitive elements.

The criteria for assessment of impact significance were accordingly amended in consultation with the specialists to ensure their agreement with the meaning and application of the criteria. For instance, the criteria for duration have been amended to the following:

- 0 - 3 years: Low
- 4 - 8 years: Medium
- More than 9 years to permanent: High

One of the outcomes of the revision of impact criteria was a change from only three significance categories (low, medium and high) to five categories. Thus, if an impact is still found to be of high significance with mitigation after the application of these new criteria, there is a greater possibility that it could be regarded as a fatal flaw. After application of these revised criteria, there are very few impacts that remain high after mitigation (one each at Duynefontein and Thyspunt and two at Bantamsklip).

### **Comment 2:**

#### Changes

The criteria for “Extent”, “Duration” and “Consequence” have been materially altered. The changes to “Extent” and “Duration” are positive, but this is immediately countered by the “consequence” criteria, which have been materially altered. These continue to affect all the categories which follow.

### **Response 2:**

The criteria used are a representative of international best practice in environmental impact assessment.

### **Comment 3:**

Under the previous criteria, “**Extent**” recognised three categories. “Low” covered only the footprint; “Medium” covered the footprint and surrounding areas and towns, with no distance stated. “High” covered provincial and national impacts. On this basis, it was reasonable to categorise “extent” of the impact of Thyspunt on the St Francis area as “medium”.

The major change in Table 7-16 is that “medium” covers the surrounding area and towns **up to a distance of 10 kilometres**. Anything beyond that is categorised as “high” impact. Since both Cape St Francis and St Francis Bay are more than 10 kilometres from the site, any impact on them places them in the “high impact” category for “extent”. This addresses one of the complaints in our response to Table 7 – 10.

### **Response 3:**

We take note of your comment.

### **Comment 4:**

Much the same applies to “**duration**”. Under the previous criteria, depending on which table one was using, “Low” was anything of up to nine years’ duration; “Medium” was from 10 – 15 years and “high” was 15 – 60 years. Under the new criteria outlined in Table 7 -16, “low” is 0 – 3 years, “medium” is 4 – 8 years, and “high” is 9 years to permanent. On this basis, with a nine-year construction period “duration” should be classed as “high” impact. Here again, this addresses the complaint with regard to 7 -10.

### **Response 4:**

We take note of your comment.

### **Comment 5:**

On the other hand, the explanatory notes below Table 7-16 revert to the previous criteria of medium extent in undefined surrounding areas, and low duration of up to nine years. The contradiction needs to be addressed.

“**Intensity**” is a much more subjective category, but is a crucial component in the ranking process. According to the explanatory notes in 7 -10 & 7-16:

***“This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered? The specialist studies must attempt to quantify the magnitude of the impacts and outline the rationale used”***

According to this definition a “high” impact rating will only occur where the impact will “destroy the impacted environment”. It makes no distinction between “natural” and “social or cultural” impacts. This is defined differently in Table 7-16 itself, where intensity is defined in terms of impact on the environment and social functions.

Medium Intensity is defined as “*alteration of the natural environment, but natural, cultural and social functions and processes continue, but in a modified way, and valued, important, sensitive or vulnerable systems or communities are negatively affected.*”

High intensity is expressed in similar terms, but here “*natural, cultural or social functions and processes are altered to the extent that the natural processes will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.*”

#### **Response 5:**

Thank you for your comment. The explanatory notes below Table 7-16 are incorrect with regards to duration of the impact. The criteria in Table 7-16 are correct and are what were used by the specialists in their assessment of the impacts. A correction to the text below Table 7-16 will be made in the final version of the EIR.

The definitions of intensity are consistent with international best practice and relevant guideline documents published by the Department of Environmental Affairs.

#### **Comment 6:**

Analysis of this section shows it to be highly subjective and ambiguous. Who decides whether communities are valued, important, sensitive or vulnerable? Is there any community that is not valued by someone? The word “and” between the two sections raises all sorts of questions. Will a high intensity only be allotted where both groups of criteria are met, or is this an either/or situation? It is not difficult to imagine an impact which substantially affects groups or communities without destroying natural processes.

