

	<b>Report</b>	<b>Nuclear Engineering</b>
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for Koeberg NPS**

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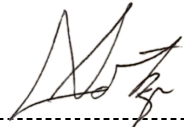
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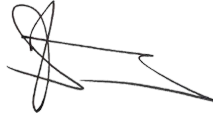
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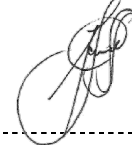
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**CONTROLLED DISCLOSURE**

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### CONTROLLED DISCLOSURE

## 1. Introduction

It is generally recognized that well designed industrial facilities, especially nuclear power plants, have an inherent capability to resist earthquakes. This is supported by the experience of seismic events at nuclear power plants, where there have been no equipment failures experienced of safeguard systems, even in events that have exceeded the original seismic design base. However due to developments in seismic hazard analysis and techniques, reassessment of original studies and seismic analyses of plants have been undertaken worldwide. For Koeberg Nuclear Power Station (NPS), the Safety Re-assessment II (SRA II) identified the need for re-assessment and this was again emphasised by the Fukushima Daiichi disaster.

Koeberg was originally designed to 0.3g horizontal PGA using the Newmark-Hall Seismic Response Spectrum based on the studies conducted by Dames and Moore in the late 1970s and early 1980s. The studies were specific to the Duynfontyn site, used a Newmark-Hall spectrum that is based on Western US data. However, due to recent international developments in this field the Newmark-Hall spectrum is no longer considered representative of most hard-rock sites, and hence not a good representation of the Duynfontyn site condition.

Subsequent to the original Dames and Moore seismic studies, the Council for Geosciences (CGS) performed a seismic hazard study in 2006, but the methodology was not deemed acceptable by the NNR. While this study was applicable to the Duynfontyn site, and used latest available geo-technical data, the seismic hazard methodology was not aligned to state-of-the-art international practices. The current state-of-the-art had moved to methodologies such as a Probabilistic Seismic Hazard Assessment (PSHA) approach, using the Senior Seismic Hazard Assessment Committee (SSHAC) process as documented in NUREG/CR 6372 [13], with recommended implementation guidance, as documented in NUREG-2117 [14] and NUREG-2213 [15].

As part of the Koeberg post Fukushima response, an External Events Safety Re-assessment (EE-SRA) including a seismic evaluation (i.e. stress test) was performed in 2011 on the Koeberg plant, for seismic events beyond the original seismic design of the plant, in order to identify potential seismic issues and cliff edge effects. The seismic stress test adopted a methodology based on a Seismic Margin Assessment (SMA), and reviewed numerous critical safety systems for their seismic capability (robustness) against a review level earthquake (RLE) of 0.5g PGA. The seismic design of the plant was demonstrated to be generally robust against a design base event, with most Systems Structures and Components (SSCs), which were part of the original seismic design, having reasonable robustness margin.

An enhanced SSHAC level 2 study has been commissioned for the Koeberg site and is in progress, however the delivery dates are such that it is not available to support justification for LTO. As an interim measure, a limited seismic review and justification is performed in line with the agreed interim seismic strategy agreed with the NNR [2]. The strategy is to adopt, as far as possible, an internationally accepted methodology that has been previously implemented successfully. Based on a review of international literature, including IAEA SRS No. 103, it was decided to adopt the USA methodology employed for the resolution of the US NRC Near Term Task Force (NTTF) recommendation 2.1 (post-Fukushima seismic response), when detailed seismic PSAs, seismic margin assessments and the high frequency test program were not yet developed. This interim guidance, referred to as the Expedited Seismic Evaluation Process (ESEP), was developed by EPRI and accepted by the US-NRC, and applied in the USA.

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The objective of the ESEP is to select a limited but justified scope and evaluate this equipment for robustness against an elevated seismic hazard. Safe shutdown is to be justified without significant risk to regulatory safety criteria as per NNR RD-0024 [8].

The review, where possible, is to take credit for previous seismic hazard evaluation performed for Koeberg.

Once the enhanced SSHAC level 2 study is completed a final seismic re-evaluation will be performed. This will include updating the new justified Ground Motion Response Spectra (GMRS) for the site, the updated Floor Motion Response Spectra (FMRS) for the building movements, confirming building and equipment compliance to updated seismic requirements and quantifying the seismic risk using a seismic PSA.

## 2. Supporting Clauses

### 2.1 Scope

The scope of the Interim Seismic Evaluation is the determination of an assumed review level ground motion, selecting equipment that will be required to obtain a safe shutdown following the assumed ground motion and verifying the robustness of the identified equipment. Where robustness cannot be proven, alternative strategies and solutions are identified.

#### 2.1.1 Purpose

Due to the enhanced SSHAC level 2 study that has been commissioned for the Koeberg site and where the delivery dates are in the future and not available to support justification for LTO, an interim measure, a limited review and justification (Interim Seismic Evaluation) has been performed and reported here. It concludes safe shutdown is possible after a seismic event without posing significant risk to regulatory safety criteria.

#### 2.1.2 Applicability

This document shall apply to Koeberg NPS.

#### 2.1.3 Effective date

This report is effective upon authorisation.

## 2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

### 2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] 240-160677773 – Koeberg Seismic Re-evaluation Strategy
- [3] 32-T-IPDK-004 - Koeberg Expedited Seismic Equipment List

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## 2.2.2 Informative

- [4] 3002000704 – EPRI Seismic Evaluation Guidance (2013)
- [5] 3002012994 – EPRI Seismic Fragility and Seismic Margin Guidance for Seismic Probabilistic Risk Assessments (2018)
- [6] JN306-NSE-ESKB-R-3973 – Nuclear Structural Engineering: EERI Seismic Margin Assessment of KNPS
- [7] JN346-NSE-ESKB-R-4604 - Nuclear Structural Engineering: EERI Seismic Margin Assessment of Systems in Reactor Buildings
- [8] NNR RD-0024 - Requirements of Risk Assessments and Compliance with Principle Safety Criteria for Nuclear Installations
- [9] NNR RG-0019 - Interim Guidance on Safety Assessments of Nuclear Facilities
- [10] NNR PP-0014 - External Events for Nuclear Installations
- [11] NUREG/KM-0017 – Seismic Hazard Evaluations for U.S. Nuclear Power Plants: Near-Term Task Force Recommendation 2.1 Results (Dec 2021)
- [12] 1025287 - EPRI Report, Seismic Evaluation Guidance, Feb 2013
- [13] NUREG/CR 6372 - Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts
- [14] NUREG-2117 rev 1 - Practical Implementation Guidelines for SSHAC Level 3 and 4 Hazard Studies
- [15] NUREG-2213 - Updated Implementation Guidelines for SSHAC Hazard Studies
- [16] US-NRC, GI-199 - Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants
- [17] JN647-NSE-ESKB-R-6304 Rev1 - Results of Electrical Building Masonry wall analysis

## 2.3 Definitions

None

## 2.4 Abbreviations

Abbreviation	Explanation
AC	Alternating Current
CEUS	Central Eastern United States
CGS	Council for Geosciences
DEC	Design Extension Condition
EERI	External Event Review Initiative
EE-SRA	External Events Safety Re-assessment
EPRI	Electrical Power Research Institute
ESEL	Enhanced Seismic Equipment List
ESEP	Expedited Seismic Evaluation Process

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Abbreviation	Explanation
<b>FMRS</b>	Floor Motion Response Spectra
<b>GMRS</b>	Ground Motion Response Spectra
<b>HVAC</b>	Heating Ventilation and Air Conditioning
<b>IAEA</b>	International Atomic Energy Agency
<b>LDA</b>	30 V Direct Current Power Supply System
<b>LTO</b>	Long Term Operation
<b>NNR</b>	National Nuclear Regulator
<b>NPS</b>	Nuclear Power Station
<b>NRC</b>	United States Nuclear Regulatory Commission
<b>NSSS</b>	Nuclear Steam Supply System
<b>NTTF</b>	US NRC Near Term Task Force
<b>NUREG</b>	US NRC Regulatory Publications
<b>PGA</b>	Peak Ground Acceleration
<b>PSHA</b>	Probabilistic Seismic Hazard Assessment
<b>PSA</b>	Probabilistic Safety Assessment
<b>RLE</b>	Review Level Earthquake
<b>RLGM</b>	Review Level Ground Motion
<b>SBO</b>	Station Black Out
<b>SMA</b>	Seismic Margin Assessment
<b>SSC</b>	Structure System Component
<b>SSE</b>	Safe Shutdown Earthquake

## 2.5 Roles and Responsibilities

Not applicable

## 2.6 Process for Monitoring

Implementation of modifications required by this report is reported as part of the EERI committed modifications.

## 2.7 Related/Supporting Documents

Not applicable

## 3. Expedited Seismic Evaluation Process (ESEP)

The EPRI seismic process [12] was developed in the USA to provide guidance on the performance of plant seismic evaluations. The primary value was to ensure that there is a structured, justified and consistent approach that has been reviewed and accepted by the US-NRC, and can be

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applied by most commercial nuclear plants to provide a uniform and acceptable industry response. This guidance related to seismic evaluations is of value for a seismic risk assessment of nuclear power plant. In recognising that many plants would not be able to immediately apply the guidance, EPRI developed an augmented approach, referred to as the Expedited Seismic Evaluation Process (ESEP) [4]. Since the late 1970's seismic re-evaluation has been a topic of focus for the US-NRC. There have been on-going seismic developments, regulatory positions, scientific studies and site evaluations. The US NRC issued Information Notice 2010-018, "Generic Issue 199 in 2010 [16] in response to seismic studies conducted in the Central Eastern United States (CEUS) that indicated that the seismicity of the region had been previously underestimated. In response to the Fukushima Daiichi disaster, the US-NRC developed the Fukushima NTTF recommendations 2.1 & 2.3, issued in 2011. The GI-199 was subsequently subsumed into NTTF Recommendation 2.1. In order to address the NTTF recommendations, EPRI developed the EPRI Seismic Evaluation Guidelines in 2013 [4]. The objective of the Expedited Seismic Evaluation is to provide a level of confidence in the plant seismic robustness and safety, while the remaining seismic evaluation aspects are being completed. This is exactly the situation at Koeberg where the SSHAC level 2 enhanced studies continue and LTO justification is required.

