

# ANNUAL REPORT 2014



**NATIONAL NUCLEAR REGULATOR**

*For the protection of persons, property and the environment against nuclear damage.*

PRESENTATION OF  
THE NATIONAL NUCLEAR REGULATOR (NNR) ANNUAL REPORT

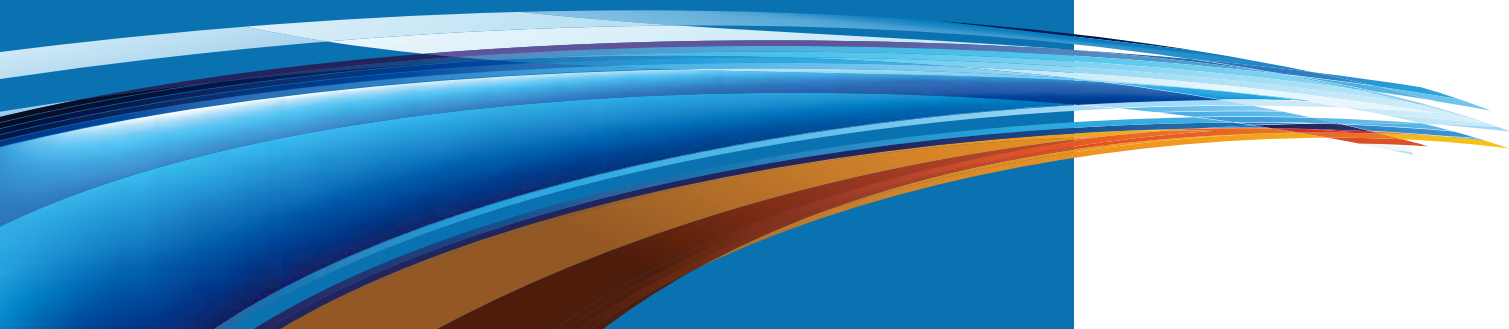
This Annual Report is submitted to the Minister of Energy in accordance with Section 7(1)(j) and Section 15(6)(d) of the National Nuclear Regulator Act (Act No. 47 of 1999). The Report reflects the activities of the National Nuclear Regulator (NNR) in relation to the health and safety of workers, the public and the environment associated with all sites regulated by the NNR, together with financial aspects in accordance with Section 55 (1) (d)(i) of the Public Finance Management Act (Act No. 1 of 1999) and Chapter 28 of the Treasury Regulations.

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Section I  
**GENERAL INFORMATION**





# I. VISION, MISSION AND VALUES

## VISION

- To be an independent world-class regulatory authority on nuclear safety.

## MISSION

- To provide and maintain an effective and efficient national regulatory framework for the protection of persons, property and the environment against nuclear damage.

## CORPORATE VALUES

### PROFESSIONALISM

- We hold ourselves accountable to the highest standards of professionalism in everything that we do.

### INTEGRITY

- We demonstrate integrity and ethical conduct in all that we do.

### VALUING PEOPLE

- We demonstrate that we value our people in all that we do.

### EXCELLENCE

- We strive for excellence in all that we do.

### TEAMWORK

- We demonstrate an approach that pivots around teamwork.

### OPENNESS AND TRANSPARENCY

- We demonstrate openness and transparency in our interactions with all stakeholders.

## I.2 STRATEGIC PRIORITIES AND GOALS

The NNR has adopted the following Strategic Priorities and Goals for 2012-2015:

- Assure effective regulatory oversight and framework to assure nuclear safety and security.
- Strengthen stakeholder relations and enhance corporate image.
- Create a high performance culture.
- Ensure financial viability and sustainability of the organisation.
- Develop and maintain sound organisational infrastructure.
- Enhance good governance.
- Ensure effective human capital management.

## I.3 LEGISLATIVE AND OTHER MANDATES

The NNR was established in terms of Section 3 of the National Nuclear Regulator Act, (Act No. 47 of 1999) to:

- a) Provide for the protection of persons, property and the environment against nuclear damage, through the establishment of safety standards and regulatory practices.
- b) Exercise regulatory control related to safety over:
  - i) The siting, design, construction, operation, manufacture of component parts, and the decontamination, decommissioning and closure of nuclear installations; and
  - ii) Vessels propelled by nuclear power or having radioactive material on board which is capable of causing nuclear damage, through the granting of nuclear authorisations.
- c) Exercise regulatory control over other actions to which the Act applies, through the granting of nuclear authorisations;
- d) Provide assurance of compliance with the conditions of nuclear authorisations through the implementation of a system of compliance inspections;
- e) Fulfil national obligations in respect of international legal instruments concerning nuclear safety; and
- f) Ensure that provisions for nuclear emergency planning are in place.

The NNR is listed as a national public entity in Schedule 3 Part A of the Public Finance Management Act, (Act No. 1 of 1999, as amended). The Board of Directors is the Accounting Authority in terms of the Public Finance Management Act. In terms of Section 8 (1) and (2), the Regulator is governed and controlled, in accordance with the NNR Act, by a Board of Directors to ensure that the objects of the Act are carried out and to exercise general control over the performance of the Regulator's functions.



## I.4 THE NNR OPERATES WITHIN THE FOLLOWING CONSTITUTIONAL, LEGISLATIVE AND POLICY FRAMEWORK:

### I.4.1 CONSTITUTIONAL

- Constitution of the Republic of South Africa of 1996 (Act No.108 of 1996)
- Nuclear Energy Act (Act No. 46 of 1999)
- National Nuclear Regulator Act (Act No.47 of 1999)
- Public Finance Management Act (Act No. 1 of 1999) (PFMA)
- National Treasury Regulations
- National Environmental Management Act (Act No. 107 Of 1998)
- Promotion of Access to Information Act (PAIA), (Act No. 2 of 2000)
- Promotion of Administrative Justice Act (PAJA), (Act No. 3 of 2000)

### I.4.2 POLICY

The National Nuclear Regulator (NNR), is mandated to provide for the protection of persons (the public and workers), property and the environment against nuclear damage in South Africa. This mandate is conferred in a number of policy documents as reflected below:

#### A) NUCLEAR ENERGY POLICY

The Nuclear Energy Policy of the Republic of South Africa was published in June 2008. It presents a framework within which prospecting, mining, milling and the use of nuclear materials, as well as the development and utilisation of nuclear energy for peaceful purposes by South Africa shall take place.

Among various things, the Policy covers:

- The prospecting and mining of uranium ore and any other ores containing nuclear properties and materials; and
- The nuclear fuel cycle in its entirety, focusing on all applications of nuclear technology for energy generation.

One of the sixteen principles of this Policy is that, Nuclear Energy shall be used as part of South Africa's diversification of primary energy sources and to ensure security of energy supply.

#### B) RADIOACTIVE WASTE MANAGEMENT POLICY AND STRATEGY FOR THE REPUBLIC

In carrying out its regulatory mandate, the NNR ensures that policy guidelines and principles relating to radioactive waste management are supported for purposes of ensuring safety. The requirements relating to the management of radioactive waste are assessed and compliance of NNR authorisation holders is monitored.

## I.5 IAEA MEMBER STATE

South Africa has been a member state of the International Atomic Energy Agency (IAEA) since 1957, and has entered into the following multilateral agreements:

- Agreement on the Privileges and Immunities of the IAEA.
- Convention on the Physical Protection of Nuclear Material.
- Convention on Early Notification of a Nuclear Accident.
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.
- Convention on Nuclear Safety.
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.
- Revised Supplementary Agreement Concerning the Provision of Technical Assistance by the IAEA (RSA).
- African Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA) - Fourth Extension.

## I.6 LEGALLY BINDING NUCLEAR SAFETY CONVENTIONS

The IAEA facilitates the establishment of international conventions on nuclear safety. These are legally binding international instruments that are required to be ratified by the contracting party or member state before they can be implemented. The conventions place certain obligations on member states to implement measures aimed at ensuring nuclear safety.

South Africa ratified the Convention on Nuclear Safety (CNS) in 1996, and its obligations commenced on 24 March 1997. In November 2006, South Africa acceded to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The country's obligations under the Joint Convention commenced in February 2007.

As a member state of the IAEA, South Africa is required to fulfil its international obligations and promote international cooperation to enhance global nuclear safety. In terms of section 5(e) of the NNR Act, the NNR is mandated to fulfil national obligations with respect to international instruments concerning nuclear safety and to act as the national competent authority in connection with the IAEA's Regulations for the Safe Transport of Radioactive Material.

The NNR co-ordinates and implements South Africa's Contracting Party (CP) obligations to the IAEA Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

# EXECUTIVE MANAGEMENT



*\*Mr Thabo Tselane was appointed as the acting CEO from 03 December 2012 - 30 September 2013*

# MESSAGE FROM THE BOARD CHAIRPERSON



**Dr Tracy Cohen**  
Chairperson Board of Directors

The fundamental objective of the NNR is to provide for the protection of persons, property and the environment against nuclear damage through the establishment of safety standards and regulatory practices suited for South Africa. To this end, the NNR provides oversight and assurance that activities related to the peaceful use of nuclear energy in South Africa are carried out in a safe manner and in accordance with international principles and best practices.

I am pleased to present the National Nuclear Regulator (NNR) Annual Report for 2013-14. This is my 4<sup>th</sup> Report since becoming Chairperson of the Board of Directors for the NNR. This report reflects the all-encompassing approach the NNR takes to monitoring safety of the nuclear industry in South Africa. It is reassuring to note that regulated entities continued to maintain a satisfactory level of safety in line with the requirements of the NNR conditions of nuclear authorisation and there were no nuclear accidents reported in South Africa over the past year.

During the review period, the Board has fully discharged its fiduciary duties and is of the view that the Regulator is aligned with the appropriate governance principles as set out in the King III Report and the precepts of the Public Finance Management Act (PFMA).

As the competent authority in nuclear safety, the NNR is required to fulfil South Africa's obligations with respect to international instruments concerning the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material and to coordinate and implement South Africa's Contracting Party (CP) obligations to the IAEA Convention on Nuclear Safety (CNS) and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

With regards to Nuclear Safety Conventions, the NNR compiled and submitted the South Africa's 6<sup>th</sup> Convention on Nuclear Safety (CNS) report to the IAEA. The 6<sup>th</sup> report provided an update on South Africa's activities in compliance with the Articles of the Convention on Nuclear Safety since the last National Report was compiled in September 2010. The main issues addressed in this report relate to the Koeberg periodic safety reviews and the post-Fukushima review.

In relation to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the NNR is currently preparing for the next report which is to be presented at the Joint Convention review meeting in May 2015.

The NNR continued to represent South Africa in the technical working groups of the Forum for Nuclear Regulatory Bodies in Africa (FNRBA). From 1 - 13 September 2013, the NNR hosted and participated in the FNRBA Thematic Working Group on Regulatory Infrastructure for Emergency Preparedness and Response (TWG9-EPR) and IAEA RAF9047 Strengthening and Harmonizing National Capabilities to Respond to Nuclear and Radiological Emergencies, in Centurion.

An EPREV mission to South Africa was conducted by the IAEA team of experts from 3-12 February 2014. During the course of this mission, the NNR participated and held discussions with the IAEA team during the site visits. The IAEA EPREV team identified a number of good practices in South Africa's Emergency Preparedness and Response arrangements and proposed recommendations on how to enhance these current arrangements.

Public communication and outreach is regarded as a fundamental ingredient for building credibility, trust and respect for the NNR. During the past year, the NNR implemented several learner and community outreach initiatives targeting the local affected communities as well as supporting national outreach efforts.

The NNR remains committed to demonstrating transformation through the development and effective implementation of policies and practices that embrace the country's transformation objectives as well as the organisations' ability to respond to changing external environmental factors.

During the past year we continued conservative balance sheet management. Total operating revenue for the year was R 168 million of which R 115 million was derived from services rendered to holders of nuclear licences (Koeberg Nuclear Power Station and the South African Nuclear Energy Corporation (Necsa), and holders of certificates of registration (mines and small users of radioactive materials and processing) R 48 million was derived from a direct Government grant.

The Board of the NNR appointed a new Chief Executive Officer, Dr. M B Tyobeka, whose scientific, subject-matter and management expertise has already begun to further enrich the delivery and quality of work of the NNR. The NNR discharges its mandate with pride, professionalism and honour and continues to rise to the challenges and opportunities in the energy sector and the changing nuclear space. In conclusion I would like to take this opportunity to thank the Honourable Minister of Energy for the confidence bestowed upon the regulator, the NNR Board Members and the Executive for their significant contribution during the past year and of course, I would like to pay tribute to NNR employees for all their hard work and sustained efforts for ensuring that the NNR is able to carry out this mandate effectively.



.....  
Dr Tracy Cohen  
Chairperson Board of Directors

# CHIEF EXECUTIVE OFFICER'S REVIEW



**Dr Mzubanzi Bismark Tyobeka**  
NNR Chief Executive Officer

It gives me great pleasure to report that the NNR has made steady progress in the 2013/14 financial year. The overall organisational performance improved from 81% to 83 %. Additionally, the NNR is pleased to report that a satisfactory level of nuclear safety and security was maintained during the period under review. The following represents some of the notable highlights of the year; the details of which follow in the body of the report.

## **Summary of key highlights for the reporting period**

- For the first time ever, the NNR received a clean audit report for the period under review. A clean audit is an unqualified audit with no significant findings on compliance and/or predetermined objectives. Whilst the organisation has been registering unqualified audits for the past five years, the attainment of a clean audit is in line with our ultimate goal to maintain clean administration characterised by good governance, financial compliance and internal controls.

## **On the Human Capital front, the NNR:**

- Commenced an extensive review of all human resources policies and procedures in the last quarter order to ensure adherence to benchmarked best practices and legislative compliance. The following policies have been reviewed thus far: Individual Performance Management, Occupational Health and Safety and Management of Poor Work Performance. The review process will continue into the next financial year.
- A specialist service provider was commissioned to research international best practices of comparative nuclear regulators and to develop a customised job evaluation system for the NNR. This exercise is aimed at addressing the deficiency of the current system which is not suited to the needs of a knowledge-based organisation such as the NNR where the skills, knowledge and attributes required for regulatory excellence are of paramount importance. It is envisaged that this process will be completed in the coming financial year.
- The compliance assurance and enforcement activities are the most important mechanism through which the NNR can provide an assurance of compliance with conditions of authorisations and by implication; an assurance of the level of safety at authorised entities. The NNR performed all scheduled inspections, audits and environmental samples collection during this reporting period. In cases of non-compliance, the organisation took appropriate enforcement measures.
- The nuclear facility operators have operated within the applicable limits for radiation exposure of members of the public and occupationally exposed workers wherein exposures have been kept as low as reasonably achievable, well below the regulatory criteria of 0.25 mSv per annum and 4mSv per annum for members of the public and occupationally exposed workers, respectively.

- The NNR carried out the third revision of the post-Fukushima Koeberg Nuclear Power Station (KNPS) safety reassessment report; including the findings from the completed seismic margin assessment, and a progress report on procurement of portable emergency equipment and short term plant modifications submitted by Eskom. This is to assure compliance with the safety requirements of the NNR, thereby ensuring the protection of the public, environment and property against nuclear damage in the unlikely event of a Fukushima-type accident at the KNPS. The NNR has continued to pay attention to the special case mines where there is potential for exposures in excess of regulatory limits. In this regard we are happy to report that as a result of the measures instituted by the NNR, in this reporting period these facilities have not exceeded the regulatory limits.

- Noting that the SAFARI-1 Research Reactor was initially commissioned in 1965 and that the expected operational life extends till 2030, the NNR requested NECSA to develop and implement an ageing management programme for SAFARI-1 in accordance with guidance provided in IAEA safety guide SSG-10. During the reporting period, NECSA has submitted documents to the NNR for review. These documents are currently under NNR review and will be responded to in the next financial year.

The NNR has continued to engage with bilateral and multilateral partners to exchange information and experiences and to leverage the lessons-learnt. In this regard, we have:

- Successfully hosted three IAEA Regional Technical Workshops in South Africa
- Implemented nuclear safety bilateral cooperation programmes with ASN (France), CNSC (Canada), Rostechnadzor (Russia) and NRC (USA).
- Participated at the Multi-national Design Evaluation Programme (MDEP) Steering Technical Committee in Helsinki, Finland.
- Continued our participation in the working groups and technical safety standards committee meetings of the IAEA Hosted a workshop presented by the United States Nuclear Regulatory Commission (USNRC) through the International Regulatory Development Programme on regulatory oversight for power uprates in nuclear power plants.
- As a measure of ensuring the preparedness of our licensees for any nuclear emergency and in accordance with the NNR Act, a nuclear regulatory emergency preparedness and response exercise was carried out at the NECSA installation during the period under review.
- During the review period the NNR participated in the IAEA Project (RAF/9/046) Strengthening Effective.

Compliance Assurance for the Transport of Radioactive Material. As part of this Transport Safety project, the NNR conducted Peer Review Missions to Ghana, Kenya, Botswana and Mauritius. To assert the NNR's expertise in the regulation of transport of radioactive materials, the NNR's Transport Safety expert, Mr Paul Hinrichsen was appointed as Chairman of the International Atomic Energy Agency's Transport Safety Standards Committee for the term 2014 to 2017.

- In an effort to boost the NNR's independent verification facilities, the NNR's Radioactivity Analysis Laboratory refurbishment project (part of the Agricultural Research Council's (ARC) laboratory in Pretoria), and the design of the NMISA laboratory in Cape Town were completed during the review period. The ARC laboratory will have the capacity to perform gamma, beta, and alpha as well as gross alpha/beta analyses. The NMISA laboratory will process the Koeberg power station samples and will perform gamma and beta analysis. Operation of both is scheduled to commence in the next financial year.

### **Nuclear Safety Compliance Index**

The National Nuclear Regulator (NNR) oversees the safe use and handling of nuclear and radioactive material to protect health, safety and security of South Africans and to implement South Africa's international commitments on the peaceful use of nuclear energy. South Africa's nuclear sector has an excellent safety record largely due to the NNR's stringent and effective regulation.

Although minor occurrences were reported during the period under review, it must be noted that there were no nuclear occurrences that can be classified under the category of a nuclear accident or nuclear incident as defined in the NNR Act during the review period. To this end, we are pleased to report an overall compliance index for this reporting period at 84.4 percent. This is evidence that the NNR is committed to building on its foundation of good performance in shaping the nuclear safety culture of the South African nuclear industry.

