	ADMINISTRATIVE PROCEDURE	Allocation Centre 38A	Reference Number KAA-811	Rev 1
NNR: YES No.: K18855.1N	THE INTEGRATED KOEBERG NUCLEAR EMERGENCY PLAN			PAGE 1
KORC YES	ACCESS Nuclear Restricted	IMPORTANCE CATEGORY CSR	NEXT REVIEW DATE 2014-04-21	DATE AUTHORISED 2008-04-21

COMPILED / REVISED	REVIEWED	AUTHORISED
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FCA PROTECTION	ALARA REVIEW NO	SUPERSEDES KAA-811, Rev 0 dd. 2006-02-07 FULL REVIEW
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PAGE STATUS INDEX

Page	REVISION							
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1	x	x						
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3	x	x						
4	x	x						
5	x	x						
6	x	x						
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Page	REVISION							
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32	x	x						
33	x	x						
34	x	x						
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54	x	x						
55	x	x						
56	x	x						
57	x	x						
58	x	x						
59	x	x						
60	–	x						
61	–	x						
END								

	CONTENTS	PAGE
1.0	PURPOSE	4
2.0	SCOPE	4
3.0	DEFINITIONS AND ABBREVIATIONS	4
4.0	REFERENCES	11
5.0	RESPONSIBILITIES	14
6.0	PROCEDURE	15
7.0	RECORDS	30
8.0	ATTACHMENTS	31
	Appendix 1 – Work Flow Responsibility Matrix	32
	Appendix 2 – NNR Requirements from the Technical Basis for the Koeberg Emergency Plan	48
	Appendix 3 – Protective Actions	49
	Appendix 4 – Classification of Nuclear Emergencies.....	50
	Appendix 5 – Principal Lines of Communication.....	51
	Appendix 6 – Emergency Response Times for Warning, Notification and Stand-by Personnel.....	52
	Appendix 7 – Emergency Intervention Levels for Early Phase Protective Actions	53
	Appendix 8 Levels of Avertable Dose that Justify Intervention	54
	Appendix 9 – Emergency Intervention Levels for Temporary Relocation and Permanent Resettlement	55
	Appendix 10 – Generic Action Levels for Foodstuffs	56
	Appendix 11 – Total Effective Dose Guidance for Emergency Workers	57
	Appendix 12 – Emergency Plan Facilities and Equipment.....	58
	Appendix 13 – Integrated Koeberg Nuclear Emergency Plan Document Hierarchy	60
	Appendix 14 – Justification	61

1.0 PURPOSE

- 1.1 This procedure prescribes the requirements for an Integrated Koeberg Nuclear Emergency Plan in terms of Eskom Generation Standard GGS-1301. The requirements have been derived from National Nuclear Regulator documents and internationally accepted practices to prevent the occurrence of deterministic health effects in individuals, to reduce the occurrence of stochastic effects in the population, to minimise the psychological impact of an emergency and to minimise the impact on the environment.
- 1.2 The objectives of the Integrated Koeberg Nuclear Emergency Plan are:
 - 1.2.1 To establish an organised emergency response capability for timely, co-ordinated action of intervening organisations in an event of a nuclear accident;
 - 1.2.2 To describe the capabilities, responsibilities and authorities of intervening organisations and a concept for integrating the activities in the interest of public health and safety.

2.0 SCOPE

- 2.1 The Integrated Koeberg Nuclear Emergency Plan is applicable to:
 - 2.1.1 Any nuclear emergency that has or is expected to have a radiological effect within or outside the boundaries of the Koeberg Nuclear Power Station that could require an emergency response by several government organisations.
 - 2.1.2 Eskom, its agents, the general public and those organisations that participate in the maintenance or execution of the Integrated Koeberg Nuclear Emergency Plan.
 - 2.1.3 Any emergency that involves the transport of radioactive material related to Koeberg by land, sea or air.

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

- 3.1.1 **Accident** – Any unintended event, including operating errors, equipment failures or other mishaps, the consequences or potential consequences of which are not negligible from the point of view of protection or safety.

3.1.2 **Action** - means:

- (a) the use, possession, production, storage, enrichment, processing, reprocessing, conveying or disposal of, or causing to be conveyed, radioactive material;
- (b) any action, the performance of which may result in persons accumulating a radiation dose resulting from exposure to ionising radiation; or
- (c) any other action involving radioactive material.

3.1.3 **Action Level** – The level of dose rate or activity concentration above which remedial actions or protective actions should be carried out in chronic exposure or emergency exposure situations.

3.1.4 **Avertable Dose** – A dose to be avoided by a protective action i.e. the difference between the dose expected with the protective action and that to be expected without the protective action.

3.1.5 **Contamination** – The presence of radioactive substances in or on a material or the human body, or other place where they are undesirable or could be harmful.

3.1.6 **Decontamination** – The removal or reduction of contamination by a physical or chemical process.

3.1.7 **Deterministic Effect** – A radiation effect for which generally a threshold level of dose exists above which the severity of the effect is greater for a higher dose.

3.1.8 **Disaster** – A progressive or sudden, widespread or localised, natural or human-caused occurrence which:

- (a) Causes or threatens to cause:-
 - (i) death, injury or disease;
 - (ii) damage to property, infrastructure or the environment; or
 - (iii) disruption of the life of a community; and
- (b) Is of the magnitude that exceeds the ability of those affected by the disaster to cope with its effects using only their own resources.

3.1.9 **Disaster Co-ordination Team** – Describes the three spheres of government namely the Department of Minerals and Energy, Provincial Government of the Western Cape and City of Cape Town who are responsible for joint decision making, joint co-ordination and joint management during the early, intermediate and late phases of a nuclear emergency.

- 3.1.10 **Disaster Management** – means a continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at:
- (a) preventing or reducing the risk of disasters;
 - (b) mitigating the severity or consequences of disasters;
 - (c) emergency preparedness;
 - (d) a rapid and effective response to disasters; and
 - (e) post-disaster recovery and rehabilitation.
- 3.1.11 **Disaster Operations Centre** – means the Centre established by the City of Cape Town Disaster Management in terms of the Disaster Management Act, Act No. 57 of 2002. The Disaster Operations Centre is situated in Goodwood.
- 3.1.12 **Disaster Risk Management Plan** – A document describing the organisational structure, its roles and responsibilities and concept of operation covering all aspects of the Disaster Risk Management Continuum and placing an emphasis on measures that reduce vulnerability, viz. hazard identification, risk and vulnerability assessment, risk reduction and mitigation, emergency planning and emergency preparedness, emergency response, relief and recovery efforts.
- 3.1.13 **Dose** – The amount of radiation received, where the use of a more specific term such as “effective dose” or “equivalent dose” is not necessary for defining the quantity of interest.
- 3.1.14 **Dose Limit** – The value of effective dose or equivalent dose to individuals from actions authorised by a nuclear installation licence, nuclear vessel licence or certificate of registration, that must not be exceeded.
- 3.1.15 **Emergency** – An event that requires the prompt implementation of actions, or the special regulation of persons or property, to limit the risk to the health, safety, or welfare of people, or to limit damage to property or the environment.
- 3.1.16 **Emergency Plan** – A document describing the organisational structure, its roles and responsibilities, concept of operation, means and principles for intervention during an emergency.
- 3.1.17 **Emergency Planning** – The process of developing and maintaining the capability to take actions that will mitigate the impact of an emergency on persons, property or the environment.
- 3.1.18 **Emergency Planning Zones** – Emergency planning zones are the areas where the risk warrants the development of arrangements for protective actions. Ideally, emergency planning zones are identified using natural boundaries. Emergency planning zones include, for example, the precautionary action zone, the urgent protective action planning zone and the longer-term protective action planning zone.

- 3.1.19 **Emergency Preparedness** – The capability to promptly take actions that must effectively mitigate the impact of an emergency on persons, property or the environment.
- 3.1.20 **Emergency Procedures** – A set of documents describing the detailed actions to be taken by emergency response personnel during an emergency.
- 3.1.21 **Emergency Response** – The performance of actions to mitigate the impact of an emergency on persons, property or the environment.
- 3.1.22 **Environmental Monitoring** – The measurement of external dose rates due to sources in the environment and of radioactive nuclide concentrations in environmental media.
- 3.1.23 **Eskom** – Is used for Eskom Holdings Limited, its divisions and wholly owned subsidiaries.
- 3.1.24 **Evacuation** – The rapid, temporary removal of people from the area to avoid or reduce short-term radiation exposure in the event of an emergency.
- 3.1.25 **Exercise** – An evaluation of major portions of emergency response capabilities. An exercise tests the integrated capability of the emergency response organisation, to identify weaknesses that could affect the emergency response to an actual emergency.
- 3.1.26 **Exposure** – The act or condition of being subject to irradiation. Exposure may be either external exposure (irradiation by sources outside the body) or internal exposure (irradiation by sources inside the body). Exposure may be classified as either normal exposure or potential exposure, either: occupational, medical, or public exposure and in intervention situations, either emergency exposure or chronic exposure. The term exposure is also used in radio-dosimetry to express the amount of ionisation produced in air by ionising radiation.
- 3.1.27 **Generic Intervention Level** – The level of avertable dose at which a specific protective action or remedial action is taken in an emergency exposure situation, or a chronic exposure situation.
- 3.1.28 **Hazard** – A situation with a potential for human injury, damage to property, damage to the environment, or some combination of these.
- 3.1.29 **Health Surveillance** – Medical supervision intended to ensure the initial and continuous fitness of workers for their intended task.
- 3.1.30 **Intervening Organisation** – An organisation designated, or otherwise recognised by the government as being responsible for managing or implementing any aspect of an intervention, e.g. local authorities, police, armed forces, media, etc.

- 3.1.31 **Intervention** – Any action intended to reduce or avert exposure or the likelihood of exposure to a release which is not part of a controlled action or which is out of control as a result of a nuclear accident.
- 3.1.32 **Intervention Level** – The level of avertable dose at which a specific protective action or remedial action is taken in an emergency exposure situation or chronic exposure situation.
- 3.1.33 **Iodine Prophylaxis** – The ingestion of a compound of stable iodine (usually potassium iodate) to prevent or reduce the uptake of radioactive isotopes of iodine by the thyroid in the event of a nuclear accident involving radioactive iodine.
- 3.1.34 **Ionising Radiation** – Electromagnetic or corpuscular emission emitted from radioactive material and capable of producing ions, directly or indirectly while passing through matter.
- 3.1.35 **Longer Term Protective Action Planning Zone** – The pre-designated area around a nuclear installation in which contingency plans and procedures are in place for taking effective protective actions to reduce the long term exposure due to deposited radionuclides in the event of a nuclear accident.
- 3.1.36 **Monitoring** – The continuous or periodic measurement of radiological and other parameters or determination of the status of a system.
- 3.1.37 **Nuclear** – The term nuclear is used to designate actions that are directly related to the nuclear fuel cycle. In most cases, this refers to nuclear power reactors.
- 3.1.38 **Nuclear Accident** – Any occurrence or succession of occurrences having the same origin and resulting in an unintended/unauthorised exposure to ionising radiation or release of radioactive material, which is capable of giving rise to an effective dose in excess of 1 mSv to the public off-site in a year, or in excess of 50 mSv to a worker on site received essentially at the time of the event.
- 3.1.39 **Nuclear Damage** – means:
- (a) any injury to or the death or any sickness or disease of a person; or
 - (b) other damage, including any damage to or any loss of use of property or damage to the environment, which arises out of, or results from, or is attributable to, the ionising radiation associated with a nuclear installation.
- 3.1.40 **Nuclear Incident** – Any unintended event which is reasonably capable of giving rise to an effective dose equal to or in excess of 0,1 mSv to the public off site received essentially at the time of the event, or the unintended spread of radioactive contamination or exposure to ionising radiation, which could reasonably give rise to an effective dose in excess 20 mSv to a worker on site received essentially at the time of the event, or significant failure of safety provisions.

- 3.1.41 **Off-Site** – The area beyond the public exclusion boundary of the Eskom nuclear installation.
- 3.1.42 **On-Site** – The area within the public exclusion boundary of the Eskom nuclear installation.
- 3.1.43 **Operational Intervention Levels (OIL)** – A calculated value (e.g. ambient dose rate or radionuclide concentration) that may be measured by instruments and that corresponds to a certain generic intervention level for a given protective action. Operational intervention levels differ from “intervention levels”, which are expressed in terms of dose that may be averted. Dose may be calculated from dose rate or from activity concentration.
- 3.1.44 **Plant** – Nuclear power station with associated components, machinery, equipment or devices.
- 3.1.45 **Precautionary Action Zone** – An area around a facility for which arrangements have been made to take urgent protective actions in the event of a nuclear or radiological emergency to reduce the risk of severe deterministic health effects off the site. Protective actions within this area are to be taken before or shortly after a release of radioactive material or an exposure on the basis of the prevailing conditions at the facility.
- 3.1.46 **Protective Action** – An intervention intended to avoid or reduce doses to members of the public.
- 3.1.47 **Public Exclusion Boundary** – The enclosure of Eskom controlled property. Members of the public are not permitted domicile, for any reason, within this area.
- 3.1.48 **Radiation** – means ionising radiation.
- 3.1.49 **Recovery** – Longer-term actions to protect the public and the environment against the residual hazards from a nuclear accident and the long-term measures to rehabilitate the population, the community infrastructure and the environment.
- 3.1.50 **Release** – The controlled or accidental discharge of radioactive substances into the environment, which may occur during nuclear or radiological actions.
- 3.1.51 **Risk** – (qualitatively expressed) the probability of a specified health effect occurring in a person or group as a result of exposure to ionising radiation or (quantitatively expressed) a multi-attribute quantity expressing hazard, danger, or chance of harmful or injurious consequences associated with actual or potential exposures relating to quantities such as the probability that specific deleterious consequences may arise and the magnitude and character of such consequences.
- 3.1.52 **Risk Assessment** – Assessment of the radiological risks associated with normal operation and potential accidents involving a source or action.

