

To: **THE APPEAL AUTHORITY: THE HONOURABLE MINISTER OF MINERAL RESOURCES  
AND ENERGY, REPUBLIC OF SOUTH AFRICA**

Licence reference number: *NIL – 01 (Variation 21)*

Ex Parte:

**SOUTHERN AFRICAN FAITH COMMUNITIES' ENVIRONMENT INSTITUTE**

**Appellant**

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**APPEAL: AUTHORISATION IN TERMS OF THE NATIONAL NUCLEAR REGULATOR ACT,  
1999:**

**LONG TERM OPERATION OF UNIT 1 OF THE NUCLEAR POWER STATION (NPS) AT  
DUYNEFONTEIN, WESTERN CAPE PROVINCE UNTIL JULY 2044**

**SUPPLEMENTARY SUBMISSIONS IN RESPONSE TO ESKOM RESPONSES TO APPEALS**

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## Table of Contents

<b>ESKOM'S RESPONSE TO APPEALS - GENERAL .....</b>	<b>2</b>
<b>AD PARAGRAPHS 91 TO 94 .....</b>	<b>2</b>
<b>AD PARAGRAPH 95.....</b>	<b>2</b>
<b>CONTAINMENT AND ICCP .....</b>	<b>3</b>
<b>AD PARAGRAPHS 96, 100, 101 and 103 TO 111 .....</b>	<b>3</b>
<b>CONTAINMENT AND MONITORING SYSTEM .....</b>	<b>6</b>
Delays in implementing a fully functional monitoring system .....	6
<b>AD PARAGRAPH 100.....</b>	<b>7</b>
Eskom assurances of regulatory compliance regarding monitoring of containment are.....	10

disputed by SAFCEI.....	10
ESKOM assurances are not in line with international standards.....	10
Monitoring instruments available during the ILRT.....	13
<b>AD PARAGRAPH 101.....</b>	<b>14</b>
<b><i>ALLEGATION OF IRRATIONAL AND UNCONSTITUTIONAL DECISION-MAKING .....</i></b>	<b><i>17</i></b>
<b>AD PARAGRAPHS 98, 114 -117 .....</b>	<b>17</b>
<b><i>CONCLUSION .....</i></b>	<b><i>18</i></b>

1.

This is a reply to representations made by Eskom<sup>1</sup> in response to the SAFCEI appeal. This reply will not traverse each and every response by Eskom. Where SAFCEI does not respond to specific paragraphs, or parts of Eskom’s response to the appeal, the contents thereof should be regarded as having been denied by SAFCEI, and SAFCEI reserves the right to amplify such denial in the appropriate forum if this should become necessary.

**ESKOM’S RESPONSE TO APPEALS - GENERAL**

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**AD PARAGRAPHS 91 TO 94**

These paragraphs present a summary of Eskom’s response to SAFCEI’s appeal and are amplified in the paragraphs that follow. SAFCEI denies the contents of these paragraphs where they are inconsistent with its appeal and its responses hereunder.

2.

**AD PARAGRAPH 95**

Eskom concedes that SAFCEI’s appeal raises critical issues concerning regulatory compliance and safety.<sup>2</sup> However it qualifies this admission - incorrectly it is submitted - by stating:

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<sup>1</sup> Dated 4 December 2024  
<sup>2</sup> Eskom response page 29

“While SAFCEI’s appeal raises critical issues concerning regulatory compliance and safety it suffers from several weaknesses that detract from its persuasiveness. These include speculative assertions, limited engagement with technical assessments, and an insufficient consideration of the broader energy and regulatory context.”<sup>3</sup>

These claims are without foundation. Eskom does not specify which of SAFCEI’s assertions are speculative, and this claim is rejected. SAFCEI’s submissions are drawn from Eskom’s own documentation, in each case referenced in footnotes, in particular the Long-Term Repair Strategies for the Containment Buildings - Expert Panel Report of 2015<sup>4</sup> and Eskom Plant Engineering Life of Plant Plan for Containment Buildings - revisions 3 and 4<sup>5</sup> as well as the SALTO reports of 2022 and press briefing of 2024. Where general conclusions are drawn regarding nuclear power these are based on references to published expert authority and the documentation of the IAEA and other regulatory agencies.