### **Acknowledgements**

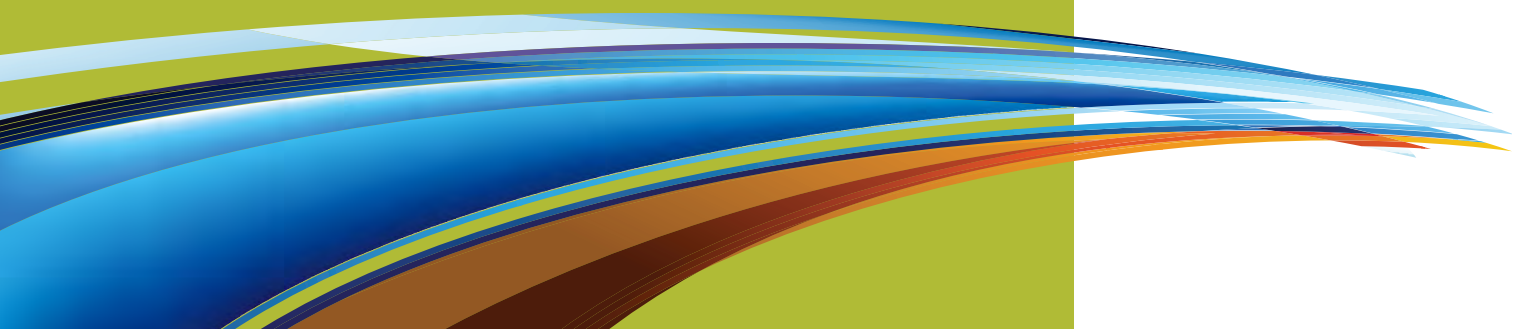
The achievements for the financial year under review reported above could not have been possible without the continued support and guidance of the Chairperson and the Board of Directors. My thanks and appreciation also goes to Mr Thabo Tselane who acted as the Interim CEO prior to my appointment, for his support and cooperative hand-over which made the transition seamless. I also would like to acknowledge with thanks the support of my colleagues at EXCO and staff in general, without whose loyalty, dedication; the NNR would not have been able to meet its objectives and fulfil its mandate. Lastly but not least, I wish to sincerely thank the Minister of Energy, the Office of the Director-General and the entire Team Nuclear at the Department for their cooperation and support.



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Dr Mzubanzi Bismark Tyobeka  
NNR Chief Executive Officer



Section 2  
**CORPORATE** GOVERNANCE  
REPORT



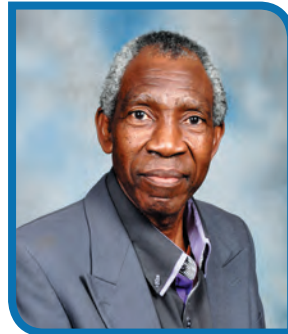
# BOARD OF DIRECTORS



**Dr Tracy Cohen**  
Chairperson



**Mr Tshepho Mofokeng**  
Deputy Chairperson, Chairperson  
Audit and Risk Management  
Committee



**Mr Kabelo Samuel Kakoma**  
Audit and Risk Management  
Committee



**Mr Jeffrey Leaver**  
Audit and Risk Management  
Committee, Technical Committee



**Mr Nikisi Wilson Lesufi**  
Audit and Risk Management  
Committee, Chairperson of  
Transformation and Development  
and Committee



**Prof Gordon Sibiya**  
Technical Committee



**Dr Thapelo Motshudi**  
Chairperson of  
Technical Committee



**Mr Katse Maphoto**  
Board Member



**Mr Moegamat Ishaam Abader**  
Board Member



**Mr Sibusiso Mimi**  
Transformation and  
Development Committee

- Ms Elsie Monale: Alternate – DOE
- Dr Bethuel Sehlapelo: Technical Committee
- Ms Nolwazi Cobinnah: Alternate – DWEA, Audit and Risk Management Committee, Technical Committee

## INTRODUCTION

During the review period, the Board regularly reviewed the processes and systems of the NNR, and can assure stakeholders that the Regulator was managed soundly and ethically. The NNR Board of Directors is of the view that the organisation has applied and complied with the principles incorporated in the Code of Corporate Practices and Conduct, as set out in the King III Report and the precepts of the Public Finance Management Act (PFMA), as appropriate.

### 2.1 PORTFOLIO COMMITTEES

The NNR presented its Annual Report 2013 in October 2013 to the Portfolio Committee on Energy (PCE). The PCE also requested an additional briefing from the NNR's Audit and Risk Management Committee on its findings. The NNR assured the Committee that nuclear installations and entities under the oversight of NNR did not expose workers to harmful levels of radiation or cause nuclear damage to the environment in 2013 and that it had successfully fulfilled its fiduciary duties and continued to discharge its mandate in accordance with best practices of governance. The activities and findings of the Audit and Risk Management Committee were briefed in detail.

### 2.2 BOARD OF DIRECTORS

The Board of Directors is the Accounting Authority in terms of the Public Finance Management Act and is appointed for a renewable period of three years by the Minister of Energy. In terms of Section 8 (1) and (2), the Regulator is governed and controlled, in accordance with the NNR Act, by a Board of Directors to ensure that the objects of the Act are carried out and to exercise general control over the performance of the Regulator's functions. The Board of Directors embraces the principles of corporate governance and considers these as the underlying philosophy in creating organisational excellence at all levels within the Regulator.

The Board sets the precedent in driving the ethics of good governance, and the directors, collectively and individually, acknowledge their responsibilities and duties in terms of the Board Charter and other governance, regulatory and legislative requirements.

The Board is accountable for the overall formulation, monitoring and review of the NNR's corporate strategy and related affairs, whilst delegating to management the responsibility for business performance and achievement of the organisation's objectives.

## BOARD CHARTER

The Board Charter regulates the Board in accordance with the principles of good corporate governance. The Charter sets out the specific duties and responsibilities to be discharged by the Board as a unitary working group. The Charter ensures that all Board members, acting on behalf of the Authority, are aware of the legislation and regulations affecting their conduct and to ensure that the principles of good corporate governance are applied in all their dealings in respect and on behalf of the NNR. As recommended by the King Code, the Charter prescribes the Board's accountability and fiduciary duties in line with standards of best practices within the regulators unique environment.

## 2.3 COMPOSITION OF THE BOARD

The Board comprises of 12 non-executive directors who are independently appointed by the Minister of Energy, an executive director (Chief Executive Officer) and three alternate members. Board Members, including the CEO, hold office for a maximum of three years, but are eligible for re-appointment.

| NNR BOARD MEMBERS APRIL 2013 – MARCH 2014 |                            |                  |  |
|---|----------------------------|------------------|--|
| Title                                     | Full Name                  | Date Appointed   | Stakeholder Represented                          |
| Dr  | Tracy Cohen *              | 01 December 2012 | Chairperson - Board                              |
| Mr  | Tshepo Mofokeng *          | 01 December 2012 | Deputy Chairperson – Board                       |
| Mr  | Kabelo Samuel Kakoma **    | 01 December 2012 | Civil Society                                    |
| Mr  | Jeffrey Leaver *           | 01 December 2012 | Independent Member                               |
| Ms  | Elsie Monale *             | 01 December 2012 | DoE  |
| Mr  | Nikisi Wilson Lesufi *     | 01 December 2012 | Organised Business<br>Chairperson:TDC            |
| Prof                                      | Gordon Sibiyi **           | 01 December 2012 | Independent Member                               |
| Dr  | Thapelo Motshudi *         | 01 December 2012 | Independent Member                               |
| Ms  | Nolwazi Zandile Cobbinah * | 01 December 2012 | DWEA   |
| Mr  | Katse Maphoto *            | 01 December 2012 | DoE  |
| Mr  | Moegamat Ishaam Abader *   | 01 December 2012 | DWEA   |
| Mr  | Sibusiso Mimi **           | 01 December 2012 | Organised Labour                                 |
| Dr  | Bethuel Sehlapelo **       | 01 May 2012      | Independent Member of the<br>Technical Committee |

\* Re-appointment

\*\* New Appointment

## 2.3.1 NEW APPOINTMENTS

The new members appointed were:

| #  | NAME               | DESIGNATION             | DATE APPOINTED   |
|----|--------------------|-------------------------|------------------|
| 1. | Professor G Sibiya | Non- Executive Director | 01 December 2012 |
| 2. | Mr S Kakoma        | Non- Executive Director | 01 December 2012 |
| 3. | Mr S Mimi          | Non- Executive Director | 01 December 2012 |
| 4. | Ms E Monale        | Alternate               | 01 December 2012 |

No resignations or appointments took place in the financial year 2013/2014

## 2.3.2 BOARD MEETINGS

| MEETING DATES          |               |              |              |                                   |                                      |                 |                 |  |
|------------------------|---------------|--------------|--------------|-----------------------------------|--------------------------------------|-----------------|-----------------|--|
| Names                  | 25 April 2013 | 11 June 2013 | 30 July 2013 | 21 August 2013<br>Special Meeting | 27 September 2013<br>Special Meeting | 30 October 2013 | 6 February 2014 |  |
| Dr T Cohen –           | P             | P            | P            | P                                 | P                                    | P               | P               |  |
| Mr T Mofokeng – Deputy | P             | P            | A            | P                                 | P                                    | P               | P               |  |
| Mr J Leaver            | P             | P            | A            |                                   | P                                    | P               | P               |  |
| Dr T Motshudi          | P             | A            | P            |                                   | P                                    | P               | P               |  |
| Mr M Lesufi            | P             | P            | P            | P                                 | P                                    | P               | P               |  |
| Mr I Abader            | P             | A            | A            |                                   | P                                    | P               | A               |  |
| Ms N Cobbinah          | A             | A            | A            |                                   | A                                    | P               | P               |  |
| Mr K Maphoto           | P             | P            | A            |                                   | P                                    | P               | P               |  |
| Dr M B Tyobeka         | N/A           | N/A          | N/A          |                                   | N/A                                  | P               | P               |  |
| Mr S Mimi              | P             | P            | P            |                                   | P                                    | A               | P               |  |
| Prof G Sibiya          | P             | P            | P            |                                   | P                                    | P               | P               |  |
| Mr S Kakoma            | P             | P            | P            |                                   | P                                    | P               | P               |  |
| Ms E Monale            | A             | A            | A            | A                                 | A                                    | A               | A               |  |

**P** Member present at the meeting.

**A** Member not present, but tendered an apology.

**n/a** Not applicable, refers to member not yet appointed to the Board / Board Committee or member resigned from such.

## 2.4 COMMITTEES OF THE BOARD

The following Board Committees assisted the Board in discharging its mandate over the period under review:

- Audit and Risk Management Committee,
- Technical Committee; and
- Transformation and Development Committee.

Board Committees met at least once per quarter and provided feedback to the Board through Committee reports. The NNR Board Committees have each adopted formal terms of reference, which are reviewed annually to ensure continued relevance.

### 2.4.1 AUDIT AND RISK MANAGEMENT COMMITTEE

The Audit and Risk Management Committee comprised of four non-executive Directors and one independent member. A non-executive Director who is not the Chairperson of the Board chaired the Committee.

The Audit and Risk Management Committee assisted the Board in overseeing:

- The quality and integrity of the financial statements and the disclosure thereof;
- The scope and effectiveness of the internal audit function, and
- The effectiveness of the organisation's system of internal control.

The current members of the Audit and Risk Management Committee are:

- Mr T Mofokeng (Chairperson)
- Mr N Lesufi
- Mr J Leaver
- Ms N Cobbinah
- Mr S Kakoma

The Audit and Risk Management Committee convened five times during the review period.

| Names         | Date of the meeting April 2013 – March 2014 |             |              |                 |                 |
|---------------|---|-------------|--------------|-----------------|-----------------|
|               | 16 April 2013                               | 16 May 2013 | 19 July 2013 | 22 October 2013 | 21 January 2013 |
| Mr T Mofokeng | A   | P           | P            | P               | P               |
| Mr N Lesufi   | P   | P           | P            | P               | A               |
| Mr J Leaver   | P   | P           | A            | P               | P               |
| Ms N Cobbinah | A   | A           | A            | A               | A               |
| Mr S Kakoma   | P   | P           | P            | P               | P               |

**P** Member present at the meeting.

**A** Member not present, but tendered an apology.

**n/a** Not applicable, refers to member not yet appointed to the Board/Board Committee or member resigned from the Board/Board Committee.

## 2.4.2 TECHNICAL COMMITTEE

The Technical Committee comprised of three non-executive Directors and two external members, who are experts in the technical/legal or environmental field. The role of the Committee is to, inter alia:

- Review the policies and practices on the authorisation of nuclear facilities, licensing processes and compliance assurance and enforcement procedures; and
- Advise the Board on all technical related matters pertaining to the discharge of the Regulator's mandate.

The current members of the Committee are:

- Dr Motshudi (Chairperson)
- Ms N Cobbinah
- Mr J Leaver
- Dr B Sehlapelo
- Prof G Sibiya

The Committee convened nine times during the review period.

|                             | 17 April 2013 | 17 May 2013<br>Special Meeting | 22 July 2013 | 7 August 2013<br>Special Meeting | 18 October 2013 | 23 October 2013<br>Special Meeting | 9 December 2013<br>Special Meeting | 22 January 2014 | 28 January 2014 |
|-----------------------------|---------------|--------------------------------|--------------|----------------------------------|-----------------|------------------------------------|------------------------------------|-----------------|-----------------|
| Dr T Motshudi - Chairperson | P             | A                              | P            | P                                | P               | A                                  | P                                  | P               | P               |
| Mr J Leaver                 | P             | P                              | A            | A                                | P               | P                                  | P                                  | P               | P               |
| Dr D Sehlapelo              | P             | P                              | P            | P                                | P               | P                                  | P                                  | P               | P               |
| Prof G Sibiya               | A             | A                              | P            | P                                | P               | P                                  | P                                  | P               | A               |
| Ms N Cobbinah               | A             | A                              | A            | A                                | A               | A                                  | P                                  | P               | A               |

**P** Member present at the meeting.

**A** Member not present, but tendered an apology.

**n/a** Not applicable, refers to member not yet appointed to the Board/Board Committee or member resigned from the Board/Board Committee.

## 2.4.3 TRANSFORMATION AND DEVELOPMENT COMMITTEE

The Transformation and Development Committee is responsible for determining Human Resources strategies and policies, and recommends these to the Board for approval. These include: Human Resources development and conditions of service; employment equity reports; performance management systems, and any other organisational development initiatives.

The Transformation and Development Committee comprised of the following five members:

- Mr N Lesufi (Chairperson)
- Mr K Maphoto
- Mr I Abader
- Mr J Leaver and
- Mr M Mimi

| Date of the meeting attended | 17 April 2013 | 22 July 2013 | 5 August 2013<br>Special Meeting | 18 October 2013 | 22 January 2014 |
|------------------------------|---------------|--------------|----------------------------------|-----------------|-----------------|
| N Lesufi (Chairperson)       | P             | P            | P                                | P               | P               |
| I Abader                     | A             | A            | A                                | A               | A               |
| J Leaver                     | P             | A            | A                                | P               | P               |
| S Mimi                       | P             | P            | P                                | P               | P               |
| K Maphoto                    | P             | P            | A                                | A               | P               |

## 2.4.4 REMUNERATION OF DIRECTORS AND COMMITTEE MEMBERS

The remuneration of Board members is determined by the Minister of Energy with the concurrence of the Minister of Finance and is reviewed annually. Board and Committee members are remunerated for attending meetings. The details of the remuneration for the year ended 31 March 2013 are stated in Note to the Annual Financial Statements on page 137.

## 2.5 RISK MANAGEMENT

### NATURE OF RISK MANAGEMENT

The NNR recognises that the total process of risk management, which includes a related system of internal control, is the responsibility of the Board. Management is accountable to the Board for designing, implementing and monitoring the process of risk management and integrating it into the day-to-day activities of the organisation, and providing assurance that it has done so. To implement the above, the NNR adopted the Public Sector Risk Management Framework issued by the National Treasury. This is also in compliance with the requirements of Section 51 of the Public Finance Management Act (PFMA, Act No. 1 of 1999).

### RISK MANAGEMENT STRATEGIES TO IDENTIFY RISKS AND MANAGE THE RISKS

A Risk Steering Committee met quarterly to discuss the current and potential risks facing the organisation. A Risk Champions' Forum met quarterly to monitor and ensure that actions to address the identified risks are implemented.

An annual risk assessment, inclusive of internal and external risk factors, was conducted in the 2013/14 financial year. The strategic and operational risk registers were then updated accordingly. Risk owners were identified and requested to provide action plans to address the identified risks. These were included in the risk registers.



## PROGRESS MADE IN ADDRESSING RISKS IDENTIFIED

The risk owners monitored the implementation of actions to address the identified risks on a quarterly basis. Quarterly progress was reported to the Risk Steering Committee, which considered the progress and reported this to the Audit and Risk Management Committee and the Board. Identification of new risks is a standing agenda item at the NNR Board. Identified risks are assessed and included in the relevant risk registers.

## 2.6 INTERNAL CONTROL

The Board has reviewed and approved policies and procedures presented by management, which will ensure that internal controls are effectively implemented. In this way, the Board is responsible for ensuring that internal controls at all levels are effective.

Furthermore, the Internal Audit and Risk Management functions assisted the organisation in reviewing internal controls and reported the salient outcomes to Management and ARMCOM. The function also reported on the progress made by management in addressing the outstanding findings and non-compliances. The Internal Audit and External Audit findings were presented to the Board, quarterly.

## 2.7 INTERNAL AUDIT AND AUDIT COMMITTEES

The NNR's Internal Audit Activity is an independent, objective assurance and consulting activity designed to add value and improve NNR operations. It helps the organisation accomplish its objectives by bringing in a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. This is also in compliance with the requirements of the PFMA.

The Manager – Internal Audit reports administratively to the CEO and functionally to ARMCOM. The responsibilities of the internal audit staff include the following:

- a) Evaluating the organisation's governance processes, including ethics, especially the 'tone at the top';
- b) Performing an objective assessment of the effectiveness of risk management and the internal control framework;
- c) Systematically analysing and evaluating business processes and associated controls; and
- d) Providing a source of information, as appropriate, regarding instances of fraud, corruption, unethical behaviour and irregularities.

### 2.7.1 THE SCOPE OF INTERNAL AUDIT ACTIVITIES INCLUDES:

- i. Reviewing the risk management processes and practices;
- ii. Reviewing the reliability and integrity of financial and operational information and the means used to identify, measure, classify and report such information;
- iii. Reviewing the systems established by management to ensure compliance with those policies, plans, procedures, laws and regulations, which could have a significant impact on operations and reports, and determining whether the organisation is in compliance;
- iv. Reviewing the means of safeguarding assets and, as appropriate verifying the existence of assets;
- v. Appraising the economy and efficiency with which resources are employed;
- vi. Reviewing operations or Programmes to ascertain whether results are consistent with established objectives and goals and whether the operations or Programmes are being carried out as planned;
- vii. Provide a written assessment regarding the effectiveness of the system of internal controls in the organisation; and
- viii. Conduct a documented review of the key financial reporting controls in identified financial systems and processes every year and submit a report to ARMCOM to enable it to formulate its comment to be included in the annual financial statement.