The ESEP approach provides an option to scale the Safe Shutdown Earthquake (SSE) GMRS to perform the evaluation, while limiting the assessment to the equipment required for Station Black Out (SBO) events, as this covers the most credible accident sequence following a seismic event. It provides guidance to establish a review level ground motion and provides guidance on the equipment selection criteria.

The ESEP process is divided into 4 parts:

- 1) Screening
- 2) Equipment selection
- 3) Establishment of Review Level Ground Motion (RLGM)
- 4) SSC capacity verification

### 3.1 ESEP Screening

This screening step compares a new GMRS to the SSE and could exclude a plant from further evaluation, if the SSE envelopes the new GMRS. However, there is currently no accepted new GMRS. In this report Eskom made use of available insights obtained from Dames & Moore, PC Rizzo and Thyspunt SSHAC Studies. As a result, the ESEP screening for Koeberg does not allow for the exclusion from further evaluation.

### 3.2 ESEP Equipment Selection

A selection of SSCs required for safe shutdown after a seismic event, in accordance with ESEP is identified and subsequently evaluated for robustness. The selected equipment includes design basis installed equipment as well as selected beyond design basis (DEC) equipment required and used for both reactor core cooling and containment functions during an extended loss of AC power. Certain equipment that has generically been determined to be robust by EPRI is excluded. This includes building structures, piping, cabling, conduit, HVAC, manual and check valves, rupture discs, power operated valves not required to change state and NSSS components.

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The intent is to produce the minimal set of components required to be able to avert core damage in a hypothetical reference seismic event that is assumed to result in an extended station blackout (SBO). The scope of equipment identified for this interim seismic evaluation, was determined by an assessment using the Koeberg PSA model to obtain a list of components that are identified to be required for safe shutdown following a significant seismic event. This initial list was then screened using the guidance provided for by the EPRI ESEP guidance (as applicable to Koeberg Nuclear Power Station). Then following further consideration, to cater for aspects not typically modelled in the PSA, was determined by expert judgement (determining of support systems, equipment parts required to enable the main identified components, identify alternatives and options, etc.), resulted in an expanded and refined scope list. The development of the scope list is documented in [3]. The equipment scope list was transferred to an Excel spreadsheet (Appendix A) and used for the equipment seismic robustness verification (section 3.5).

### 3.3 Establishment of Review Level Ground Motion (RLGM)

The enhanced SSHAC level 2 study is currently in progress for the Koeberg site but has delivery dates such that an updated Ground Motion Response Spectrum (GMRS) is not currently available to support justification for LTO. As guided by EPRI an assumed Review Level Ground Motion (RLGM) based on the existing GMRS is used. This is achieved by linearly or scaling the SSE and then focussing on the 1 and 10 Hz range. In-structure RLGM seismic motions can be derived using existing SSE-based in-structure response spectra (ISRS) scaled with the same factor. For Eskom this means using the existing GMRS (as determined by Dames and Moore as it is expected to be sufficiently accurate for the 1 to 10 Hz range) and comparing it to the SSE. A scaling factor of 1.67 (or  $1.67 \times 0.3g = 0.5g$ ) was used. Hereby an assumed GMRS is obtained and the Review Level Earthquake (RLE) of 0.5g PGA (as used for the EE-SRA) can be utilised.

### 3.4 SSC Capacity Verification

This section represents the robustness verification of the identified equipment versus the required GMRS/RLE. The objective is to provide a documented evaluation of the ability of all the SSCs to withstand the assumed GMRS/RLE. Eskom utilised the prior work done for the EE-SRA [5] and [6] (as applied to 0.5g RLE accelerations) as input and documented the basis of capacity/robustness of many of the identified equipment. This is shown as comments in Appendix A. Where the identified equipment was not justified by the EE-SRA work, specific proof of robustness is referenced. This typically refers to vendor documentation, original type tests (assessed for high accelerations), expert opinion (i.e. SME comments based on basic Finite Element Analysis), association with related proven equipment, etc. Where equipment could not be justified as sufficiently robust, alternative approaches were considered. This is also the normal, established strategy to follow in the event of unexpected equipment failure. This includes obtaining the expected plant function in another way (local manipulation vs control room actuation or local signal initiation as per emergency operating instructions) or implementing the long-term action sooner than expected.

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A review of the ESEP guidance on SSC capacity verification indicated that the above approach followed by Eskom aligns with the deterministic method for fragility determination (for items not covered by the EERI work). Under this method, three aspects are utilised to confirm robustness. The first is material strength (linked to code allowable values), the second is static capacity equations (actual material test results) and inelastic energy absorption (to confirm non-brittle failure aspects). Together these considerations provide a method to calculate a fragility of a component that can be compared with the stresses induced by the RLG. In the Eskom approach, direct proof of capacity/robustness (non-failure) has been documented when compared with stresses caused by acceleration stemming from the RLG. No calculation is thus required to obtain confidence in the equipment robustness.

The aspect of block masonry walls is highlighted in the ESEP guidance. At Koeberg this issue has been evaluated [17] and concluded that the walls may be expected to collapse during significant seismic activity. The location of the electrical equipment selected for this evaluation has confirmed that several are located in rooms in the electrical building that contain block masonry walls. The identified solution to the block masonry walls concern is their strengthening under modification 01317HLX.

[Redacted information: Location of safety-related equipment may be used by persons with malicious intent. NNR act in addition, redaction permissible as the release of record requested would be likely to impair the security of a building or property \(Chapter 4 of PAIA-grounds for refusal of access to record\)](#)

The LDA SSCs included in the ESEL include LDA 001 BT, LDA 001 TB and LDA 003 JA. This equipment is not classified as seismic relevant, but included due to the beneficial indication and control (i.e. in control room) that may be obtained if they survive the postulated event. The 30 Vdc supply to non-safety systems and control (i.e. not protection) equipment, and valves etc. can be manually controlled if required. ASG 003 PO can be controlled locally without the LDA 30 Vdc supply, if required.

Note that three modifications that are in progress are required for success to be achieved. These modifications have been identified in response to the EE-SRA and specified to be hardened for design extension conditions including seismic events. They will therefore be seismically robust. The modifications are:

- Hardened piping and connection points Modification 12004;
- Hardened Water Storage Modification 12008;
- RCP pump shutdown seals Modification 12023.

### 3.5 Conclusion

As an interim effort to justify continued plant operation until a comprehensive seismic assessment has been completed based on a justified, modern, augmented seismic design base, this interim assessment has been performed. (The new seismic design base (GMRS) is dependent on the work being conducted as part of the SSHAC and followed by establishment of updated/confirmed FMRS and a Seismic PSA as described in [2].)

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This interim evaluation is based on the guidance of an EPRI developed process, as accepted by the US NRC in circumstances similar to those for Koeberg at this time (updated GMRS not available). The ESEP assumes the most credible scenario following a significant seismic event being the loss of all AC power. It provides guidance on the selection of equipment required to prevent radiation impact on staff and public. For the selected equipment, sufficient seismic robustness is to be verified.

For Koeberg, the equipment selection was done following the ESEP guidance and augmented with logic analysis and adaptation to the Koeberg plant design.

The robustness verification was done using the ESEP guidance by computing (or scaling) the original SSE to obtain a RLE.

All identified equipment was then reviewed, evaluated and robustness confirmed (predominantly using prior work completed as part of the EERI) against the RLE. Where SSCs could not be confirmed to be robust, alternative strategies are employed to overcome potential failure. In addition, four yet to be completed modifications have been identified and are required for success to be achieved. These modifications are identified, committed to and in progress.

The interim seismic evaluation provides reasonable assurance that the Koeberg units are sufficiently robust to safely shut down and be able to cope with a significant seismic event.

#### 4. Acceptance

This document has been seen and accepted by:

Name	Designation
N Foster	Chief Physicist Nuclear Engineering
R Maapola	System Design Engineer

#### 5. Revisions

Date	Rev.	Compiler	Remarks
May 2022	1	A Kotze	Original issue.

#### 6. Development Team

The following people were involved in the development of this document:

- N Foster
- E Lamprecht
- E Phokane
- R Maapola
- C Stolle

#### 7. Acknowledgements

Not applicable

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**Appendix A – ESEP Scope List Robustness Verification**

COMPONENT IDENTIFIER						
Unit	Sys	ID	Bigramme	Suffix	Description	Robustness Comment
1&2	APG	004	VL		VALVE PNEU CTRLLED CONTM ISOLN 1RCP001GV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	APG	005	VL		VALVE PNEU CTRLLED CONTM ISOLN 1RCP002GV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	APG	006	VL		VALVE PNEU CTRLLED CONTM ISOLN 1RCP003GV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	APG	001	KD		ORIFICE PLATE - 1RCP001GV DISCHARGE	Integral part of piping (excluded as per ESEP)
1&2	APG	002	KD		ORIFICE PLATE - 1RCP002GV DISCHARGE	Integral part of piping (excluded as per ESEP)
1&2	APG	003	KD		ORIFICE PLATE - 1RCP003GV DISCHARGE	Integral part of piping (excluded as per ESEP)
1&2	ARE	034	VL		VALVE MOTOR OPERATED OUT ISOLN TO 031VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	034	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 034VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	035	VL		VALVE MOTOR OPERATED OUT ISOLN TO 032VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	035	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 035VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	036	VL		VALVE MOTOR OPERATED OUT ISOLN TO 033VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	036	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 036VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	037	VL		2RCP001GV FW NRV(PNEU OPTD)	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	038	VL		1RCP002GV F/WTR NRV(PNEU OPTD)	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	039	VL		1RCP003GV F/WTR NRV(PNEU OPTD)	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	040	VL		VALVE - NON RETURN CONTAINMENT ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	041	VL		VALVE - NON RETURN CONTAINMENT ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	042	VL		VALVE - NON RETURN CONTAINMENT ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ARE	245	VL		V/V MTR OPTD OUT ISOLN LOW F CTRL 242VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	245	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 245VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	246	VL		V/V MTR OPTD OUT ISOLN LOW F CTRL 243VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	246	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 246VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	247	VL		V/V MTR OPTD OUT ISOLN LOW F CTRL 244VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