- 3.1.53 **Safety Assessment** – An analysis to evaluate the performance of an overall system and its impact, where the performance measure is radiological impact or some other global measure of impact on safety.
- 3.1.54 **Severe Accidents** – This term is used to designate nuclear accident conditions that are more severe than design basis accidents. Design basis nuclear accidents are those taken into account in the design of a facility according to established design criteria, and for which releases of radioactive material are kept within specified limits.
- 3.1.55 **Sheltering** – A protective action whereby members of the public are advised to stay indoors with windows and doors closed, intended to reduce their exposure in an emergency exposure situation.
- 3.1.56 **Source** – Anything that may cause radiation exposure, such as by emitting ionising radiation or by releasing radioactive substances or radioactive material, and may be treated as a single entity for safety purposes.
- 3.1.57 **Stochastic Effect** – A health effect, the probability of occurrence of which is greater for a higher radiation dose and the severity of which (if it occurs) is independent of dose and generally occurs without a threshold.
- 3.1.58 **Urgent Protective Actions** – Those actions that must be taken promptly in order to be effective, and the effectiveness of which would be markedly reduced by delay. These include sheltering, evacuation and distribution of iodine prophylaxis.
- 3.1.59 **Urgent Protective Action Planning Zone** – An area around a facility for which arrangements have been made to take urgent protective actions in the event of a nuclear or radiological emergency to avert doses off the site in accordance with international safety standards. Protective actions within this area are to be taken on the basis of environmental monitoring – or, as appropriate, prevailing conditions at the facility
- 3.2 Abbreviations**
- 3.2.1 **CoCT** – City of Cape Town
- 3.2.2 **DCT** – Disaster Co-ordination Team
- 3.2.3 **DME** – Department of Minerals and Energy
- 3.2.4 **DOC** – Disaster Operations Centre
- 3.2.5 **EP** – Emergency Plan
- 3.2.6 **ESL** – Environmental Survey Laboratory
- 3.2.7 **FAO** – Food and Agriculture Organisation of the United Nations

- 3.2.8 **HPC** – Health Physics Controller
- 3.2.9 **IAEA** – International Atomic Energy Agency
- 3.2.10 **IKNEP** – Integrated Koeberg Nuclear Emergency Plan
- 3.2.11 **KNEP** – Koeberg Nuclear Emergency Plan
- 3.2.12 **LPZ** – Longer Term Protective Action Planning Zone
- 3.2.13 **NDMC** – National Disaster Management Centre
- 3.2.14 **NECSA** – South African Nuclear Energy Corporation
- 3.2.15 **NNR** – National Nuclear Regulator
- 3.2.16 **PAZ** – Precautionary Action Zone
- 3.2.17 **PEB** – Public Exclusion Boundary
- 3.2.18 **PGWC** – Provincial Government of the Western Cape
- 3.2.19 **RBE** – Relative Biological Effectiveness
- 3.2.20 **RNET** – Regional Nuclear Emergency Team
- 3.2.21 **RP** – Radiation Protection
- 3.2.22 **TLD** – Thermoluminescent Dosemeter
- 3.2.23 **TSC** – Technical Support Centre
- 3.2.24 **UPZ** – Urgent Protective Action Planning Zone

4.0 REFERENCES

4.1 Referenced Documents

- 4.1.1 City Of Cape Town Plan for dealing with Nuclear Emergencies arising from the Koeberg Nuclear Power Station, Revision 5
- 4.1.2 GGM-0908, Rev 2: Quality Management Manual for the Generation Nuclear Cluster
- 4.1.3 IAEA: GS-R-2: Preparedness and Response for a Nuclear or Radiological Emergency
- 4.1.4 KAA-500, Rev 9: The Process for Controlled Procedures
- 4.1.5 KSA-011, Rev 7: The Requirements for Controlled Documents

4.2 Applicable Documents

- 4.2.1 CoCT KNEP 1.2: Notification of Nuclear Accident
- 4.2.2 CoCT KNEP 2.1: City of Cape Town Disaster Operations Centre
- 4.2.3 CoCT KNEP 2.2: Head of the Disaster Management Centre
- 4.2.4 CoCT KNEP 2.5: Health Services Organisation and Duties
- 4.2.5 CoCT KNEP 2.9: Traffic and Law Enforcement Services
- 4.2.6 CoCT KNEP 3.1: South African Broadcasting Corporation (SABC)
- 4.2.7 CoCT KNEP 3.3: Media Liaison
- 4.2.8 CoCT KNEP 3.5: South African Police Services
- 4.2.9 CoCT KNEP 3.6: Provincial Government of the Western Cape-Emergency Medical Services
- 4.2.10 CoCT KNEP 3.8: SANDF Duties and Responsibilities
- 4.2.11 CoCT KNEP 3.9: IKNEP Joint Decision Co-ordinating Team
- 4.2.12 CoCT KNEP 4.1 (A): Use of Siren and Public Warning Systems
- 4.2.13 CoCT KNEP 4.1 (B): Public Notification: Vehicle Mounted Siren /PA Systems
- 4.2.14 CoCT KNEP 4.2: Potassium Iodate (KIO₃) Distribution Control
- 4.2.15 CoCT KNEP 4.3: Sheltering
- 4.2.16 CoCT KNEP 4.4: Evacuation and Relocation
- 4.2.17 CoCT KNEP 4.5: Mass Care Centres
- 4.2.18 CoCT KNEP 4.6: Radioactive Contamination Monitoring Equipment
- 4.2.19 CoCT KNEP 4.7: Acquisition of Emergency Supplies and Assistance
- 4.2.20 CoCT KNEP 4.8: Food Ban and Control of Foodstuffs
- 4.2.21 CoCT KNEP 4.9: Staff Safety and Welfare
- 4.2.22 CoCT KNEP 4.10: Dosimeter Distribution and Control
- 4.2.23 CoCT KNEP 4.11: Personal Decontamination
- 4.2.24 CoCT KNEP 4.12: Late Phase Population Relocation
- 4.2.25 CoCT KNEP 5.1: Training

- 4.2.26 CoCT KNEP 5.5: Record Retention
- 4.2.27 Disaster Management Act, 2002 (Act No. 57 of 2002)
- 4.2.28 ESKPVAAD2: Megawatt Park Response to a Nuclear Alert or Emergency
- 4.2.29 GGP 1196: Regional Nuclear Emergency Plan
- 4.2.30 GGS-1301: Emergency Preparedness and Response Requirements for Eskom Nuclear Installations
- 4.2.31 KAA-611: Emergency Mustering Accountability and Evacuation
- 4.2.32 KAG-002: Emergency Plan Training Programme
- 4.2.33 KEP-002: Nuclear Emergency Plan Notifications and Call-Outs
- 4.2.34 KEP-010: Radiological Survey Techniques
- 4.2.35 KEP-014: Emergency Planning – Meteorological Support
- 4.2.36 KEP-020: Assessment of Radioiodine in the Human Thyroid
- 4.2.37 KEP-024: Protective Actions and Intervention Levels
- 4.2.38 KEP-033: Emergency Communication with Media and Employees
- 4.2.39 KEP-035: Radiation Protection Dosimetry Services Emergency Functions
- 4.2.40 KEP-036: Health Physics Controller Duties
- 4.2.41 KEP-041: Duties of Field Team Leader
- 4.2.42 KEP-056: Nuclear Emergency Plan Duties of the Operating Shift
- 4.2.43 KEP-060: Duties of the Emergency Controller
- 4.2.44 KEP-063: Technical Support Centre Emergency Duties
- 4.2.45 KEP-065: Off-Site Radiological Calculations
- 4.2.46 KEP-076: Duties of Radiation Protection Operations Staff
- 4.2.47 KEP-I-001: Operating Instruction for the Off-Site Public Warning System
- 4.2.48 KEP-I-004: Plotting of Radiation Data
- 4.2.49 KEP-I-005: Updating the Information Boards and Completing the Applicable Report Sheets
- 4.2.50 KEP-I-006: ESL Operation following Emergency Plan Activation
- 4.2.51 KEP-I-007: Collection of Post-Accident Environmental Samples

- 4.2.52 KEP-I-008: Inventory Checks of Emergency Equipment
- 4.2.53 KEP-I-010: Set-Up of the Alternate ESL for Emergency Plan Duties
- 4.2.54 KEP-I-013: Computer Based Radiological Programmes for use by the Nuclear Emergency Plan
- 4.2.55 KEP-I-016: Operating Instruction for the Digital Paging System
- 4.2.56 KGG-005: Koeberg Off-site Infrastructure Decontamination Guide
- 4.2.57 Koeberg Safety Analysis Report, Part III Chapter 4.2
- 4.2.58 KSAR: Koeberg Safety Analysis Report
- 4.2.59 KSSR: Koeberg Site Safety Report
- 4.2.60 Letter k12131: Technical Basis for the Koeberg Emergency Plan
- 4.2.61 Memorandum of Agreement between Eskom Holdings, Provincial Government of the Western Cape and the City of Cape Town
- 4.2.62 National Disaster Risk Management Framework, 2005
- 4.2.63 National Nuclear Disaster Management Plan, October 2005
- 4.2.64 National Nuclear Regulator Act, 1999 (Act No. 47 of 1999)
- 4.2.65 RD-014: Emergency Preparedness and Response Requirements for Nuclear Installations
- 4.2.66 Regulations on safety standards and regulatory practices, No. R.388, Government Gazette No. 28755, 28 April 2006.
- 4.2.67 UG-04042-GIS: GIS User Guide
- 4.2.68 UG-04042-FSV: Field Survey Vehicle System User Guide

5.0 RESPONSIBILITIES

- 5.1 The operational responsibilities of the different intervening organisations relating to implementation of the Integrated Koeberg Nuclear Emergency Plan are addressed in the work flow responsibility matrix, Appendix 1.
- 5.2 The responsibilities of national, provincial and local intervening organisations relating to nuclear emergencies are addressed in the Disaster Management Act, 2002 (Act No. 57 of 2002) and the National Nuclear Disaster Management Plan.
- 5.3 The responsibilities of Eskom and the National Nuclear Regulator relating to Integrated Koeberg Nuclear Emergency Plan are addressed in the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

6.0 PROCEDURE

6.1 Safety Assessment

- 6.1.1 The extent of the Integrated Koeberg Nuclear Emergency Plan is based on the Technical Basis for the Koeberg Emergency Plan approved and issued by the NNR via letter k12131, dated 17 July 2000 Appendix 2 and on the legal requirements contained in the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999) and the Disaster Management Act, 2002 (Act No. 57 of 2002). The overall Integrated Koeberg Nuclear Emergency Plan is based on regulations and legislation.

6.2 Administrative Requirements

- 6.2.1 The Integrated Koeberg Nuclear Emergency Plan is also based on the requirements prescribed in Requirements Document RD 014 and the Eskom Generation Standard, GGS-1301.
- 6.2.2 Arrangements to implement the Integrated Koeberg Nuclear Emergency Plan via procedures and sufficient, trained resources are formalised via a Memorandum of Agreement entered into by Eskom Holdings Ltd, the Provincial Government of the Western Cape and the City of Cape Town.

6.3 Emergency Preparedness Requirements

6.3.1 Authority

Persons or positions listed in Appendix 1 have clear authority to make prompt decisions regarding the activation of nuclear emergency plans and the implementation of protective actions in terms of the Disaster Management Act, 2002 (Act No. 57 of 2002) and National Nuclear Disaster Management Plan.

6.3.2 Organisational Responsibilities

- 6.3.2.1 The National Executive is primarily responsible for the co-ordination and management of any national disaster and must deal with such a disaster in terms of existing legislation and contingency arrangements. These obligations of the National Executive must be serviced by the relevant officials and infrastructure of the three levels of government.
- 6.3.2.2 The National Disaster Management Centre is responsible to declare a National Disaster on the recommendation of the Disaster Co-ordination Team in the event of a General Emergency being declared at Koeberg Nuclear Power Station.
- 6.3.2.3 The Minister of Provincial and Local Government may declare a National State of Disaster if existing legislation and contingency arrangements are inadequate to effectively deal with a National Disaster. The Minister of Provincial and Local Government may then make regulations or issue directives after consultation with the responsible Cabinet member in connection with the release of national resources and personnel, etc.