The annual allocation of internal audit resources to audit activities is established on the basis of an approved internal audit plan. A certain amount of capacity is reserved in the planning to allow for once-off projects, special investigations, requests from management and ARMCOM. ARMCOM is responsible for approving the plan based on the agreed scope of work that needs to be performed.

## 2.7.2 SUMMARY OF AUDIT WORK DONE

In the 2013/2014 financial year, 15 internal audits were conducted.

The internal audits were conducted in the following areas:

| No. | Department and Function                       | Number of Audits Conducted | Type of Audit Conducted | Status of Audit |
|-----|---|----------------------------|-------------------------|-----------------|
| 1   | Occupational Health and Safety Management     | 1                          | Process                 | Completed       |
| 2   | Employee Relations Review                     | 1                          | Process                 | Completed       |
| 3   | Nuclear Authorisations Review                 | 1                          | Process                 | Completed       |
| 4   | Financial Viability Review                    | 1                          | Process                 | Completed       |
| 5   | Accounts Receivable                           | 1                          | Process                 | Completed       |
| 6   | Performance and Progress Management Review    | 1                          | Process                 | Completed       |
| 7   | Audit of Performance Information (Outsourced) | 1                          | Process                 | Completed       |
| 8   | Emergency Preparedness and Response           | 1                          | Process                 | Completed       |
| 9   | Accounts Payable                              | 1                          | Process                 | Completed       |
| 10  | Fixed Assets Management (Outsourced)          | 1                          | Process                 | Completed       |
| 11  | Risk Management (Outsourced)                  | 1                          | Process                 | Completed       |
| 12  | Knowledge Management                          | 1                          | Process                 | Completed       |
| 13  | Auditor General Report Follow-up              | 1                          | Process                 | Completed       |
| 14  | General Controls and BCP Review (Outsourced)  | 1                          | Process                 | In progress     |
| 15  | Audit of Performance Information (Outsourced) | 1                          | Process                 | In progress     |

The Committee comprises of five members, elected by the Board. All members of the Committee are suitably skilled and experienced, independent Directors. The Committee has an independent role with accountability to the Board. The Committee does not assume the functions of management, which remain the responsibility of the Executive Management. The Committee acts in accordance with its statutory duties and the delegated authority of the Board.

## THE COMMITTEE ASSISTS THE BOARD BY REVIEWING THE FOLLOWING AREAS:

- Integrated reporting
- Combined assurance
- Finance function and the Chief Financial Officer
- Internal audit
- Risk management
- External audit
- Compliance with laws and regulations
- Ethics

## 2.8 FRAUD AND CORRUPTION

The Fraud and Corruption Prevention process was implemented and monitored. The fraud risk register was developed, actions to address identified risks were agreed upon and implemented as planned. No fraud or potential fraud cases were reported during the period under review.

## 2.9 SOCIAL RESPONSIBILITY

The NNR developed its first official CSR Policy and Strategy during the review period. The strategy is aligned toward themes, which have relevance to the regulator and its fields of competency. The strategy will be rolled out in the new financial year. In 2013/2014, the NNR's Corporate Social Responsibility (CSR) thrust continued to focus on supporting skills development among the youth, specifically targeting learners who are studying mathematics and science at high school level to encourage them to take up technical subjects, such as engineering at university or Further Education and Training (FET) college.

### THE KEY FOCUS AREAS FOR THE NNR DURING 2013/2014 WERE:

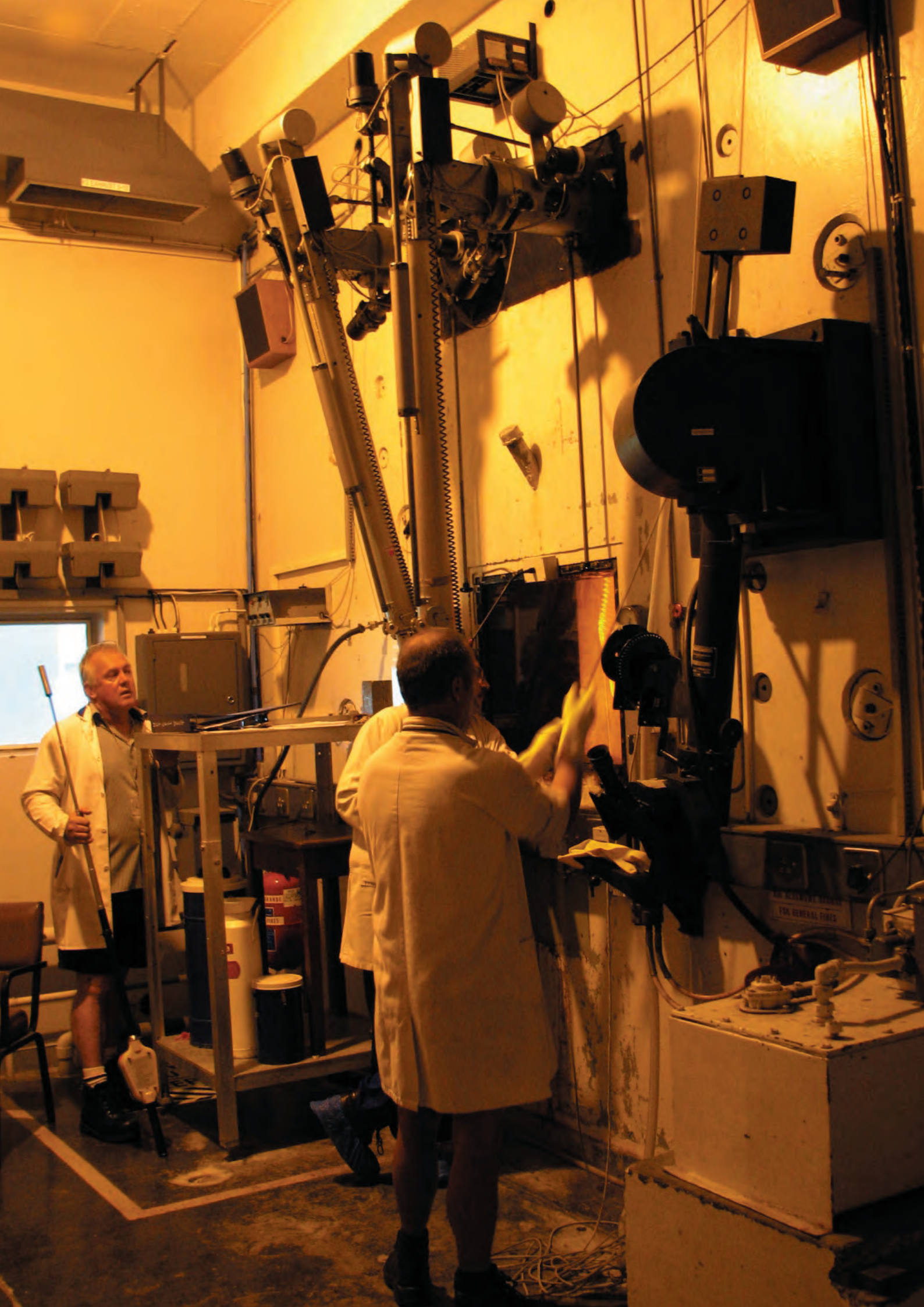
- Participation in the DoE-led Learners' Focus Week Programme to create science and technology awareness among learners;
- Implementation of a structured job shadowing Programme for five learners via the Techno Girl Programme;
- Sponsorship towards the career advancement for Women in Nuclear energy via the WiN-NNR Programme; and
- Sponsorship towards the South African Young Nuclear Professionals (SAYNPS) Youth Summit.



NNR at SAYNPS Youth Summit 2013

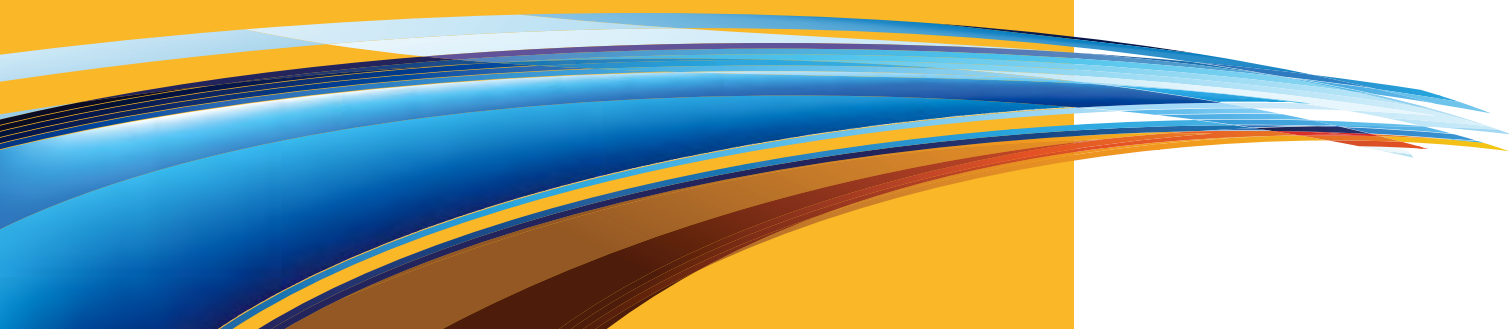


DoE Learners' Focus Week.



Section 3:

**PERFORMANCE OF  
THE NNR**



### 3. OVERVIEW OF PERFORMANCE

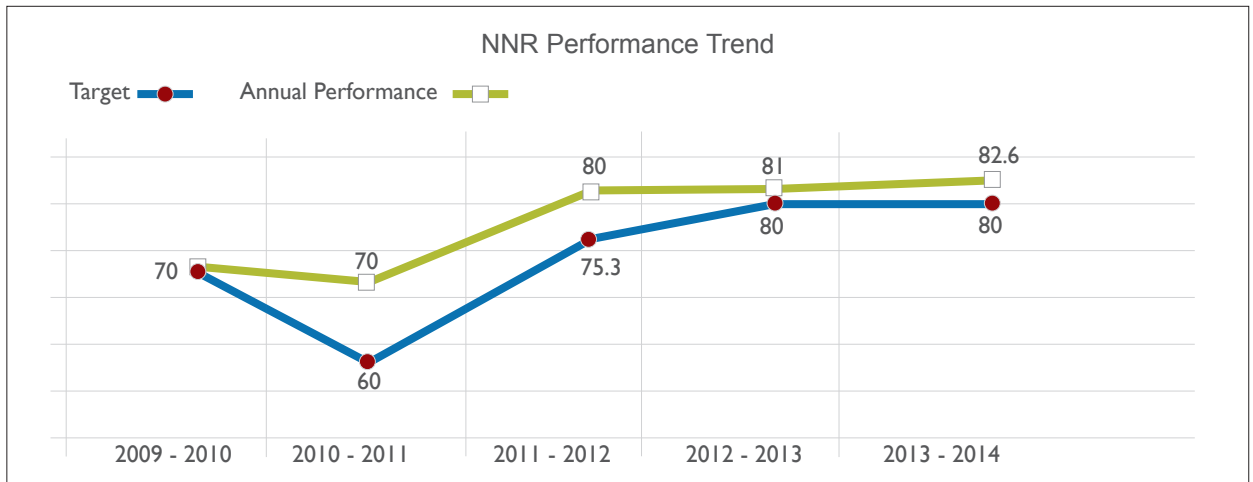


Figure1: NNR Performance Trends

| PERSPECTIVE              | TARGET | ACTUAL | 2013/14 PERFORMANCE |
|--------------------------|--------|--------|---------------------|
| Regulatory & Stakeholder | 48.9   | 42.2   | 86.4                |
| Financial                | 8.4    | 7.0    | 83.2                |
| Internal Business        | 14.9   | 11.789 | 79.3                |
| Learning & Development   | 7.8    | 5.0    | 64.5                |
| TOTAL PERFORMANCE 13/14  | 80     | 66.1   | 82.6                |

Table 1: Performance over the year 2013/14

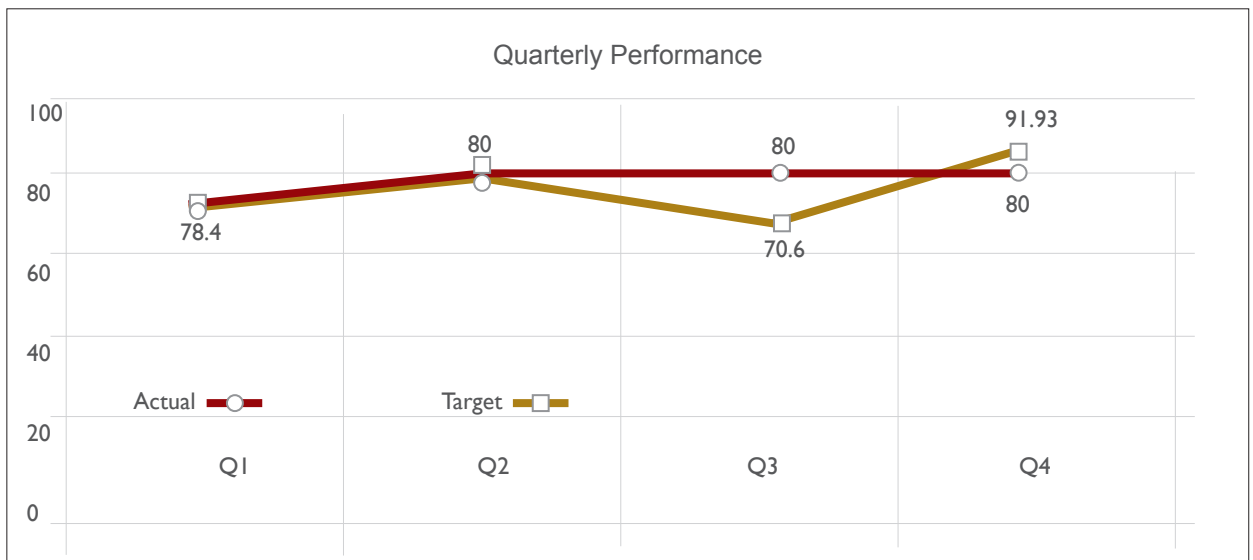


Figure 2: NNR Quarterly Performance

\*\*After normalisation of quarterly performance data, the use of actual allocated weight is the most appropriate denominator in order to reflect an accurate reading of the performance level for the year. This refers to the culmination of allocated points throughout the year, some of which had additions and/or reallocations, against actual achievements through the quarters. This manner of calculation gives the NNR 82.6% level of achievement, which can be rounded up to 83%.

## 3.1 PROGRAMMES: PREDETERMINED OBJECTIVES

### 3.1.1 STANDARDS AUTHORISATIONS AND REVIEWS ASSESSMENTS (SARA) PROGRAMME PURPOSE

The Standards, Authorisations Reviews and Assessments (SARA) Division provides strategic leadership and management in the following areas:

- Authorisations for Nuclear Vessel Licences (NVL), Nuclear Installations (NIL), Certificate of Registrations (COR) and Certificates of Exemption (COE). The Programme produces standards related to the core themes, such as risk analysis, structural analysis, nuclear engineering and structural engineering. The reviews and assessments are conducted with regard to design safety, radiation protection and operational safety.
- Managing of special projects, such as the Fukushima project, radiation protection and nuclear new build.
- Research and development is conducted on emerging issues regarding radiation protection.

#### STRATEGIC OUTCOME - ORIENTATED GOALS

- Effective Regulatory Oversight and Framework to assure nuclear safety and security.

#### STRATEGIC OBJECTIVE

- To process applications for nuclear authorisations in a timely and accurate manner.
- To assure that holders have an effective Emergency Preparedness Plan.
- To benchmark and update safety standards and regulatory practices in line with national and international norms and requirements.
- To establish an independent verification capability for the NNR.
- To undertake regulatory research that ensures that the regulatory regime is strengthened.
- To ensure that the NNR is positioned to respond to initiatives relating to nuclear expansions.

### 3.1.2 COMPLIANCE ASSURANCE AND ENFORCEMENT (CAE) DIVISION

#### PROGRAMME PURPOSE

The Compliance Assurance and Enforcement (CAE) Division provides strategic leadership and management of the compliance and enforcement activities, processes and programmes for all the regulated nuclear technologies. The CAE Division also ensures the establishment of effective and efficient delivery systems related to the Compliance Assurance and Enforcement activities in nuclear safety and security.

This includes conducting compliance assurance inspections, audits, investigations, surveillances, environmental monitoring and sampling.

#### STRATEGIC OUTCOME - ORIENTATED GOALS

- Effective regulatory oversight and framework to assure nuclear safety and security.

## STRATEGIC OBJECTIVE

- To provide assurance of safety performance of holders through inspections, audits, investigations and taking of enforcement action for identified non-compliance.
- To assure holders' compliance with regulatory requirements.
- To assure effective implementation of nuclear security measures by holders.

### 3.1.3 COMMUNICATION & STAKEHOLDER RELATIONS

#### PROGRAMME PURPOSE

The Communication and Stakeholder Relations department is responsible for managing Public Affairs and National and International Regulatory Cooperation Relationships for the NNR. It provides communications leadership, works with technical experts to develop plain language communications products and maintains various stakeholder communications tools, such as website, annual reports, nuclear safety reports and newsletters. It coordinates and manages responses to enquiries from parliament, the public, media and other key stakeholders. This portfolio focuses on the NNR's commitment to develop and maintain public confidence in the nuclear safety regulatory regime through working openly and transparently with stakeholders to achieve this goal. This portfolio liaises with national and international counterparts on bilateral and multilateral nuclear safety regulatory cooperation.

#### STRATEGIC OUTCOME-ORIENTATED GOALS

- Strengthen stakeholder relations and enhance corporate image.

## STRATEGIC OBJECTIVE

- To strengthen stakeholder relations and improve public perceptions of the NNR.
- To improve the NNR's quality of work and effectiveness through compliance with national and international obligations, as prescribed by the NNR Act.

### 3.1.4 CORPORATE SUPPORT SERVICES

#### PROGRAMME PURPOSE

This Programme provides strategic leadership and direction in the areas of Human Capital Management, Facilities Management, ICT and Occupational Health and Safety. The primary focus of the Programme is in ensuring efficient processes and resources in support of the organisation's strategic objectives.

#### STRATEGIC OUTCOME- ORIENTATED GOALS

- Develop and maintain sound organisational infrastructure.
- Ensure effective Human Capital Management .

## STRATEGIC OBJECTIVE

- To develop and maintain sound organisational infrastructure.
- To have satisfied and productive employees.
- To be the employer of choice.



## 3.1.5 FINANCIAL MANAGEMENT & ADMINISTRATION

### PROGRAMME PURPOSE

This Programme provides strategic financial leadership for the purposes of managing and directing the finances of the NNR. The management includes financial planning, financial reporting, safeguarding of assets and enforcing adherence to applicable legislations, effective supply chain processes and efficient usage of public funds. The Programme also covers the oversight role in implementing financial systems that supports robust systems of internal control.

### STRATEGIC OUTCOME- ORIENTATED GOALS

- Ensure financial viability and sustainability of the organisation.