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1&2	ARE	247	VL	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 247VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ARE	010	MN		SENSOR LEVEL MEAS 001GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	020	MN		SENSOR LEVEL MEAS 002GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	030	MN		SENSOR LEVEL MEAS 003GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	052	MN		SENSOR LEVEL MEAS 001GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	053	MN		SENSOR LEVEL MEAS 002GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	054	MN		SENSOR LEVEL MEAS 003GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	055	MN		SENSOR LEVEL MEAS 001GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	056	MN		SENSOR LEVEL MEAS 002GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	057	MN		SENSOR LEVEL MEAS 003GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	058	MN		SENSOR LEVEL MEAS 001GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	059	MN		SENSOR LEVEL MEAS 002GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	060	MN		SENSOR LEVEL MEAS 003GV NARROW RANGE	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ARE	061	MN		SENSOR LEVEL MEAS 001GV WIDE RANGE	OBE at 9.0 G; SSE at 12.5 G BARTON® MODEL 764 DIFFERENTIAL PRESSURE TRANSMITTER User Manual Part No. 9A-C10880, Rev. 05
1&2	ARE	062	MN		SENSOR LEVEL MEASUREMENT 002GV WID RANGE	OBE at 9.0 G; SSE at 12.5 G BARTON® MODEL 764 DIFFERENTIAL PRESSURE TRANSMITTER User Manual Part No. 9A-C10880, Rev. 06
1&2	ARE	063	MN		SENSOR LEVEL MEAS 003GV WIDE RANGE	OBE at 9.0 G; SSE at 12.5 G BARTON® MODEL 764 DIFFERENTIAL PRESSURE TRANSMITTER User Manual Part No. 9A-C10880, Rev. 07
1&2	ASG	001	RG		WOODWARD TURBINE SPEED GOVERNOR	727KBY7951 ASG Turbine Pump Seismic Calculation & KBA0022E06005 Rev B BNI Summary of equipment seismic data
1&2	ASG	001	BA		TANK AUXILIARY FEEDWATER STORAGE	JN306-NSE-ESKBR-3973 App A

**CONTROLLED DISCLOSURE**

1&2	ASG	003	DI		ORIFICE TO MINI FLOW LINE FROM 003PO	Integral part of piping (excluded as per ESEP)
1&2	ASG	011	DI		ORIFICE FLOW AUX. FEED TO 001GV	JN306-NSE-ESKBR-3973 section 8.1
1&2	ASG	012	DI		ORIFICE FLOW AUX. FEED TO 002GV	JN306-NSE-ESKBR-3973 section 8.1
1&2	ASG	013	DI		ORIFICE FLOW AUX. FEED TO 003GV	JN306-NSE-ESKBR-3973 section 8.1
1&2	ASG	001	CN		COLUMN WATER LEVEL 001BA	JN306-NSE-ESKBR-3973 section 4.2.2
1&2	ASG	001	TC		TURBINE DRIVING 003PO	JN306-NSE-ESKB-R-3973 Section 8.1
1&2	ASG	003	PO		PMP EM FEED WATER TURB DRIVEN	JN306-NSE-ESKBR-3973 section 8.1
1&2	ASG	031	BA		TANK LUB OIL RESERVOIR 031PO AND 032PO	727KBY7951 ASG Turbine Pump Note de Calcul
1&2	ASG	031	FI		FILTER DISCHARGE SIDE 031RF COOLER	727KBY7951 ASG Turbine Pump Note de Calcul
1&2	ASG	031	PO		PUMP - COUPLED LUBRICATION OIL SUPPLY	727KBY7951 ASG Turbine Pump Note de Calcul
1&2	ASG	031	RF		COOLER LUB OIL FROM 031/032PO'S	727KBY7951 ASG Turbine Pump Note de Calcul
1&2	ASG	001	ZE		SEPARATOR MOISTURE STEAM SUPPLY TO 001TC	JN306-NSE-ESKB-R-3973 section 8.1
1&2	ASG	013	VD		V/V PNEU CTRLD F CTRL AUX FEED 1RCP001GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	015	VD		V/V PNEU CTRLD F CTRL AUX FEED 1RCP002GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	017	VD		V/V PNEU CTRLD F CTRL AUX FEED 1RCP003GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	112	VD		VALVE - SHUT OFF TO DRAIN 001BA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	114	VD		VALVE - FROM TANK 001BA TO GAS STRIPPER	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	013	VD	-FR	PRESSURE REGULATOR - FOR 013VD	ASG 013/015/107 VD can be manipulated manually as per LAS (ASG 015). The valve and handwheel are seismically robust. Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFSR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.

**CONTROLLED DISCLOSURE**

1&2	ASG	013	VD	-MM	POSITIONER - FOR 013VD	JN306-NSE-ESKBR-3973 section 4.2.1 section 8.1 EERI assessment for valve (and by extension for positioner)
1&2	ASG	015	VD	-FR	REGULATOR - FOR 015VD	ASG 013/015/107 VD can be manipulated manually as per LAS (ASG 015). The valve and handwheel are seismically robust. Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	ASG	015	VD	-MM	POSITIONER - FOR 015VD	JN306-NSE-ESKBR-3973 section 4.2.1 section 8.1 EERI assessment for valve (and by extension for positioner)
1&2	ASG	017	VD	-FR	REGULATOR - FOR 017VD	ASG 013/015/107 VD can be manipulated manually as per LAS (ASG 015). The valve and handwheel are seismically robust. Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	ASG	017	VD	-MM	POSITIONER - FOR 017VD	JN306-NSE-ESKBR-3973 section 4.2.1 section 8.1 EERI assessment for valve (and by extension for positioner)
1&2	ASG	114	VD	-SM	SWITCH - LIMIT FOR VALVE 114VD	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)

**CONTROLLED DISCLOSURE**

1&2	ASG	045	SM	-SM	SWITCH - LIMIT	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	046	SM	-SM	SWITCH - LIMIT	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	136	VV	-SM	SWITCH - LIMIT FOR 136VV	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	003	SM		SENSOR TURBINE SPEED MONITORING	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	135	VV		VALVE - STOP 001TC STEAM SUPPLY	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	136	VV		VALVE CTRL STEAM INL SUPL TO 001TC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	137	VV		V/V PNEU CTRLD TRN A STM ISOLN TO 001TC	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	138	VV		V/V PNEU CTRLD TRN B STM ISOLN TO 001TC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	137	VV	-AK	ACTUATOR - PNEUMATIC FOR 137VV	JN306-NSE-ESKBR-3973 section 4.2.1 section 8.1 EERI assessment for valve (and by extension for actuator)
1&2	ASG	137	VV	-SM3	SWITCH - LIMIT FOR 137VV	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)

**CONTROLLED DISCLOSURE**



1&2	ASG	137	VV	-SM5	SWITCH - LIMIT FOR 137VV	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	138	VV	-AK	ACTUATOR - PNEUMATIC FOR 138VV	JN306-NSE-ESKBR-3973 section 4.2.1 section 8.1 EERI assessment for valve (and by extension for actuator)
1&2	ASG	138	VV	-SM3	SWITCH - LIMIT FOR 138VV	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	138	VV	-SM5	SWITCH - LIMIT FOR 138VV	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	ASG	333	VH		VALVE - PRESSURE SAFETY RELIEF 031PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	334	VH		VALVE - PRESSURE SAFETY RELIEF 032PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	337	VH		VALVE-PRESSURE CONTROL LUBE OIL ASG003PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ASG	053	TL		SWITCH - TURN PUSH LIGHT - ASG137VV	Part of Main control room panel and Seismic robustness as per SOPEMEA LV13544 (testing in KBA1216A02001)
1&2	ASG	153	TL		SWITCH - TURN PUSH LIGHT ASG137VV	Part of Emergency shutdown panel and Seismic robustness as per SOPEMEA LV14606 (testing in KBA1216A04005)
1&2	ASG	501	RC		CONTROL MODULE 003PO SPEED CONTROL	Part of Main control room panel and Seismic robustness as per SOPEMEA LV13544 (testing in KBA1216A02001)
1&2	ASG	502	RC		CONTROL MODULE FOR ASG136VV	Part of Emergency shutdown panel and Seismic robustness as per SOPEMEA LV14606 (testing in KBA1216A04005)

**CONTROLLED DISCLOSURE**

1&2	EAS	007	VB	-03	LIMIT SWITCH VALVE STEM 007VB 03	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	007	VB	-04	FULLY OPEN VALVE STEM LIMIT SWITCH 04	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	007	VB	-SM1	LIMIT SWITCH VALVE 007VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	007	VB	-SM2	LIMIT SWITCH VALVE 007VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	008	VB	-03	LIMIT SWITCH VALVE STEM 008VB 03	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	008	VB	-04	FULLY OPEN VALVE STEM LIMIT SWITCH 04	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	008	VB	-SM1	LIMIT SWITCH VALVE 008VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	008	VB	-SM2	LIMIT SWITCH VALVE 008VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	009	VB	-03	LIMIT SWITCH VALVE STEM 009VB 03	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)

**CONTROLLED DISCLOSURE**

1&2	EAS	009	VB	-04	FULLY OPEN VALVE STEM LIMIT SWITCH 04	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	009	VB	-SM1	LIMIT SWITCH VALVE 009VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	009	VB	-SM2	LIMIT SWITCH VALVE 009VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	010	VB	-03	LIMIT SWITCH VALVE STEM 010VB 03	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	010	VB	-04	FULLY OPEN VALVE STEM LIMIT SWITCH 04	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	010	VB	-SM1	LIMIT SWITCH VALVE 010VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	010	VB	-SM2	LIMIT SWITCH VALVE 010VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	013	VB	-05	LIMIT SWITCH VALVE STEM 013VB 05	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	013	VB	-SM1	LIMIT SWITCH VALVE 013VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)