- 6.3.2.4 The Minister of Minerals and Energy makes regulations related to nuclear emergency planning and must assume a leading role in the National Executive's oversight during a nuclear disaster. The Minister is responsible to address claims in excess of the financial security provided by the holder of the nuclear authorization.
- 6.3.2.5 The Chief Directorate Nuclear in the Department of Minerals and Energy is specifically responsible to service the following DME obligations with regard to nuclear disaster management and emergency response:
- (a) Service the obligations of the Minister of Minerals and Energy regarding nuclear emergency planning matters under the National Nuclear Regulator Act, 1999 (Act No. 47 of 2002).
 - (b) Ensure compliance with the Disaster Management Act, 2002 (Act No. 57 of 2002) regarding the obligations of the National Organ of State to prepare and maintain a National Nuclear Disaster Management Plan and coordinate its implementation.
 - (c) Ensure establishment and chair the Nuclear Emergency Planning Steering and Oversight Committee (EPSOC) meetings relating to Koeberg Nuclear Power Station as per the formal Terms of Reference.
 - (d) In case of a National Disaster declared as a result of a nuclear emergency, deploy a DME representative to the Disaster Operations Centre (DOC) of the City of Cape Town or other designated centre and deploy a DME representative to the National Disaster Management Centre. At these centers the DME must participate in the Disaster Co-ordination Teams who are responsible for joint decision making, joint co-ordination and joint management of a nuclear emergency in accordance with the Integrated Koeberg Nuclear Emergency Plan and associated procedures.
 - (e) Responsible for joint decision making, joint co-ordination and joint management of post-disaster recovery and rehabilitation with the City of Cape Town, and the Provincial Government of the Western Cape and with the necessary input from Koeberg and the National Nuclear Regulator.
 - (f) Responsible for notifying, through official channels, South Africa's bordering States about a nuclear emergency as required.
- 6.3.2.6 The Provincial Government of the Western Cape is responsible to establish and implement a Provincial Disaster Management Plan and establish a Provincial Disaster Management Centre. A representative from the Provincial Government of the Western Cape must participate in the Disaster Co-ordination Team after declaration of a nuclear emergency at Koeberg Nuclear Power Station.

6.3.2.7 The City of Cape Town is responsible to establish and implement a Municipal Disaster Management Plan and establish a Municipal Disaster Management Centre. The Disaster Co-ordination Team must meet at the City of Cape Town Disaster Operations Centre after declaration of a nuclear emergency at Koeberg Nuclear Power Station.

6.3.2.8 Where the possibility exists that a nuclear accident affecting the public may occur the holder of a nuclear authorisation must enter into an agreement with relevant municipalities and provincial authorities to establish a nuclear emergency plan and submit such plan for approval by the National Nuclear Regulator.

Koeberg is responsible for technical and radiological assessment during all phases of a nuclear emergency and based on such assessment Koeberg is responsible for implementing on-site protective actions and recommending off-site public protective actions to the Disaster Co-ordination Team based on formal procedures.

Eskom, Generation is responsible for providing financial security as per regulations in case of nuclear damage.

It should be noted that the obligation of “prevention” under the Disaster Management Act, 2002 (Act No.57 of 2002) is addressed at Koeberg Nuclear Power Station through the implementation of the National Nuclear Regulator requirements.

6.3.2.9 The National Nuclear Regulator must ensure that the Integrated Koeberg Nuclear Emergency Plan is effective for the protection of persons should a nuclear accident occur. The National Nuclear Regulator must recommend standards for the protection of the workers and the off-site public to be published as regulations by the Minister of Minerals and Energy. The National Nuclear Regulator must keep and maintain a record of the details of every nuclear accident and nuclear incident; store that record safely and retain that record for 40 years from the date of the nuclear accident or nuclear incident; and on request of any person, make that record available to that person.

6.3.2.10 The South African Nuclear Energy Corporation (NECSA) acts as the National Competent Authority and Contact Point (24 hour Emergency Control Centre) for the following International Atomic Energy Agency Conventions:

- Convention on early notification of a nuclear accident;
- Convention on assistance in the case of a nuclear accident or radiological emergency.

6.3.2.11 Other National Departments and Institutions must be involved as appropriate in terms of their legislation, functions and as directed in terms of a National State of Disaster.

- 6.3.2.12 In terms of the international Conventions, the IAEA must inform and provide information to any State party to the Conventions. On request from South Africa the IAEA must also provide assistance in case of a nuclear emergency or the IAEA may request assistance from South Africa in case of a nuclear emergency elsewhere.
- 6.3.2.13 Designated officials are assigned to key positions listed in the Appendix 1 and provisions are made via working level procedures to ensure continuity of the key positions following the declaration of an emergency

6.3.3 Maintaining nuclear emergency preparedness

- 6.3.3.1 The Koeberg Power Station Manager is responsible for the execution of the on-site aspects of the Integrated Koeberg Nuclear Emergency Plan, including technical support and Radiation Protection.
- 6.3.3.2 The Nuclear Portfolio General Manager is responsible for:
- (a) the establishment and maintenance of the Integrated Koeberg Nuclear Emergency Plan, including training;
 - (b) the establishment and execution of the off-site aspects of the Integrated Koeberg Nuclear Emergency Plan;
 - (c) the interface with provincial and local authorities on emergency planning requirements and provisions; and
 - (d) ensuring the continuous existence of the three party agreement between Eskom, Provincial Government of the Western Cape and City of Cape Town.
- 6.3.3.3 The Emergency Management Group at Koeberg is responsible for maintaining the Integrated Koeberg Nuclear Emergency Plan resources in a state of preparedness including the training of personnel necessary to provide for mitigatory actions in the event of a nuclear incident / nuclear accident.
- 6.3.3.4 The Emergency Management Group at Koeberg is responsible for ensuring the availability of meteorological services to support the Integrated Koeberg Nuclear Emergency Plan.
- 6.3.3.5 The Eskom Responsible Appointed Medical Practitioner, or his/her deputy, on site is responsible for the planning and arrangements associated with the emergency medical response necessary to accommodate the treatment of casualties who have physical injuries, who may have received large doses of ionising radiation, or who may be contaminated.
- 6.3.3.6 The Koeberg Shift Manager, Operating, is responsible for the initial assessment and classification of a nuclear accident situation and must adopt the duties of Emergency Controller, until relieved by the Standby Koeberg Emergency Controller.

- 6.3.3.7 The Koeberg Emergency Controller is responsible for the direction of all facets of the on-site emergency response and is the only member of the Koeberg Emergency Control Centre team authorised to provide recommendations regarding Protective Actions to the Disaster Co-ordination Team. The Protective Actions that may be recommended by the Emergency Controller are specified in Appendix 3. In the event of a rapidly evolving nuclear incident or nuclear accident and when the Disaster Operations Centre has not been activated, the Koeberg Shift Manager or the Koeberg Emergency Controller should as a priority act in the interest of the public by advising/recommending such urgent protective actions. If time permits this should be done in consultation with the Head: Disaster Management Centre, City of Cape Town, or designated duty Co-ordinator in the DOC.
- 6.3.3.8 The Koeberg Health Physics Controller is responsible for assessing the radiological information from the plant and from field teams, and recommending protective actions to the Koeberg Emergency Controller based on actual or predicted radiological conditions.
- 6.3.3.9 The Koeberg Field Team Leader is responsible for activating and directing the radiological survey teams and communicating the radiation field measurements to the Koeberg Health Physics Controller.
- 6.3.3.10 The South African Police Services is responsible for executing their duties and responsibilities in respect of any security initiated events, or a crime scene. Any action by the South African Police Services that may impact directly or indirectly on the management of a nuclear accident or nuclear incident condition must be in accordance with CoCT KNEP 3.5.
- 6.3.3.11 The South African National Defence Force is responsible for providing assistance and/or support to Government Disaster Management structures in the event of a nuclear emergency in accordance with procedure CoCT KNEP 3.8.
- 6.3.3.12 The Generation Technology and Assurance Manager, Megawatt Park, is responsible for the provision of a Nuclear Emergency Response Group at the Eskom National Emergency Centre. Responsibilities include the provision of logistical support, communication with the relevant government departments and safety analyses support as determined by the Regional Nuclear Emergency Manager.
- 6.3.3.13 The Eskom Senior Government and Media Liaison Practitioner, or designated nominee is responsible, in conjunction with the City of Cape Town Disaster Management spokesperson, for the co-ordination of the media agencies and the general public on matters relating to the Integrated Koeberg Nuclear Emergency Plan. The Eskom Senior Government and Media Liaison Practitioner is also responsible for the readiness and operation of the Joint Media Centre at Bellville.

- 6.3.3.14 The Chemistry Manager is responsible for the readiness and operation of the Environmental Survey Laboratory, technical liaison with the alternate laboratory Directorate: Radiation Control, Department of Health and those installations capable of providing analytical support, and the provision of training to the District Sampling Teams. The Chemistry Manager is also responsible for the provision of technical specialists and radiochemical analyses to support the TSC, if requested to do so by the Emergency Controller.
- 6.3.3.15 The Koeberg Radiation Protection Manager is responsible for the provision of Radiation Protection personnel to perform on-site and off-site radiological monitoring, radioactive waste disposal and dosimetry services.
- 6.3.3.16 The Koeberg Nuclear Services Manager is responsible for the on-site Fire Protection facilities and liaison with supporting Fire Services to ensure their compatibility with the requirements of the Integrated Koeberg Nuclear Emergency Plan.
- 6.3.3.17 The Regional Nuclear Emergency Manager is responsible for the activation and operation of the Eskom Regional Emergency Control Centre situated in Bellville.
- 6.3.3.18 The Eskom Regional Nuclear Emergency Team is responsible for Joint Media Operations Support, emergency communication, monitoring of the nuclear accident, nuclear safety assurance, and the provision of technical and logistics support as required by the Koeberg Emergency Controller.
- 6.3.3.19 Disaster Management Organisations
- (1) The Municipal and Provincial Disaster Management Centres within their areas of jurisdiction are responsible for the extensive emergency planning and provision of a Disaster Management Plan for dealing with the off-site effects of a nuclear emergency arising from Koeberg Nuclear Power Station.
 - (2) The Department of Minerals and Energy, the Provincial Government of the Western Cape and the City of Cape Town are responsible for the control and implementation of their respective plans for dealing with Nuclear Emergencies arising from Koeberg Nuclear Power Station. The Head of the Disaster Operations Centre is responsible for the issuing and implementation of Protective Actions. The Head of the DOC is a member of the Disaster Co-ordination Team responsible for joint decision making, joint co-ordination and joint management of a nuclear emergency, in accordance with the Integrated Koeberg Nuclear Emergency Plan and associated procedures.
 - (3) The Department of Arts and Culture is the organisation responsible for the Robben Island Museum. The Safety Officer appointed by this department for the island is responsible, under the direction of the Disaster Operations Centre, for the protection of the population and the implementation of Protective Actions within the area of his jurisdiction.

- (4) The South African Broadcasting Corporation, Sea Point, is responsible for the provision of emergency radio broadcasting services to support the implementation of Public Notification and Protective Actions.

6.3.4 Emergency Response Co-ordination

- 6.3.4.1 The emergency response and interaction protocols with intervening organisations related to the Integrated Nuclear Emergency Plan are documented in Appendix 1.

6.3.5 Plans and Procedures

- 6.3.5.1 Emergency preparedness aspects regarding proactive risk reduction is defined in the Koeberg Safety Analysis Report.
- 6.3.5.2 The Integrated Koeberg Nuclear Emergency Plan and Eskom procedures are subjected to the Eskom document control/quality assurance process and are revised, maintained, reviewed and updated at a frequency agreed with the National Nuclear Regulator.
- 6.3.5.3 The Nuclear Emergency Plans and associated procedures of Intervening Organisations are subjected to appropriate document control/quality assurance processes and are revised, maintained, reviewed and updated as required.

6.3.6 Emergency Classification

- 6.3.6.1 The Integrated Koeberg Nuclear Emergency Plan addresses the emergency conditions that would involve alerting, or activating progressively larger segments of the emergency organisation.
- 6.3.6.2 The emergency classes are defined in Appendix 5:
 - (1) Unusual Event
 - (2) Alert
 - (3) Site Emergency
 - (4) General Emergency
- 6.3.6.3 In terms of the National Nuclear Disaster Management Plan, the declaration of a General Emergency at Koeberg Nuclear Power Station must result in the declaration of a National Disaster under the Disaster Management Act, 2002 (Act No. 57 of 2002), and subsequent consideration for declaration of a National State of Disaster.