### STRATEGIC OBJECTIVE

- To ensure that the NNR continues to remain a financially viable entity with adequate revenue to meet its strategic objectives.
- To ensure prudent financial management in the NNR by aligning strategic with allocated funds.

## 3.1.6 INTERNAL AUDIT

### PROGRAMME PURPOSE

Internal audit provides assurance to the NNR's stakeholders that the organisation operates in a responsible manner by performing the following functions, among others:

- Evaluating the organisation's governance processes, including ethics, especially the 'tone at the top.'
- Performing an objective assessment of the effectiveness of risk management (outsourced) and the internal control framework.
- Systematically analysing and evaluating business processes and associated controls, and
- Providing a source of information, as appropriate, regarding instances of fraud, corruption, unethical behaviour and irregularities.

Internal audit reports functionally to the Audit and Risk Management Committee (ARMCOM), and administratively to the CEO.

### STRATEGIC OUTCOME-ORIENTATED GOALS

- Enhance good governance.

### STRATEGIC OBJECTIVE

- To improve and maintain an effective system of internal controls.

## 3.1.7 RISK MANAGEMENT

### PROGRAMME PURPOSE

Risk management is a systematic and formalised process instituted by the organisation to identify, assess, manage and monitor risks. While enterprise-wide risk management is the application of risk management throughout the institution rather than only in selected business areas or disciplines. The Internal Audit and Risk Department assists management by coordinating and facilitating the Risk Management activities within the NNR.

This Programme provides for strategic leadership for purposes of ensuring the effective and efficient functioning of the Board and its Board committees. This is done through providing the Board with quality, consistent and responsive administrative and logistical support. It also assists the Board and Board members to discharge their role and responsibilities. The Programme is also mandated to ensure that it is the source that provides guidance on good corporate governance principles and practices for the Board and the organisation as a whole. This is done through, inter alia, the NNR's Board Compliance Index and other measures.

### STRATEGIC OUTCOME-ORIENTATED GOALS

- Enhance good governance.

### STRATEGIC OBJECTIVE

- To develop and maintain independent and effective governance structures.

## 3.1.8 COMPANY SECRETARIAT

### PROGRAMME PURPOSE

This Programme provides for strategic leadership for purposes of ensuring the effective and efficient functioning of the Board and its Board committees. This is done through providing the Board with quality, consistent and responsive administrative and logistical support. It also assists the Board and Board members to discharge their role and responsibilities. The Programme is also mandated to ensure that it is the source that provides guidance on good corporate governance principles and practices for the Board and the organisation as a whole. This is done through, inter alia, the NNR's Board Compliance Index and other measures.

### STRATEGIC OUTCOME - ORIENTATED GOALS

- Enhance good governance.

### STRATEGIC OBJECTIVE

- To develop and maintain independent and effective governance structures.

## 3.1.9 STRATEGY MANAGEMENT & ORGANISATIONAL PERFORMANCE

### PROGRAMME PURPOSE

The purpose of this function is to ensure formulation, development of strategy and execution of the organisation's mandate in line with the NNR Act by utilising a strategic plan that is aligned to the National Planning Framework and priorities. The function also monitors and evaluates organisational performance and provides performance-enhancing solutions that will aid in the attainment of performance targets.

### STRATEGIC OUTCOME - ORIENTATED GOALS

- Create a high performance culture.

### STRATEGIC OBJECTIVE

- To establish and maintain a high performance culture through defining, developing and implementing quality management programmes and standards.

## 3.1.10 LEGAL COUNSEL

### PROGRAMME PURPOSE

The purpose of this function is to provide the organisation with advice and guidance on all legal matters, such as legislative drafting, interpretation of agreements and/or legislation, vetting of contracts, drafting of pleadings, and liaising with external legal representatives.

### STRATEGIC OUTCOME - ORIENTATED GOALS

- Enhance good governance.

### STRATEGIC OBJECTIVE

- To ensure compliance with applicable legislation and policy framework.

## 3.2 PERFORMANCE INFORMATION

|                  |  |
|------------------|--|
| Achieved         | Planned tasks have been completed and approved                                       |
| Largely Achieved | Planned tasks achieved at 80% and above  |
| Not Achieved     | Planned tasks were not achieved  |
| Not Applicable   | Tasks were not due for action or implementation in the reporting period under review |

| Strategic Objective  | KPI  | Target   | Actual   | Weighted Performance % | Variance  |
|--|--|--|--|------------------------|---|
| 1. To process applications for nuclear authorisations in a timely and accurate manner  | CM1a: Number of days (Turn Around Time -TAT)     | CoR: 180 days<br>COE: 180 days<br>NVL: 180 days<br>NIL 40mths<br>(based on specific assumptions)<br>NISL 24 months | NPP: 1 <sub>2</sub><br>NTWP: 1 <sub>2</sub><br>NORM: 7 | 100%                   | NONE  |
|  | CM1b: 100% of total agreed schedule              | 100%   | 89.2   | 89.2                   | This included reviews and assessments of Authorisation Change Requests (ACRs) amongst others. This was due to capacity constraints based on the resource plan and TSO. However the resource plan could not be implemented as the approval of authorisation fees was delayed. The TSO has now been appointed to augment this. -10.8% variance  |
| 2. To provide assurance of safety performance of holders through inspections, audits, investigations and taking enforcement action for identified non-compliance | CM2a: The quantity of activities conducted       | Inspections<br>348   | Inspections<br>364                                     | 3 100                  | NONE  |
|  |  | Audits<br>12   | Audits<br>12   |                        |   |
|  |  | Environmental Samples<br>504   | Environmental Samples<br>563                           |                        |   |
|  | CM2b: % compliance with NNR enforcement measures | 100%   | 100%   | 80.4                   | A number of directives were issued over the year to non-compliant holders. However the reviewed norms and standard for enforcement were not finalised within stipulated time frames. This was caused by capacity constraints including the resignation of the departmental head in Q3 who was the main driver of the process. -19.6% variance |

| Strategic Objective  | KPI   | Target         | Actual   | Weighted Performance % | Variance   |
|--|---|----------------|--|------------------------|--|
| 3.To assure that holders have an effective emergency preparedness plan   | CM3a:<br>Extent to which holders have addressed on-compliances raised by the NNR as per agreed schedule | 100%           | 100%   | 84.4                   | The NORM facilities have consistently registered a compliance index lower than the prescribed level of compliance. The operator's non-compliance is a source of concern for the regulator as a result a more stringent measurement metrics of the compliance index is being developed together with the necessary guidance documents. This accounts for -15.6% variance. |
|  | CM3b:<br>Planning and conducting of regulatory emergency exercise (conducting exercise per schedule)    | Necsa Exercise | Conducted successful Necsa emergency exercise. | 100                    | NONE   |
|  | CM3c:<br>Upgrade of ECC   | 100% upgrade   | 38.8   | 38.8                   | The upgrade suffered severe delays as procurement of necessary systems needed to be subjected to further agreement on cost variations with suppliers i.e. the prices from suppliers were significantly higher than the budget amounts. -61.2% variance   |
| 4.To benchmark and update safety standards and regulatory practices in line with national and international norms and requirements | CM4:%<br>implementation of the SAT program of action  | 80%            | 100%   | 82                     | The programme oversees several modules all of which performed reasonably well with a few delays to the finalisation of Source Register implementation and addressing the scope of the GSR Part I and other IRRS modules. This was due to capacity constraints as explained above. -18% variance  |

| Strategic Objective  | KPI  | Target                           | Actual   | Weighted Performance % | Variance  |
|--|--|----------------------------------|--|------------------------|---|
| 5. To assure effective implementation of nuclear security measures by holders  | CM5a: % implementation of the strategy over stipulated period of time (conducting of Nuclear Security, inspections,) | Nuclear Security Inspections- 29 | 29 Security inspections  | 100                    | NONE  |
|  | CM5b: 100% of total agreed schedule (reviews & assessments)  | 30                               | 30 Security reviews and assessments  | 100                    | NONE  |
|  | CM5c: Planning and conducting of regulatory Nuclear Security exercise  | 1 KNPS                           | 0  | 0                      | Postponed on account of required security clearance by holder (ESKOM).  |
| 6. To establish an independent verification capability for the NNR   | CM6: % completion of action plan (LAB)   | 60% of plan                      | 50.8% of plan  | 84.7                   | Delayed refurbishment of NIMSA laboratory due to the need to negotiate the project costs with suppliers as the amounts exceeded the budget. |
| 7. To undertake regulatory research that ensures that the regulatory regime is strengthened  | CM7a: Research documents produced  | Procedure for public hearings    | 0  | 0                      | Postponed due to finalisation of Regulation ( no Legal Counsel) that gives effect to the procedure.   |
|  | CM7b: Number of research projects completed  | 2                                | Licensing of Generating III type reactors<br>Position paper on Digital Control and Instrumentation | 100 <sup>4</sup>       | NONE  |
| 8. To ensure that the NNR is positioned to respond to initiatives relating to nuclear expansions   | CM8: Implementation of the nuclear expansion strategy document   | 100% of plan                     | 64.3   | 64.3                   | There were delays experienced in the appointment of TSO and the recruitment of SGR staff as per approved resource plan. Reference CM1b.     |
| 9. To strengthen stakeholder relations and improve public perceptions of the NNR   | CM9: Planned stakeholder engagement initiatives implemented  | 100% of plan                     | 100%   | <sup>5</sup> 100       | NONE  |
| 10. Improve the quality of work and effectiveness through compliance with national and international obligations as prescribed by the NNR Act. | CM 10a: % of planned initiatives implemented   | 100%                             | 96.6   | 96.6                   | -3.4% owing to slight delay in Q2 of the finalisation of the nuclear safety action plan   |
|  | CM10b: Planned bilateral initiatives implemented   | 100%                             | 100  | 100                    | NONE  |

| Strategic Objective   | KPI   | Target                        | Actual            | Weighted Performance % | Variance  |
|---|---|-------------------------------|-------------------|------------------------|---|
| 11.To ensure that the NNR continues to remain a financially viable entity i.e. Adequate revenue to meet NNR strategic objectives.                 | FMI: Ratio (Regulatory activities are adequately funded)                    | 1:1 ratio                     | 96.7              | 96.7                   | -3.3%   |
| 12.To ensure prudent financial management in the NNR i.e. Ensure that strategic objectives are executed in accordance with allocated funds        | FM2: % budget variation (either positive or negative)                       | Less than 5% budget variation | 94.1              | 94.1                   | -5.9% owing to initial minor delays in achieving debtors turnaround target due to lack of capacity in resident legal expertise in Q1 & Q2   |
| 13.To improve and maintain an effective system of internal controls   | PM1:Rating (Qualified / unqualified)  | Unqualified audit             | Unqualified audit | 6<br>100               | NONE  |
| 14. To improve and maintain an effective system of internal controls and risk management  | PM2a: Risk Management activities implemented                                | 100%                          | 81.6              | 81.6                   | -18.4% low implementation rate of the internal audit plan in Q2 was not achieved due to scheduling challenges and availability of the auditee. The risk management training was not done in Q2 as scheduled due to unavailability of management. These have since been addressed. |
| 15. To develop and maintain independent and effective governance structures   | PM3: Compliance to Stipulated Standards of Governance structures            | 100%                          | 95.6              | 95.6                   | -4.4% owing to submission of Committee TOR in a later Quarter   |
| 16.To develop and maintain sound organisational infrastructure  | PM4a: Length of time it takes to restore systems                            | 100% (48hrs)                  | 72.0              | 72.0                   | -28 % variance due to slow start on the refurbishment of Cape Town site office which was a line item under this objective. Delay was caused by the need to address requirements of municipal by laws in Cape Town.  |
| 17.To establish and maintain a high performance culture through defining, developing and implementing quality management programmes and standards | PM5a: Rating in points and % Based on the Business Excellence Quality Model | 100% (500 points)             | 81.5              | 81.5                   | -19.5% Variance due to Dip stick survey to measure progress from 249 baselines not conducted but key steps leading up to it finalised. Resources were reprioritised to other areas.   |

| Strategic Objective   | KPI  | Target | Actual | Weighted Performance % | Variance  |
|---|--|--------|--------|------------------------|---|
| 18. To ensure compliance with applicable legislation and policy framework | PM6: % Level of compliance with legislative requirements | 100%   | 0      | 0                      | NNR had no legal Counsel for a good part of the period under review, thus items in the plan were not attended to as initially planned.  |
| 19. To have satisfied and productive employees                            | LMI: % Average employee performance                      | 80%    | 75.5   | 94.4                   | -5.6% Due the resignation of SM; CSS some milestones were halted and affected the performance.  |
| 20. To be the employer of choice  | LM2: % of employee satisfaction                          | 80%    | 44.7   | 44.7                   | Variance due to transition delays in Q3 i.e. the resignation of SM; CSS who was the programme driver, which rendered the programme to a halt. However this was recovered in Q4. |
| <i>TOTAL WEIGHTED AVERAGE PERFORMANCE 13/14</i>                           |  |        |        | 82.6                   |   |

**The NNR has achieved 14 out of 30 planned targets at a weighted average of 82,6% including the partially achieved targets.**

### 3.3 CHALLENGES ENCOUNTERED BY THE NNR DURING 2013/14

In the past year the following were the challenges faced by the regulator:

- The conclusion of capital projects was delayed but will be finalised in 2014/15. The majority of suppliers for the first two projects were imports and rand volatility had an adverse impact on the progress.

#### LABORATORY GRANT: 18 MILLION

- Project about 95% complete and procurement of requisite equipment done
- The projects total cost is estimated at R23 million
- There were delays due to final equipment being sourced from overseas.

#### 2012/13: R12 MILLION: EMERGENCY CONTROL CENTRE (ECC)

- All tenders issued and the last batch closing in early August
- Project cost estimation is at R14 million

#### 2013/14: R17 MILLION: CAPE TOWN OFFICE UPGRADE

- Cape Town office re-zoning process in progress
- Requests for proposals received from service providers
- Project with related ICT estimated at R8 million.



## OTHER CHALLENGES

- Integrated regulation of radioactive sources;
- Funding for Nuclear Build Early Engagement activities - delays in policy implementation had a big impact on planning;
- Funding model for the regulator;
- Perceived independence of the regulator by some stakeholders;
- Low staff capacity - to regulate ageing installations (this requires expertise and presents technical challenges);
- Ineffective engagement with other states organs;
  - Other challenges were internal and identified by the organisation during its strategic plan 2014-2019. They were largely subsumed into the APP and addressed accordingly.

## 3.4 LINKING PERFORMANCE WITH BUDGETS

The NNR had nine key strategic objectives during the year under review. The table below indicates the resources allocation and utilisation for all the key objectives respectively.

| 2013/14   |                    |               |               |                                 | 2012/13       |               |                                 |
|---|--------------------|---------------|---------------|---------------------------------|---------------|---------------|---------------------------------|
| Programme   | Code               | Budget        | Actual        | (over)/<br>Under<br>expenditure | Budget        | Actual        | (over)/<br>Under<br>expenditure |
| Applications for Nuclear authorisations in a timely and accurate manner<br>To Process<br><b>126,127,128,129,<br/>135,137,138</b>  | Personnel          | 31 253        | 25 746        | 5 507                           | 26 061        | 22 879        | 3 182                           |
|   | Goods and services | 4 391         | 3 617         | 774                             | 3 244         | 2 848         | 396                             |
| <b>Sub-total</b>  |                    | <b>35 644</b> | <b>29 363</b> | <b>6 281</b>                    | <b>29 305</b> | <b>25 727</b> | <b>3 578</b>                    |
| To ensure effective implementation of Nuclear security measures by holders<br><b>139 &amp; 175</b>  | Personnel          | 3 978         | 3 277         | 701                             | 1 429         | 1 255         | 175                             |
|   | Goods and services | 1 018         | 839           | 179                             | 625           | 549           | 76                              |
| <b>Sub-total</b>  |                    | <b>4 996</b>  | <b>4 116</b>  | <b>880</b>                      | <b>2 055</b>  | <b>1 804</b>  | <b>251</b>                      |
| To establish an independent verification capability for the NNR<br><b>136</b>   | Personnel          | 13 972        | 11 510        | 2 462                           | 10 982        | 9 641         | 1 341                           |
|   | Goods and services | 5 647         | 4 652         | 995                             | 3 962         | 3 478         | 484                             |
| <b>Sub-total</b>  |                    | <b>19 619</b> | <b>16 162</b> | <b>3 457</b>                    | <b>14 944</b> | <b>13 119</b> | <b>1 825</b>                    |
| To provide assurance of safety performance of holders through Inspections, audits, investigation and taking enforcement action for identified non compliance.<br><b>171-174</b> | Personnel          | 21 747        | 17 915        | 3 832                           | 20 411        | 17 919        | 2 492                           |
|   | Goods and services | 3 467         | 2 856         | 611                             | 3 776         | 3 315         | 461                             |
| <b>Sub-total</b>  |                    | <b>25 214</b> | <b>20 771</b> | <b>4 443</b>                    | <b>24 187</b> | <b>21 234</b> | <b>2 953</b>                    |
| Good Governance<br><b>124, 125, 126,<br/>127,136,136,137,<br/>138,139</b>   | Personnel          | 5 287         | 4 355         | 932                             | 6 647         | 5 835         | 812                             |

|   |                    |                |                |               |                |                |               |
|---|--------------------|----------------|----------------|---------------|----------------|----------------|---------------|
|   | Goods and services | 6 500          | 5 355          | 1 145         | 4 867          | 4 273          | 594           |
| <b>Sub-total</b>  |                    | <b>11 787</b>  | <b>9 710</b>   | <b>2 077</b>  | <b>11 514</b>  | <b>10 108</b>  | <b>1 406</b>  |
| Financial viability and sustainability<br><b>155-158</b>  | Personnel          | 16 944         | 13 958         | 2 986         | 10 175         | 8 933          | 1 242         |
|   | Goods and services | 26 208         | 21 590         | 4 618         | 23 729         | 20 832         | 2 897         |
| <b>Sub-total</b>  |                    | <b>43 151</b>  | <b>3 5548</b>  | <b>7 603</b>  | <b>33 905</b>  | <b>29 765</b>  | <b>4 140</b>  |
| High Performance and culture effective human capital management<br><b>141, 142, 144 ,145, 146, 147, 148 and 128</b> | Personnel          | 9 671          | 7 967          | 1 704         | 6 127          | 5 379          | 748           |
|   | Goods and services | 5 560          | 4 580          | 980           | 3 826          | 3 359          | 467           |
| <b>Sub-total</b>  |                    |                |                |               |                |                |               |
| Sound organisational Infrastructure<br><b>143</b>   | Personnel          | 2 116          | 1 743          | 373           | 2 046          | 1 796          | 250           |
|   | Goods and services | 8 421          | 8 420          | 1 484         | 4 218          | 3 703          | 515           |
| <b>Sub-total</b>  |                    | <b>10 537</b>  | <b>8 680</b>   | <b>1 857</b>  | <b>6 264</b>   | <b>5 499</b>   | <b>765</b>    |
| Stakeholder relations and Corporate Image<br><b>129</b>   | Personnel          | 1 723          | 1 419          | 304           | 1 673          | 1 469          | 204           |
|   | Goods and services | 2 878          | 2 371          | 507           | 3 156          | 2 771          | 385           |
| <b>Sub-total</b>  |                    | <b>4 601</b>   | <b>3 790</b>   | <b>811</b>    | <b>4 830</b>   | <b>4 240</b>   | <b>590</b>    |
| <b>TOTAL</b>  |                    | <b>170 779</b> | <b>140 687</b> | <b>30 092</b> | <b>136 956</b> | <b>120 234</b> | <b>16 722</b> |

## 3.5. SUMMARY OF FINANCIAL INFORMATION

### 3.5.1 REVENUE COLLECTION

The NNR is mainly funded from two sources of income, i.e. Authorisation Fees and State Grants in the form of transfers, both conditional and unconditional grants. During the period under review, the entity collected R115 million on Authorisation Fees that were 4% below the targeted amount as compared to 3% under collection during 2012/13 financial year.