**CONTROLLED DISCLOSURE**

1&2	EAS	013	VB	-SM2	LIMIT SWITCH VALVE 013VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	014	VB	-05	LIMIT SWITCH VALVE STEM 014VB 05	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	014	VB	-SM1	LIMIT SWITCH VALVE 014VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	014	VB	-SM2	LIMIT SWITCH VALVE 014VB - Drive	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	131	VB	-05	INTERNAL CLOSING POSITION LIMIT SWITCH	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	132	VB	-05	INTERNAL CLOSING POSITION LIMIT SWITCH	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	133	VB	-05	INTERNAL CLOSING POSITION LIMIT SWITCH	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	EAS	134	VB	-05	INTERNAL CLOSING POSITION LIMIT SWITCH	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1 (and by extension for Limit Switches)
1&2	DEG	045	VD	VD	VALVE TO ASSY DEG045VD-SA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	DEG	045	VD	-DD	MOTOR TO ASSY DEG045VD-SA	JN306-NSE-ESKBR-3973 section 4.2.2
1&2	ETY	042	VA	-AK	ACTUATOR 042VA	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

**CONTROLLED DISCLOSURE**

1&2	ETY	045	VA	-AK	ACTUATOR 045VA	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ETY	045	VA		VALVE CONTAINMENT ISOLN AIR RTN TO KRT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	042	VA	VA	VALVE CONTAINMENT ISOLATION AIR FROM KRT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	003	VA	VA	VALVE CONTAINMENT AIR SUPPLY	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	003	VA	-AK	VALVE ACTUATOR - PNEUMATIC 003VA (Includes Release Clutch)	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ETY	004	VA	VA	VALVE CONTAINMENT AIR SUPPLY	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	004	VA	-AK	ACTUATOR 004VA (Includes Release Clutch)	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ETY	009	VA	VA	VALVE CONTAINMENT AIR EXHAUST	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	009	VA	-AK	ACTUATOR 009VA (Includes Release Clutch)	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ETY	010	VA	VA	VALVE CONTAINMENT ISOLATION AIR EXHAUST	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	010	VA	-AK	ACTUATOR 010VA (Includes Clutch & Over-Torque Switch)	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	EBA	004	VA	VA	VALVE CONTAINMENT ISOLATING	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EBA	004	VA	-AK	VALVE ACTUATOR - PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	EBA	002	VA	VA	VALVE CONTAINMENT ISOLATING	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EBA	002	VA	-AK	VALVE ACTUATOR - PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	EBA	014	VA	VA	VALVE CONTAINMENT ISOLATING	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EBA	014	VA	-AK	VALVE ACTUATOR - PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	EBA	016	VA	VA	VALVE CONTAINMENT ISOLATING	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EBA	016	VA	-AK	VALVE ACTUATOR - PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	ETY	201	MP		SENSOR PRESSURE CONTAINMENT TRAIN A	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG

**CONTROLLED DISCLOSURE**

1&2	ETY	202	MP		SENSOR PRESSURE CONTAINMENT TRAIN B	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	GCT	128	VV		VALVE MTR OPTD EXCH TO ATM RCP001GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	GCT	129	VV		VALVE MTR OPTD EXCH TO ATM RCP002GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	GCT	130	VV		VALVE MTR OPTD EXCH TO ATM RCP003GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	GCT	131	VV		VALVE PNEU CTRLD DSCH TO ATM RCP001GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	GCT	132	VV		VALVE PNEU CTRLD DSCH TO ATM RCP002GV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)
1&2	GCT	133	VV		VALVE PNEU CTRLD DSCH TO ATM RCP003GV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	GCT	128	VV	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 128VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	GCT	129	VV	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 129VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	GCT	130	VV	-DD	ACTUATOR - ELECTRO MECHANICAL FOR 130VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	GCT	131	VV	-AK	ACTUATOR - PNEUMATIC FOR 131VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	GCT	131	VV	-BP	BOOSTER - PNEUMATIC FOR 131VV	The pneumatic booster is integrated in the valve (or considered part of the valve- as per Maintenance procedures KWM-MM-GCT-001, KBA 1220 B04 059 as well as KBA1217Air2000 - Maintenance basis evaluation for pneumatic valves) and therefore considered seismically robust as per EERI seismic consideration

**CONTROLLED DISCLOSURE**

1&2	GCT	131	VV	-FR	REGULATOR - FOR 131VV	Seismic Certificate of Conformance Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	GCT	131	VV	-MM	POSITIONER - FOR 131VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)
1&2	GCT	132	VV	-AK	ACTUATOR - PNEUMATIC FOR 131VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)
1&2	GCT	132	VV	-BP	BOOSTER - PNEUMATIC FOR 132VV	The pneumatic booster is integrated in the valve (or considered part of the valve- as per Maintenance procedures KWM-MM-GCT-001, KBA 1220 B04 059 as well as KBA1217Air2000 - Maintenance basis evaluation for pneumatic valves) and therefore considered seismically robust as per EERI seismic consideration
1&2	GCT	132	VV	-FR	REGULATOR - FOR 132VV	Seismic Certificate of Conformance Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	GCT	132	VV	-MM	POSITIONER - FOR VALVE 132VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)
1&2	GCT	133	VV	-AK	ACTUATOR - PNEUMATIC FOR 131VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)

**CONTROLLED DISCLOSURE**

1&2	GCT	133	VV	-BP	BOOSTER - PNEUMATIC FOR 133VV	The pneumatic booster is integrated in the valve (or considered part of the valve- as per Maintenance procedures KWM-MM-GCT-001, KBA 1220 B04 059 as well as KBA1217Air2000 - Maintenance basis evaluation for pneumatic valves) and therefore considered seismically robust as per EERI seismic consideration
1&2	GCT	133	VV	-FR	REGULATOR - FOR 133VV	Seismic Certificate of Conformance Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	GCT	133	VV	-MM	POSITIONER - FOR 133VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for positioner)
1&2	GCT	401	EP		CONVERTER ELECTRO PNEUMATIC 131VV	The electro-pneumatic converter (Fisher digital valve controller model DVC6010) as per equivalency I015/19E and qualification FQSR-CER-DVC6010
1&2	GCT	402	EP		CONVERTER ELECTRO PNEUMATIC 132VV	The electro-pneumatic converter (Fisher digital valve controller model DVC6010) as per equivalency I015/19E and qualification FQSR-CER-DVC6011
1&2	GCT	403	EP		CONVERTER ELECTRO PNEUMATIC 133VV	The electro-pneumatic converter (Fisher digital valve controller model DVC6010) as per equivalency I015/19E and qualification FQSR-CER-DVC6012
1&2	PTR	001	BA		TANK REFUELING WATER STORAGE TANK	Tank installed under modification 09032, 0.5g specification

**CONTROLLED DISCLOSURE**



1&2	PTR	018	MN		SENSOR - LEVEL 001BA	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	PTR	018	MN		SENSOR - LEVEL 001BA	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	PTR	019	MN		SENSOR - LEVEL 001BA	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	PTR	020	MN		SENSOR - LEVEL 001BA	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	RCP	005	VP		VALVE - MOTOR OPERATED BLOCK	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	006	VP		VALVE - MOTOR OPERATED BLOCK	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	007	VP		VALVE - MOTOR OPERATED BLOCK	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	008	VP		VALVE PNEUMATIC CTRLD POWER OPERATED RLF	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	009	VP		VALVE PNEUMATIC CTRLD POWER OPERATED RLF	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	010	VP		VALVE PNEUMATIC CTRLD POWER OPERATED RLF	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCP	011	VP		VALVE SAFETY RELIEF PRESSURISER VESSEL	JN306-NSE-ESKBR-3973 section 4.2.1

**CONTROLLED DISCLOSURE**

1&2	RCP	012	VP		VALVE - SAFETY RELIEF PRESSURISER VESSEL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCP	013	VP		VALVE - SAFETY RELIEF PRESSURISER VESSEL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCP	005	VP	-DD	ACTUATOR - ELECRO-MECHANICAL FOR 005VP	JN346-NSE-ESKB-R-4604_section 3.4
1&2	RCP	006	VP	-DD	ACTUATOR - ELECTRO-MECHANICAL FOR 006VP	JN346-NSE-ESKB-R-4604_section 3.4
1&2	RCP	007	VP	-DD	ACTUATOR - ELECTRO-MECHANICAL FOR 007VP	JN346-NSE-ESKB-R-4604_section 3.4
1&2	RCP	001	BA		PRESSURISER	RCP 001 BA as per JN-346-NSE-ESKB-R-4604 section 6.1 Table 3 (items 21 – 29)
1&2	RCP	007	MN		SENSOR LEVEL PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.10 & 17.11
1&2	RCP	008	MN		SENSOR LEVEL PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.10 & 17.11
1&2	RCP	008	MN		SENSOR LEVEL PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.10 & 17.11
1&2	RCP	011	MN		SENSOR LEVEL PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.10 & 17.11
1&2	RCP	012	MN		SENSOR LEVEL PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604 (17.6.1.2)
1&2	RCP	005	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	RCP	006	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	RCP	013	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	RCP	014	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	Functionality is retained after 0.5 g seismic event (Seismic Hazard Report EERT-11-015 Rev 3)
1&2	RCP	015	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	Functionality is retained after 0.5 g seismic event (Seismic Hazard Report EERT-11-015 Rev 3)
1&2	RCP	016	MP		SENSOR PRESSURE PRESSURISER VESSEL 001BA	Functionality is retained after 0.5 g seismic event (Seismic Hazard Report EERT-11-015 Rev 3)
1&2	RCP	009	MT		SENSOR TEMPERATURE PRESSURISER VES 001BA	JN346-NSE-ESKB-R-4604_Table 49
1&2	RCP	010	MT		SENSOR TEMPERATURE PRESSURISER VES 001BA	JN346-NSE-ESKB-R-4604_Table 49