The rest of the assertions will be dealt with in detail in the paragraphs below.

## **CONTAINMENT AND ICCP**

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### **AD PARAGRAPHS 96, 100, 101 and 103 TO 111**

Eskom states at paragraph 96:

“While the implementation of the ICCP is indeed listed in the LTO safety case, implementation is only required during the period of LTO and it is not specified or required as a pre-requisite for LTO.”

It is correct that the NNR decision extending the licence for the Koeberg NPS to operate for a further 20 years did not have implementation of ICCP and a fully functioning monitoring system as a prerequisite for the long-term extension of the licence. This is what SAFCEI is objecting to, arguing in its appeal that this renders the authorisation unlawful. Eskom does not engage with SAFCEI’s arguments in this regard but appears to rely on LTO Regulation 4(e) to justify the implementation of the ICCP after the granting of the authorisation. This is evident from the following statement by Eskom:

“.... Furthermore, SAFCEI does not sufficiently engage with the regulatory framework

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<sup>3</sup> Id

<sup>4</sup> JN465-NSENSE ESKB-R-5704 at page 2

<sup>5</sup> KBA 0022 N NEPO LOPP 164 Rev 3 and Rev 4

that SAFCEI that allows for phased implementation of safety measures under strict oversight.”<sup>6</sup>

3.

Regulation 4(e) states that the safety case for LTO shall amongst others:

e) identify necessary safety improvements which may include, but are not limited to, refurbishment, provision of additional structures, systems and components and additional safety analyses and engineering justifications, to ensure that the licensing basis remains valid during the period of LTO.

The NNR has authorised the extension of life of the plant for a further 20 years during which time repairs must be effected to unit 1 containment structure in 2025. The implementation of a fully functioning monitoring system will be subject to a delay until an indeterminate date, to be determined by Eskom when outages 129 and 229 will take place.<sup>7</sup> A proper appraisal of the safety of a repaired Koeberg NPS containment structure will thus only be feasible five years from now or even longer, if there are delays.

4.

It is submitted that the implementation of the ICCP is not a “safety improvement” as contemplated in regulation 4(e) of the LTO regulations. A safety improvement is a measure which makes better, or adds value to an already safe reactor.<sup>8</sup> The ICCP does not add value but is a maintenance measure, that is necessary to prevent the breakdown in the containment structure, which is taking place as a result of chloride induced corrosion, unforeseen at the time of its construction.<sup>9</sup> It is worth noting that ICCP arrests corrosion

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<sup>6</sup> Eskom response paragraph 96

<sup>7</sup> As stated in the SAFCEI appeal, paragraph 48, a condition of the licence requires the following repairs to the monitoring system Containment monitoring instrumentation (Linked to IAEA mission finding – Issue area E2) due on Outages 129 and 229. Informal inquiries indicate that outage 129 (Unit 1) is planned for Jan 2029 for 60 days outage 229 (unit 2 ) is planned for Jan 2030 for 60 days. However these dates and timelines are currently under review and will be finalised once the update production plan is approved. (email 15 August 2024 from Christo Olivier Business Performance Manager Nuclear Operating Unit, Eskom to Tristen Taylor.

<sup>8</sup> The Concise Oxford Dictionary, 5<sup>th</sup> edition; Merriam Webster Dictionary <https://www.merriam-webster.com/dictionary/improvement#:~:text=%3A%20the%20act%20or%20process%20of,especially%20%3A%20enhance%20value%20or%20excellence>

<sup>9</sup> See SAFCEI appeal paragraph 41- 43

and thus prevents the Koeberg NPS from moving further away from its original design specification and state of concrete structures at the time of commissioning. Delaying ICCP only moves KPNS even further beyond its original condition. It is therefore not a safety improvement as contemplated by the regulations that can reasonably be deferred to after authorisation. In any event regulation 4(e) does not indicate that necessary improvements can be delayed until after authorisation.