The fees are charged to nuclear authorisation holders at different categories ranging from 1 to 5 and 1 being the smallest attracting the most minimal fee. Depending on the nature of authorisation, operational changes by the holders have an impact on the category to which they belong and therefore levied. The rate of under collection has been stable and below the benchmark of 5%.

In the main, the under collection was due to withdrawals of authorisation holders and scaling down of operations. The nuclear industry is capital intensive while safety is of paramount importance, the National Nuclear Regulator conducts regular community awareness programmes to ensure safety of communities and thereby keeping the citizens alert and affording them a channel to report suspicious actions to the Regulator. Although the NNR hardly has space to incentivise its industry to an extent that it can stimulate the business activities, the industry information sharing initiatives through different stakeholder forums do assist prospective clients to understand the regulatory requirements of the industry.

| 2013/2014          |                |                         |                         | 2012/2013      |                         |                         |
|--------------------|----------------|-------------------------|-------------------------|----------------|-------------------------|-------------------------|
| Sources of revenue | Estimate       | Actual Amount Collected | (Over)/Under Collection | Estimate       | Actual Amount Collected | (Over)/Under Collection |
|                    | R'000          | R'000                   | R'000                   | R'000          | R'000                   | R'000                   |
| Authorisation Fees | 120,884        | 115,411                 | 5,433                   | 102,115        | 99,068                  | 3,047                   |
| State Grant        | 48,360         | 48,360                  | -                       | 42,912         | 42,912                  | -                       |
| Other Income       | 1,535          | 4,680                   | (3,145)                 | 3,929          | 4,909                   | (980)                   |
| <b>Total</b>       | <b>170,779</b> | <b>168,451</b>          | <b>2,288</b>            | <b>148,956</b> | <b>146,889</b>          | <b>2,067</b>            |

### 3.5.2 PROGRAMME EXPENDITURE

| 2013/14               |                    |                |                |                          | 2012/13        |                |                          |
|-----------------------|--------------------|----------------|----------------|--------------------------|----------------|----------------|--------------------------|
| Programme name        | Code               | Budget         | Actual         | (over)/Under expenditure | Budget         | Actual         | (over)/Under expenditure |
| <b>Administration</b> | Personnel          | 28 628         | 29 443         | (815)                    | 26 667         | 23 411         | 3 256                    |
|                       | Goods and services | 55 937         | 40 829         | 15 108                   | 39 798         | 34 939         | 4,859                    |
| <b>Sub-total</b>      |                    | <b>84 565</b>  | <b>70 272</b>  | <b>14 293</b>            | <b>58 350</b>  |                | <b>8 115</b>             |
| <b>SARA</b>           | Personnel          | 44 932         | 38 870         | 6 062                    | 38 472         | 33 775         | 4 697                    |
|                       | Goods and services | 11 507         | 8 725          | 2 782                    | 7 814          | 6 860          | 954                      |
| <b>Sub-total</b>      |                    | <b>56 439</b>  | <b>47 595</b>  | <b>8 844</b>             | <b>46 286</b>  | <b>40 635</b>  | <b>5651</b>              |
| <b>CAE</b>            | Personnel          | 23 391         | 19 580         | 3 811                    | 20 411         | 17 919         | 2492                     |
|                       | Goods and services | 6 384          | 3 240          | 3 144                    | 3 793          | 3 330          | 463                      |
| <b>Sub-total</b>      |                    | <b>29 775</b>  | <b>22 820</b>  | <b>6 955</b>             | <b>24 204</b>  | <b>21 249</b>  | <b>2 955</b>             |
| <b>TOTAL</b>          |                    | <b>170 779</b> | <b>140 687</b> | <b>30 092</b>            | <b>136 956</b> | <b>120 234</b> | <b>16 722</b>            |

### 3.5.3 SUPPORT PROGRAMME

Expenditure for compensation of employees in Support Services was below the target during the period under review. The variance is attributed to vacancies at strategic level during the year, mainly CEO and Senior Manager: Corporate and Support Services. The situation was aggravated by new positions that were created and only filled during the last quarter of the year because of uncertainties around the approval of authorisation fees, which only took place in February 2014.

In addition to the authorisation fees situation mentioned above, the organisation derived significant savings on goods and services through a number of cost containment initiatives implemented during the year. The initiatives were targeted to variable costs such as telecommunication, catering, travelling etc. The savings will be directed towards capital projects that are projected to have a budget overrun.

### 3.5.4 STANDARDS, AUTHORISATIONS, REVIEWS AND ASSESSMENTS (SARA)

The Divisions' performance on compensation of employees was well on target. The savings on goods and services is attributed to work outsourced to consultants assisting with clearing backlog on reviews. The process is underway and will continue through to the 2014/15 financial year.

This Division will expand significantly during the next financial year in preparation for Koeberg Nuclear Power Station's steam generator replacement project. The project preparations would require significant capacity enhancement, both in staff complement and up skilling of the team as a whole. This will therefore require significant additional financial resources.

### 3.5.5 COMPLIANCE ASSURANCE AND ENFORCEMENTS (CAE)

This Division performed extremely well on compensation of employees as well and slightly overspent by about 1,5% in this regard. The over expenditure mainly relates to filling of positions with salaries slightly above budget amounts as we budget on the middle of the scale while negotiations at times pushes a bit beyond. The situation, nonetheless, was well under control and excess expenditure was defrayed from savings realised by other divisions on the same line item. The savings on goods and services in this instance is attributed to few inspections that were cancelled and savings generated through new combined inspections approach, which has proved to be very economical. This Division will intensify its programme during the next financial year to comprehensively include nuclear security initiatives.

### CAPITAL INVESTMENT, MAINTENANCE AND ASSET MANAGEMENT PLAN

| Infrastructure projects             | 2013/2014      |                    |                          | 2012/2013      |                    |                          |
|-------------------------------------|----------------|--------------------|--------------------------|----------------|--------------------|--------------------------|
|                                     | Budget         | Actual Expenditure | (Over)/Under Expenditure | Budget         | Actual Expenditure | (Over)/Under Expenditure |
|                                     | R'000          | R'000              | R'000                    | R'000          | R'000              | R'000                    |
| Radio Activity Analysis Laboratory  | 17,557         | 15,848             | 1,709                    | 18,000         | 443                | 17,557                   |
| Regulatory Emergency Control Centre | 12,000         | 340                | 11,660                   | 12,000         | -                  | 12,000                   |
| Cape Town Refurbishment             | 17,000         | -                  | 17,000                   | -              | -                  | -                        |
| <b>Total</b>                        | <b>46, 557</b> | <b>16, 188</b>     | <b>30, 369</b>           | <b>30, 000</b> | <b>443</b>         | <b>29, 557</b>           |

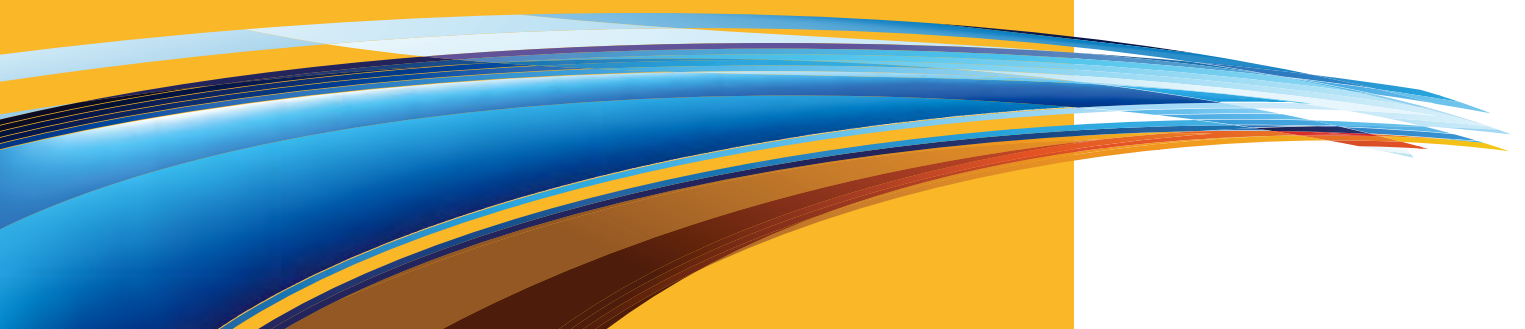
The NNR embarked on 3 capital projects over the past 2 financial years. The Radioactivity Analysis Laboratory is 95% complete and ready to start running on a testing basis with accreditation to follow, during the next financial year. On completion, this project will have cost the organisation up to R27 million. This facility is critical for the independence of the regulator.

Procurement and contracting for the Regulatory Emergency Control Centre is at a very advanced stage. At the end of March 2014, contracts just over R15 million were being negotiated. The execution of this project would therefore gain momentum immediately in the beginning of the new financial year. The costs of the project are projected just below R20 million, particularly taking into account the volatility of the currency considering that a significant part of equipment required imports. Management is closely monitoring the costs to ensure that the organisation derives the best value for money.

The Cape Town office project was delayed during the period under review, mainly due to the by-laws relating to new developments in the affected area. This project will be prioritised in the current financial year and scheduled for completion in the next financial year.

Section 4

**HUMAN RESOURCE  
MANAGEMENT**



## 4. HUMAN RESOURCE MANAGEMENT

### 4.1 OVERVIEW OF HR MATTERS AT THE PUBLIC ENTITY

The pace of HR work was interrupted by the departure of the Senior Manager: Corporate Support Service in November 2013. The NNR secured the services of an interim manager to ensure continuity. The CEO and Board reprioritised key areas for the interim manager to focus on with the view of establishing a high performance culture within the NNR.

### 4.2 SET HR PRIORITIES FOR THE PERIOD UNDER REVIEW AND THE IMPACT OF THESE PRIORITIES

During the review period the main focus was to address talent management issues within the organisation. The NNR secured the services of a consultant to assess and redesign a grading system that is appropriate for the NNR and which allows for remuneration practices that took into account specialised occupations. This will positively impact on the NNR's ability to attract, retain, develop and properly remunerate employees with key skills and knowledge. This process will continue and be finalised in the next financial year.

### 4.3 WORKFORCE PLANNING FRAMEWORK AND KEY STRATEGIES TO ATTRACT AND RECRUIT A SKILLED AND CAPABLE WORKFORCE

The NNR continues to explore innovative ways of attracting skilled employees. It was noted that experienced regulatory staff were not easily available in the market and the NNR would therefore need to focus on creating a pool of potential employees with the right skills and practical experience. The NNR will therefore expend more resources into the recruitment and training of interns, as well as the development of training centres focused on the needs of the NNR.

### 4.4 EMPLOYEE PERFORMANCE MANAGEMENT FRAMEWORK

During the review period the NNR revised the performance management framework to ensure alignment with strategic goals, corporate values and to drive high performance in the organisation. Rewards will be commensurate with the level of performance.

### 4.5 EMPLOYEE WELLNESS PROGRAMMES

The NNR subscribes to the view that a healthy workforce is a productive one. During the review period the NNR implemented a number of programmes that focused on both the physical and mental well being of employees.

### 4.6 POLICY DEVELOPMENT

#### 4.6.1 HIGHLIGHT ACHIEVEMENTS

The NNR commenced with a review of all HR related policies and procedures in order to ensure alignment with best practices and compliance with legislation. This process will continue into the next financial year. The NNR is focused on improving communication to employees thus ensuring that employees understand, comply and contribute to strategies, objectives, policies and procedures of the NNR. The annual employment equity report was filed with the Department of Labour and the NNR is on track to file the Annual Training Report by the end of April 2014.

## 4.6.2 CHALLENGES FACED BY THE PUBLIC ENTITY

The turnover of critical positions resulted in some instability, as well as a number of planned initiatives not being completed within the required time frames. The NNR focused on filling key positions at a senior management level. It is anticipated that these changes will result in improving the delivery of key initiatives and enhancing the overall organisational performance of the NNR.

## 4.6.3 FUTURE HR PLANS AND GOALS

The focus for the next financial year will be on developing and implementing an integrated talent management that will encompass shared values and competencies, as well as personal attributes required for the NNR and the individual to be successful at what they do. The following will be the focus areas for 2014/2015:

- Recruitment – streamlining of processes and ensuring a fit between the individual and the NNR.
- Performance management that will ensure alignment between the individual and business objectives
- Succession planning
- Training and Development of current employees, as well as to create a pool of skilled and competent people for future recruitment.

## 4.7 HUMAN RESOURCES OVERSIGHT STATISTICS

### PERSONNEL COST BY SALARY BAND

| Level                  | Personnel Expenditure (R'000) | % of personnel exp. to total personnel cost (R'000) | No. of employees | Average personnel cost per employee (R'000) |
|------------------------|-------------------------------|---|------------------|---|
| Top Management         | 1 000                         | 1%  | 1                | 1 000                                       |
| Senior Management      | 6 259                         | 7%  | 4                | 1 565                                       |
| Professional qualified | 66 941                        | 76%   | 64               | 1 046                                       |
| Skilled                | 13 247                        | 15%   | 29               | 457   |
| Semi-skilled           | 443                           | 1%  | 2                | 222   |
| Unskilled              | -                             | 0%  | 0                | -   |
| <b>TOTAL</b>           | <b>87 890</b>                 | <b>100%</b>   | <b>100</b>       | <b>879</b>                                  |

## PERFORMANCE REWARDS

| Programme              | Performance rewards | Personnel Expenditure (R'000) | % of performance rewards to total personnel cost (R'000) |
|------------------------|---------------------|-------------------------------|--|
| Top Management         | -                   | 1 000                         | 0%   |
| Senior Management      | 345                 | 6 259                         | 6%   |
| Professional qualified | 2 916               | 66 941                        | 4%   |
| Skilled                | 577                 | 13 247                        | 4%   |
| Semi-skilled           | 24                  | 443                           | 5%   |
| Unskilled              | -                   | -                             | 0%   |
| <b>TOTAL</b>           | <b>3 862</b>        | <b>87 890</b>                 | <b>4%</b>  |

## EMPLOYMENT AND VACANCIES

| Programme              | 2012/2013 No. of Employees | 2013/2014 No. of Employees | 2013/2014 Vacancies | % of vacancies |
|------------------------|----------------------------|----------------------------|---------------------|----------------|
| Top Management         | 0                          | 1                          | 1                   | 0%             |
| Senior Management      | 42                         | 46                         | 4                   | 9%             |
| Professional qualified | 39                         | 31                         | 8                   | 26%            |
| Skilled                | 0                          | 0                          | 0                   | 0%             |
| Semi-skilled           | 13                         | 17                         | 1                   | 6%             |
| Unskilled              | 4                          | 3                          | 0                   | 0%             |
| <b>TOTAL</b>           | <b>98</b>                  | <b>98</b>                  | <b>14</b>           | <b>14%</b>     |

The position of the CEO was filled. Recruitment has commenced to fill 2 senior management positions. Adjustments were done for 2 professionally qualified staff and 1 skilled employee in order to retain their services.

### 4.7.1 EMPLOYMENT CHANGES

| Salary Band            | Employment at beginning of period | Appointments | Terminations | Employment at end of the period |
|------------------------|-----------------------------------|--------------|--------------|---------------------------------|
| Top Management         | 0                                 | 1            | 0            | 1                               |
| Senior Management      | 46                                | 4            | 4            | 46                              |
| Professional qualified | 27                                | 8            | 4            | 31                              |
| Skilled                | 0                                 | 0            | 0            | 0                               |
| Semi-skilled           | 16                                | 1            | 0            | 17                              |
| Unskilled              | 3                                 | 0            | 0            | 3                               |
| <b>Total</b>           | <b>92</b>                         | <b>14</b>    | <b>8</b>     | <b>98</b>                       |



## REASONS FOR STAFF LEAVING

| Reason             | Number   | % of total no. of staff leaving |
|--------------------|----------|---------------------------------|
| Death              | 0        | 0                               |
| Resignation        | 7        | 7%                              |
| Dismissal          | 0        | 0                               |
| Retirement         | 1        | 1%                              |
| Ill health         | 0        | 0                               |
| Expiry of contract | 0        | 0                               |
| Other              | 0        | 0                               |
| <b>Total</b>       | <b>8</b> | <b>8%</b>                       |

Two people resigned because of on-going conflict with their supervisor and the remaining 5 for better employment prospects.