**CONTROLLED DISCLOSURE**

1&2	RCP	037	MP		SENSOR PRESSURE REACTOR OUTLET	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	RCP	039	MP		SENSOR PRESSURE REACTOR OUTLET	Seismic qualification of 8.5g ZPA (essentially = 8.5 PGA). Rosemount 3154N Nuclear Qualified Pressure Transmitter Product Data Sheet June 2020 00813-0100-4854 Rev AG
1&2	RCV	002	VP		VALVE OPEN/CLOSED LETDOWN 1ST ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	003	VP		VALVE OPEN/CLOSED LETDOWN 2ND ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	007	VP		VALVE PNEUMATIC - AFTER 01DI	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	008	VP		VALVE PNEUMATIC - AFTER 02DI	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	009	VP		VALVE PNEUMATIC - AFTER 03DI	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	010	VP		VALVE PNEUMATIC ISOLATION LETDOWN	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	013	VP		VALVE CONTROL PNEU LETDOWN PRESS CTRL	JN346-NSE-ESKB-4604 sections 3.7 and 7.7 Regulator seismic qualified to 5.77g triaxial
1&2	RCV	017	VP		VALVE 3-WAY - PURIFICATION BYPASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	030	VP		VALVE 3 WAY - FLOW 02BA /TEP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	046	VP		VALVE CONTROL - CHARGING FLOW CONTROL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	048	VP		VALVE MOTORISED CHARGE LINE OUTSIDE CONT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	060	VP		VALVE MOTORISED - ISOL PRIM PMP SEAL INJ	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	061	VP		VALVE REGULATING FLOW PRIM PMP SEAL INJ	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	077	VP		VALVE MOT OUTSIDE CONTAINMENT RCP 02PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	078	VP		VALVE MOT OUTSIDE CONTAINMENT RCP03PO	JN306-NSE-ESKBR-3973 section 4.2.1

**CONTROLLED DISCLOSURE**

1&2	RCV	082	VP		VALVE PNEUMATIC - ISOLATION RRA - RCV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	083	VP		VALVE MOT ISOL DISCHARGE CHARGE PUMPS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	084	VP		VALVE MOT ISOL DISCHARGE CHARGE PUMPS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	085	VP		VALVE MOT ISOL DISCHARGE CHARGE PUMPS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	086	VP		VALVE ISOLATION DISCHARGE CHARG PUMPS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	310	VP		VALVE PNEUMATIC - FLOW ADJUST RRA BY RCV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	002	VP	-AK	ACTUATOR ELECTRO/PNEUMATIC 002VP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	002	VP	-FR	REGULATOR - FOR 002VP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	003	VP	-FR	REGULATOR - FOR 003VP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	003	VP	-AK	ACTUATOR ELECTRO-PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	007	VP	-AK	ACTUATOR ELECTRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCV	007	VP	-FR	REGULATOR - FOR 007VP	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 section 4.2.1 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	RCV	008	VP	-AK	ACTUATOR ELECTRO / MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCV	008	VP	-FR	REGULATOR - FOR 008VP	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 section 4.2.1 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	RCV	001	EX		HEAT EXCHANGER REGENERATIVE	JN346-NSE-ESKB-R-4604 section 7.5
1&2	RCV	001	DI		ORIFICE LETDOWN LINE	Letdown piping found to be robust (and by association) the orifice are considered robust (JN346-NSE-ESKB-R-4604, section 21.7 AND JN306-NSE-ESKB-R-3973, section 8.3)

**CONTROLLED DISCLOSURE**

1&2	RCV	002	DI		ORIFICE LETDOWN LINE	Letdown piping found to be robust (and by association) the orifice are considered robust (JN346-NSE-ESKB-R-4604, section 21.7 AND JN306-NSE-ESKB-R-3973, section 8.3)
1&2	RCV	003	DI		ORIFICE LETDOWN LINE	Letdown piping found to be robust (and by association) the orifice are considered robust (JN346-NSE-ESKB-R-4604, section 21.7 AND JN306-NSE-ESKB-R-3973, section 8.3)
1&2	RCV	001	FI		FILTER LETDOWN FLOW	JN306-NSE-ESKBR-3973 section 9.10
1&2	RCV	003	FI		FILTER - RCP PUMP SEAL INJECTION	JN306-NSE-ESKBR-3973 section 9.10
1&2	RCV	004	FI		FILTER - RCP PUMP SEAL INJECTION	JN306-NSE-ESKBR-3973 section 9.10
1&2	RCV	006	FI		FILTER LETDOWN FLOW	JN306-NSE-ESKBR-3973 section 9.10
1&2	RCV	002	RF		EXCHANGER HEAT - LETDOWN FROM RCP	Letdown piping found to be robust (and by association) the orifice are considered robust (JN346-NSE-ESKB-R-4604, section 21.7 AND JN306-NSE-ESKB-R-3973, section 8.3)
1&2	RCV	002	BA		TANK - VOLUME CONTROL	JN346-NSE-ESKB-4604 sections 3.7 and 7.7
1&2	RCV	009	VP	-FR	REGULATOR - FOR 009VP	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 section 4.2.1 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	RCV	009	VP	-AK	ACTUATOR ELECTRO / MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCV	010	VP	-AK	ACTUATOR ELECTRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCV	010	VP	-FR	REGULATOR - FOR 010VP	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 section 4.2.1 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	RCV	046	VP	-AK	ACTUATOR ELECTRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

**CONTROLLED DISCLOSURE**

1&2	RCV	046	VP	-FR	REGULATOR - FOR 046VP	Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively.
1&2	RCV	046	VP	-FR1	AIR REGULATOR -FLOW CONTROL VALVE	Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively.
1&2	RCV	046	VP	-FR2	AIR REGULATOR FOR AIR OPERATED FLOW CONTROL VALVE - PRZR LEVEL CONTROL - CHARGING FLOW CONTROL VALVE	Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively.
1&2	RCV	046	VP	-MM	POSITIONER FOR VALVE ASSEMBLY 046VP-SA	JN306-NSE-ESKBR-3973 section 4.2.1 (by association) assessment for valve includes positioner
1&2	REN	123	VP	-EL	SOLENOID PILOT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association) assessment for valve includes positioner
1&2	RCV	048	VP	-DD	ACTUATOR ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RCV	013	VP		VALVE CONTROL PNEU LETDOWN PRESS CTRL	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 section 4.2.1 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	RIS	012	VP		VALVE SUCTION RCV001, 002 AND 003PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	013	VP		VALVE SUCTION RCV001, 002 AND 003PO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	017	VB		VALVE NON RTN 001PO PMP SUC 002PS SUMP	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1
1&2	EAS	018	VB		VALVE NON RTN 002PO PMP SUC 001PS SUMP	EERI assessment for valve-JN306-NSE-ESKB-R-3973, 4.2.1
1&2	REN	123	VP	-FR	REGULATOR - FOR 123VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association) assessment for valve includes positioner

**CONTROLLED DISCLOSURE**

1&2	RIS	012	VP	-DD	ACTUATOR SUCTION RCV001, 002 & 003 PO V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	013	VP	-DD	ACTUATOR SUCTION RCV001, 002 & 003 PO V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	001	DI		SENSOR - ORIFICE FOR 009LD.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	002	DI		SENSOR - ORIFICE FOR 010LD.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	003	DI		SENSOR - ORIFICE FOR 011LD.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	008	DI		SENSOR LOOP3 COLD LEG.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	009	DI		SENSOR ORIFICE LOOP 2 COLD LEG.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	010	DI		SENSOR LOOP3 COLD LEG.	JN346-NSE-ESKB-R-4604 section 9 for RIS piping and by extension orifice.
1&2	RIS	001	BA		ACCUMULATOR LOOP 1	JN346-NSE-ESKB-R-4604 section 9.4
1&2	RIS	002	BA		ACCUMULATOR LOOP 2	JN346-NSE-ESKB-R-4604 section 9.4
1&2	RIS	003	BA		ACCUMULATOR - LOOP 3	JN346-NSE-ESKB-R-4604 section 9.4
1&2	VVP	007	MP		GAUGE PRESSURE STEAM RCP001GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	008	MP		GAUGE PRESSURE INDICATOR RCP002GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	009	MP		GAUGE PRESSURE INDICATOR RCP003GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	010	MP		GAUGE PRESSURE STEAM RCP001GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	011	MP		SENSOR STEAM PRESSURE	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	012	MP		GAUGE PRESSURE INDICATOR RCP003GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	013	MP		GAUGE PRESSURE INDICATOR RCP001GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	014	MP		GAUGE PRESSURE INDICATOR RCP002GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48
1&2	VVP	015	MP		GAUGE PRESSURE INDICATOR RCP003GV OUTLET	JN346-NSE-ESKB-R-4604_section 17.6 and Table 48

**CONTROLLED DISCLOSURE**

1&2	VVP	001	VV		VALVE PNEU SFTY ISOLN CTRL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	001	VV	-AK	ACTUATOR PNEUMATIC VALVE 001VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	VVP	002	VV		VALVE PNEUMATIC SAFETY ISOLATION CONTROL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	002	VV	-AK	ACTUATOR PNEUMATIC VALVE 002VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	VVP	003	VV		VALVE PNEUMATIC SAFETY ISOLATION CONTROL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	003	VV	-AK	ACTUATOR PNEUMATIC VALVE 003VV	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	VVP	100	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	101	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	102	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	103	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	104	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	105	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	106	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	107	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	108	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	109	VV		VAVLE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	110	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	111	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	112	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	113	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	114	VV		VALVE SAFETY RELEIF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	115	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	116	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	117	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	118	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	119	VV		VALVE SAFETY RELIEF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	120	VV		VALVE SAFETY RELEIF TO ATMOSPHERE	JN306-NSE-ESKBR-3973 section 4.2.1

**CONTROLLED DISCLOSURE**



1&2	VVP	127	VV		VALVE PNEU FLOW CTRL TO AUX STM ASG	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	128	VV		VALVE ISOLN SG 2 STM SUPL TO ASG001TC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	129	VV		VALVE ISOLN SG 3 STM SUPL TO ASG001TC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	140	VV		VALVE ISOLATING VVP001VV BY-PASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	141	VV		VALVE ISOLATING VVP002VV BY-PASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	142	VV		VALVE ISOLATING VVP003VV BY-PASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	VVP	100	VV	-FR	REGULATOR - FOR 100VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	101	VV	-FR	REGULATOR - FOR 101VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	102	VV	-FR	REGULATOR - FOR 102VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	103	VV	-FR	REGULATOR - FOR 103VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	104	VV	-FR	REGULATOR - FOR 104VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	105	VV	-FR	REGULATOR - FOR 105VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	112	VV	-FR	REGULATOR - FOR 112VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).