5.

Even if the ICCP could lawfully be described as a safety improvement, it is not of such a nature that it can be lawfully deferred to after the granting of an extension of life permit of 20 years. This results from the fact that the Safety Case must demonstrate continued safe operation of the nuclear installation for the period of Long-Term Operation according to LTO regulation 3 (3) and until the ICCP is implemented and tested this will not be possible.

See regulation 3(3):

(3) The application shall be supported by a safety case to demonstrate continued safe operation of the nuclear installation for the period of Long Term Operation and the safety case shall be submitted within the timelines specified by the Regulator.

Moreover in terms of LTO regulation 4, the Safety Case must also:

- (b) be prepared using the results of safety analyses, with due consideration of the ageing of structures, systems and components and the periodic safety review;
- (c) provide an overall assessment of the safety of the nuclear installation and justification for continued safe operation for the intended period of Long Term

6.

Neither of these requirements is possible to fulfil until the ICCP program is implemented and tested. The requirement of testing is mentioned in Eskom's own expert report of 2022:<sup>10</sup>

"The only available repair method identified which can meet the defined performance criteria for the containment structure is cathodic protection using impressed current. Design and implementation of a CP system for such important structures should only be undertaken by internationally qualified companies. Routine monitoring and periodical testing of the cathodic

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<sup>10</sup> Long Term Repair Strategies for the Containment Buildings - Expert panel report 2015: JN465-NSENSE ESKB-R-5704 at page 2.

protection system must be carried out. Maintenance and possible replacement of the system over the extended lifespan will be required.”<sup>11</sup>

7.

It is submitted that Eskom incorrectly interprets the regulation giving rise to an absurd result that allows for the LTO to be granted without the other mandatory requirements of LTO regulation 4 being met, namely LTO regulations 4(b) and 4(c).

The delay for five years is unwarranted and lacks acceptable explanation. The Koeberg NPS has had ample time during previous outages including during steam generator replacement to repair the containment monitoring system. In fact, the lengthy part of repair the containment monitoring system is not the repairs themselves but the securing of appropriate contractors and necessary equipment. This should have been done even before the IAEA’s 2022 SALTO inspection. As such, Eskom has compromised the Koeberg NPS for no reason.

## **CONTAINMENT AND MONITORING SYSTEM**

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### ***Delays in implementing a fully functional monitoring system***

It is submitted that the same arguments apply to the issue of the delay in implementing upgrades that would result in there being a fully functioning monitoring system in place. This argument is not specifically addressed in Eskom’s submissions, and it is assumed to fall under the same fallacious analysis of the regulatory framework.

SAFCEI denies that it is required to show - as contended by Eskom in order to succeed on appeal - that there is “*clear evidence that these interim measures are inadequate or that the phased approach fails to meet regulatory standards.*”<sup>12</sup>

On the contrary it is the duty of Eskom to demonstrate continued safe operation based on the results of safety analyses, and it cannot do so without having completed and tested the necessary repairs for safe operation.

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<sup>12</sup> Paragraph 96

8.

### AD PARAGRAPH 100

Eskom states that the appeal incorrectly concludes that without a fully functional containment monitoring system for the next five years means that Koeberg NPS lacks the ability to take evasive action during abnormal conditions. It states:

“The appeal incorrectly concludes that without a fully functional containment monitoring system for the next five years means that Koeberg lacks the ability to take evasive action during abnormal conditions. This is another misunderstanding by SAFCEI of the issue raised by the IAEA. While full restoration of the containment monitoring instruments are ideal, the containment structural integrity can be adequately monitored by the remaining containment monitoring instruments and supplemental surveillance data the containment structural integrity can be adequately monitored by the remaining containment monitoring instruments and supplemental surveillance data.

Furthermore, SAFCEI incorrectly assumes that there will be insufficient monitoring instruments available during the ILRTs. The available monitoring instruments are assessed prior to the ILRTs, and additional monitoring instruments installed if required.”<sup>13</sup>

9.