## EMPLOYEE RELATIONS: MISCONDUCT AND DISCIPLINARY ACTION

| Nature of disciplinary Action | Number |
|-------------------------------|--------|
| Verbal Warning                | 2      |
| Written Warning               | 1      |
| Final Written warning         | 3      |
| Dismissal                     | 0      |

## EQUITY TARGET AND EMPLOYMENT EQUITY STATUS

| Levels                 | Male      |           |          |           |          |          |           |           |
|------------------------|-----------|-----------|----------|-----------|----------|----------|-----------|-----------|
|                        | African   |           | Coloured |           | Indian   |          | White     |           |
|                        | Current   | Target    | Current  | Target    | Current  | Target   | Current   | Target    |
| Top Management         | 1         | 1         | 0        | 0         | 0        | 0        | 0         | 0         |
| Senior Management      | 18        | 2         | 7        | 1         | 4        | 0        | 11        | 0         |
| Professional qualified | 12        | 24        | 0        | 6         | 0        | 3        | 0         | 11        |
| Skilled                | 0         | 6         | 0        | 2         | 0        | 1        | 0         | 0         |
| Semi-skilled           | 1         | 4         | 0        | 1         | 0        | 0        | 0         | 0         |
| Unskilled              | 1         | 0         | 0        | 0         | 0        | 0        | 0         | 0         |
| <b>TOTAL</b>           | <b>33</b> | <b>37</b> | <b>7</b> | <b>10</b> | <b>4</b> | <b>4</b> | <b>11</b> | <b>11</b> |

## EQUITY TARGET AND EMPLOYMENT EQUITY STATUS (CONT.)

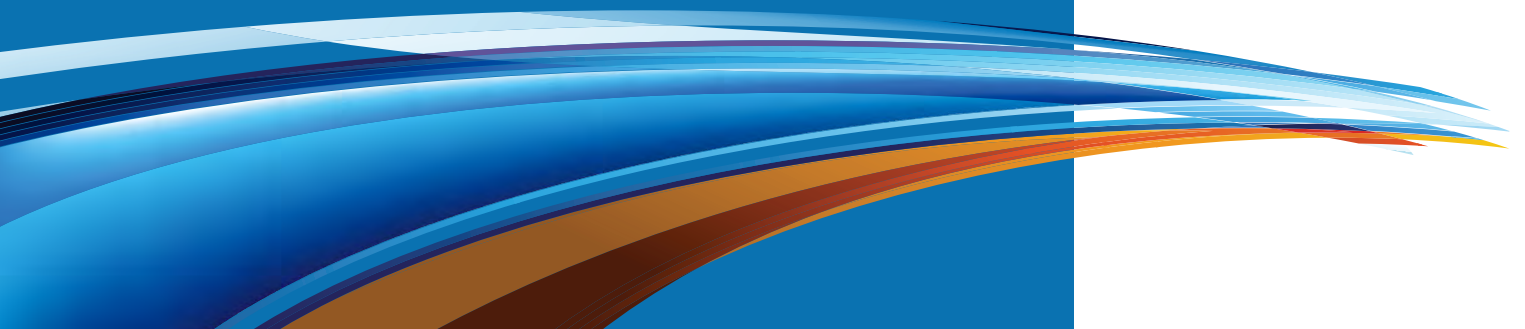
| Levels                 | Female    |           |          |           |          |          |          |          |
|------------------------|-----------|-----------|----------|-----------|----------|----------|----------|----------|
|                        | African   |           | Coloured |           | Indian   |          | White    |          |
|                        | Current   | Target    | Current  | Target    | Current  | Target   | Current  | Target   |
| Top Management         | 0         | 0         | 0        | 0         | 0        | 0        | 0        | 0        |
| Senior Management      | 7         | 2         | 0        | 0         | 1        | 0        | 3        | 0        |
| Professional qualified | 17        | 30        | 0        | 4         | 0        | 2        | 0        | 3        |
| Skilled                | 0         | 6         | 0        | 5         | 0        | 1        | 5        | 3        |
| Semi-skilled           | 9         | 10        | 1        | 4         | 0        | 0        | 0        | 3        |
| Unskilled              | 1         | 0         | 0        | 0         | 0        | 0        | 0        | 0        |
| <b>TOTAL</b>           | <b>34</b> | <b>48</b> | <b>1</b> | <b>13</b> | <b>1</b> | <b>3</b> | <b>8</b> | <b>9</b> |

| Levels                 | Disabled Staff |          |          |          |
|------------------------|----------------|----------|----------|----------|
|                        | Male           |          | Female   |          |
|                        | Current        | Target   | Current  | Target   |
| Top Management         | 0              | 0        | 0        | 0        |
| Senior Management      | 0              | 0        | 0        | 0        |
| Professional qualified | 2              | 1        | 0        | 0        |
| Skilled                | 0              | 0        | 0        | 0        |
| Semi-skilled           | 0              | 0        | 1        | 1        |
| Unskilled              | 0              | 0        | 0        | 0        |
| <b>TOTAL</b>           | <b>2</b>       | <b>1</b> | <b>1</b> | <b>1</b> |

There were no major variances between current figures and the planned targets.

Section 5

**REGULATION OF  
NUCLEAR ACTIONS**



## 5. CORE BUSINESS

The regulation of nuclear actions at the NNR is performed by two technical divisions, namely, Standards, Authorisations, Reviews and Assessments (SARA) and Compliance Assurance and Enforcement (CAE).

### 5.1 STANDARDS, AUTHORISATIONS, REVIEWS AND ASSESSMENTS (SARA) DIVISION

The SARA Division is primarily responsible for the management of the following functions at the NNR:

- Development of nuclear safety standards related to the core areas, such as radiation, nuclear, waste and transport safety
- Granting authorisations for nuclear installations, nuclear vessels, mining and minerals processing facilities / activities, and certificates of exemption
- Conducting safety assessments for all actions, projects, and regulated activities by reviews and assessments
- Managing special nuclear related projects of a regulatory nature.

The activities of the SARA Division include:

- Developing and implementing regulatory Programmes for the regulation of NPPs, fuel cycle, research reactors, NORM facilities and other actions
- Regulating the safe operation of existing holders of nuclear authorisations and preparation for applications related to nuclear expansion
- Conducting regulatory emergency preparedness, response, and security exercises.

#### 5.1.1 SAFETY CASE REVIEW AND ASSESSMENT

A safety case is a collection of safety arguments and evidence in support of the safety of a facility or action. The safety case provided must identify and characterise all sources of radiation associated with the facility, and all possible exposure pathways that may arise from such sources, under normal operating conditions and under accident situations.

The NNR undertakes an evaluation of the submitted documentation to ensure that the action or facility will meet the standards and requirements for safe operation. From the evaluation, conditions are identified for inclusion in the nuclear authorisation.

#### 5.1.2 NUCLEAR AUTHORISATION PROCESS

A nuclear authorisation is the process of granting a written approval by the National Nuclear Regulator to applicants and / or operating organisations to perform nuclear- related activities, as detailed in the scope of authorisation. The authorisation process involves receiving, reviewing and approval of authorisation requests from applicants.

The NNR Act makes provision for the granting of four categories of nuclear authorisation. These are:

- Nuclear Installation Licences
- Nuclear Vessel Licences
- Certificates of Registration
- Certificates of Exemption.

Prior to the granting of an authorisation, the applicant is required to apply to the NNR, in the prescribed format and furnish all such information as required by the Board. The intended activities must be detailed and a demonstration of safety and compliance to the NNR requirements must be submitted. The application must address all aspects relating to safety for the design, manufacturing, construction, commissioning, operating, and maintenance and decommissioning of the nuclear facility.

The authorisation conditions represent a framework within which the applicant or holder of the nuclear authorisation is obliged to comply with particular requirements in respect of design, operation, maintenance and decommissioning. The conditions of authorisation also oblige the holder of the authorisation to provide a demonstration of continuing compliance through, the submission of routine and non-routine reports.

## 5.2 COMPLIANCE ASSURANCE AND ENFORCEMENT (CAE) DIVISION

The CAE Division is primarily responsible for:

- The management of all Compliance Assurance and Enforcement activities, processes and Programmes for regulated nuclear technologies and actions at the NNR
- Ensuring the establishment of effective and efficient systems related to Compliance Assurance and Enforcement activities, particularly relating to nuclear safety and security. These include conducting compliance assurance inspections, audits, investigations, surveillances, environmental monitoring and sampling activities.

Activities of the CAE Division include:

- Providing assurance of safety performance of holders of a nuclear authorisation through inspections, audits, investigations and taking of enforcement action for identified non-compliances.
- Strengthening independent analytical verification capability and capacity within the NNR.
- Enhancing regulatory programmes and the application of safety-focused research

### 5.2.1 COMPLIANCE ASSURANCE

The NNR conducts compliance assurance activities to determine the extent to which holders of nuclear authorisations comply with the conditions of authorisation. The extent and nature of the NNR's compliance assurance activities is commensurate with the type of authorisation issued and the risk posed by the facility or action.

The compliance assurance activities involve a combination of audits, routine inspections, non-routine inspections, review of routine reports and review of occurrence reports.

### 5.2.2 ENFORCEMENT

Where non-compliance with the conditions of authorisation is identified, the NNR may initiate enforcement actions. Enforcement actions are designed to respond to non-compliances with specified conditions and requirements. The enforcement actions are commensurate with the seriousness of the non-compliance and may take the form of written warnings, penalties, curtailment of operations, suspension of the authorisation, or ultimately withdrawal of the authorisation. In all cases, the holder of the authorisation is required to remedy the non-compliance by:

- Performing a thorough investigation in accordance with an agreed timescale
- Taking all necessary measures to prevent recurrence
- In certain instances, the NNR has performed its own investigation

## 5.3 NUCLEAR AUTHORISATIONS ACTIVE FOR THE PERIOD UNDER REVIEW

| Authorisations | Nuclear Installations (NIL)  |
|----------------|--|
| NIL 01         | Koeberg Nuclear Power Station  |
| NIL 02         | SAFARI I Research Reactor  |
| NIL 03         | P2700 Complex  |
| NIL 04         | Thaban Complex comprising the following facilities:<br>Thaban Pipe Store<br>Thaban Radioactive Waste Storage Facility:Thabang Containerised Radioactive Waste Storage Facility<br>CaF2 Ponds |
| NIL 05         | HEU Vault-K0090  |
| NIL 06         | A 8 Decontamination Facility   |
| NIL 07         | Building A West Drum Store   |
| NIL 08         | ELPROD in Building P 2600  |
| NIL 09         | UMET in Building P 2600  |
| NIL 10         | Conversion Plant Complex   |
| NIL 11         | Area 14 Waste Management Complex   |
| NIL 12         | Quarantine Storage Facility  |
| NIL 13         | VYB Pelindaba East Bus Shed Complex  |
| NIL 14         | Pelindaba East Evaporation Ponds Complex   |
| NIL 15         | Oil Purification Facility  |
| NIL 16         | Area 21 Storage Facility   |
| NIL 17         | BEVA K3 Storage Complex  |
| NIL 18         | Area 16 Complex  |
| NIL 19         | Area 40 Complex  |
| NIL 20         | Area 27 De Heeling Facility  |
| NIL 21         | J Building   |
| NIL 22         | D Building   |
| NIL 23         | C Building   |
| NIL 24         | Building P 2800  |
| NIL 25         | Building XB  |
| NIL 26         | BEVA Eva Poration Ponds  |
| NIL 27         | Building P 2800  |
| NIL 28         | NIL 28 Vaalputs national Radioactive Waste Disposal  |
| NIL 29         | Area 26  |
| NIL 30         | E Building   |
| NIL 31         | Dorbyl Camp  |
| NIL 32         | X Building   |
| NIL 33         | Building P 1500  |
| NIL 34         | YM Vacuum Workshop   |
| NIL 35         | V H Building Laboratories  |
| NIL 36         | P 1900 Laboratories  |
| NIL 37         | P 1600 Laboratories  |
| NIL 38         | Fuel Development Laboratories Complex  |
| NIL 39         | NTP Radiochemicals Complex   |
| NIL 40         | Pelindaba Analytical Laboratories (PAL)  |
| NIL 41         | Liquid Effluent Treatment Facility Complex   |
| NIL 42         | BI-Building Basement   |

| Certificates of Exemption (COE) |  |   |
|---------------------------------|--|---|
| COE Number                      | Name of COE Holder                     | Type of COE issued                                    |
| COE 02                          | Oranje Mynbou En Vervoer Maatskappy    | Condition for reclamation of gypsum                   |
| COE 03                          | Nitrogen Products (Pty) Limited        | Condition for reclamation of gypsum                   |
| COE 04                          | Oranje Mynbou En Vervoer Maatskappy    | Conditions for reclamation and release of waste rocks |
| COE 12                          | The Maretsel Property Trust Developers | Conditions for removal of Tailing footprint           |
| COE 10                          | Dino Properties (Pty) Ltd              | Conditions for clean up of land                       |

| Nuclear Vessel Licence |                              |
|------------------------|------------------------------|
| NVL Number             | Name of Holder               |
| NVL 15                 | Team Spirit Merchant Vessel  |
| NVL-16                 | Ocean Bird (merchant vessel) |

|    |        |  |                               |
|----|--------|--|-------------------------------|
| 1  | COR-2  | Anglogold Ashanti Limited: Vaal River Operations   | Mining and Mineral Processing |
| 2  | COR-3  | Anglogold Ashanti Limited - West Wits Operations   | Mining and Mineral Processing |
| 3  | COR-4  | Anglogold Ashanti Limited - Ergo Operations  | Mining and Mineral Processing |
| 4  | COR-5  | ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (Tshepong, Matjhabeng & Bambani Operations) | Mining and Mineral Processing |
| 5  | COR-6  | ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (Joel operation)                            | Mining and Mineral Processing |
| 6  | COR-7  | African Rainbow Minerals Gold Limited (Welkom Operations)  | Mining and Mineral Processing |
| 7  | COR-10 | Angold Limited - Target Division   | Mining and Mineral Processing |
| 8  | COR-11 | Gravelotte Mines Limited   | Mining and Mineral Processing |
| 9  | COR-13 | MTC Demolition   | Scrap Processor               |
| 10 | COR-16 | Nuclear Fuels Corporation of SA (Pty) Limited  | Mining and Mineral Processing |
| 11 | COR-18 | South Deep Joint Venture   | Mining and Mineral Processing |
| 12 | COR-19 | Palabora Mining Company (Pty) Limited  | Mining and Mineral Processing |
| 13 | COR-20 | Foskor Limited (Phalaborwa)  | Mining and Mineral Processing |
| 14 | COR-22 | Fer-Min-Ore (Pty) Limited (Zirtille Milling)   | Mining and Mineral Processing |
| 15 | COR-23 | Steenkampskraal Monazite Mine (Pty) Limited  | Mining and Mineral Processing |
| 16 | COR-25 | Eggerding SA (Pty) Limited   | Mining and Mineral Processing |
| 17 | COR-26 | Richards Bay Iron and Titanium (Pty) Limited   | Mining and Mineral Processing |
| 18 | COR-27 | Foskor Limited (Richards Bay)  | Fertiliser Manufacturer       |
| 19 | COR-28 | Randfontein Estates Limited-(Kusasaletheu)   | Mining and Mineral Processing |
| 20 | COR-30 | Mine Waste Solutions (Pty) Limited   | Mining and Mineral Processing |
| 21 | COR-31 | Ya-Rona Scrap Metals   | Scrap Processor               |
| 22 | COR-32 | CJN Scrap  | Scrap Processor               |
| 23 | COR-33 | Rampete Metal Processors (Pty) Ltd   | Scrap Processor               |
| 24 | COR-34 | DMC Energy (Pty) Limited   | Mining and Mineral Processing |
| 25 | COR-37 | Harmony Gold Mining Company Limited (Free State Operations)  | Mining and Mineral Processing |
| 26 | COR-38 | Omnia Phosphates (Pty) Ltd   | Fertiliser Manufacturer       |
| 27 | COR-40 | ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (St Helena Operations)                      | Mining and Mineral Processing |
| 28 | COR-41 | Blyvooruitzicht Gold Mining Company Limited  | Mining and Mineral Processing |
| 29 | COR-43 | Tronox KZN Sands   | Mining and Mineral Processing |
| 30 | COR-46 | Evander Gold Mines Limited   | Mining and Mineral Processing |
| 31 | COR-47 | Grootvlei Properties Mines Ltd   | Mining and Mineral Processing |
| 32 | COR-48 | DRDGOLD Limited  | Mining and Mineral Processing |

|    |         |   |                               |
|----|---------|---|-------------------------------|
| 33 | COR-50  | Rappa Resources (Pty) Limited   | Mining and Mineral Processing |
| 34 | COR-51  | Consolidated Modderfontein (Pty) Limited  | Mining and Mineral Processing |
| 35 | COR-52  | Nigel Gold Mining Company Limited   | Mining and Mineral Processing |
| 36 | COR-53  | East Rand Proprietary Mines Limited   | Mining and Mineral Processing |
| 37 | COR-57  | Crown Gold Recoveries Pty) Limited  | Mining and Mineral Processing |
| 38 | COR-58  | Harmony Gold Mining Company Limited - Randfontein Operations                                    | Mining and Mineral Processing |
| 39 | COR-59  | Industrial Zone Limited   | Mining and Mineral Processing |
| 40 | COR-61  | Sedex Minerals  | Mining and Mineral Processing |
| 41 | COR-64  | Potchefstroom Plastiek Herwinning BK  | Scrap Processor               |
| 42 | COR-66  | Mintek  | Small User                    |
| 43 | COR-69  | Sibanye Gold Limited (Driefontein Operations)   | Mining and Mineral Processing |
| 44 | COR-70  | Sibanye Gold Limited (Kloof Operation)  | Mining and Mineral Processing |
| 45 | COR-71  | Sibanye Gold Limited (Beatrix Operation)  | Mining and Mineral Processing |
| 46 | COR-76  | Blastrite (Pty) Limited   | Mining and Mineral Processing |
| 47 | COR-77  | Anglo American Research Laboratories (Pty) Limited  | Small User                    |
| 48 | COR-74  | Durban Roodepoort Deep Mine   | Mining and Mineral Processing |
| 49 | COR-79  | Durban Roodepoort Deep Limited  | Mining and Mineral Processing |
| 50 | COR-80  | Mogale Gold (Pty) Ltd   | Mining and Mineral Processing |
| 51 | COR-81  | Metrec  | Mining and Mineral Processing |
| 52 | COR-84  | The Big Bin CC  | Scrap Processor               |
| 53 | COR-86  | Glenover Phosphate Limited (Mining Site) Operation)   | Mining and Mineral Processing |
| 54 | COR-87  | Rand Refinery Limited   | Mining and Mineral Processing |
| 55 | COR-92  | The Forensic Science Laboratory, SA Police  | Small User                    |
| 56 | COR-95  | Microzone Trading 69 cc   | Scrap Processor               |
| 57 | COR-97  | Geratech Zirconium Beneficiation (Ltd)  | Mining and Mineral Processing |
| 58 | COR-98  | B G Scrap Metals (Pty) Ltd  | Scrap Processor               |
| 59 | COR-99  | Roode Heuwel Sand Limited   |                               |
| 60 | COR-100 | South African Airforce (SAAF),Department of Defence (DoD), RSA                                  | Mining and Mineral Processing |
| 61 | COR-101 | The Reclamation Group (Pty) Ltd (Richards Bay)  | Scrap Processor               |
| 62 | COR-103 | Linbeck Metal Trading (Pty) Ltd   | Scrap Processor               |
| 63 | COR-104 | South African Port Operations (Dry Bulk Terminal - Richards Bay a Division of Transnet Limited) | Mining and Mineral Processing |
| 64 | COR-105 | Tantilite Resources   | Mining and Mineral Processing |
| 65 | COR-106 | Mineral Sands Resources Pty Ltd   | Mining and Mineral Processing |
| 66 | COR-107 | Vesuvius South Africa (Pty) Ltd   | Mining and Mineral Processing |
| 67 | COR-109 | SM Mining Construction Pty Ltd  |                               |
| 68 | COR-110 | Geotron Systems (Pty) Limited   | Small User                    |
| 69 | COR-111 | Bosveld Phosphate   | Fertiliser Manufacturer       |
| 70 | COR-112 | Scaw Metals Group   | Scrap Processor               |
| 71 | COR-114 | Interwaste Pty Ltd  | Scrap Processor               |
| 72 | COR-117 | Vic Ramos CC  | Scrap Processor               |
| 73 | COR-118 | GoldPlats Recovery Ltd  | Mining and Mineral Processing |
| 74 | COR-119 | Huntrex 196 Pty Ltd (trading as Ceracast)   | Mining and Mineral Processing |
| 75 | COR-131 | East Rand Beneficiation (Pty) Ltd   | Mining and Mineral Processing |
| 76 | COR-132 | Grifo Engineering (Pty) Ltd   | Service provider              |
| 77 | COR-135 | Tioxide SA (Pty) Ltd  | Mining and Mineral Processing |
| 78 | COR-156 | Necsa Calibration   | Small User                    |
| 79 | COR-159 | North West Reclaiming   | Scrap Processor               |