**CONTROLLED DISCLOSURE**

1&2	VVP	113	VV	-FR	REGULATOR - FOR 113VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	114	VV	-FR	REGULATOR - FOR 114VV	None of the pneumatic control items will render the VVP safety valves inoperable upon their failure (as per classification 0049/89Q REV 4).
1&2	VVP	127	VV	-AK	ACTUATOR PNEUMATIC VALVE 127VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	VVP	127	VV	-FR	REGULATOR - FOR 127VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	VVP	128	VV	-AK	ACTUATOR PNEUMATIC VALVE 128VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	VVP	128	VV	-FR	REGULATOR - FOR 128VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	VVP	129	VV	-AK	ACTUATOR PNEUMATIC VALVE 129VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	VVP	129	VV	-FR	REGULATOR - FOR 129VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	VVP	140	VV	-AK	ACTUATOR PNEUMATIC VALVE 140VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)

**CONTROLLED DISCLOSURE**

1&2	VVP	140	VV	-FR	REGULATOR - FOR 140VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	VVP	141	VV	-AK	ACTUATOR PNEUMATIC VALVE 141VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	VVP	141	VV	-FR	REGULATOR - FOR 141VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	VVP	142	VV	-AK	ACTUATOR PNEUMATIC VALVE 142VV	JN306-NSE-ESKBR-3973 section 4.2.1 EERI assessment for valve (and by extension for actuator)
1&2	VVP	142	VV	-FR	REGULATOR - FOR 142VV	The regulator is integrated in the valve actuator and therefore part of JN306-NSE-ESKBR-3973 (KBA1217Air2000-Maintenance basis evaluation for pneumatic valves)
1&2	LNA	001	DL		INVERTER - 5KVA	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LNA	001	TB		SWITCHBOARD 220V AC CONTINUOUS GRP 1PROT	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LBC	001	TB		SWITCHBOARD - 125V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)

**CONTROLLED DISCLOSURE**

1&2	LNB	001	TB		SWITCHBOARD 220V AC CONTINUOUS GRP 2PROT	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LNB	001	DL		INVERTER - 5KVA	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LBD	001	TB		SWITCHBOARD - 125V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)
1&2	LNC	001	TB		SWITCHBOARD 220V AC CONTINUOUS GRP 3PROT	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LNC	001	DL		INVERTER - 5KVA	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LBE	001	TB		SWITCHBOARD - 125V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)

**CONTROLLED DISCLOSURE**

1&2	LND	001	TB		SWITCHBOARD 220V AC CONTINUOUS GRP 4PROT	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LND	001	DL		INVERTER - 5KVA	SOPEMEA LV14535 report (at the resonance frequencies of the LNi switchboards the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components)
1&2	LBF	001	TB		SWITCHBOARD - 125V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)
1&2	LCA	001	TB		SWITCHBOARD - 48V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)
1&2	LCC	001	TB		SWITCHBOARD - 48V DC	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)
1&2	LCB	001	TB		SWITCHBOARD - 48 V DC (TRAIN B)	Document Number 1108667 :Seismic Qualification of Electrical Equipment; SOPEMEA report LV13514 (125V and 48V DC switchboards ) and LV14234/2 (for the diesel building off the aseismic raft)
1&2	LDA	001	BT		BATTERY BANK - 30V DC	Not seismically qualified, included due to benefit if do not fail. Manual operation possible upon failure
1&2	LDA	001	TB		SWITCHBOARD - 30V DC	Not seismically qualified, included due to benefit if do not fail. Manual operation possible upon failure
1&2	LNA	002	JA		POWER BREAKER	JN306-NSE-ESKBR-3973 section 9.8.1

**CONTROLLED DISCLOSURE**

1&2	LNB	002	JA		POWER BREAKER	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LNC	002	JA		POWER BREAKER	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LND	002	JA		POWER BREAKER	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBC	003	JA		CIRCUIT BREAKER T3 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBD	003	JA		CIRCUIT BREAKER T3 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBE	003	JA		CIRCUIT BREAKER T3 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBF	003	JA		CIRCUIT BREAKER T3 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBC	006	JA		CIRCUIT BREAKER - (TYPE J4) 2LNA001DL	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBD	006	JA		CIRCUIT BRK J4 INVERTER SUPPLY 1LNB001DL	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBE	006	JA		CIRCUIT BRK J4 INVERTER SUPPLY 2LNC001DL	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBF	006	JA		CIRCUIT BRK J4 INVERTER SUPPLY 1LND001DL	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LCA	005	JA		CIRCUIT BREAKER T2 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LCB	005	JA		CIRCUIT BREAKER T1 BATTERY INCOMER 001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LBC	001	BT		BATTERY BANK - 125V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LBD	001	BT		BATTERY BANK - 125V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LBE	001	BT		BATTERY BANK - 125V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LBF	001	BT		BATTERY BANK - 125V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LCA	001	BT		BATTERY BANK - 48V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LCB	001	BT		BATTERY BANK - 48V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LCC	001	BT		BATTERY BANK - 48V DC	JN306-NSE-ESKBR-3973 section 8.8.1
1&2	LCC	005	JA		CIRCUIT BRK T4 BATTERY INCOMER LCC001BT	JN306-NSE-ESKBR-3973 section 9.8.1
1&2	LDA	005	JA		CIRCUIT BREAKER T4 BATTERY INCOMER 001BT	Not seismically qualified, included due to benefit if do not fail. Manual operation possible upon failure

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1&2	SAR	002	BA		TANK RECEIVER	(KBA0022E06005 BNI Summary of equipment seismic data) <b>HORIZONTAL DIRECTION:</b> The 0.3PGA spectrum at 8.6 Hz is 0.64G for the NAB at 14m and 0.41G at 0m. The 004 BA tank is on the 5m level. Conservatively interpolating the spectra would give an acceleration of 0.53G (linear interpolation – the actual logarithmic would give a lower value). Ramping it up by 1.67 would give 0.89G. The 0.96G used covers the 0.5PGA. The 002 BA tank is on the 0m level and is enveloped by the 004 BA tank assessment. <b>VERTICAL DIRECTION:</b> The 0.3PGA spectrum above 33 Hz is 0.41G for the NAB at 14m. Ramping it up by 1.67 would give 0.68G. The 1.05G used gives more than enough margin to cover the 0.5PGA.
1&2	SAR	003	BA		TANK AIR REACTOR BUILDING STORAGE VESSEL	(KBA0022E06005 BNI Summary of equipment seismic data) <b>VERTICAL DIRECTION:</b> The 0.3PGA spectrum above 33 Hz is 0.27G for the SSE reactor building internal floor at 4.65m. Ramping it up by 1.67 would give 0.45G. The 0.75G used gives more than enough margin to cover the 0.5PGA. <b>HORIZONTAL DIRECTION:</b> The 0.3PGA spectrum above 33 Hz is 0.34G for SSE reactor building internal floor at 4.65m. Ramping it up by 1.67 would give 0.57G. The 1.05G used gives more than enough margin to cover the 0.5PGA.
						using the CAESAR II software package (the vessel is essentially a 1050 mm OD x 12 mm thick, 3410 mm high, vertical round pipe anchored at its base with a branch connection for the manhole). The first natural frequency was calculated to be 72.5 Hz meaning that the vessel acts as a rigid body under seismic acceleration. The maximum stress in the vessel under 0.5 PGA ramped up to the floor response spectra was

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						found to 17.5% of the ASME Section III ND Code allowable. The vessel has sufficient design margin to accommodate the 0.5PGA ground acceleration.
1&2	SAR	011	BA		ACCUMULATOR FOR GCT131VV	A seismic analysis was undertaken of SAR 011, 012 and 013 BA supplying the GCT valves. From the original design it was found that the seismic envelope floor response spectra for the aseismic island were used to analyse the vessel. Using the vessel drawing (KBA0214B031013), the component was re-analysed
1&2	SAR	012	BA		ACCUMULATOR FOR GCT132VV	A seismic analysis was undertaken of SAR 011, 012 and 013 BA supplying the GCT valves. From the original design it was found that the seismic envelope floor response spectra for the aseismic island were used to analyse the vessel. Using the vessel drawing (KBA0214B031013), the component was re-analysed using the CAESAR II software package (the vessel is essentially a 1050 mm OD x 12 mm thick, 3410 mm high, vertical round pipe anchored at its base with a branch connection for the manhole). The first natural frequency was calculated to be 72.5 Hz meaning that the vessel acts as a rigid body under seismic acceleration. The maximum stress in the vessel under 0.5 PGA ramped up to the floor response spectra was found to 17.5% of the ASME Section III ND Code allowable. The vessel has sufficient design margin to accommodate the 0.5PGA ground acceleration.