SAFCEI denies that the appeal concludes that without a fully functional containment monitoring system for the next five years means that Koeberg NPS lacks the ability to take evasive action during abnormal conditions. The SAFCEI appeal is more nuanced, namely that defence-in-depth is undermined by the absence of such system and there could be serious consequences. It states that:

“the result is also concerning, in that defence-in-depth is undermined and consequences for Safety could be severe, including a worst-case scenario release of radiation.”

This is a general statement as to increased risk given that defence-in-depth is undermined and it is aligned with the 2022 SALTO statement as to the potential consequences thereof:

2.2 – SAFETY CONSEQUENCE: Without a fully functional containment monitoring system, not all necessary data for the Containment structure will be available to demonstrate the intended safety function during LTO<sup>14</sup>

The consequences of this increased risk are stated in the appeal and are repeated here for ease of reference:

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<sup>13</sup> Eskom’s response to appeals at paragraph 100

<sup>14</sup> Salto report page 61

“Without a fully functioning monitoring system it is not possible for Eskom to justify the continued safe operation of the reactor for the intended period of time, as it will not be able to at all times predict what is going on in the reactor.... Eskom was not in a position to present an analysis of containment safety to the NNR without this system, and hence its LTO Safety Case was not compliant with regulation 3(3), 4(b) and (c) and the NNR could not apply its mind to the issues that it must consider in terms of regulation 5 as is abundantly clear from the SALTO statement on safety consequences of an inadequate monitoring system. The authorisation of KNPS Unit 1 for a further 20 years was based on an LTO application that was non-compliant with the LTO regulations due to these deficiencies in the safety case, and is therefore unlawful and should be set aside. Only after the recommendations of the IAEA have been implemented in regard to a fully functional containment structure monitoring system will the NNR be in a position to consider a potentially compliant LTO application.”<sup>15</sup>

10.

Eskom fails to refute SAFCEI’s appeal argument regarding the regulatory consequences of the Koeberg NPS not having a fully functioning monitoring system.

11.

The ground of appeal is summarised as follows:

*It is not in dispute that Koeberg NPS currently lacks a fully functioning monitoring system.*

The IAEA has in 2022 stated that the consequences hereof are that:

2.2 – SAFETY CONSEQUENCE: Without a fully functional Containment monitoring system, not all necessary data for the Containment structure will be available to demonstrate the intended safety function during LTO<sup>16</sup>.

59. The IAEA SALTO report made the following recommendation in 2022:<sup>17</sup>

The plant should ensure full functionality of the containment structure monitoring system.

60. The updated SALTO REPORT of 2024 reiterates this recommendation:<sup>18</sup>

The team noted that the plant needs to continue its work to ensure that:

The plant programmes supporting LTO are fully implemented for the LTO period.

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<sup>15</sup> SAFCEI appeal paragraphs 85 and 86

<sup>16</sup> Salto report page 61

<sup>17</sup> SALTO report page 62

<sup>18</sup> <https://www.iaea.org/newscenter/pressreleases/iaea-concludes-long-term-operation-safety-review-at-south-africas-koeberg-nuclear-power-plant>



The containment monitoring system is fully refurbished and remains fully functional during the LT period.

12.

The 2024 updated SALTO report therefore did not change the initial finding of the 2022 SALTO, that Koeberg NPS lacks a fully functional monitoring system. As a result, it follows that this system has yet to be fully refurbished and until then not all necessary data for the containment structure will be available to demonstrate the intended safety function during the LTO.

13.

SAFCEI argued that the legal consequence of not having a fully functioning monitoring system at the time of application for LTO resulted in the Eskom Safety Case not being able to comply with regulations 3(3) and 4(b) and (c) and therefore the authorisation was unlawfully granted. This argument is not refuted by Eskom. It is repeated here for ease of reference:

61. Being a nuclear power station full functionality of the containment monitoring system should be in place at all times, not at some undetermined time in the future.