#### **Response 6:**

The criteria are applied by each particular specialist as appropriate to the resources they are assessing. From a social point of view, if highly valuable social processes or resources are destroyed, the impact is regarded to have a high intensity. On a biophysical level, if a highly valuable community like a wetland is destroyed, it is regarded to have a high intensity. The definition of intensity does not imply that both social and biophysical resources must be simultaneously affected for an impact to be assessed to have a high intensity.

#### **Comment 7:**

In table 7-10 of the first draft, one of the categories for declaring a high consequence could be medium intensity at a regional level, and endure in the long term. In Table 7-16, “regional” is defined as “beyond a ten kilometre radius”. Under these criteria some impacts would receive “high” consequence ratings. Other things being equal, this could lead to a “high” significance rating, with all the implications of that.

As is shown below, the criteria for “consequence” have been altered

The “**consequence**” criteria have been greatly simplified, but made more stringent. According to the explanatory notes:

***The consequence of the potential impacts is a summation of above criteria, namely the extent, duration, intensity and impact on irreplaceable resources.***

The new element here is “impact on irreplaceable resources”. In terms of the first DEIR table 7 – 10 “consequence” would be rated “high” where “intensity” is medium at a regional level and endure in the long term. The reference to “irreplaceable resources” came further down the list, and would have no influence on “consequence”.

This has changed in table 7 -16. Consequence will now be rated “high” where “intensity “ and impact on “irreplaceable resources” are high, together with any combination of “extent” and “duration”; or “Intensity” is rated “high”, with all of the other criteria being rated “medium” or higher. In other words, “consequence” cannot now be rated “high” unless “intensity” is high, and intensity can only be rated high where natural and other processes will temporarily or permanently cease, and communities are substantially affected.

## **Response 7:**

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Your assessment is correct. One of the points made by the peer reviewers is that significance should strictly be a function of consequence and probability. However, impact on irreplaceable resources was brought into the equation later on (after consideration of consequence) in the Draft EIR. Significance was therefore not purely a function of consequence and probability. Based on the reviewers' comments, consequence has been redefined in the Revised Draft EIR to include impact on irreplaceable resources.

## **Comment 8:**

"Intensity" is critical, but subjective, and can be manipulated. There is likely to be debate on whether intensity is high in relation to the traffic passing St Francis Bay.

Questions raised by this are:

1. Which is correct: table 7 – 16 or the explanatory notes?
2. If Table 7 – 16, why have the explanatory notes not been revised to reflect the changes?
3. What are the reasons for the change in the "intensity" & "consequence" requirements?
4. Have all the specialist reports been reviewed in terms of Table 7 - 16?
5. If not will the EAP have any revisions made, and their implications spelt out, before submission of the Revised EIR to the DEA?
6. Have the changes made addressed the issues raised by the Peer Review Consultant regarding the problems raised in para 2?

## **Response 8:**

Judgement is implicit at various stages in all EIA processes and in the assessment of all impact by all specialists. Each specialist makes a reasoned judgement of the sensitivity of the resource on which he/she focuses, based on his/her professional knowledge of the resource. This knowledge is typically obtained from fieldwork, interested and affected parties, peers and from subject literature. The specialist applies this knowledge to the project to determine how the project will interact with the environment. In determining how serious the impact will be, each specialist applies a reasoned opinion.

1. As indicated in Response 5 above, the explanatory notes below Table 7-16 are incorrect and were mistakenly carried over from the Draft EIR into the Revised Draft EIR. The criteria in Table 7-16 were applied by the specialists in their assessment for the Revised Draft EIR.
2. The explanatory notes were incorrectly carried over from the Draft EIR.
3. Please refer to Response 8 above for the reasons for the change in the consequence criteria. Intensity criteria were reviewed to make them more consistent with accepted intensity criteria in international EIA practice.
4. All specialists applied the criteria in Table 7-16.
5. Refer to 4 above.
6. Changes to the assessment criteria were made to address the issues raised by the peer review consultants.