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1&2	SAR	013	BA		ACCUMULATOR FOR GCT133VV	A seismic analysis was undertaken of SAR 011, 012 and 013 BA supplying the GCT valves. From the original design it was found that the seismic envelope floor response spectra for the aseismic island were used to analyse the vessel. Using the vessel drawing (KBA0214B031013), the component was re-analysed using the CAESAR II software package (the vessel is essentially a 1050 mm OD x 12 mm thick, 3410 mm high, vertical round pipe anchored at its base with a branch connection for the manhole). The first natural frequency was calculated to be 72.5 Hz meaning that the vessel acts as a rigid body under seismic acceleration. The maximum stress in the vessel under 0.5 PGA ramped up to the floor response spectra was found to 17.5% of the ASME Section III ND Code allowable. The vessel has sufficient design margin to accommodate the 0.5PGA ground acceleration.
1&2	SAR	016	BA		TANK FOR ASG BACK UP AIR SUPPLY	CAESAR finite element analysis of SAR016BA completed. The first frequency is far above 33Hz so there is a zero period response from envelope floor response spectra ramped up by 1.67 for 0.5gPGA. The Max stresses exerted on the tank are low – just below 30 MPa (21.7% of allowable), therefore concluded to be verified as robust.
1&2	KRG	124	AR		CONTROL-GROUP V (BAILEY/2C) (CONVERSION)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components

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1&2	KRG	133	AR		CONTROL-GROUP V (BAILEY/3C) (CONVERSION)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	113	AR		CONTROL-GROUP V(BAILEY/1C) (CONVERSION)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	041	AR		SIP-PROTECTION(NSSS)GROUPIV(BAILEY/4P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	023	AR		SIP-PROTECTION(NSSS)GROUP11(BAILEY/2P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	034	AR		SIP-PROTECTION(NSSS)GROUPIII(BAILEY/3P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components

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1&2	KRG	011	AR		SIP-PROTECTION (NSSS)GROUP1 (BAILEY/1P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	012	AR		SIP-PROTECTION (NSSS)GROUP1(BAILEY/1P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	022	AR		SIP-PROTECTION(NSSS)GROUP11(BAILEY/2P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	141	AR		CONTROL-GROUP V (BAILEY/4C)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	143	AR		CONTROL GROUP V (BAILEY/4C)(CONVERSION)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components

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1&2	KRG	151	AR		PROCESS CONTROL-BN1	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	152	AR		PROCESS CONTROL-BN1	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	KRG	042	AR		SIP-PROTECTION(NSSS)GROUPIV (BAILEY/4P)	SOPEMEA shake table test report LV14022 include resonance frequencies of the KRG (SIP) cabinets, the spectra recorded during shake table testing envelope the 0.5g PGA ramped up floor response spectra for the components
1&2	RIC	011	AR		CABINET POWER SUPPLY AND ANALOG CARDS	JN346-NSE-ESKB-R-4604_section 17.10.4
1&2	RIC	012	AR		CABINET POWER SUPPLY AND ANALOG CARDS	JN346-NSE-ESKB-R-4604_section 17.10.4
9	JPD	619	VE		VALVE - SUPPLY ISOLATION TO JPC NAB (NX)	JN306-NSE-ESKBR-3973 section 4.2.1
9	JPD	614	VE		VALVE - SUPPLY ISOLATION TO JPC NAB (NX)	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	082	VP	-AK	ACTUATOR PNEUMATIC - ISOLATION RRA - RCV	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	082	VP	-FR	REGULATOR - FOR 082VP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	083	VP	-DD	ACTUATOR ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	084	VP	-DD	ACTUATOR ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	085	VP	-DD	ACTUATOR ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	086	VP	-DD	ACTUATOR ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	060	VP	-DD	ACTUATOR VALVE ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	061	VP	-AK	ACTUATOR VALVE ELECTRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1

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1&2	RCV	061	VP	-EP	ELECTRO / PNEUMATIC CONVERTER FOR AIR OPERATED FLOW CONTROL VALVE 061VP - RCP PUMPS SEAL SUPPLY	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	061	VP	-FR	REGULATOR - FOR 061VP	Regulator Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. For Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	RCV	061	VP	-MM	POSITIONER FOR VALVE ASSEMBLY 061VP-SA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	076	VP	-DD	ACTUATOR ELECTRO MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	077	VP	-DD	ACTUATOR VALVE ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	078	VP	-DD	ACTUATOR VALVE ELECTRO-MECHANICAL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	017	VP	-AK	ACTUATOR ELECTRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	017	VP	-FR	REGULATOR - FOR 017VP	Regulator Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. For Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	RCV	310	VP	-AK	ACTUATOR FOR AIR OPERATED CONTROL VALVE 310VP - LINE FROM RRA UPSTREAM 082VP - INSIDE CONTAINMENT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	310	VP	-EP	CONVERTER FOR ASSEMBLY 310VP-SA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RCV	310	VP	-FR	REGULATOR - FOR 310VP	Regulator Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. For Type 67CFR-224, 67CFR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.

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1&2	RCV	310	VP	-MM	POSITIONER FOR VALVE ASSEMBLY 310VP-SA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	102	VZ		RELIEF VALVE ACCUMULATOR 001BA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	104	VZ		RELIEF VALVE ACCUMULATOR 02BA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	106	VZ		RELIEF VALVE ACCUMULATOR 03BA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	009	VZ		VALVE - NITROGEN LINE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	009	VZ	-AK	ACTUATOR NITROGEN LINE VENT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	009	VZ	-EP	CONVERTER ELETRO PNEU FOR ASY 009VZ SA	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	009	VZ	-FR	REGULATOR - FOR 009VZ	Regulator Seismic Certificate of Conformance for Eskom Generation-Documents 22QN04-SC-01, 22QN04-SC-02, 22QN04-SC-01 and 22QN04-SC-01. For Type 67CFR-224, 67CFSR-226 and 67CFR-225 respectively, as per Equivalency I 001/10E.
1&2	RIS	014	VZ		VALVE ACCUMULATOR 01BA NITROGEN INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	014	VZ	-AK	ACTUATOR ACCUMULATOR 01 BA NITROGEN V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	014	VZ	-FR	REGULATOR - FOR 014VZ	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	015	VZ		VALVE ACCUMULATOR 02BA NITROGEN INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	015	VZ	-AK	ACTUATOR - FOR 015VZ	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	015	VZ	-FR	REGULATOR - FOR 015VZ	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	016	VZ		VALVE ACCUMULATOR 03BA NITROGEN INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	016	VZ	-AK	ACTUATOR 03BA NITROGEN INLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	016	VZ	-FR	REGULATOR - FOR 016VZ	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	001	VP		VALVE ACCUMULATOR 01BA OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	001	VP	-DD	ACTUATOR ACCUMULATOR 01BA OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	002	VP		VALVE ACCUMULATOR 02BA OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	002	VP	-DD	ACTUATOR ACCUMULATOR 02BA OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	003	VP		VALVE ACCUMULATOR 03BA OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	003	VP	-DD	ACTUATOR ACCUMALATOR 03BA OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

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1&2	RIS	113	VP		VALVE INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	113	VP	-AK	ACTUATOR TEST LINE ISOLATION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	113	VP	-FR	REGULATOR - FOR 113VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	114	VP		VALVE INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	114	VP	-AK	ACTUATOR TEST LINE ISOLATION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	114	VP	-FR	REGULATOR - FOR 114VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	115	VP		VALVE - INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	115	VP	-AK	ACTUATOR INJECTION TEST LINE ISOLN VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	115	VP	-FR	REGULATOR - FOR 115VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	119	VP		VALVE INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	119	VP	-AK	ACTUATOR INJECTION TEST LINE ISOLN V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	119	VP	-FR	REGULATOR - FOR 119VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	120	VP		VALVE INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	120	VP	-AK	ACTUATOR INJECTION TEST LINE ISOLN V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	120	VP	-FR	REGULATOR - FOR 120VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	121	VP		VALVE INJECTION TEST LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	121	VP	-AK	ACTUATOR INJECTION TEST LINE ISOLN V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	121	VP	-FR	REGULATOR - FOR 121VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	101	VP		VALVE RETURN LINE ISOLATION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	101	VP	-AK	ACTUATOR RETURN LINE ISOLN AIR OP VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	101	VP	-FR	REGULATOR - FOR 101VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	122	VP		VALVE-TEST RETURN LINE INNER CONTMT ISO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	122	VP	-AK	ACTUATOR RETURN LINE ISOLATION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	122	VP	-FR	REGULATOR - FOR 122VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	124	VP		VALVE-TEST RETURN LINE OUTER CONTMT ISO	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	124	VP	-AK	ACTUATOR RETURN LINE ISOLATION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	124	VP	-FR	REGULATOR - FOR 124VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	051	VP	-DD	ACTUATOR LHSI 001PO PUMP SUCTION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

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1&2	RIS	051	VP	-DD	ACTUATOR LHSI 001PO PUMP SUCTION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	052	VP		VALVE LHSI 002PO PUMP SUCTION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	052	VP	-DD	ACTUATOR LHSI 002PO PUMP SUCTION	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	032	VP		VALVE BIT TANK INLET BYPASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	032	VP	-DD	ACTUATOR BIT TANK INLET BYPASS VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	033	VP		VALVE BIT TANK INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	033	VP	-DD	ACTUATOR BIT TANK INLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	034	VP		VALVE BIT TANK 004BA OUTLET BYPASS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	034	VP	-DD	ACTUATOR BIT TANK 004BA OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	035	VP		VALVE BIT TANK 004BA OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	035	VP	-DD	ACTUATOR BIT TANK 004BA OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	020	VP		V/V CONTMT ISOLN RCV001, 2, 3PO CLD LEG DS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	020	VP	-DD	ACTUATOR - RCV 001, 002 AND 003PO VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	061	VP		VALVE LHSI 001PO COLD LEGS DISCHARGE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	061	VP	-DD	ACTUATOR LHSI 001PO COLD LEGS DSCH V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	062	VP		VALVE LHSI 002PO COLD LEGS DISCHARGE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	062	VP	-DD	ACTUATOR LHSI 002 PO COLD LEGS DSCH V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	063	VP		VALVE LHSI 001PO HOT LEGS DISCHARGE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	063	VP	-DD	ACTUATOR LHSI 001 PO HOT LEGS DSCH V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	064	VP		VALVE LHSI 002PO HOT LEGS DISCHARGE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	064	VP	-DD	ACTUATOR LHSI 002 PO HOT LEGS DSCH V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	021	VP		V/V RCV001, 002, 003PO (HOT LEG)DSCH	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	021	VP	-DD	ACTUATOR RCV001, 002 & 003PO VALVE DSCH	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	620	VP	VP	VALVE - MECHANICAL PENETRATION - DRAIN.	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	621	VP	VP	VALVE - MECHANICAL PENETRATION - DRAIN.	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	869	VP	VP	VALVE - MANUAL BYPASS FOR 1RIS020VP	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	075	VB		VALVE LHSI PUMP 001PO PUMP SUCTION VALVE	JN306-NSE-ESKBR-3973 section 4.2.1