|     |         |   |                               |
|-----|---------|---|-------------------------------|
| 80  | COR-160 | Shiva Uranium One   | Mining and Mineral Processing |
| 81  | COR-164 | Sulzer Pumps (SA) Limited   | Service provider              |
| 82  | COR-165 | Uramin Mago Lukisa  | Mining and Mineral Processing |
| 83  | COR-166 | Weston Scrap Metal  | Scrap Processor               |
| 84  | COR-167 | Western Uranium (Pty) Ltd   | Mining and Mineral Processing |
| 85  | COR-178 | Durban Container Terminal - Business Unit of SA Port Operations           | Mining and Mineral Processing |
| 86  | COR-180 | SA Port Operations - Container Terminal Cape Town                         | Mining and Mineral Processing |
| 87  | COR-181 | Transnet Limited (SA Port Operations -Multipurpose Terminal,Saldanha bay) | Mining and Mineral Processing |
| 88  | COR-182 | Buffelsfontein Gold Mine Limited  | Mining and Mineral Processing |
| 89  | COR-183 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 90  | COR-184 | HVH Gold (Pty) Limited  | Mining and Mineral Processing |
| 91  | COR-186 | AfriSam (Pty) Limited   | Mining and Mineral Processing |
| 92  | COR-190 | Ezulwini Mining Company Ltd   | Mining and Mineral Processing |
| 93  | COR-194 | Exxaro Resources  | Mining and Mineral Processing |
| 94  | COR-195 | Houlgon Uranium & Power (Pty) Ltd   | Mining and Mineral Processing |
| 95  | COR-197 | Gold Reef City Theme Park   | Mining and Mineral Processing |
| 96  | COR-198 | Set Point Industrial Technologies (Pty) Ltd (Isando)                      | Small User                    |
| 97  | COR-199 | Uramin Mago Lukisa  | Mining and Mineral Processing |
| 98  | COR-200 | Uramin Mago Lukisa  | Mining and Mineral Processing |
| 99  | COR-201 | A&S Mining Supplies   | Service Provider              |
| 100 | COR-203 | Cemo Pumps (Pty) Ltd  | Service Provider              |
| 101 | COR-204 | Holgoun Energy (Pty) Ltd  | Mining and Mineral Processing |
| 102 | COR-206 | Uranium One and Micawber 397 (Proprietary) Limited                        | Mining and Mineral Processing |
| 103 | COR-207 | Set Point Industrial Technologies (Pty) Ltd (Mokopane)                    | Small User                    |
| 104 | COR-210 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 105 | COR-211 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 106 | COR-215 | Margaret Water Company  | Mining and Mineral Processing |
| 107 | COR-216 | Paddy's Pad 1183 (Pty) Ltd  | Mining and Mineral Processing |
| 108 | COR-217 | Cango Caves Oudtshoorn Municipality                                       | Mining and Mineral Processing |
| 109 | COR-218 | Grindrod Terminals (Pty) Limited  | Mining and Mineral Processing |
| 110 | COR-219 | Southgold Exploration (Pty) Limited                                       | Mining and Mineral Processing |
| 111 | COR-220 | African Empowered Aggregates CC   | Mining and Mineral Processing |
| 112 | COR-221 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 113 | COR-222 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 114 | COR-223 | Tasman Pacific Minerals (Pty) Limited                                     | Mining and Mineral Processing |
| 115 | COR-225 | New Kleinfontein Goldmine (Pty) Limited                                   | Mining and Mineral Processing |
| 116 | COR-226 | Rand Uranium (Pty) Limited  | Mining and Mineral Processing |
| 117 | COR-227 | WGWearne Limited  | Mining and Mineral Processing |
| 118 | COR-228 | Ergo Mining (Pty) Limited   | Mining and Mineral Processing |
| 119 | COR-229 | The New Reclamation Group (Pty) Limited                                   | Scrap Processor               |
| 120 | COR-230 | ALS Chemex South Africa (Pty) Limited                                     | Small User                    |
| 121 | COR-232 | Central Rand Gold South Africa (Pty) Limited (West)                       | Mining and Mineral Processing |
| 122 | COR-233 | Central Rand Gold South Africa (Pty) Limited (East)                       | Mining and Mineral Processing |
| 123 | COR-234 | Pamodzi Gold Orkney (Pty) Limited   | Mining and Mineral Processing |
| 124 | COR-235 | IM Motlhabane Farming CC (T/A Motlhabane Recycle Scrap)                   | Scrap Processor               |
| 125 | COR-236 | Reclaim Invest 101 (Pty) Limited  | Scrap Processor               |
| 126 | COR-238 | Tronox (Namakwa Sands Operations)   | Mining and Mineral Processing |

|     |         |   |                               |
|-----|---------|---|-------------------------------|
| 127 | COR-239 | Aflease Gold Limited  | Mining and Mineral Processing |
| 128 | COR-240 | Tantus Trading 180 (Pty) Ltd  | Mining and Mineral Processing |
| 129 | COR-242 | Enviro Mzingazi Gypsum (Pty) Limited  | Mining and Mineral Processing |
| 130 | COR_245 | Namakwa Uranium (Pty) Limited   | Mining and Mineral Processing |
| 131 | COR_246 | NTP Logistics (Pty) Limited   | Mining and Mineral Processing |
| 132 | COR-247 | SGS South Africa (Pty) Ltd  | Small User                    |
| 133 | COR-248 | Foskor Zirconia (Pty) Limited   | Mining and Mineral Processing |
| 136 | COR-252 | Harmony Gold Mining Company Limited (South Operations)                              | Mining and Mineral Processing |
| 137 | COR-253 | Avgold Limited (North Operations)   | Mining and Mineral Processing |
| 138 | COR-254 | WS Renovations Contractors  | Service Provider              |
| 139 | COR-255 | Genalysis Laboratory Services (SA) (Pty) Limited                                    | Small User                    |
| 140 | COR-256 | Chifley Trading CC  | Service Provider              |
| 141 | COR-257 | Samco Investments (Pty) Limited   | Scrap Processor               |
| 142 | COR-258 | SA Metal and Machinery Co (Pty) Limited   | Scrap Processor               |
| 143 | COR-259 | University of Pretoria  | Mining and Mineral Processing |
| 144 | COR-260 | African Mineral Standards (a division of Set Point Industrial Technology (Pty) Ltd) | Small Pser                    |
| 145 | COR-261 | North West University   | Mining and Mineral Processing |
| 146 | COR-262 | UIS Analytical Services (Pty) Ltd   | Small User                    |
| 147 | COR-263 | Aklin Carbide (Pty) Ltd   | Service Provider              |

## 5.4 REGULATION OF NUCLEAR POWER PLANTS – KOEBERG NUCLEAR POWER STATION (KNPS)



Koeberg Nuclear Power Station (KNPS), is currently the only nuclear power station in South Africa and on the African continent. It is located in Melkbosstrand on the West Coast of South Africa. Koeberg is owned and operated by South Africa's national electricity supplier, Eskom. The two nuclear reactors at the power station form the entirety of the South African nuclear power generation Programme. Koeberg supplies power to the national grid so that over-capacity can be redistributed to the rest of the country on an as-needed basis.

In terms of the NNR Act, nuclear installation licences contain conditions deemed necessary to ensure the protection of persons, property and the environment against nuclear damage. The current Koeberg Nuclear Installation Licence, NIL-01 variation 18, contains 19 conditions. In accordance with the conditions of licence, Koeberg is required to ensure that arrangements, acceptable to the NNR are established and implemented with respect to the following aspects:

|   |  |
|---|--|
| Plant Description and Configuration   | Safety Assessment                      |
| Scope of Activities that may be undertaken  | Controls and limitations on Operation  |
| Maintenance and in Service Inspection   | Operational Radiation Protection       |
| Effluent Management   | Waste Management                       |
| Environmental Monitoring  | Emergency Planning and Preparedness    |
| Transport   | Physical Security                      |
| Quality Management  | Acceptance and Approval                |
| Decommissioning   | Organisational Change                  |
| Records Management and Reporting  | Plant Modifications                    |
| Medical Surveillance  | Radioactive Waste Management           |
| Public Safety Information Forums  | Financial Liability for Nuclear Damage |
| Holder Inspection Programme to ensure Compliance with Conditions of Authorisation |  |

In terms of Section 26(2) of the NNR Act, Eskom, as the nuclear licence holder, implements an inspection Programme to ensure compliance with the conditions of the Nuclear Installation Licence, NIL-01. The NNR implements an independent system of compliance inspections to provide assurance of compliance with the conditions of the nuclear licence in terms of section 5(d) of the NNR Act.

## 5.4.1 OCCUPATIONAL EXPOSURE TO RADIATION

The NNR prescribes that occupational exposure of any worker should be controlled to ensure that the limits shown in the table are not exceeded.

The worker doses at KNPS were within regulatory limits during the period under review. Radiation exposure of personnel working at KNPS is subject to control by the operational radiation protection programme. This programme ensures that control within the annual individual dose limit is achieved. In addition, the programme also serves to ensure that all doses are kept As Low As Reasonably Achievable (ALARA). The highest annual individual dose accrued during 2013 was 6.1mSv. The average annual individual dose of the total exposed occupational workforce was approximately 0.1949mSv. The maximum and average doses are acceptable considering the regulatory limits of 20mSv and the ALARA target of 4mSv respectively.

| General Regulatory Dose Limits Prescribed by the NNR |   |
|--|---|
| Workforce  | Regulatory criteria   |
| Maximum individual worker dose                       | An (average) effective dose of 20mSv per annum averaged over five consecutive years. A (maximum) effective dose of 50mSv in any year. |
| Average individual worker dose                       | Controlled by application of the ALARA principle. The ALARA target for the annual average individual dose is 4mSv per annum.          |

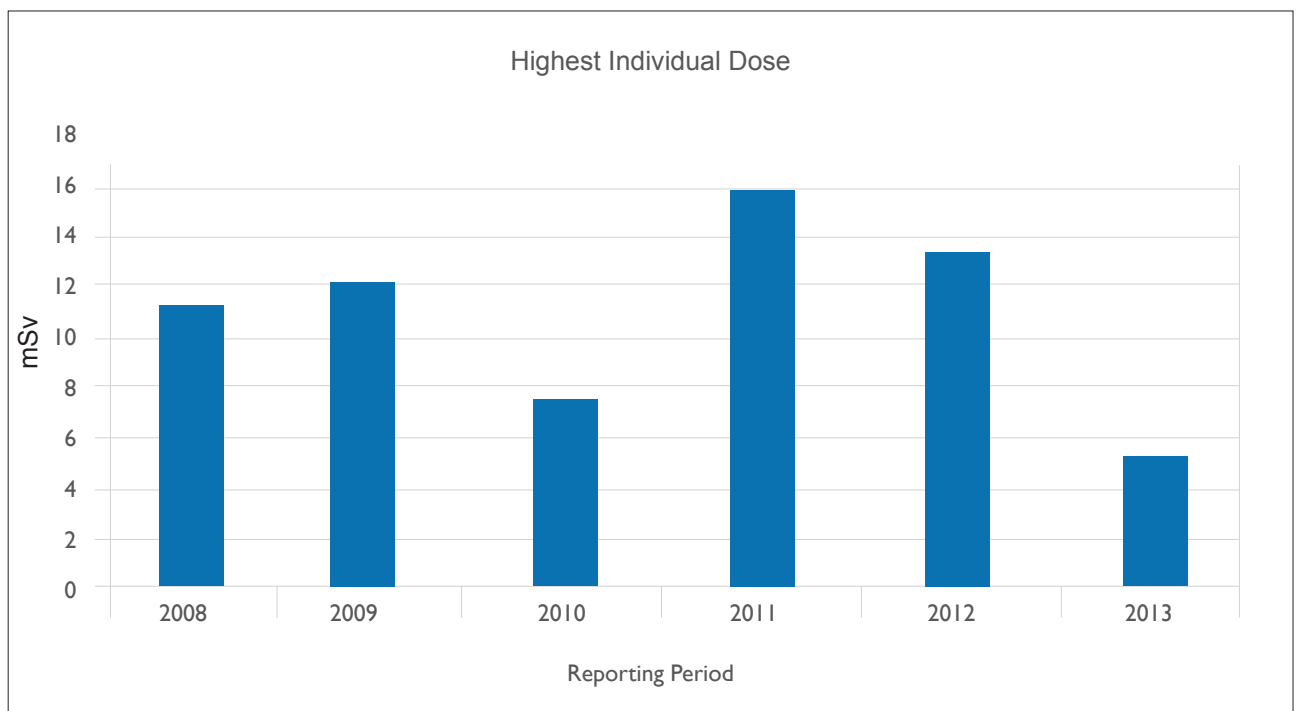


Figure 1: Highest individual dose at Koeberg (2008 - 2013)

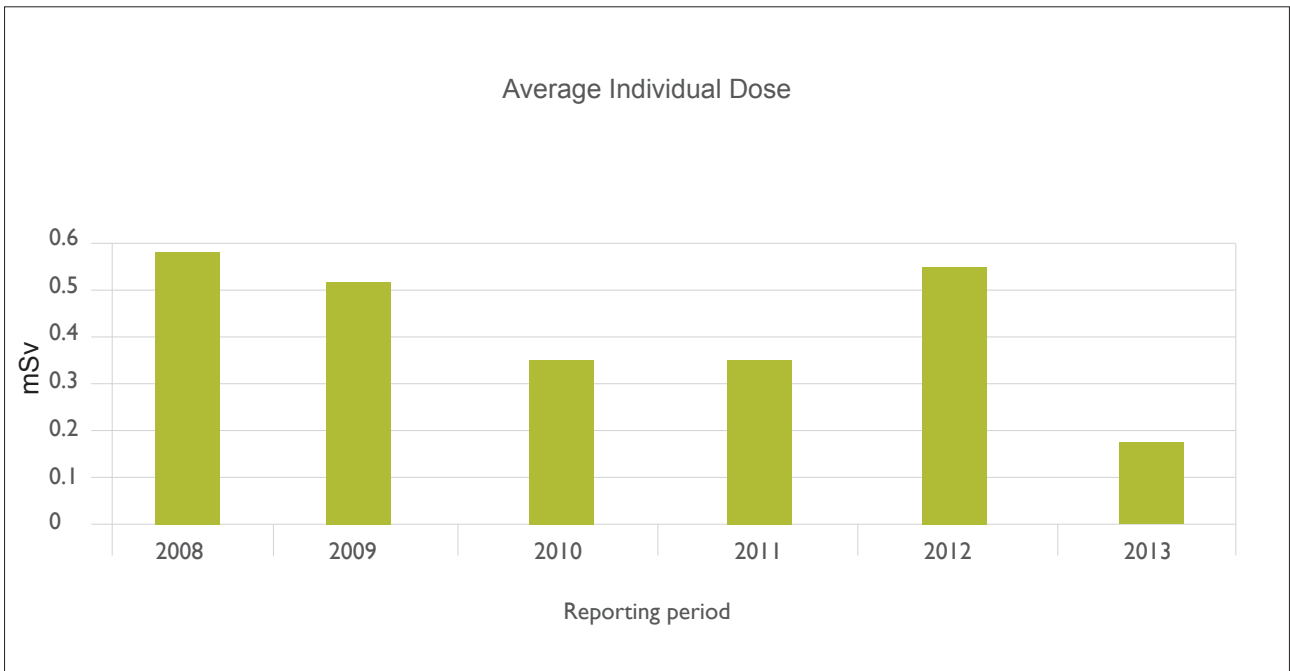


Figure 2: Average individual dose at Koeberg (2008 to 2013)