6.3.7 Assessment of Nuclear Installation Conditions

- 6.3.7.1 The Integrated Koeberg Nuclear Emergency Plan addresses the means to monitor the situation in the Control Room and perform a prognosis in accordance with procedures documented in Appendix 1.
- 6.3.7.2 The Integrated Koeberg Nuclear Emergency Plan addresses the means to classify the nuclear incident in accordance with procedures documented in Appendix 1 and addresses the declaration of an unusual event or an alert or a site emergency or a general emergency.
- 6.3.7.3 The Integrated Koeberg Nuclear Emergency Plan relies on the capability to carry out emergency monitoring of ionising radiation from overhead plume and/or radioactive contamination related to a nuclear accident, both on and off-site.

6.3.8 Notification and Activation

- 6.3.8.1 The intervening organisations are notified in accordance with the lines of communication depicted in Appendix 5.
- 6.3.8.2 The procedures for the prompt notification of the public and for implementation of protective measures, if they become necessary, are addressed in Appendix 1.
- 6.3.8.3 The Integrated Koeberg Nuclear Emergency Plan is complimented by the Memorandum of Agreement entered into by Eskom Holdings LTD, the Provincial Government of the Western Cape and the City of Cape Town in order to ensure a co-ordinated and integrated emergency response.
- 6.3.8.4 The Integrated Koeberg Nuclear Emergency Plan addresses key positions who are empowered to declare an emergency. The process for declaration of a Nuclear Emergency is addressed in Appendix 1.
- 6.3.8.5 The Integrated Koeberg Nuclear Emergency Plan addresses a notification scheme which includes information to identify the location of the emergency, the class, its nature, the time of occurrence, the important actions taken and the recommendations for urgent protective actions.
- 6.3.8.6 The Integrated Koeberg Nuclear Emergency Plan addresses required emergency response times in Appendix 6 for Koeberg Nuclear Power Station standby personnel responding to a nuclear emergency.

6.3.9 Mitigation

- 6.3.9.1 The Integrated Koeberg Nuclear Emergency Plan addresses an accident management programme in Appendix 1 to ensure that there are provisions for early mitigation of nuclear incidents and / or nuclear accidents.
- 6.3.9.2 The Integrated Koeberg Nuclear Emergency Plan applies radiological surveillance information to monitor, confirm or adjust protective actions. Availability of equipment, instrumentation and diagnostic aids that may be needed to influence the course and consequences of a nuclear accident are addressed in the procedures referenced in Appendix 1.
- 6.3.9.3 The Integrated Koeberg Nuclear Emergency Plan addresses deployment of resources and emergency response teams to areas as referenced in Appendix 1.
- 6.3.9.4 The Integrated Koeberg Nuclear Emergency Plan addresses protective actions, personnel decontamination, control of contaminated food and water, infra-structural decontamination, traffic and transportation and longer term protective actions listed in Appendix 1.
- 6.3.9.5 Intervention levels and action levels addressed in Appendices 7, 8, 9 and 10 are applied. The application and implementation of intervention and action levels are addressed in procedures referenced in Appendix 1.

6.3.10 Emergency Planning Zones

- 6.3.10.1 Emergency Planning Zones consist of:
- (1) Precautionary Action Zone (PAZ) – PEB – 5 km: An area around a facility for which arrangements have been made to take urgent protective actions in the event of a nuclear or radiological emergency to reduce the risk of severe deterministic health effects off the site. Protective actions within this area are to be taken before or shortly after a release of radioactive material or an exposure on the basis of the prevailing conditions at the facility.
 - (2) Urgent Protective Action Planning Zone (UPZ) – 5 – 16 km: An area around a facility for which arrangements have been made to take urgent protective actions in the event of a nuclear or radiological emergency to avert doses off the site in accordance with international safety standards. Protective actions within this area are to be taken on the basis of environmental monitoring – or, as appropriate, prevailing conditions at the facility.

- (3) Longer Term Protective Action Zone (LPZ) – PEB – 80 km: The pre-designated area around a nuclear installation in which contingency plans and procedure are in place for taking effective protective actions to reduce the long term exposure due to deposited radionuclides in the event of a nuclear accident.

NOTE: *Detailed arrangements for the implementation of protective actions are required during the early phase for the zones PEB – 16 km. Contingency plans for the implementation of protective actions are required for the zone 16 – 80 km.*

6.3.10.2 Koeberg maintains the capabilities, means, resources and tools necessary to recommend as appropriate the implementation of urgent protective actions in the Precautionary Action Zone and Urgent Protective Action Planning Zone, including the ability to conduct prompt environmental monitoring.

6.3.10.3 Procedures are listed in Appendix 1 to ensure the safety of persons on-site in the event of an emergency.

6.3.10.4 Arrangements are addressed in the procedures listed in Appendix 1 for the appropriate care of sheltered, or evacuated populations including decontamination, surveillance, food, registration, and medical and social care.

6.3.11 Public Education and Information

6.3.11.1 Koeberg provides information on the Integrated Koeberg Nuclear Emergency Plan to members of the public who could be affected by a nuclear accident.

6.3.11.2 The Integrated Koeberg Nuclear Emergency Plan and the Emergency Plans of intervening organisations address arrangements to ensure the timely provision of information to the public during an emergency and to correct false/inaccurate information.

6.3.12 Protection of Emergency Workers

6.3.12.1 Emergency worker exposures must be maintained below the prescribed limits described in Appendix 11.

6.3.12.2 Duty emergency workers must be accounted for at all times during an emergency.

6.3.12.3 The Integrated Koeberg Nuclear Emergency Plan and the Emergency Plans of intervening organisations address the protection of emergency workers, controlling of doses they receive and requirements for medical follow-up.

6.3.12.4 Emergency workers are provided with the training and equipment necessary to restrict their potential exposure, commensurate with the likely magnitude of exposure in an emergency situation.

6.3.13 Medical Assistance

- 6.3.13.1 The Integrated Koeberg Nuclear Emergency Plan and the Emergency Plans of intervening organisations address arrangements for medical staff to ensure the prompt availability and co-ordinated emergency response of medical first aid and assistance.

6.3.14 Longer Term Protective Actions

- 6.3.14.1 Intervention levels listed in Appendix 9 and 10 for the implementation and withdrawal of longer-term protective actions must be followed.
- 6.3.14.2 The Integrated Koeberg Nuclear Emergency Plan addresses the exposure of individuals and addresses requirements for long-term health monitoring in Appendix 1.

6.3.15 Logistic Support

- 6.3.15.1 Adequate supplies, equipment, communications systems and emergency facilities required to allow intervening organisations to fulfil their responsibilities have been identified and kept available as listed in Appendix 12, for use during an emergency.
- 6.3.15.2 The Environmental Survey Laboratory at Koeberg, iThemba Labs, NECSA and the Department of Health are capable to perform the analysis of radioactively contaminated samples.

6.3.16 Training

- 6.3.16.1 The skills and performance requirements for all positions relating to the Integrated Koeberg Nuclear Emergency Plan are defined and documented in authorised procedures.
- 6.3.16.2 The programme to provide for the training of employees and for periodic exercising are defined and documented in authorised procedures. This includes specialised initial training and periodic re-training programmes.
- 6.3.16.3 Radiological orientation training are available to intervening organisations.
- 6.3.16.4 Routine emergency response exercises, with the participation of the various Disaster Management Organisations are performed under the direction of the National Nuclear Regulator as and when required.
- 6.3.16.5 The Integrated Koeberg Nuclear Emergency Plan and associated procedures are subjected to routine reviews in the light of experience gained in exercises, other compliance/assurance activities and the experience gained at other facilities.

6.4 Emergency Response Requirements

The following emergency response requirements must be complied with.

6.4.1 Prognosis of the Initiating Event

- 6.4.1.1 The operators must monitor the situation in the Koeberg control room and perform a prognosis in accordance with plant procedures. Records must be kept of all actions and decisions.

6.4.2 Classification of the Event

- 6.4.2.1 The Koeberg Shift Manager and/or the Emergency Controller must classify the event in accordance with authorised procedures either as an Unusual Event; or an Alert; or a Site Emergency; or a General Emergency. Records must be kept of all actions and decisions.

6.4.3 Declaration of an Event

- 6.4.3.1 The Koeberg Shift Manager and/or the Koeberg Emergency Controller must declare the nuclear incident based on the classification, determine the appropriate protective actions as required and recommend to the Disaster Co-ordination Team, conduct on-site announcements and muster essential staff, review the declaration and classification in accordance with the prognosis as plant conditions change and maintain communication with key stakeholders as required. Records must be kept of all actions and decisions.
- 6.4.3.2 In the event where there is a need for urgent protective actions in the public domain and where the local authority is not yet in a position to order such protective actions, the holder of the nuclear authorisation should as a priority act in the interest of the public by advising/recommending such urgent protective actions. If time permits this should be done in consultation with the Head: Disaster Management Centre, City of Cape Town, or designated duty Co-ordinator in the DOC.

6.4.4 Declaration of a General Emergency

- 6.4.4.1 The Koeberg Shift Manager or Emergency Controller must conduct on-site announcements, muster all staff, initiate emergency notifications, complete the emergency notification form, specify the emergency category, specify the affected unit, provide access information, provide the wind direction and information on the release situation.

6.4.5 Termination of a general emergency

- 6.4.5.1 The on-site emergency situation may be terminated by the Koeberg Emergency Controller in consultation with the National Nuclear Regulator when the plant is under control and releases from the plant are within acceptable limits for normal operation. The site emergency organisation, however, should assist the public authorities until such time as the off-site emergency has been declared terminated. The recovery operations must be led by governmental bodies with the assistance of Eskom.

6.4.6 Activation of the Integrated Koeberg Nuclear Emergency Plan

- 6.4.6.1 The Koeberg Shift Manager and/or the Koeberg Emergency Controller must initiate the site alarm, activate standby emergency workers, activate and direct the Regional Nuclear Emergency Team to Bellville, deploy the on-site radiological monitoring team, activate and deploy appropriate components of nuclear incident or nuclear accident assessment, damage control and fire and rescue teams, activate the Emergency Control Centre at Koeberg promptly within 1 hour, activate Radiation Protection support, activate all supporting agencies and other emergency control centres, deploy Technical Advisors to SABC and to the CoCT Disaster Operations Centre.
- 6.4.6.2 The Head: Disaster Management Centre, City of Cape Town must activate the appropriate National Organisations, i.e. the DME representative assigned to participate in the Disaster Co-ordination Team, and the Heads of the Provincial and National Disaster Management Centres.

6.4.7 Declaration of a Disaster

- 6.4.7.1 The declaration of a General Emergency at Koeberg must result in the declaration of a National Disaster under the Disaster Management Act, 2002 (Act No. 57 of 2002), and subsequently consideration for a National State of Disaster.
- 6.4.7.2 The Head of the Disaster Operations Centre may declare a local disaster or recommend that a provincial disaster or national disaster be declared. A National Disaster must be declared by the National Disaster Management Centre when a General Emergency is declared at Koeberg Nuclear Power Station.

6.4.8 Review available information upon activation of Emergency Control Centres

- 6.4.8.1 The Koeberg Shift Manager and/or the Koeberg Emergency Controller must review, consolidate and supply all relevant information to the other Emergency Control Centres, i.e. the Regional Emergency Control Centre in Bellville and the Disaster Operations Centre, when activated.

- 6.4.8.2 The Disaster Co-ordination Team must review and understand the available information generated during the early phases of the emergency.
- 6.4.8.3 The Disaster Co-ordination Team must review the urgent protective actions called for and assess the type and resources that may be needed to implement the recommended protective actions.

6.4.9 Co-ordinate Media Liaison

- 6.4.9.1 The Disaster Co-ordination Team in conjunction with Eskom must co-ordinate the joint media liaison and communication in consultation with intervening organisations.
- 6.4.9.2 The Disaster Co-ordination Team in conjunction with Eskom must maintain communication with key stakeholders on plant prognosis and changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.

6.4.10 Co-ordinate Support Emergency Services

- 6.4.10.1 The Disaster Co-ordination Team must activate and co-ordinate the required emergency response support services, personnel for security, control measures for controlling contaminated food and water, and resources to control traffic and transportation.
- 6.4.10.2 The Disaster Co-ordination Team must expedite protective actions and provide for mass care, co-ordinate public notifications, co-ordinate zone isolation.

6.4.11 Protective Actions

- 6.4.11.1 The Koeberg Shift Manager and/or the Koeberg Emergency Controller must apply the available plant data in accordance with approved procedures, meteorology and radiological data or modelling to recommend protective actions to the Disaster Co-ordination Team.
- 6.4.11.2 The Koeberg Health Physics Controller must apply new radiological surveillance information to monitor, confirm or recommend adjustment to recommended protective actions.
- 6.4.11.3 The Koeberg Health Physics Controller must recommend evacuation or sheltering or relocation of people who are residing in plume affected areas subjected to ionising radiation above the intervention levels.
- 6.4.11.4 The Koeberg Health Physics Controller must recommend the distribution of potassium iodate prophylaxis as required in accordance with the intervention levels.
- 6.4.11.5 For protective actions decision making purposes during the early phase, the minimum angle to be considered with any given or predicted wind vector must be 67,5°.