Without a properly functioning monitoring system the Safety Case did not have the data which would enable it to undertake the required safety analysis envisaged in regulation 4(b) and to:

(c) provide an overall assessment of the safety of the nuclear installation and justification for continued safe operation for the intended period of Long Term<sup>19</sup>

62. This deficiency was brought to the attention of the NNR in submissions by SAFCEI.<sup>20</sup>

The granting of the extension of the licence in these circumstances is non-compliant with the regulations for LTO and is therefore unlawful.

14.

SAFCEI amplified this argument by arguing that defense-in-depth is undermined by the lack of a fully functioning system. This argument remains valid and is consistent with the SALTO report recommendations.

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<sup>19</sup> Regulation 4(c)

<sup>20</sup> Submission of SAFCEI dated 30<sup>th</sup> January 202

15.

***Eskom assurances of regulatory compliance regarding monitoring of containment are disputed by SAFCEI***

Eskom states in paragraph 100:

“While full restoration of the containment monitoring instruments are ideal, the containment structural integrity can be adequately monitored by the remaining containment monitoring instruments and supplemental surveillance data. Furthermore, SAFCEI incorrectly assumes that there will be insufficient monitoring instruments available during the ILRTs. The available monitoring instruments are assessed prior to the ILRTs, and additional monitoring instruments installed if required. “

16.

The concerns raised by SALTO and consequences of not having a fully functional monitoring system are set out in paragraphs 64 to 75 of the SAFCEI appeal. The SALTO 2024 review took place in September 2024, which is after the LTO license was granted on 19<sup>th</sup> July 2024. It continues to recommend that the plant “*continues its work to ensure that the containment monitoring system is fully refurbished and remains fully functional during the LTO period*” indicating that at the time of the granting of the license this was not yet the case.

17.

***ESKOM assurances are not in line with international standards***

At all material times the NNR has indicated that its mission is to foster compliance with the safety standards of the International Atomic Energy Association and international best practice. See Eskom responses paragraphs 111 and 117. It states in paragraph 117:

“The NNR’s decision aligns with international standards including IAEA guidelines. Eskom utilised the IAEA SALTO process supported by IAEA SALTO missions as an opportunity for Koeberg to align with global standards for extending the operational life of Koeberg.”

Eskom concedes that “*full restoration of the containment monitoring instruments (is) ideal.*”

By implication this constitutes alignment to international standards including IAEA guidelines. What it will be relying on, however, until it restores full fictionality of the monitoring system therefore falls short of international standards and IAEA guidelines.

18.

Additionally the IAEA guidelines state that *“Measurements to monitor the containment stability and deformations over time should be recorded to show trends.”*<sup>21</sup> As witnessed by Eskom’s failure to correctly validate TLAA 301 because of a lack of information over time due to malfunction and failure of monitoring instrumentation, Eskom is clearly not following SSG-53 and is thus not in alignment with international best practice.

19.

The recommendations of the IAEA are clearly reasonable measures that South Africa should conform to in order to ensure the safety of an inherently highly hazardous industry. Regarding the monitoring system, these were not complied with prior to the issue of the extended licence, however, as a fully functional monitoring system is not yet in place. This deficiency is aggravated by the fact that the licence variation permits this state of affairs to continue until an indeterminate date, to be determined by Eskom when outages 129 and 229 will take place and the monitoring system is due to be repaired.

20.

Given the above deficiencies SAFCEI disputes that the containment structural integrity can be adequately monitored as described by Eskom in paragraph 100. Eskom’s statement flies in the face of the extensive observations of the SALTO of 2022 and subsequent update in 2024 as to the nature of the current deficiencies in the containment monitoring system, and recommendations as to how to address them so as to ensure that all necessary data is available for the containment structure to demonstrate the intended safety function during LTO. As this had not been done at the time of the granting of the license the safety case could not comply with the requirements of LTO regulation 3(3), namely that it must demonstrate the continued safe operation of the nuclear installation for the period of the LTO.

21.