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1&2	RIS	075	VB	-DD	ACTUATOR LHSI PUMP 001PO PMP SUCTION V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	085	VB		VALVE LHSI PUMP 002PO PUMP SUCTION	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	085	VB	-DD	ACTUATOR LHSI PUMP 002PO PMP SUCTION V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	136	VB		V/V CONTMT ISOLNACCUMS 01, 02, 03BA SUPL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	136	VB	-AK	ACTUATOR ACCUMULATORS01, 02, 03BA SUPL V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	138	VB		VALVE - ACCUMULATOR 01 BA INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	138	VB	-AK	ACTUATOR - ACCUMULATOR 01 BA INLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	138	VB	-FR	REGULATOR - FOR 138VB	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	139	VB		VALVE ACCUMULATOR 02 BA INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	139	VB	-AK	ACTUATOR ACCUMULATOR 02BA INLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	139	VB	-FR	REGULATOR - FOR 139VB	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	140	VB		VALVE ACCUMULATOR 03 BA INLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RIS	140	VB	-AK	ACTUATOR ACCUMULATOR 03BA INLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RIS	140	VB	-FR	REGULATOR - FOR 140VB	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	EAS	001	VB		VALVE 001 PO SUC FROM PTR 001 BA TANK	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	002	VB		VALVE 002 PO SUC FROM PTR 001 BA TANK	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	007	VB		VALVE CONTAM TRN A SPRW V/V CONTAM ISOLN	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	008	VB		VALVE CONTAM TRN B SPRW V/V CONTAM ISOLN	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	009	VB		VALVE CONTAM TRN A SPR V/V CONTAM ISOLN	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	010	VB		VALVE CONTAM TRN B SPRW V/V CONTAM ISOLN	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	013	VB		VALVE CONTAM TRN 'A' SPRW V/V SUMP 002PS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	014	VB		VALVE CONTAM TRN B SPRW V/V SUMP 001PS	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	131	VB		VALVE TEST RETURN LINE TO PTR LINE 020	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	132	VB		V/V TST RTN LN TO PTR TRN A ISOLN V/V 2	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	133	VB		V/V TST RTN LN TO PTR TRN OPTD V/V ASY2	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	134	VB		V/V TST RTN LN TO PTR TRN B ISOLN V/V 1	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	135	VB		VALVE ISOLATION DISCHARGE TO PTR 001BA	JN306-NSE-ESKBR-3973 section 4.2.1

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1&2	EAS	136	VB		VALVE ISOLATION DISCHARGE TO PTR 001BA	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	EAS	900	VE		0 6" MANUALLY OPERATED BUTTERFLY VALVE	JN306-NSE-ESKBR-3973 section 8.5 and Table 9
1&2	EAS	903	VE		0 6" MANUALLY OPERATED BALL VALVE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	ETY	101	MP		SENSOR PRESSURE CONTAINMENT TRAIN A	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ETY	102	MP		SENSOR PRESSURE CONTAINMENT TRAIN B	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ETY	103	MP		SENSOR PRESSURE CONTAINMENT TRAIN A	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	ETY	104	MP		SENSOR PRESSURE CONTAINMENT TRAIN B	JN346-NSE-ESKB-R-4604_section 17.1 & 17.2
1&2	RIC***MT (001-051) RIC 011, 012, 013, 017, 018, 021, 024, 025, 026, 027, 028, 032, 033, 035, 036, 039, 040, 041 MT				RIC -CORE THERMO-COUPLES	JN346-NSE-ESKB-R-4604_section 17.10 & 17.11
1&2	ETY***RV				PASSIVE AUTOCATALYTIC RECOMBINER(Hydrogen Recombiners (PARs))	JN346-NSE-ESKB-R-4604 section 14
1&2	RRI	177	VN	VN	VALVE RRM COOLER RRI OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RRI	177	VN	-DD	ACTUATOR RRM COOLERS RRI OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RRI	283	VN	VN	VALVE RCP01PO COOLERS RRI OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RRI	283	VN	-DD	ACTUATOR RCP01PO CLRS RRI OUT V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RRI	284	VN	VN	VALVE RCP02PO COOLERS RRI OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RRI	284	VN	-DD	ACTUATOR RCP02PO CLRS RRI OUT V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RRI	285	VN	VN	VALVE RCP03PO COOLERS RRI OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RRI	285	VN	-DD	ACTUATOR RCP03PO CLRS RRI OUT V/V	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RRI	313	VN	VN	VALVE RCV 21RF RRI OUTLET	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RRI	313	VN	-DD	ACTUATOR RCV 21 RF RRI OUTLET VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	236	VY	VY	VALVE RPE01BA SAMPLING OUTSIDE CONT.ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	236	VY	-AK	ACTUATOR RPE01BA SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	236	VY	-EL	SOLENOID PILOT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	236	VY	-FR	REGULATOR - FOR 236VY	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

**CONTROLLED DISCLOSURE**

1&2	REN	232	VY	VY	V/V PRESS.RLF TNK SMPLN OUTS. CONT ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	232	VY	-AK	ACTUATOR PRESS.RELIEF TNK SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	232	VY	-AK	ACTUATOR PRESS.RELIEF TNK SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	232	VY	-EL	SOLENOID PILOT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	232	VY	-EL	SOLENOID VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	003	VY	VY	V/V CONTMT ISOL H2ATED VENT O/CONTMT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RPE	003	VY	-AK	ACTUATOR ELECTRO/PNEUMATIC 003VY	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	003	VY	-FR	REGULATOR - FOR 003VY	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	028	VP	VP	V/V CONTMT ISOL PROC DRNS INSIDE CONTMT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RPE	028	VP	-AK	ACTUATOR ELECTRO/PNEUMATIC 028VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	028	VP	-FR	REGULATOR - FOR 028VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	018	VP	VP	V/V CONTMT ISOL REACTR CLNT DRNS O/CONTM	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RPE	018	VP	-AK	ACTUATOR 018VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	018	VP	-FR	REGULATOR - FOR 018VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	056	VE	VE	VALVE OPEN/CLOSED OUTSIDE CONTAINMENT	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	RPE	056	VE	-AK	ACTUATOR 056VE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	056	VE	-AK	ACTUATOR ELETRO / PNEUMATIC	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	RPE	056	VE	-FR	REGULATOR - FOR 056VE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	131	VP	VP	VALVE PRESSR RRA SMPLN OUTS. CONT ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	131	VP	-AK	ACTUATOR PRESSURISER/RRA SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	131	VP	-EL	SOLENOID VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	131	VP	-FR	REGULATOR - FOR 131VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	132	VP	VP	ACTUATOR PRESSURISER/RRA SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	132	VP	-AK	ACTUATOR PRSR/RRA SMPLN OUTSIDE CONT.ISO	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	132	VP	-EL	SOLENOID VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	132	VP	-FR	REGULATOR - FOR 132VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	103	VP	VP	VALVE SG3 RCP SAMPLING OUTSIDE CONT.ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	103	VP	-AK	ACTUATOR SG3 RCP SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)

**CONTROLLED DISCLOSURE**

1&2	REN	103	VP	-EL	SOLENOID VALVE BODY	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	103	VP	-FR	REGULATOR - FOR 103VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	104	VP	VP	VALVE SG2 RCP SAMPLING OUTSIDE CONT.ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	104	VP	-AK	ACTUATOR SG2 RCP SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	104	VP	-EL	SOLENOID VALVE - 104VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	104	VP	-FR	REGULATOR - FOR 104VP	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	165	VB	VB	VALVE RIS02BA SMLPN OUTSIDE CONT. ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	165	VB	-AK	ACTUATOR RIS02BA SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	165	VB	-EL	SOLENOID VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	165	VB	-FR	REGULATOR - FOR 165VB	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	166	VB	VB	VALVE RIS03BA SAMPLING OUTSIDE CONT.ISOL	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	166	VB	-AK	ACTUATOR RIS03BA SAMPLING VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	166	VB	-EL	SOLENOID VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	166	VB	-FR	REGULATOR - FOR 166VB	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	195	VL	VL	VALVE SG2 SAMPLING CONT.ISOL OUTSIDE RX	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	195	VL	-AK	ACTUATOR SG2 SAMPLING CONT ISOL.VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	195	VL	-EL	SOLENOID PILOT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	195	VL	-FR	REGULATOR - FOR 195VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	196	VL	VL	VALVE SG3 SAMPLING CONT. ISOL OUTSIDE RX	JN306-NSE-ESKBR-3973 section 4.2.1
1&2	REN	196	VL	-AK	ACTUATOR SG3 SAMPLING CONT ISOL VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	196	VL	-EL	SOLENOID PILOT VALVE	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
1&2	REN	196	VL	-FR	REGULATOR - FOR 196VL	JN306-NSE-ESKBR-3973 section 4.2.1 (by association)
ASG-FLOOD-24 - Concern for flooding of ASG tank area						ASG Tank is proven to be seismically robust. No additional source of potential flooding in ASG room.
C\ROD-3CLSTRS-Control rods to insert upon reactor trip						JN-346-NSE-ESKB-R-4604 section 6.1 Table 3 (items 1 – 3)
Containment penetrations (Generic components)						JN306-NSE-ESKBR-3973 section 10.2.1 AND JN306-NSE-ESKBR-3973 section 4.2.1

**CONTROLLED DISCLOSURE**

PTR Supply Connection Point*				Future PTR Tank External Connection (part of modification 12004)
Loop 1 RCP001PO (Shutdown Seal Assembly*) Loop 2 RCP002PO (Shutdown Seal Assembly*) Loop 3 RCP003PO (Shutdown Seal Assembly*)				Part of modification 12023 Hardened Shut Down primary pump passive seals
RCP Injection Connection Point*				Future RCP External Connection (part of modification 12004)
KSC-Unit Control Room				The original seismic qualification tests reflected in KBA1216A02003 (front panels) and KBA1216A02001 (back panels) reflect high acceleration exposure without damage.
KPR-Emergency shutdown panel				The original seismic qualification tests reflected in KBA1216A04005 reflect high acceleration exposure without damage
KSR - Relays				Specific information was not determined. However, based on the extensive EPRI research under the SQRSTS initiative where hundreds of relays of different types, from many manufacturers were tested at elevated accelerations (included international manufacturers), the generic conclusion is that complete failure is extremely rare, but chatter is possible for the duration of the seismic event and returning to normal operation. The situation is more pronounced at higher frequencies. The damping provided by the aseismic bearings is expected to be beneficial for Koeberg.
0m and 8m airlocks				Excluded by interpretation of ESEP scope - internationally recognised as robust equipment

**CONTROLLED DISCLOSURE**