## **Comment 9:**

One of the complaints in the Peer Review was that the ratings were difficult to understand and difficult to apply. We submit that the new ones are almost worse.

The test case which follows illustrates the potential difference between the application of these criteria.

## **Test case**

As an example, we can take an impact which would be sensitive to these changes, namely the social impact of thousands of heavy vehicle trips across the Kromme River bridge, past St Francis Bay, and up a long, fairly steep hill, as envisaged in Project Description, Table 3-14, (with errors corrected, such as Vendor staff year 4, and the incorrect totals under "total vehicles per day"). Anyone who regards this impact as less than high intensity must be deaf, blind or both. A further factor is that nobody appears to have factored in the huge increase in traffic over peak holiday periods. Unfortunately neither the Noise Specialist nor the Social Impact Specialist appear to have noticed that these will be the case, and the criteria are inconclusive.

**An independent ruling is required on whether thousands of heavy-duty trucks per day (and possibly night), passing over the Kromme River bridge, through St Francis Bay, and up a long hill, and then back again,**

**365 days per year, constitutes high intensity impact<sup>5</sup> in terms of the above criteria. The rationale for the decision must be spelt out in the public domain.**

The table which follows compares the impacts in terms of the new criteria with those used in the first draft, assuming that the intensity is judged to be high, and that “sense of place” can be regarded as an irreplaceable resource. Col 1 indicates the rating in terms of the original impact assessment criteria, whilst column 2 shows the effect of the new criteria. In this case, we are concerned with road access, not with the nuclear site itself. For this reason “extent” is deemed to be “medium” impact, with the road itself being the “site”.

<u>Impact Assessment</u>	<u>First draft,</u> App E 18, Section 7.7 Table 7-10	<u>Revised draft</u> App E18 Section 7.8.1 Table 7 - 16
Nature	Negative	Negative
Extent	Local	Medium (below 10 km)
Duration	Medium	High
Intensity	Medium	High
Irreplaceable resources (Sense of place)	High	High
Consequence		
	Table 7 -10 (intensity + extent+ duration)	Medium
	Table 7 – 16 (intensity +extent+duration+irreplaceable resources)	High
Probability	Highly probable	Highly probable/certain
Significance		
	Table 7 -10 (consequence + probability)	Medium
	Table 7 – 16 (all impacts, including potential cumulative. Cumulative no longer defined, but included in significance)	
Reversibility	Low	High to very high Zero unless road access diverted
Confidence	High	High
Cumulative impacts	Medium	see Significance

**Response 9:**

We take note of your assessments of the impact of traffic. Traffic impacts on the St. Francis area have been recognised to be serious enough that an alternative construction vehicle route around St. Francis is included in the Revised Draft EIR (Version 2)..

**Comment 10:**

Let us consider the proposed mitigation measures anyway.

**Proposed Mitigation measures** (Revised Social Assessment Report, p.174)

1. *“Plan construction activities to minimise disruption to peak traffic”.*  
Unmitigable. Peak traffic times common to community & construction activities.
2. *“Workshop with relevant parties to discuss problems and implement relevant improvements”.*  
Toothless talk shop. What status? What relief? Who arbitrates disputes? Too late by then.  
Problem areas should be identified prior to ROD and realism of proposed mitigation measures taken into account in determining a decision to proceed. Alternative route to avoid the problem the only possible effective form of mitigation.
3. *“Implement mitigation measures in traffic impact assessment.”* App E 25, p. Only relevant proposal: limit bulk of abnormal loads to 21h00 – 05h00. Abnormal loads not defined. Sleepless nights for entire community for ten years?
4. *“Mitigate impacts on pavement loading by “possible” contribution to roads rehabilitation programme by Eskom”.*  
Why only “possible”? Eskom’s transportation proposals will destroy all but the most highly specified roads. This has to be a contractual obligation. How enforced? To what standard?