6.4.12 Security Services

- 6.4.12.1 The Disaster Co-ordination Team must co-ordinate security services to protect evacuated areas.

6.4.13 Radiological Monitoring and Sampling

- 6.4.13.1 The Koeberg Field Team Leader and Koeberg Health Physics Controller must co-ordinate deployment and management of radiological monitoring team in affected areas.
- 6.4.13.2 The Koeberg Field Teams must perform radiological monitoring, delineate hotspots and collect environmental TLDs as required.
- 6.4.13.3 The Eskom Environmental Sampling Teams must collect environmental samples in soil, water, vegetables, milk, fish, and other media as directed by the ESL Sample Co-ordinator.
- 6.4.13.4 The Plotters must plot the measured data, such as ground concentrations, dose rates and integrated doses on the maps.
- 6.4.13.5 The Koeberg Field Team Leader and Koeberg Health Physics Controller must apply the radiological surveillance information to monitor, confirm or adjust protective actions relating to shelter, evacuation and relocation.

6.4.14 Personal Decontamination

- 6.4.14.1 The Koeberg Field Team Leader and Koeberg Health Physics Controller must recommend deployment of decontamination teams from the CoCT Environmental Health to areas as required. The Koeberg Radiation Protection Personnel or people under supervision of Koeberg Radiation Protection Personnel may assist the CoCT Environmental Health Practitioners to monitor potentially contaminated persons, locate and assess levels of contamination on the body and determine if contamination is internal, use bioassay techniques and consult a medical practitioner, as appropriate.
- 6.4.14.2 The Koeberg Radiation Protection Personnel or people under supervision of Koeberg Radiation Protection Personnel must apply personal decontamination techniques on contaminated members of the public and refer contaminated casualties for emergency medical treatment as required.

6.4.15 Control of Contaminated Food and Water

- 6.4.15.1 The Koeberg Field Team Leader and Koeberg Health Physics Controller must apply environmental surveillance information to monitor, confirm or recommend adjustment of protective actions relating to the control of contaminated food and water in the plume affected area.
- 6.4.15.2 The Disaster Co-ordination Team, must co-ordinate deployment of emergency response teams to implement contaminated food and water ban in areas as recommended by the Koeberg Emergency Controller.

6.4.16 Infra-structural Decontamination

- 6.4.16.1 The Disaster Co-ordination Team must co-ordinate deployment of resources to perform decontamination of infrastructure, i.e. large buildings, cars and soil in habitable areas etc. Infrastructure decontamination must be performed under supervision of Koeberg Radiation Protection Personnel or Trained Radiation Protection Specialists.

6.4.17 Traffic and Transportation

- 6.4.17.1 The Disaster Co-ordination Team must recommend roadblocks based on radiological monitoring results to identify affected areas, which require traffic control and transportation.
- 6.4.17.2 The Disaster Co-ordination Team must co-ordinate deployment of traffic control officers and transportation to areas as required.

6.4.18 Longer Term Monitoring

- 6.4.18.1 The Disaster Co-ordination Team must co-ordinate a long-term health monitoring programme for exposed people with probable deterministic effects, initiate epidemiological studies and implement long-term radiological monitoring in relocated or resettled areas.

6.4.19 Termination of the Late Phase

- 6.4.19.1 The Disaster Co-ordination Team must terminate the late phase of the nuclear emergency in consultation with all relevant authorities.

7.0 RECORDS

- 7.1 Records relating to nuclear accidents must be kept in a documentation system for 40 years after the event.

8.0 ATTACHMENTS

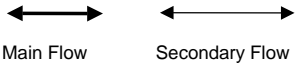
- Appendix 1 – Work Flow Responsibility Matrix
- Appendix 2 – NNR Requirements from the Technical Basis for the Koeberg Emergency Plan
- Appendix 3 – Protective Actions
- Appendix 4 – Classification of Nuclear Emergencies
- Appendix 5 – Principal Lines of Communication
- Appendix 6 – Emergency Response Times for Warning, Notification and Stand-by Personnel
- Appendix 7 – Emergency Intervention Levels for Early Phase Protective Actions
- Appendix 8 – Levels of Avertable Dose that Justify Intervention
- Appendix 9 – Emergency Intervention Levels for Temporary Relocation and Permanent Resettlement
- Appendix 10 – Generic Action Levels for Foodstuffs
- Appendix 11 – Total Effective Dose Guidance for Emergency Workers
- Appendix 12 – Emergency Plan Facilities and Equipment
- Appendix 13 – Integrated Koeberg Nuclear Emergency Plan Document Hierarchy
- Appendix 14 – Justification

WORK FLOW RESPONSIBILITY MATRIX						APPENDIX 1							
<div>R – Responsible</div> <div>A – Approve</div> <div>F – File</div> <div>• – Outside Matrix Scope</div> <div>Y/N or N/Y – Decision</div> <div>C – Concur</div> <div>I – Informed</div> <div>S – Service</div> <div>[] – Mandatory Requirement</div> <div>() – As Appropriate/Required</div> <div>Flow Path:</div> <div><div></div></div> <div><div></div></div> <div>Main Flow</div> <div>Secondary Flow</div>	ORGANISATION / FUNCTION												NOTES & REFERENCES
	SHIFT MANAGER AND/OR KOEBERG EMERGENCY CONTROLLER	KOEBERG HEALTH PHYSICS CONTROLLER	ESKOM REGIONAL NUCLEAR EMERGENCY MANAGER, RNECC	DISASTER CO-ORDINATION TEAM		HEAD OF NATIONAL DISASTER MANAGEMENT CENTRE	NATIONAL NUCLEAR REGULATOR	EMERGENCY RESPONSE INTERVENING ORGANISATIONS	NATIONAL EXECUTIVE	MINISTER OF PROVINCIAL AND LOCAL GOVERNMENT	FIELD TEAM LEADER AND FIELD TEAMS	TECHNICAL SUPPORT CENTRE LEADER	
ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
1.0 Prognosis Of The Initiating Event													Operating Shift to perform prognosis in accordance with KEP-056.
1.1 Monitor the situation in the Control Room and perform a prognosis in accordance with plant procedures.	[R] ↓		[I]				(I)						Control room personnel assess events using Koeberg Incident Procedures.
1.2 Keep a record of all actions and decisions.	[R] ↓		[I]				[I]						All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.
2.0 Classification of the Event													KEP-056 or KEP-060
2.1 Classify the nuclear incident or accident in accordance with procedures and declare:	[R] ↓												Classification to be performed in accordance with KEP-060 or KEP-056
2.1.1 An Unusual Event, or	[R] ↓		[I]	(I)			[I]						KEP-060 or KEP-056 Go to activity 3
2.1.2 An Alert, or	[R] ↓		[I]	[I]			[I]						KEP-060 or KEP-056 Go to activity 4
2.1.3 A Site Emergency, or	[R] ↓		[I]	[I]			[I]						KEP-060 or KEP-056 Go to activity 5
2.1.4 A General Emergency	[R] ↓		[I]	[I]		[I]	[I]		[I]	[I]			KEP-060, or KEP-056 Go to activity 6
2.2 Keep a record of all actions and decisions.	[R] ↓		[I]										All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.
3.0 Declaration of an Unusual Event													Declaration to be performed in accordance with KEP-060 or KEP 056.
3.1 Classify the nuclear incident in accordance with procedures and declare an Unusual Event.	[R] ↓		[I]	(I)			[I]						KEP-060 or KEP-056 Emergency Notification Form
3.2 Determine protective actions as required.	[R] ↓	(S)	[I]	(I)			[I]						KEP-024 Protective Action Form
	↓												



WORK FLOW RESPONSIBILITY MATRIX						APPENDIX 1								
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	SHIFT MANAGER AND/OR KOEBERG EMERGENCY CONTROLLER	KOEBERG HEALTH PHYSICS CONTROLLER	ESKOM REGIONAL NUCLEAR EMERGENCY MANAGER, RNECC	DISASTER CO-ORDINATION TEAM		HEAD OF NATIONAL DISASTER MANAGEMENT CENTRE	NATIONAL NUCLEAR REGULATOR	EMERGENCY RESPONSE INTERVENING ORGANISATIONS	NATIONAL EXECUTIVE	MINISTER OF PROVINCIAL AND LOCAL GOVERNMENT	FIELD TEAM LEADER AND FIELD TEAMS	TECHNICAL SUPPORT CENTRE LEADER		
	1	2	3	4	5	6	7	8	9	10	11	12		
	3.3 Conduct on-site announcements and muster essential staff.	↓ [R]	— [I]											KEP-060 or KEP-056
	3.4 Review the classification in accordance with the prognosis as plant conditions change.	↓ [R]	— [I]	— (I)			— [I]							Review plant conditions against criteria contained in KEP-060, or KEP-056.
	3.5 Maintain communication with key stakeholders on plant prognosis and changes to protective actions.	↓ [R]	— [S]	— (I)			— [I]							KEP-056 or KEP-060
	3.6 Keep a record of all actions and decisions.	↓ [R]												All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.
	4.0 Declaration of an Alert													Declaration to be performed in accordance with KEP-060, or KEP-056
	4.1 Classify the nuclear incident in accordance with procedures and declare an Alert.	↓ [R]	— [I]	— [I]			— (I)	— [I]						KEP-060 Emergency Notification Form
	4.2 Determine on site protective actions.	↓ [R]	— (S)	— [I]	— [I]			— [I]						KEP-060, KEP-024 Protective Action Form
	4.3 Conduct on-site announcements and muster all staff.	↓ [R]	— [I]	— (I)										KEP-060, or KEP-056, KAA-611
	4.4 Initiate emergency notifications and complete the emergency notification form.	↓ [R]	— [I]	— [I]										KEP-060, Emergency Notification Form
	4.5 Review the classification in accordance with the prognosis as plant conditions change.	↓ [R]	— [I]	— [I]				— [I]						Review plant conditions against criteria contained in KEP-060, or KEP-056.
4.6 Maintain communication with key stakeholders on plant prognosis and changes to protective actions.	↓ [R]	— [S]	— [I]				— [I]					KEP-056 or KEP-060 Appendix 6		



WORK FLOW RESPONSIBILITY MATRIX						APPENDIX 1							
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	SHIFT MANAGER AND/OR KOEBERG EMERGENCY CONTROLLER	KOEBERG HEALTH PHYSICS CONTROLLER	ESKOM REGIONAL NUCLEAR EMERGENCY MANAGER, RNECC	DISASTER CO-ORDINATION TEAM		HEAD OF NATIONAL DISASTER MANAGEMENT CENTRE	NATIONAL NUCLEAR REGULATOR	EMERGENCY RESPONSE INTERVENING ORGANISATIONS	NATIONAL EXECUTIVE	MINISTER OF PROVINCIAL AND LOCAL GOVERNMENT	FIELD TEAM LEADER AND FIELD TEAMS	TECHNICAL SUPPORT CENTRE LEADER	
ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
4.7 Keep a record of all actions and decisions.	[R]		[I]	[I]									All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.
5.0 Declaration of a Site Emergency													Declaration to be performed in accordance with KEP-060 or KEP-056.
5.1 Classify the nuclear incident or accident in accordance with procedures and declare a Site Emergency.	[R]		[I]	[I]			[I]						KEP-060, or KEP-056 Emergency Notification Form
5.2 Determine on-site protective actions.	[R]	(S)	[I]	[I]			[I]						KEP-060, or KEP-056 Appendix 4 KEP-024
5.3 Conduct on-site announcements and muster all staff.	[R]		[I]	(I)									KEP-060 or KEP-056, KAA-611
5.4 Initiate emergency notifications and complete the Emergency Notification Form.	[R]		[I]	[I]			[I]						KEP-060, or KEP-056 Emergency Notification Form
5.5 Review the classification in accordance with the prognosis as plant conditions change.	[R]		[I]	[I]			[I]						Review plant conditions against criteria contained in KEP-056, or KEP-060.
5.6 Maintain communication with key stakeholders on plant prognosis and changes to protective actions.	[R]		[S]	[I]			[I]						Appendix 6 KEP-056, KEP-060
5.7 CoCT to liaise with DME to send representatives to the DOC in Cape Town.	[I]		[I]	[R]			(I)						CoCT KNEP 3.9
5.8 Keep a record of all actions and decisions.	[R]		[I]	[I]									All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
6.0 Declaration of a General Emergency													Declaration to be performed in accordance with KEP-060, or KEP-056.
6.1 Classify the nuclear accident in accordance with procedures and declare a General Emergency.	[R]		[I]	[I]		[I]	[I]		[I]	[I]			KEP-060, or KEP-056 Emergency Notification Form
6.2 Complete off-site dose projections.	[R] (S)												KEP-065 Off-site Dose Projection Form
6.3 Determine and recommend protective actions.	[R] (S)	[I]	[C]				[I]						Appendix 4 Protective Action Form KEP-024
6.4 Conduct on-site announcements and muster all staff	[R]		[I]	[I]			[I]						KEP-060, or KEP-056, KAA-611
6.5 Initiate emergency notifications and complete the emergency notification form. Specify the emergency category, affected unit; access information, wind direction, release situation.	[R]		[I]	[I]			[I]						KEP-060, or KEP-056 Emergency Notification Form KEP-I-016 KEP-I-001
6.6 Maintain communication with key stakeholders on plant prognosis and changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.	[R]		[S]	[C]			[I]						KEP-056, KEP-060 Appendix 6
6.7 DME to send a Representative to NDMC when a General Emergency is declared at KNPS.	[I]			[R]		[I]							
6.8 Keep a record of all actions and decisions.	[R]		[I]	[I]									All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.