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<sup>21</sup> Design of the Reactor Containment and Associated Systems for Nuclear Power Plants (SSG-53))<sup>21</sup> 4.210 of at page 85

Furthermore Eskom's assurances that *"the containment structural integrity can be adequately monitored by the remaining containment monitoring instruments and supplemental surveillance data"* should be considered with some degree of scepticism against past assurances by it on the same subject that have been found to be invalid by the NNR.

22.

In particular, as part of the Safety Case, Eskom stated that TLAA-301: Concrete Containment Tendon Pre-Stress was validated for both Unit 1 and Unit 2. However, the inadequacy of the containment monitoring system is described by the NNR in the LTO Safety Evaluation Report.<sup>22</sup> As a consequence of the lack of monitoring data (i.e. the lack of a fully functioning monitoring system) and the extrapolation of data from Unit 1 to Unit 2, Eskom had made a serious and highly erroneous engineering judgement by stating that TLAA-301 had been validated for both units and for 20 years. As it stands, TLAA-301 for Unit 2 is only validated for 8 years. Further assurances regarding monitoring capability without a fully functioning monitoring system made by Eskom should therefore be treated with scepticism.

23.

Eskom's erroneous engineering judgement, based on the failings of the current inadequate monitoring system, will have a substantial impact of energy planning and the Integrated Resource Plan. South Africa's energy plans have been based on Koeberg's two units being licenced to continue to operate for a further twenty years. However, South Africa's long-term energy plans will have to change because Eskom did not have all the data a fully functioning containment monitoring system would have provided. This scenario could have been avoided if Eskom had maintained a fully functional containment system across the whole of Koeberg's 40 years of operation. The reliance on an inadequate system has led to it making an erroneous engineering assessment on a vital safety component. The solution is obvious and in accordance with the IAEA and Eskom itself: a fully functioning monitoring system should have been required by the NNR before the licence was extended, in order for

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<sup>22</sup> page. 67 of TR-NPP-24-001 LTO SAFETY EVALUATION REPORT Rev 1.

the safety case to demonstrate with certainty the continued safe operation of the nuclear installation for the period of Long-Term Operation.

24.

### ***Monitoring instruments available during the ILRT***

Eskom states:

“Furthermore, SAFCEI incorrectly assumes that there will be insufficient monitoring instruments available during the ILRTs. The available monitoring instruments are assessed prior to the ILRTs, and additional monitoring instruments installed if required.”

This is denied. Eskom’s testing does not achieve the level of international standards and is therefore insufficient. We refer to the French code since Koeberg NPS is a French designed reactor and French standards are aligned with international best practice and therefore appropriate for application to the Koeberg NPS. The origins of this code (updated in 2012 and which come from a 1980 code) are:<sup>23</sup>

"The first code for design and construction of civil structures related to nuclear safety was the RCC-G, which first version was produced in 1980 (RCC-G80 (1980)). It was edited by EDF and largely a statement of the French practice developed for the first 900 MW PWR series built in France. This code was approved by the ASN, the French Regulator. It was also later used to define the design and construction rules for export plants in South Africa and Korea."

25.

The following is a quote from the French code for containment monitoring system for long-term, maintenance and integrated leak tests.<sup>24</sup> (here prestressing means leak testing)

"All the measuring devices and acquisition systems should be operational before the start of prestressing of the structure. Data acquisition rate should be sufficiently rapid to precisely track the development of early age concrete shrinkage and creep in accordance with the planning of the tensioning phases of the prestressing tendons.

"Once prestressing of the structure is completed, data acquisition should continue at a rate similar to that planned for monitoring during operation, and should continue once the unit becomes operational."

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<sup>23</sup> On page 2

<sup>24</sup> TESTS AND MONITORING FOR PWR CONTAINMENT: AN INTRODUCTION TO AFCEN RCC-CW CODE  
Alexis Courtois1, Timothée Clauzon2. On page 8  
<https://repository.lib.ncsu.edu/server/api/core/bitstreams/82fa581f-e622-4093-895f-3ccebcbf07f8e/content>

26.