**Comment on mitigation measures**

These pay no more than thumb-suck lip-service to the mitigation requirements. The reality is that if the R330 is used for heavy construction vehicles, this will have an unmitigable impact of very high significance

on one of South Africa's successful holiday resorts & tourism destinations. The mitigation measures proposed are almost puerile. They will have minimal effect on the impacts which have been identified, and will most certainly not solve the problems. They are worthless.

**Response 10:**

We take note of your comments. The Transport Specialist Study has been substantially revised in order to redefine the proposed vehicle routes to the Thyspunt site, so that the route through St. The revised study acknowledges that the Thyspunt site requires significant transport infrastructure upgrades. The R330 is now proposed to be used for light vehicle traffic and abnormal load transport, and sections will require upgrading for this purpose. The Oyster Bay Road is now proposed to be upgraded to a surfaced road to be used during the construction and operations phases for staff access, light vehicle traffic, heavy vehicle traffic and as an emergency evacuation route for areas such as Oyster Bay. DR1762, which links the R330 and Oyster Bay Road is now proposed to be surfaced to provide improved east-west connectivity.

**Comment 11:**

**Conclusions in test case**

1. In terms of the Impact Assessment Criteria contained in Section 7.8.1 of Chapter 7, the decision-making authority must consider whether the proposed use of the R330 for main traffic access to Thyspunt is not fatally flawed in terms of its social impact.

**Response 11:**

We take note of your comment. Please refer to response 10.

**Comment 12:**

2. It is essential that remaining ambiguities in the impact assessment criteria be resolved, and that all reports are reviewed for consistency with the revised criteria in Table 7 -16.

**Response 12:**

As indicated in Response 5 above, all specialists applied the assessment criteria in Table 7-16.

**Comment 13:**

3. If it is concluded that the use of the R330 is fatally flawed, Eskom should be instructed to identify another main access route, situated a minimum of 1 kilometre from any urban edge, or regard this as a fatal flaw.

**Response 13:**

As indicated in response 10, the Transport specialist study has being revised so that heavy vehicles to Thyspunt bypass St. Francis.

**Comment 14:**

**Conclusions on Impact Assessment Methodology**

This assessment derives from criticism raised by the Peer Review in Appendix H of the first DEIR. The specific criticisms are outlined in the second paragraph of this submission, namely inconsistency and difficulty to understand and apply. The question raised is whether the revised version reflected in Table 7 -16 has improved or aggravated the situation, and whether this affects the drawing of correct conclusions regarding impacts. We believe that the criticisms remain. It is yet another example of a sloppy approach, which allows too much room for misunderstanding and manipulation in a crucial component of the overall EIA.

**Response 15:**

We take note of your comment. In general it is important to to cognisance of the fact that every discipline has different method and approaches to evaluating data and information. In the field of environmental management, the assessment and evaluation of environmental impacts has developed over the last three decades and includes a

number of criteria that are applied almost universally in EIAAs. These criteria typically include nature (is the impact negative or positive?), extent (or scale), duration, intensity (degree of change), consequence (seriousness), reversibility, probability (how certain is it that the impact will occur?) and significance (overall importance of the potential impact).

Although there is general agreement about the nature of the criteria for assessment and there are local and international guidelines on this, there is no single agreed method. It is up to the discretion of the environmental assessment practitioner (EAP) to apply his or her mind to determine the most appropriate combination of criteria, as well as any requirements that the environmental authority might have regarding the criteria. In the case of the Nuclear-1 EIA the EAP sought assistance from other senior EAPs, namely Mr. Neal Carter and Mr. Reuben Heydenrych, as well as an advisor on EIA process, Mr. Sean O'Beirne.

Furthermore, based on comments received from the DEA during the review of the RDEIR Version 1, The National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. This updated assessment no longer utilises the ranking / scoring system for the sites, but rather considers the residual risks associated with the proposed Nuclear power station at the proposed sites. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site. Please refer to Chapter 10 for the updated assessment approach

Yours faithfully  
for GIBB (Pty) Ltd

A handwritten signature in black ink, appearing to be a stylized 'S' or similar character, positioned above a horizontal line.

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Nuclear-1 EIA Team