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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
7.0 Activation of the Integrated Koeberg Nuclear Emergency Plan													
7.1. Initiate site alarm and notifications	[R]		[I]	[I]									KEP-060, or KEP-056
7.2. Activate standby emergency workers.	[R]		[I]	[I]									KEP-002
7.3. Direct the Regional Nuclear Emergency Team to Bellville.	[R]		[I]	[I]									KEP-002 KEP-060, or KEP-056
7.4. Deploy the off-site radiological monitoring team.	[R]		[I]	[I]							[S]		KEP-041
7.5. Activate and deploy appropriate components of incident assessment, damage control and fire and rescue teams.	[R]		[I]	[I]								[S]	KEP-002 KEP-063
7.6. Activate Koeberg ECC and assume emergency control promptly within 1 hour.	[R]		[I]	[I]									KEP-002 KEP-060
7.7. Activate Megawatt Park Emergency Plan.	[R]		[I]	(I)									KEP-002 ESKPVAAD2
7.8. Activate RNET	[R]		[I]	(I)									KEP-002 GGP 1196
7.9. Activate all supporting agencies emergency control centres.	[R]		[I]	[S]				[I]					KEP-002
7.10. Deploy Technical Advisors to SABC and DOC.	[R]		[I]	[I]									KEP-002 KEP-060
7.11. Maintain communication with key stakeholders on plant prognosis and changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions	[R]		[S]	[C]				[I]					KEP-060 Appendix 6
7.12. Keep a record of all actions and decisions.	[R]		[I]										All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
8.0 Activation of Disaster Operations Centre (DOC)													
8.1 Activate the Disaster Operations Centre	[I]		[I]	[R]		[I]	(I)	[I]					CoCT plan for dealing with nuclear emergencies arising from the KNPS. CoCT KNEP 2.1 CoCT KNEP 3.9
8.2 Obtain a briefing from Koeberg Nuclear Emergency Controller on the plant status, plant conditions, plant prognosis and nuclear incident or accident classifications.	[S]	(S)	[R]			[I]		[I]					KEP-060 CoCT KNEP 1.2 CoCT KNEP 2.1
8.3 Obtain briefings on recommended protective actions as appropriate.	[S]	(S)	(R)			[I]		[I]					CoCT KNEP 1.2.
8.4 Implement protective actions as appropriate.	[I]		[R]			[I]	[I]	[S]					CoCT KNEP 3.9 CoCT KNEP 4.1 (A) & (B) CoCT KNEP 4.2 – 4.11 NOTE: In principle the Head of the Disaster Management Centre (CoCT) may implement the recommendations from the Koeberg Emergency Controller in the absence of representatives from the DME and PGWC.
8.5 Maintain communication with key stakeholders on plant prognosis and changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.	[I]	[S]	[R]			[I]	[I]	[I]					CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
8.6 Keep a record of all actions and decisions.	[R]		[R]			[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
9.0 Classification of the Disaster													
9.1 Upon declaration of a General Emergency at Koeberg, recommend declaration of a National Disaster under the Disaster Management Act	[I]		[I]	[R]		[C]	[I]	[I]					National Nuclear Disaster Management Plan The Head: Disaster Management Centre, CoCT and representatives from DME and Provincial Disaster Management are responsible for joint co-ordination, decision-making and management of an emergency
9.2 Record the prescribed particulars of the disaster in the prescribed register.				[S]		[R]							DMA section 23(1c)
10.0 Declaration of a National State of Disaster													A National Disaster must be declared upon declaration of a General Emergency.
10.1 Declare a national state of disaster.	[I]		[I]	[C]		[S]	[I]	[I]	[C]	[R]			DMA section 27(1)
10.2 Activate the national disaster management centre and alert disaster management role-players in the country that may be of assistance.	[I]		[I]	[I]		[R]	[I]	[I]	[I]				DMA section 27(1) The National Executive must deal with a national disaster DMA section 26(2)
10.3 Keep a record of communication.	[R]			[I]		[R]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident.
11.0 Activation of Late Phase activities.													
11.1 Formal de-briefing and assessment of early and intermediate phase activities.	[R]		[I]	[C]		[I]	[I]						Emergency Controller transfer information from Koeberg to the Disaster Co-ordination Team
11.2 Review and consolidate information generated during the early phases of the emergency.	[S]		[I]	[R]		[I]	[I]	[I]					

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
11.3 Apply land-use database and maps for characterising the affected area, food and population.	[S]		(I)	[R]		[I]	[I]	[I]					KEP-I-004 CoCT GIS KSSR
11.4 Identify areas where remedial actions must be taken and areas where remedial actions may be considered.	[S]		(I)	[R]		[I]	[I]	[I]					CoCT KNEP 4.12 –4.13 KEP-024
11.5 Co-ordinate media liaison and communication.			[S]	[R]		[I]							KEP-033 CoCT KNEP 3.3
11.6 Recommend protective actions	[R]	[S]	[I]	[C]		[I]	[I]	[I]					KEP-024
11.7 Review recommended protective actions.		[S]	(I)	[R]		[I]	(S)	[I]					The Head: Disaster Management Centre, City of Cape Town, and representatives DME, in conjunction with the PGWC Disaster Management Centre, are responsible for joint co-ordination, decision-making and management.. CoCT KNEP 3.9
11.8 Perform Public Notification.	(S)		[I]	[R]		[I]	[I]	[S]					KEP-002 CoCT KNEP 4.1 (A) & (B)
11.9 Assess the type and potential source of resources that may be needed for implementation of recommended protective actions.	[I]		(I)	[R]		[S]	[I]	[I]					The Head: Disaster Management Centre, City of Cape Town, and representatives from DME, in conjunction with the PGWC Disaster Management Centre, are responsible for joint co-ordination, decision-making and management. CoCT KNEP 4.8 CoCT KNEP 4.12 KGG-005
11.10 Activate and co-ordinate emergency response organisations	[I]		[I]	[R]				[S]					CoCT KNEP 1.2
11.11 Co-ordinate and Activate personnel for security	[I]		(I)	[R]		[I]	(I)	[S]					CoCT KNEP 3.5 CoCT KNEP 3.8

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	1	2	3	4	5	6	7	8	9	10	11	12			
	11.12 Co-ordinate the control of contaminated food and water	[I]		[I]	[R]		[I]	[I]	[S]						CoCT KNEP 4.8
	11.13 Co-ordinate the control of traffic and transportation	[I]		(I)	[R]		[I]	(I)	[S]						CoCT KNEP 2.9
	11.14 Expedite protective actions and provide for mass care and relocation.	[I]		[I]	[R]		[S]	[I]	[S]						CoCT KNEP 4.4 CoCT KNEP 4.5 CoCT KNEP 4.12
	11.15 Perform zone isolation.	[I]		[I]	[R]		[I]	[I]	[S]						CoCT KNEP 2.9
	11.16 Use plant information, meteorology and radiological data or modelling to recommend additional protective actions.	[R]	(S)	[I]	[C]										KEP-036 KEP-024 KEP-065
	11.17 Perform radiological surveys to monitor, confirm or recommend other protective actions.	[R]	(C)	[I]	[C]			[I]				[S]			KEP-010
	11.18 Maintain communication with key stakeholders on plant prognosis and changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.	[I]		[S]	[R]		[I]	[I]	[I]						CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3 CoCT KNEP 3.9
	11.19 Provide security services to protect evacuated and relocated areas.	[I]		[I]	[R]		[S]	[I]	[S]						CoCT KNEP 3.5 CoCT KNEP 3.8
	11.20 Co-ordinate operations at emergency reception centres and provide emergency social services, including lodging, food, clothing, registration, inquiry and personal services.	[I]		[I]	[R]		[I]	[I]	[S]						CoCT KNEP 4.5 CoCT KNEP 4.12
	11.21 Muster emergency response teams and co-ordinate dosimeter services.	[S]	(S)	[I]	[R]				[I]			[S]			KEP-035 CoCT KNEP 4.9

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
11.22 Keep a record of all actions and decisions.	[R]			[R]		[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
12.0 Radiological Monitoring and Sampling													
12.1 Deploy and manage radiological monitoring teams in populated plume affected areas.	[R]	(C)	[I]	[I]			[I]	[I]			[S]		KEP-041 KEP-036
12.2 Perform radiation and contamination surveys. Delineate hotspots. Collect and process environmental TLDs.	[R]	(C)	[I]	[I]			[I]	[I]			[S]		KEP-010 KEP-035
12.3 Collect, assess and validate results from radiological surveillance field teams.	[R]	(S)	[I]	[I]			[I]	[I]			[S]		KEP-036 KEP-041 KEP-065
12.4 Prepare large area maps based on measured data, such as ground concentrations, dose rates and integrated doses.	[R]	(S)	[I]	[I]			[I]	[I]			[S]		KEP-036 KEP-041 KEP-I-004
12.5 Apply radiological surveillance information to monitor, confirm or adjust protective actions relating to shelter, evacuation and relocation.	[R]	(S)	[I]	[I]			[I]	[I]					KEP-024 The Koeberg Emergency Controller recommends changes as required to the Disaster Co-ordination Team.
12.6 Maintain communication with key stakeholders on changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.	[I]		[S]	[R]		[I]	[I]	[I]					CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
12.7 Deploy environmental sampling teams in plume affected areas.	[R]	(C)	[I]	[I]			[I]	[I]			[S]		KEP-I-007

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
12.8 Collect environmental samples in soil, water, vegetables, milk, fish, etc.	[R]	[C]	[I]	[I]			[I]	[I]			[S]		KEP-I-007
12.9 Assess radionuclide concentration in samples and identify and quantify specific radionuclides.	[R]	[C]	[I]	[I]			[I]	[I]			[S]		KEP-I-006
12.10 Maintain communication with key stakeholders on changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.	[I]		[S]	[R]		[I]	[I]	[I]					CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
12.11 Keep a record of all actions and decisions.	[R]			[R]		[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
13.0 Protective Actions													
13.1 Apply radiological surveillance information to monitor, confirm or adjust protective actions.	[S]	[S]	[I]	[R]		[I]	[I]	[I]					KEP-024 KEP-036 CoCT KNEP 4.2 – 4.12
13.2 Deploy emergency response teams to areas as required.	[S]	[S]	[I]	[R]		[I]	[I]	[S]					CoCT KNEP 2.1
13.3 Evacuate, shelter, relocate people who are residing in plume affected areas subjected to radiation levels in excess of the intervention levels.	(C)	(C)	[I]	[R]		[S]	[I]	[S]					CoCT KNEP 4.2 – 4.1 The Head: Disaster Management Centre, City of Cape Town, and representatives from DME, in conjunction with the PGWC Disaster Management Centre, are responsible for co-ordinate decision making. KEP-024 CoCT KNEP 3.9
13.4 Distribute iodine prophylaxis as required in accordance with the intervention levels.	(C)	(C)	[I]	[R]			[I]	[S]					CoCT KNEP 4.2 CoCT KNEP 3.9

WORK FLOW RESPONSIBILITY MATRIX						APPENDIX 1							
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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
13.5 Maintain communication with key stakeholders on changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.				[S] — [R] — [I]									CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
13.6 Keep a record of all actions and decisions.	[R] — [I]			[R] — [I]									All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
14.0 Personal Decontamination													
14.1 Recommend deployment of decontamination emergency response teams to areas as required.	[R] — [C] — [I] — [C] — [I] — [S] — [S]												
14.2 Monitor contaminated / potentially contaminated persons.	[R] — [C] — [I] — [I] — [I] — [S] — [S]												
14.3 Locate and assess levels of contamination on the body and determine dose.	[R] — [C] — [I] — [I] — [I] — [S] — [S]												
14.4 If contamination is internal, use bioassay techniques.	[R] — [C] — [I] — [I] — [I] — [I] — [S]												KEP-020 KEP-035
14.5 Apply personal decontamination techniques and processes.	[S] — [S] — [I] — [R] — [I] — [S] — [S]												CoCT KNEP 4.11 Koeberg RP personnel or people under Koeberg RP personnel supervision must perform personal decontamination.
14.6 Provide emergency medical treatment of contaminated casualties.	[I] — [I] — [R] — [I] — [I] — [I]												CoCT KNEP 3.6 KEP-076 CoCT-KNEP 2.5

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
14.7 Maintain communication with key stakeholders on changes to protective actions; verify the effectiveness of remedial action.			[S]	[R]		[I]					[S]		CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
14.8 Keep a record of all actions and decisions.	[R]			[R]		[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
15.0 Control of Contaminated Food and Water													
15.1 Apply environmental surveillance information to monitor, confirm or adjust protective actions relating to the control of contaminated food and water in the plume affected area and the country.	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		CoCT KNEP 4.8. KEP-I-006 KEP-024
15.2 Deploy emergency response teams to control contaminated food and water in areas as required.	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		CoCT KNEP 4.8
15.3 Control food (temporary or permanent food bans, food contamination reduction measures, food diversion, etc).	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		CoCT KNEP 4.8
15.4 Provide alternative food supplies if required.	[I]		[I]	[R]		[S]	[I]		[I]	[S]			
15.5 Restrict the movement of contaminated food out of the affected area.	[S]	[S]	[I]	[R]			[I]	[S]			[S]		CoCT KNEP 4.8
15.6 Implement and enforce food control measures for import and exports.	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		To be implemented in consultation with IAEA/FAO via the Assistance Convention.