SAFCEI stands by its appeal ground that the issuing of a license in these circumstances was unreasonable and unconstitutional.

27.

#### **AD PARAGRAPH 101**

It is denied that SAFCEI used emotive language or failed to substantiate claims regarding worst case scenarios. Eskom does not state where SAFCEI is alleged to have done so. The language used by SAFCEI in the appeal is drawn from the LTO regulations and Eskom's own expert reports.

In terms of the LTO regulations the safety case must include a description of "*undesired modes*" which would include worst-case scenarios:

"safety case" means a logical and hierarchical set of documents that demonstrates compliance with the regulatory requirements and criteria and describes the radiological hazards in terms of a nuclear installation, site and the modes of operation, including potential undesired modes.<sup>25</sup>

In the nuclear power generation context a worst case scenario would include reference to disastrous or catastrophic releases of radiation such as have occurred in past instances of nuclear disasters referred to in the appeal.

28.

How this might occur is described by SAFCEI's appeal under the topic of the consequences of chloride induced corrosion on the Koeberg NPS containment building using Eskom's

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<sup>25</sup> LTO regulations definitions

*PLANT ENGINEERING LIFE OF PLANT PLAN CONTAINMENT BUILDINGS* reports as a basis for SAFCEI's statement:<sup>26</sup>

"The ultimate function of the containment building is to act as a barrier against the release of radioactive materials. A compromised structure due to unchecked chloride-induced corrosion increases the risk of a containment breach in a worst-case scenario, potentially leading to radiological release that could have catastrophic environmental and public health consequences."

The Eskom *PLANT ENGINEERING LIFE OF PLANT PLAN CONTAINMENT BUILDINGS* had stated that the main structural threat to the containment buildings is a known and active threat:<sup>27</sup>

## 8 CONCLUSION

### 8.1 Structural Integrity

The containment structures recently underwent large scale patch repairs to address chloride induced rebar corrosion defects. The quality report for the first part of the project is captured in reference [3]. The report for the remainder of the works' is still in progress, however both Non-Conformances of these structures have been closed out.

The main structural threat for the buildings (Chloride induced corrosion), is a known and active threat. This will lead to the degradation of the structures to a point where they have to be decommissioned, if no long-term modifications are implemented. ICCP has to be implemented as a matter of urgency to ensure the structures remain functional for the remainder of the power station life plus plant life extension.

29.

Several aspects of the maintenance required for the structure were referred to as "extreme" or in an "urgent" condition and highlighted in red in this report, in 2022. See:

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<sup>26</sup> KBA 0022 N NEPO LOPP 164 Rev 3 (2022) paragraph 8.1

<sup>27</sup> id

### 9.1 Maintenance Required and Notifications

	Component	Condition	Planned Rehabilitation	Notification/Project
Main Structural Components	Base Mat	None	-	
	Gusset	None	-	
	Cylindrical Wall	Extreme	ICCP Required to ensure continuous operation of KNPS	Mod 16002
	Ring Beam	Urgent	ICCP required to protect embedded tendon heads	Mod 16002
	Dome	Extreme	ICCP Required to ensure continuous operation of KNPS	Mod 16002

Nine years after being described by Eskom’s own expert panel as being “very advanced state of reinforcement corrosion damage” and a strong recommendation that “a long term protection system, in the form of impressed current cathodic protection, be implemented on both containment structures immediately after completion of local repairs” these repairs have not been implemented.

As far back as 2015 Eskom’s expert panel was not able to say how long the dome would be safe for:

The report recommended the following steps to be taken soon thereafter:<sup>28</sup>

16. RECOMMENDATIONS The expert panel is unable to provide any estimation as to the period that the containment buildings will still be able to meet their design basis due to the advanced state of chloride ingress and rebar corrosion measured and observed on Unit 2. These measurements and local repairs must still be undertaken on Unit 1 containment. It is therefore strongly recommended that a long term protection system, in the form of impressed current cathodic protection, be implemented on both containment structures immediately after completion of local repairs.

It follows that the following statement in the appeal regarding the potential worst case scenario consequence of this situation by SAFCEI is not unsubstantiated nor does it use emotive language:

“It is therefore uncertain whether the containment building can handle a rise in pressure, and if not the consequences could be serious. At Fukushima, the pressure rose higher than the buildings could handle in Units 1, 3 and 4. The pressure led to the release of radioactive gases and hydrogen explosions. At Three Mile Island, the operators had to vent radioactive gases to

<sup>28</sup> Long Term Repair Strategies for the Containment Buildings - Expert panel report 2015: JN465-NSENSE ESKB-R-5704 at Page 41.



prevent over-pressurising the containment structure.”<sup>29</sup>

30.

## **ALLEGATION OF IRRATIONAL AND UNCONSTITUTIONAL DECISION-MAKING**

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### **AD PARAGRAPHS 98, 114 -117**

The averments made by Eskom in these paragraphs are denied.

Eskom states in paragraph 98

“SAFCEI does not address how Koeberg’s role in providing baseload power aligns with national energy policy or propose a feasible alternative to its continued operation. This omission weakens their argument, as it fails to engage with the practical implications of decommissioning Koeberg prematurely “

Given the regulatory failure by the NNR in authorizing the LTO for Koeberg NPS for a further 20 years, SAFCEI has submitted in its appeal that this decision should be set aside and no new application to extend the life of the considered until the ICCP and fully functioning monitoring system is installed and tested.

31.

Arrangements for the provision of electricity from other sources for the period of time required to effect these repairs is within the scope of Eskom’s capacity given its recent status as monopoly provider of electricity to the country. It still provides most of the electricity consumed in South Africa.

The closure of the reactor for a period until these repairs are effected and a new safety case has been developed to support and application for LTO is within the ambit of a reasonable measure as contemplated under the Constitution and SA administrative law in order to the

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<sup>29</sup> 1) Fukushima - Funabashi, Y., & Kitazawa, K. (2012). Fukushima in review: A complex disaster, a disastrous response. Bulletin of the Atomic Scientists, 68(2), 9-21.

<https://journals.sagepub.com/doi/pdf/10.1177/0096340212440359>

2) Three Mile Island

Rogovin, M. (1980). Three Mile Island: A report to the commissioners and to the public (Vol. 1250). Nuclear Regulatory Commission, Special Inquiry Group.

[https://books.google.com/books?hl=en&lr=&id=vt0ZIfCrXoUC&oi=fnd&pg=PA809&dq=Three+Mile+Island+release+overpre ssure&ots=vwZjfCKqUJ&sig=4Oz6W71xsJM-tLkF7\\_6TfOI37-s](https://books.google.com/books?hl=en&lr=&id=vt0ZIfCrXoUC&oi=fnd&pg=PA809&dq=Three+Mile+Island+release+overpre ssure&ots=vwZjfCKqUJ&sig=4Oz6W71xsJM-tLkF7_6TfOI37-s)

protection of the health and well-being of all persons and prevent environmental damage. Justifiable economic development is not undermined given that Koeberg NPS provides only 4.2% of our electricity.<sup>30</sup> The ICCP is planned for 2025. The Koeberg NPS should be required to implement a fully functioning monitoring system at the same time or as soon as possible thereafter so as to be able to test the containment structure before it submits a new application for authorisation.

## CONCLUSION

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The appeal should be upheld and the authorisation to operate Unit 1 of the Koeberg NPS for a further 20 years should be set aside.

**DATED AT CAPE TOWN THIS 26th DAY OF JANUARY 2025**



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**Southern African Faith Communities' Environment Institute (SAFCEI).**

Per: F de Gasparis  
Executive Director.

The Green Building  
Bell Crescent,  
Westlake Business Park,  
Cape Town.

To:

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<sup>30</sup> <https://www.eskom.co.za/wp-content/uploads/2021/11/NU-0001-Nuclear-Energy-Basic-Cycle-Rev-13.pdf>

**The Honourable Minister**  
**Department of Mineral & Petroleum Resources**

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