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
15.7 Maintain communication with key stakeholders on changes to protective actions, verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.			[S]	[R]		[I]							CoCT KNEP 1.2 CoCT KNEP 2.1 CoCT KNEP 3.1 CoCT KNEP 3.3
15.8 Keep a record of all actions and decisions.	[R]			[R]		[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
16.0 Infra-structural Decontamination													
16.1 Apply environmental surveillance information and radiological monitoring results to determine the need for decontamination of the infrastructure i.e. roads, buildings, cars, etc.	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		KEP-010 KEP-065
16.2 Deploy decontamination teams to remove contamination from structures and soil in habitable areas.	[S]	[S]	[I]	[R]		[I]	[I]	[S]			[S]		KGG-005 Infrastructure Decontamination must be performed under supervision of Koeberg RP personnel or trained RP specialists
16.3 Perform radiation and contamination surveys to assess the degree of success.	[R]	[C]	[I]	[I]		[I]	[I]				[S]		KEP-010
16.4 Apply post-decontamination surveillance information and radiological monitoring results to monitor, confirm or adjust protective actions relating to relocation.	[R]	[C]	[I]	[I]		[I]	[I]	[S]			[S]		KEP-010 KEP-024 CoCT KNEP 4.4

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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
16.5 Maintain communication with key stakeholders on changes to evacuation and relocation protective actions verify the effectiveness of remedial action and inform the public on the degree of success of remedial actions.			[S]	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></d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ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	
17.6 Keep a record of all actions and decisions.	[R]			↓ [R]		[I]							All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
18.0 Longer Term Monitoring													
18.1 Develop and implement long-term health monitoring of people with probable deterministic effects.	[I]	[I]	[I]	↓ [R]		[I]	(C)	[I]	[C]	[S]			
18.2 Initiate epidemiological studies.	[I]	[I]	[I]	↓ [R]		[I]	(C)	[I]	[S]	[S]			
18.3 Implement long-term radiation monitoring in relocated or resettled areas.	[S]		[I]	↓ [R]		[I]	(C)	[I]		[S]			
18.4 Prepare for possible litigation.	[I]		[I]	↓ [R]		[I]	[I]	[I]		[S]			
18.5 Keep a record of each person who was within the area affected by the accident at the time of the accident	(S)			↓ (S)			↓ [R]						
18.6 Keep a record of all actions and decisions.	[R]			↓ [R]		[I]	(R)						All records of details of the nuclear accident must be kept safely for 40 years from the date of the nuclear accident. CoCT KNEP 5.5
19.0 Termination of the Late Phase													
19.1 Terminate the late phase by notice in the applicable gazette.	[I]		[I]	[R]		[S]	[C]						The Head: Disaster Risk Management Centre, City of Cape Town, and representatives from DME, in conjunction with the PGWC Disaster Management Centre, are responsible for co-ordinated decision making. CoCT KNEP 1.3

APPENDIX 2

**NNR REQUIREMENTS FROM THE TECHNICAL
BASIS FOR THE KOEBERG EMERGENCY PLAN**

ZONE	SIZE (km)	ACTION	IMPLEMENTATION TIME (hours)	JUSTIFICATION
PAZ	PEB – 5	Evacuation (all sectors) based on in-plant conditions	4 ^a	Reduces the risk of deterministic effects by pre-emptively evacuating out to a radius where deterministic mortality effects may not occur. LG-1036 and IAEA TECDOC 953 and 955
UPZ	5 – 16	Shelter (downwind sectors) Evacuation based on in-plant conditions leading to 12-16 hour advance warning. Thyroid blocking (downwind sectors)	4 ^a 16 10 ^a	Reduces the risk of stochastic effects by pre-emptively sheltering downwind and then evacuating based on prevailing conditions (e.g. plant degradation and environmental monitoring). LG-1036 and IAEA TECDOC 953 and 955 In line with international practice
LPZ	PEB – 80	Relocation (based on environmental monitoring) Food ban (based on environmental monitoring)	Long term action Long term action	Reduces the risk of stochastic effects from long term exposure to deposition and ground shine. LG-1036 and IAEA TECDOC 953 and 955

^a Implementation time is measured from the time when the protective action is recommended by the Emergency Controller and is accepted by the CoCT Disaster Operations Centre.

APPENDIX 3

PROTECTIVE ACTIONS

- 1.0 Protective Actions are intended to prevent or mitigate the radiological or psychological consequences of a nuclear incident for the on and off-site populations. As a general principle, it must be appropriate to implement a protective action when the risk associated with the averted dose exceeds the social and monetary risks associated with that action.
- 2.0 The Protective Actions that may be recommended by Eskom and ordered by the Disaster Co-ordination Team are:
 - 2.1 **Notification of the Public** – Warning to the public, which may minimise the emergency response, time required to complete a Protective Action.
 - 2.2 **Ad Hoc Respiratory Protection** – Reduction of aerosol inhalation provided by the use of common household and personal items.
 - 2.3 **Protective Action Zone Isolation** – Prevention of access to, or removal of property from, a radiologically affected area to prevent or minimise the consequences of exposure to ionising radiation or contamination.
 - 2.4 **Sheltering** – Protection from exposure to radioactivity which may be afforded by buildings of a permanent nature.
 - 2.5 **Relocation** – The non-urgent removal or extended exclusion of people from a contaminated area to avoid chronic radiation exposure following the passage of a radioactive plume.
 - 2.6 **Thyroid Protection** – Administration and ingestion of stable iodine (KIO_3) which may minimise the exposure of the thyroid to radioactive iodine.
 - 2.7 **Evacuation** – Urgent removal of a population from an area to avoid the imminent or actual threat of acute radiation exposure, e.g. from an airborne radioactive plume.
 - 2.8 **Analysis and Control of Foodstuffs** – Measures leading to the control of food and water contaminated by a release of radioactivity. Food banning in a potentially affected area must be recommended by Eskom and ordered by the Disaster Co-ordination Team as a preventive measure, pending analysis.
 - 2.9 **Decontamination of Persons** – Usually persons may be decontaminated in ordinary shower facilities, followed by a change of clothing.
 - 2.10 **Use of Stored Animal Feed** – The transfer of domestic animals from free-range feeding to stored foodstuff may reduce the uptake of radioactive materials resulting from deposition.
 - 2.11 **Infrastructure Decontamination** – Decontamination of areas, buildings, equipment, roads, land, etc, is a protective measure that applies to the intermediate or late phase. Decontamination involves the removal of radioactivity from an affected area to another location where it must be less hazardous.
 - 2.12 **Permanent Resettlement** – The permanent removal or exclusion of people from a contaminated area, where return is not foreseeable, to avoid chronic radiation exposure.

APPENDIX 4

CLASSIFICATION OF NUCLEAR EMERGENCIES

UNUSUAL EVENT

An abnormal occurrence which indicates an unplanned deviation from normal operations; the actual or potential consequences of which require the partial or limited activation of the emergency plan.

ALERT

A situation exists that could develop into a SITE or GENERAL EMERGENCY and therefore requires notification of all emergency personnel in order to obtain a state of readiness to respond.

SITE EMERGENCY

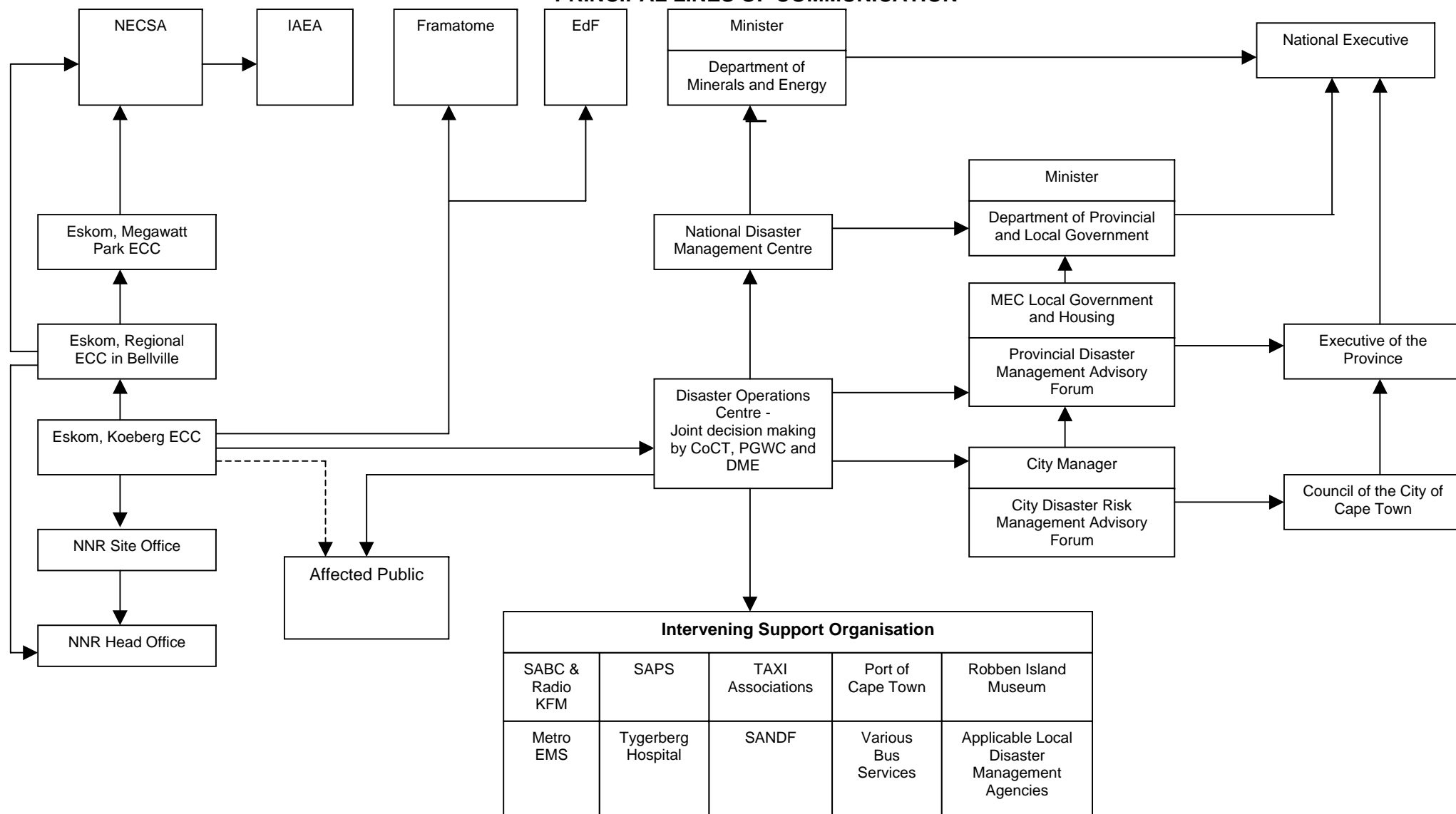
An emergency condition exists that poses a serious radiological hazard on-site, but poses no serious radiological hazard beyond the public exclusion boundary.

GENERAL EMERGENCY

An emergency condition exists that involves, or potentially involves, a serious radiological hazard beyond the public exclusion boundary. The declaration of a General Emergency at Koeberg Nuclear Power Station must result in the declaration of a National Disaster under the Disaster Management Act.

APPENDIX 5

PRINCIPAL LINES OF COMMUNICATION



APPENDIX 6

EMERGENCY RESPONSE TIMES FOR WARNING, NOTIFICATION AND STAND-BY PERSONNEL

Warning and notification must be achieved within the following time frames and direction:

- ◆ Site and PAZ – 15 minutes, throughout 360°.
- ◆ UPZ (5 – 10 km) – 30 minutes, 67,5° downwind sector.
- ◆ UPZ (10 – 16 km) – 45 minutes, 67,5° downwind sector.

Response times for Koeberg Nuclear Power Station stand-by personnel:

- ◆ Emergency Controller to relieve Shift Manager: Promptly within one hour of call out.
- ◆ Standby ECC personnel: promptly within one hour of call out.
- ◆ Standby personnel to activate Bellville ECC: promptly within two hours of call out.

Response times for Disaster Co-ordination Team:

- ◆ CoCT and PGWC representatives must muster at the DOC within one hour after initial notification.
- ◆ DME representatives to the NDMC should report within one hour after the declaration of a General Emergency.

APPENDIX 7

EMERGENCY INTERVENTION LEVELS FOR
EARLY PHASE PROTECTIVE ACTIONS

Protective Action	Dose	
	Whole body	Lungs*, Thyroid* and any Single Organ Preferentially Irradiated
	[mSv]	[mSv]
<i>Sheltering & Stable Iodine Administration</i>		
UPPER DOSE LEVEL	50	500
LOWER DOSE LEVEL	5	50
<i>Evacuation</i>		
UPPER DOSE LEVEL	500	5000
LOWER DOSE LEVEL	50	500

* In the event of α -irradiation of the lung, the numerical values apply to the product of radiation weighting factor and absorbed dose in mGy.

+ For practical reasons, one intervention level is recommended for all age groups.

APPENDIX 8**LEVELS OF AVERTABLE DOSE THAT JUSTIFY INTERVENTION**

Protective Action	Generic intervention level
Sheltering	10 mSv
Evacuation	50 mSv
Iodine Prophylaxis	100 mSv

NOTE 1: *The intervention levels in Appendix 7 must be used to determine protective actions during the initial stages of an emergency.*

NOTE 2: *Protective actions may be justified using levels of avertable dose listed above later in an emergency.*

APPENDIX 9**EMERGENCY INTERVENTION LEVELS FOR TEMPORARY
RELOCATION AND PERMANENT RESETTLEMENT**

Period	Intervention Level	Definition
1 st Month	30 mSv	Temporary relocation
Subsequent month	10 mSv	Temporary relocation
Lifetime (50 years)	1000 mSv	Permanent resettlement

APPENDIX 10

GENERIC ACTION LEVELS FOR FOODSTUFFS

FOODS DESTINED FOR GENERAL CONSUMPTION		
Isotope Group	Radionuclides	Generic Action Levels (kBq/kg)
1	Cs-134, Cs-137, Ru-103, Ru-106, Sr-89, I-131	1
2	Sr-90	0,1
3	Am-241, Pu-238, Pu-239, Pu-240, Pu-242	0,01
MILK, INFANT FOODS AND DRINKING WATER		
4	Cs-134, Cs-137, Ru-103, Ru-106, Sr-89	1
5	Sr-90, I-131	0,1
6	Am-241, Pu-238, Pu-239, Pu-240, Pu-242	0,001

Notes:

These levels apply to situations where alternative food supplies are readily available. Where food supplies are scarce, higher levels may apply. They also apply to food prepared for consumption, and would be unnecessarily restrictive if applied to dried or concentrated food prior to dilution or reconstitution

For practical reasons the criteria for separate radionuclide groups must be applied independently to the sum of the activities of the radionuclides in each group.

Classes of food that are consumed in small quantities (e.g. less than 10 kg per person per year), such as spices, which represent a very small fraction of the total diet and would make very small additions to individual exposures, may have action levels ten times higher than those for major foodstuffs.

APPENDIX 11

TOTAL EFFECTIVE DOSE GUIDANCE FOR EMERGENCY WORKERS

TASKS	(a) E_T^{WG} (b) [mSv] (c)
Type 1 <ul style="list-style-type: none"> Life-saving actions Prevention of core damage or given core damage to prevention of a large release. 	< 500
Type 2 <ul style="list-style-type: none"> Prevent serious injury. Avert a large effective dose. Prevent the development of catastrophic conditions. Recovery of reactor safety systems. Off-site ambient dose rate monitoring (gamma dose rate) 	< 100
Type 3 <ul style="list-style-type: none"> Short-term recovery operations. Implement urgent protective actions. Environmental sampling. 	< 50
Type 4 <ul style="list-style-type: none"> Longer-term recovery operations. Work not directly concerned with a nuclear accident. 	Occupational exposure guidance

- (a) These doses may be exceeded if JUSTIFIED, but every effort must be made to keep dose below this level, and certainly below the thresholds for deterministic biological effects. The workers must be trained in radiation protection and understand the risk that they face.
- (b) Every reasonable effort should be made to keep the dose to women of reproductive capacity as far below 100 mSv as is practicable. Women who know or suspect that they are pregnant should not be assigned duty as an emergency worker.
- (c) The equivalent dose to skin of any emergency worker undertaking actions during an emergency must be controlled to ensure that a dose limit of 5000 mSv is not exceeded.

NOTE 1: Workers who undertake actions in which the dose may exceed the occupational maximum single year dose limit, must be volunteers.

NOTE 2: The person responsible for compliance with these requirements is the Eskom Emergency Controller for Eskom staff.

NOTE 3: The Eskom Emergency Controller must authorise dose extensions for emergency workers who are Eskom employees. The Disaster Co-ordination Team must authorise dose extensions for all other emergency workers.

NOTE 4: Workers must not normally be precluded from incurring further occupational exposure because of doses received in an emergency exposure situation. However, qualified medical advice must be obtained before any such further exposure.

NOTE 5: The implementing procedures must provide emergency worker turn-back dose guidance expressed as a function of integrated external gamma exposure.

APPENDIX 12

EMERGENCY PLAN FACILITIES AND EQUIPMENT

The following facilities must be maintained in a continuous state of readiness to implement the plan:

- 1) HVCR – High Voltage Control Room
- 2) ECC – Emergency Control Centre
- 3) AECC – Alternate Emergency Control Centre
- 4) TSC – Technical Support Centre, situated in the ECC
- 5) ATSC – Alternate Technical Support Centre
- 6) Damage Control Store – Adjacent to NAB entry
- 7) Joint Media Centre, situated at Bellville
- 8) ESL – Environmental Survey Laboratory
- 9) AESL – Alternate ESL
- 10) Medical and Decontamination Facilities, Medical Centre
- 11) Radiation Casualty Handling Facility, Tygerberg Hospital
- 12) Koeberg Fire Station
- 13) Vehicles allocated to the Emergency Plan for radiological surveillance, or identified as being required to support emergency response.
- 14) SABC – Emergency Studio
- 15) CoCT – Disaster Operations Centre
- 16) Emergency kits allocated to:
 - District Sampling Teams
 - Robben Island Museum(Retained at the ESL for conveyance by RP Monitor)
 - EMS / METRO
- 17) Koeberg Site Muster Stations
- 18) Koeberg Site Emergency Cabinets
- 19) Koeberg Central Alarm Station

APPENDIX 12 (continued)**EMERGENCY PLAN FACILITIES AND EQUIPMENT**

- 20) Public Notification System
- 21) Redundant communications system in all Emergency Control Centres.
- 22) City of Cape Town –Two sub-zone Disaster Management units situated at:
 - Atlantis
 - Melkbosstrand
- 23) Mass Care Centres
 - Avonwood Sports Complex
 - Grassy Park Sports Complex
 - Goodwood Rugby Field
 - Bellville Velodrome and Sports Complex
 - Durbanville Race Course
- 24) Relocation Centres

NOTE 1: *Arrangements must be in place to ensure that at no time must the inventory of emergency equipment allocated to these facilities be reduced to below the minimum specified levels. The Mass Care Centres must be selected and allocated emergency equipment upon the declaration of the general emergency. The Relocation Centres must be selected and equipped with the necessary resources during the intermediate or late phase of the nuclear emergency.*

NOTE 2: *Calibration of radiological surveillance equipment must be performed.*

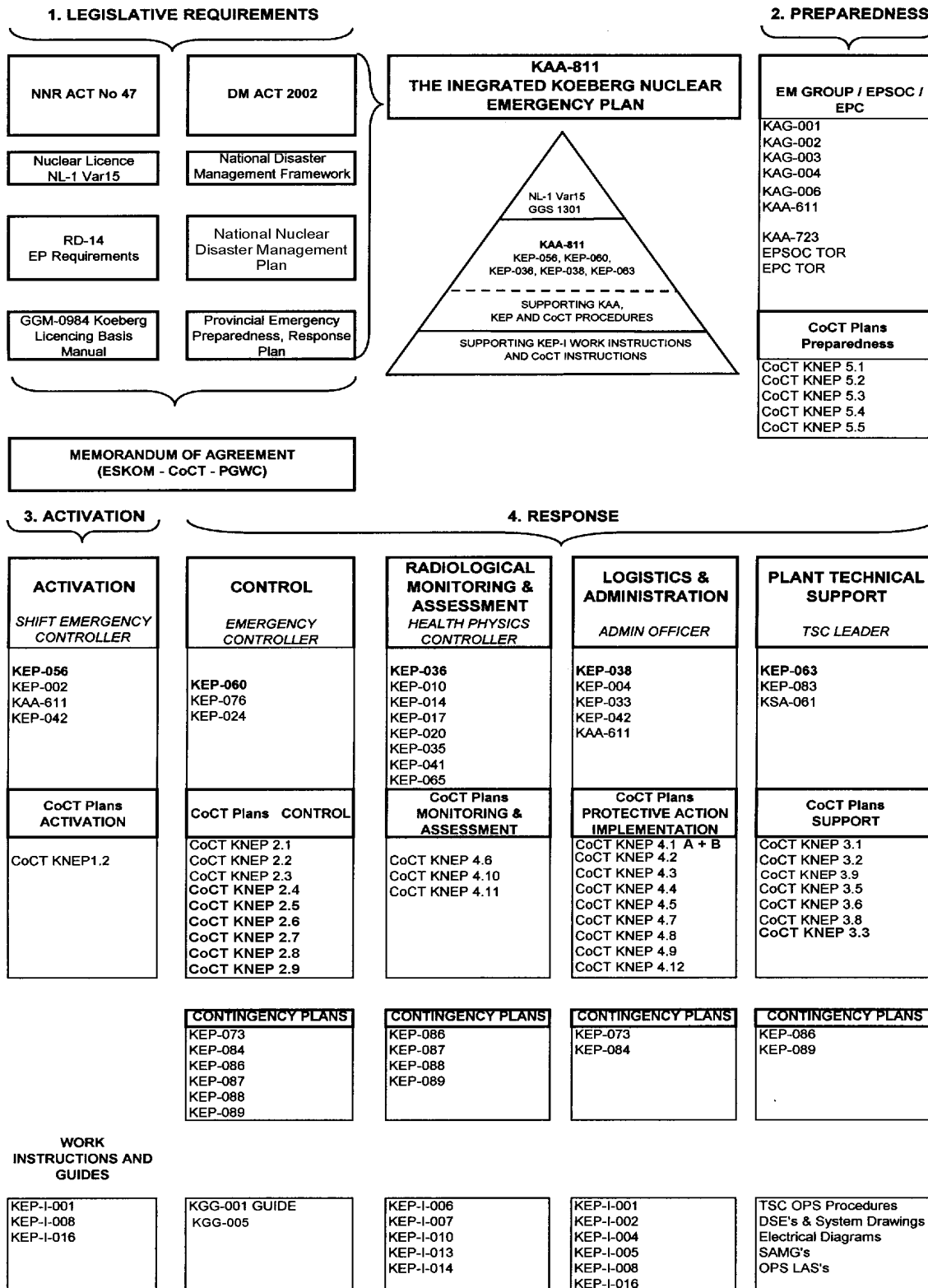
NOTE 3: *Potassium Iodate (KIO_3) tablets must be analysed for replacement or extension every five years. Extension must be at the discretion and written approval of the Medicines Control Board. The quantity considered to be adequate for protection within the Plume Exposure Zone must be determined, and stored upon receipt, by CoCT. The tablets intended for the protection of the population on Robben Island must be stored and controlled by the Safety Officer. The storage on-site of sufficient tablets to provide for the protection of site personnel must be controlled by the Eskom Chief Medical Officer. Tablets must be available from:*

- Central Muster Stations
- Emergency Control Centre
- Medical Centre
- Main Gate (Access Control Point #2)
- HVCR
- Radiation Protection Cold Laundry
- Emergency Plan Vehicles and Survey kits

Following recommendation by the Koeberg Emergency Controller, CoCT is responsible for the issue of KIO_3 to the general public, supported as necessary by the appropriate municipal departments.

APPENDIX 13

INTEGRATED KOEBERG NUCLEAR EMERGENCY PLAN DOCUMENT HIERARCHY



kaa81101

APPENDIX 14

JUSTIFICATION

Revision 0

1. The Integrated Koeberg Nuclear Emergency Plan is a new procedure required in terms of the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999).

Revision 1

1. The Integrated Koeberg Nuclear Emergency Plan was revised to be in line with the NNR Requirements Document RD-014, The National Nuclear Disaster Management Plan and Government Regulations R.388.
2. The levels of avertable dose that justify intervention were included in the plan.
3. The joint co-ordination, decision-making and management by the Disaster Co-ordination Team in the Disaster Operations Centre is included in the plan.