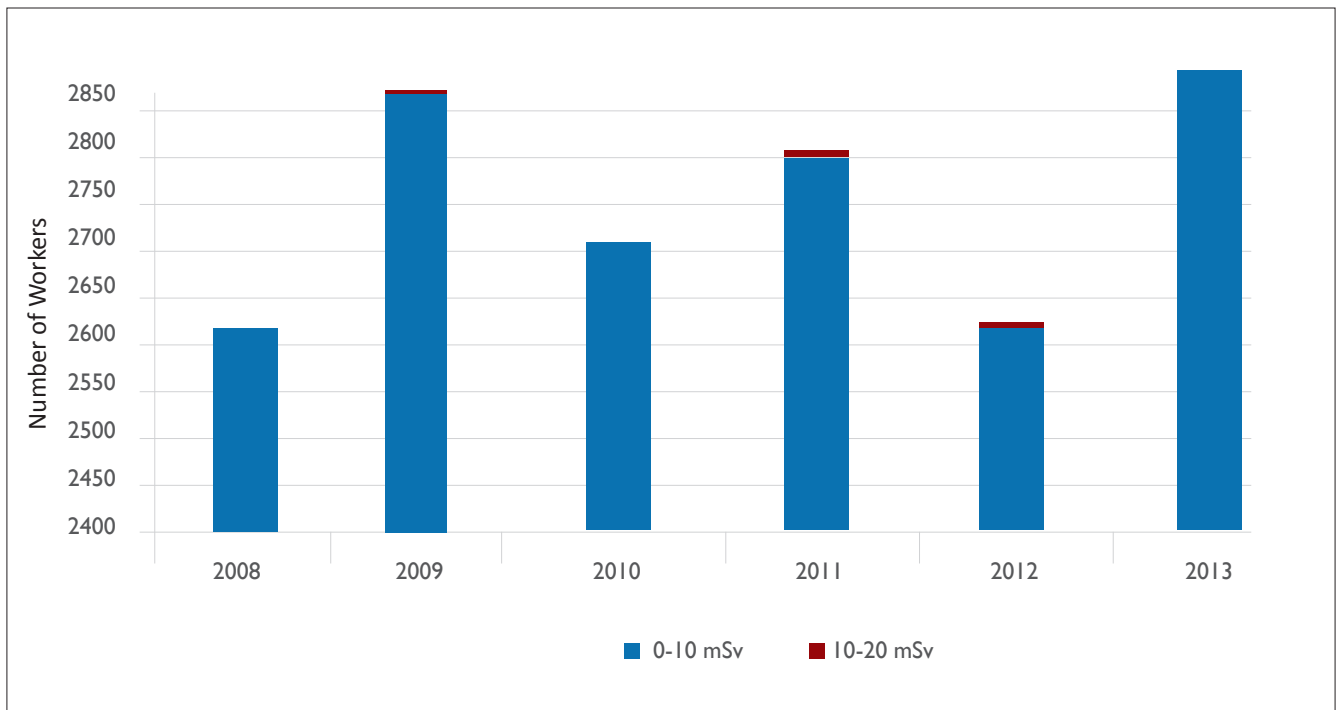


Figure 3: Occupational exposure at Koeberg (Dose bandwith) 2008 to 2013

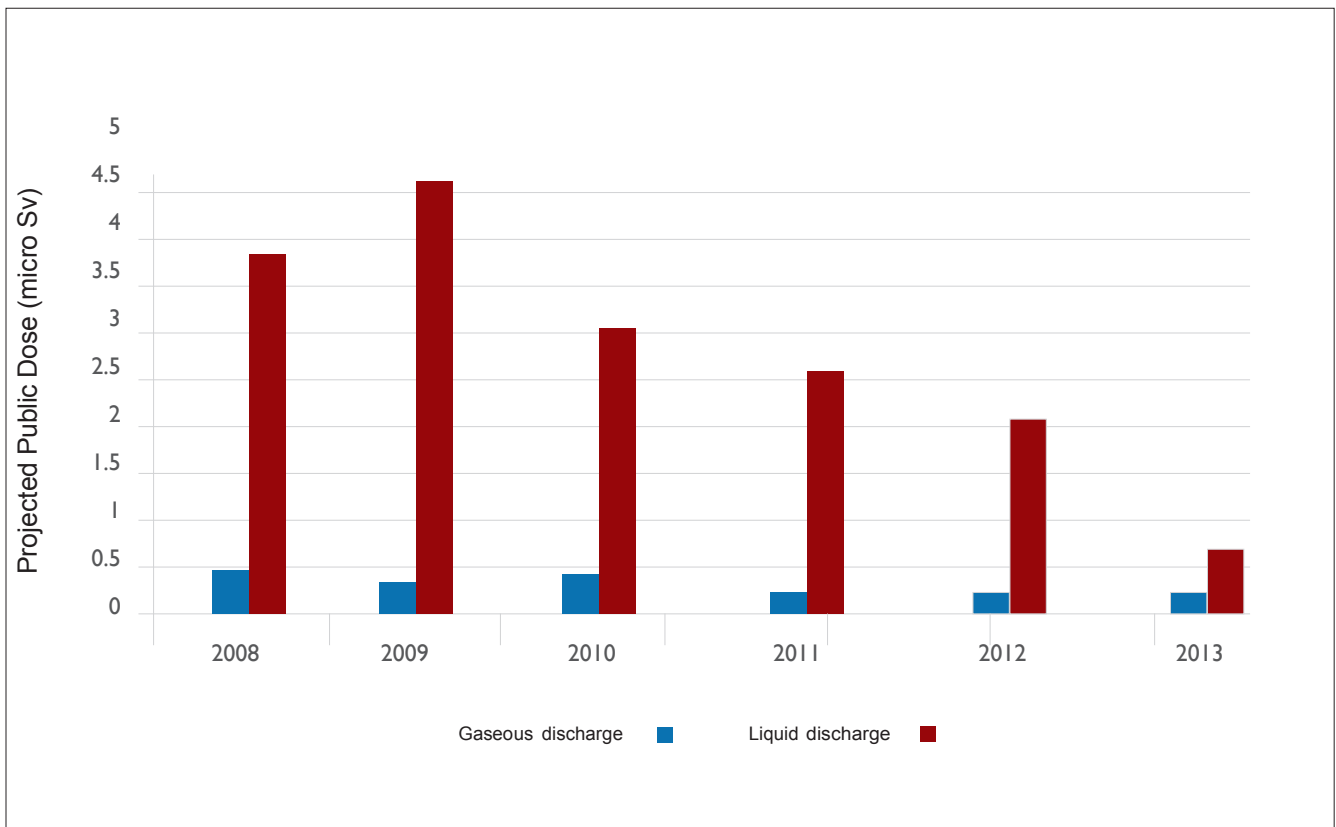


Figure 4: Projected public dose (gaseous and liquid) 2008 to 2013

## 5.4.2 PROJECTED PUBLIC EXPOSURE TO RADIATION

The regulatory annual effective dose limit prescribed by the NNR for members of the public from authorised actions is 1mSv. No action may be authorised which would give rise to any member of the public receiving a radiation dose from all authorised actions exceeding 1mSv in a year. There were no safety concerns regarding the safety of the public living around KNPS during the period under review. In accordance with the conditions of licence and the Regulations on Safety Standards and Regulatory Practices (SSRP), published as Regulation No. R 388 dated 28 April 2006, the public doses resulting from effluent discharges from the KNPS must comply with the dose constraint of 0.25mSv/a and the system of Annual Authorised Discharge Quantities (AADQ's) applicable to the site. KNPS complied with the AADQ's and the projected public doses resulting from the effluent releases (both liquid and gaseous), were well within the dose constraint for the 2013 calendar year. The maximum public dose for 2013 was determined to be 0.00109 mSv, which is considered acceptable, given the NNR regulatory limit of 0.250 mSv per annum for KNPS.

### 5.4.3 DOSE FROM EFFLUENT DISCHARGED DURING 2013

The projected public dose from effluent discharges for key radionuclides for 2013 are given in the table below.

| Quarter  | Liquid pathway dose in $\mu\text{Sv/a}$ | Gaseous pathway dose in $\mu\text{Sv/a}$ | Total projected dose in $\mu\text{Sv/a}$ |
|--|---|--|--|
| 1  | 0.14887                                 | 0.13046                                  | 0.27933                                  |
| 2  | 0.28574                                 | 0.06305                                  | 0.34879                                  |
| 3  | 0.10346                                 | 0.07549                                  | 0.17895                                  |
| 4  | 0.24527                                 | 0.04539                                  | 0.29066                                  |
| Total for the calendar year (January –December 2013) | 0.78334                                 | 0.31439                                  | 1.09773                                  |

### 5.4.4 NUCLEAR SAFETY

The authorisation holder's commitment to safety of the plant and operations have been confirmed by the inspections performed. Where it has been observed that areas of weakness have occurred, these have been addressed by proper investigation and the implementation of appropriate corrective actions. During the period under review, the NNR focused its safety assessment activities primarily on the areas summarised below:

#### (I) REASSESSMENT OF KOEBERG FOLLOWING THE FUKUSHIMA ACCIDENT

Following the Fukushima accident on 11 March 2011, the NNR established a task team on the Fukushima accident in April 2011, and in May 2011 directed Eskom to reassess the capability of KNPS to withstand external hazards, specifically regarding the following:

- i. Compliance to the current design basis for external events
- ii. Stress tests (robustness against external events beyond the design basis)
- iii. Adequacy of accident management and emergency planning.

Eskom had previously established an External Events Review Team (EERT), and had begun implementing guidelines issued by INPO and WANO, focusing on the above aspects, but predominantly addressing plant equipment, people, procedures and nuclear safety culture. The EERT's approach was to assess the design base readiness, through a review of system health indicators, as well as a review of all non-conformance reports, operability determinations and temporary alterations.

In parallel, the Fifth International Convention on Nuclear Safety (CNS) Review Meeting took place in April 2011 to formulate an international response to the Fukushima accident. The NNR directive and the Eskom response covered all the requirements proposed by the CNS.

Eskom submitted their safety reassessment report in December 2011.

The scope of the reassessment covered the design basis (reactor and spent fuel storage) in terms of external events and combinations of events, as well as the robustness of the facility and cliff-edge effects for a similar scope of beyond design basis events. These include prolonged total loss of electrical power and ultimate heat sink. Measures or design features to mitigate these effects were identified. The scope included on-site and off-site aspects of accident management and emergency response.

The NNR completed the review of the report in March 2012, concluding that the reassessment did not reveal any major shortcomings in the safety of KNPS in respect of the design basis. A number of modifications and operating procedure changes to further improve safety were, however identified, as well as additional studies of accidents less probable than those covered in the design basis. The NNR finalised the South African National Report, which was submitted to the IAEA for the Second Extraordinary Meeting of the Convention on Nuclear Safety (CNS), held in August 2012.

In 2012 Eskom submitted a second revision of the post-Fukushima KNPS Reassessment, covering additional external events, as well as addressing NNR comments on the first submission. Eskom also submitted a strategy for maintenance and testing of equipment that needed to respond beyond design basis accidents. The NNR has reviewed and commented on these submissions.

In 2013 Eskom submitted a third revision of the post-Fukushima KNPS reassessment report, including the findings from the completed seismic margin assessment, and a progress report on procurement of portable emergency equipment and short-term plant modifications. The portable equipment includes inter alia; communication equipment, radiation protection equipment, additional mobile pumps, diesel generators, fire trucks, transport vehicles, and mobile radiation protection facilities. The short-term modifications, which are in various stages of procurement, include hardened water supply system and external connection points for water supplies, electrical connections, and instrumentation. The NNR review of this report should be completed in May 2014.

In the longer term, Eskom will screen, evaluate and implement the balance of the proposed corrective actions, subject to regulatory review and approval. Overall the NNR expects the post-Fukushima project to be completed by 2022.

The NNR's position to date may be summarised as follows:

- i. The assessments conducted by Eskom conform to the NNR's directive and are in accordance with (and in excess of the scope of) international practice.
- ii. The nuclear installations are adequately designed, maintained and operated to withstand all external events considered in the design base.
- iii. There were no findings to warrant curtailing operations, or to question the design margins of these facilities.
- iv. The safety reassessments identified a number of potential improvements to further reduce the risk of accidents, less probable than those covered in the design basis.
- v. Follow-up studies need to be performed to confirm the conclusions and consolidate the formal licensing documentation.
- vi. The NNR has identified areas for improvement of the Safety Standards and Regulatory Practices, which will be addressed as part of the current review of the Regulatory Framework Project.

Improvements to the regulations under consideration relate to:

- i. Inclusion of specific requirements on combinations of events, for beyond design basis events
- ii. Inclusion of specific provisions relating to elevating the level of testing and maintenance of all equipment included in the respective severe accident management measures
- iii. Inclusion of specific requirements related to the robustness of accident management measures and emergency planning arrangements, when considering beyond design basis external events.

It was decided that a full self-assessment of all emergency planning and response infrastructures be conducted, using the IAEA Emergency Preparedness Review (EPREV) and self-assessment guidelines. This has been completed and is reported on in Section 5.12 of this report.

KNPS was one of the first nuclear power plants to implement Severe Accident Management Guidelines (SAMGs), and the NNR is the first regulator to include these in the regulatory process.

The NNR has consistently enforced conservative emergency planning zones around KNPS, informed by risk analysis, beyond what has been required up to now internationally.

The NNR has also consistently applied restrictions on developments in the formal emergency planning zones of KNPS, also informed by risk analysis, beyond present international requirements. To date, the City of Cape Town Disaster Management and Spatial Planning authorities have been supportive in this regard.

Eskom and the NNR will continue to engage internationally on lessons learned from the Fukushima accident.



## (II) SECOND SAFETY REASSESSMENT

The second periodic reassessment of KNPS has been completed by Eskom. The report on the reassessment, which commenced in April 2008, has been submitted to the NNR. The NNR has undertaken to review this submission, which will culminate in a report, due in 2015, on the continued safe operation of the plant.

## (III) STEAM GENERATOR REPLACEMENT (SGR)

The Steam Generator Replacement Project entails the replacement of the six steam generators (three on each reactor unit at Koeberg), scheduled for completion by 2018. The decision to replace the steam generators was informed by the ageing of the current Steam Generators (SGs), and the rapidly decreasing international expertise for similar SGs. The NNR has made preparations for the SGR project by developing safety requirements and will undertake recruitment of relevant technical regulatory staff to work on the project. The project is expected to commence in 2014.

## (IV) NEW NUCLEAR BUILD PROGRAMME

The NNR continued with the development of regulations, position papers and guidelines in preparation for the New Build Programme.

## (V) SPENT FUEL INTERIM STORAGE

Eskom indicated that the spent fuel storage capacity at KNPS will need to be expanded, and has submitted a proposed strategy for spent fuel dry storage, which includes the following four phases:

- (A) EXTENSION OF THE USE OF THE EXISTING (FOUR) SPENT DRY FUEL CASKS IN THE CASK STORAGE BUILDING (CSB) AT KNPS.
- (B) ACQUISITION AND USE OF ADDITIONAL CASKS TO BE STORED IN THE CSB.
- (C) ESTABLISHMENT OF A TRANSIENT INTERIM STORAGE FACILITY (TISF) (ON THE KOEBERG SITE).
- (D) ESTABLISHMENT OF A CENTRALISED INTERIM STORAGE FACILITY (CISF) (OFF-SITE).

The NNR has formally accepted the strategy subject to the necessary approvals. Eskom have submitted their strategy for phase 1 of the project, which is currently in progress.

## (VI) REFUELLING WATER STORAGE TANK (PTR) REPLACEMENT

Each reactor unit at KNPS has one PTR tank, which provides water for cooling the reactors in the event of an accident. The NNR has required that, due to their condition, the PTR tanks at KNPS be replaced by outages 121 and 221 (i.e. during 2015). These tanks provide the cooling water for the reactors in the event of loss-of-coolant accidents. Eskom have submitted the design specifications for the new tanks and a proposed licensing framework. The NNR has engaged with Eskom on this framework, and has participated in three supplier qualification audits of the proposed vendors. The NNR has reviewed and commented on the PTR tank design specification.

## (VII) KNPS CONTAINMENT STRUCTURES

Eskom have responded to concerns raised by the NNR, in terms of the condition of the containment structures at KNPS. During the reporting period Eskom have made progress on the necessary repair work, which mainly involves the repair of delaminated concrete on the containment building of Unit 2.

Eskom submitted a proposal to the NNR regarding the need for long term qualification of the Cask Storage Building, as required by the NNR as a condition for extension of the use of the four Castor X/28F dry storage casks. The NNR has approved the scope and content of the proposed plan. Eskom is currently preparing detailed documents that will be submitted to the NNR for approval during the implementation phase.

## (VIII) KOEBERG REFUELLING OUTAGE I20

Koeberg Unit 1 refueling outage commenced in November 2013. The NNR finalised the review of modifications to be implemented during the outage. Approval to commence core reload was granted on 9 December 2013, and was criticality reached on 24 December 2013.

## (IX) URBAN DEVELOPMENT AND KOEBERG TRAFFIC EVACUATION MODEL (TEM)

The Emergency Planning Steering and Oversight Committee (EPSOC), comprising representatives from the provincial and municipal authorities responsible for emergency planning and town planning, KNPS and NNR, and chaired by the Department of Energy, requested the NNR to review the KNPS Traffic Evacuation Model (TEM). The TEM is a computational process used to calculate evacuation times from the various emergency planning zones. Developments in the 5-16 km area are subject to compliance to evacuation time criteria set by the NNR.

The reason for this request is that the evacuation times predicted by the model have increased over the last few years due to population growth. The City of Cape Town (CoCT), has therefore placed a moratorium on developments until the TEM is approved by the NNR. The 5-16 km Urgent Planning Zone (UPZ) of KNPS falls within the only growth corridor available for the expansion of the CoCT. One of the major developments presently being considered is the Wescape Development, which would ultimately entail some 250,000 additional dwellings in the UPZ.

The NNR considered that in light of the major urban developments currently under consideration for this area (16 km radius of KNPS), as well as international attention to this type of issue, post Fukushima, it would be timeous for the NNR to conduct such a review. The NNR completed the review in December 2012, and in August 2013 the CoCT provided a revised version of the TEM in response to the short-term issues raised by the NNR. The NNR finalised the review of the revised version and in September 2013, formally responded to the initial request.

The NNR response states that approval of the TEM can only be granted once the longer-term issues have been resolved. The NNR indicated its concern at the slow progress on the MOA between CoCT and the surrounding municipalities, in terms of the availability and operational arrangements regarding the mass care centres. The NNR advised stakeholders that the MOA should be fast-tracked and finalised urgently.

The City has provided an action plan to address the NNR's findings on the TEM. The city has concluded 13 individual MoAs with various municipalities and authorities. The NNR has reviewed these MoAs, and provisionally accepted them as proof of evidence that the above institutions are committed to the nuclear emergency evacuation process and will provide facilities, as required by the NNR Act. The NNR indicated that the revised TEM (of August 2013), is credible and can be used to estimate the overall time for evacuation of the various zones, for different scenarios, under the current level of spatial development in the vicinity of KNPS.

To summarise the technical findings, the NNR is concerned that the margins to the evacuation time limits are small in some cases (and the limits even exceeded under certain extreme assumptions). This indicates that a more detailed approach may be necessary to be able to understand the underlying uncertainties. One of the findings is that the predicted evacuation times are of such that staged evacuations would be necessary, and such plans need to developed, tested and analysed using the TEM.

Based on the results of the review, the NNR advised against approval of developments, which could significantly increase those evacuation times, which are close to the limits. The NNR commends the City of Cape Town on its commitment to the use of traffic evacuation modelling in decision making on spatial developments and development of the Koeberg Nuclear Emergency Plan. The City of Cape Town's department of Spatial Planning has taken the NNR's recommendations on board as regards to their reporting and planning processes.

## (X) REGULATION ON URBAN DEVELOPMENTS

The City of Cape Town has formally responded to the draft regulations in a letter dated 11 July 2013, regarding the outstanding issue on the constitutionality of two clauses in the regulations.

### 5.4.5 COMPETENCY AND SUFFICIENCY OF THE OPERATOR WORKFORCE TO WORK SAFELY

All operating positions in the Koeberg Operating Unit, which are important to nuclear safety, require authorisations based on minimum levels of qualification and experience. These positions are currently filled by personnel who meet these requirements. A competency index is used to measure the competency of technical staff, which provides evidence that currently adequate levels of competence exist across the majority of authorisations for the technical programmes. Appropriate management focus is being applied to the few areas where additional training and experience of staff members is required, to ensure 24 hour coverage over an extended period. The NNR, however, is satisfied that all safety related work is performed by competent individuals.

### 5.4.6 TRANSPORT SAFETY

There were no safety concerns involving transport of radioactive material in 2013.

The transport of radioactive and nuclear material to and from the Koeberg site is carried out in accordance with the relevant transport requirements and regulations of the IAEA on the safe transport of radioactive material. A compliance assurance activity, including nuclear security inspections, to provide assurance that transport of this nuclear and radioactive material, is conducted safely. The NNR issued a nuclear vessel licence for the transport of nuclear fuel to Koeberg in August 2013.

The following figure reflects the inventory of solid radioactive waste, produced and drummed from 2011-2013.

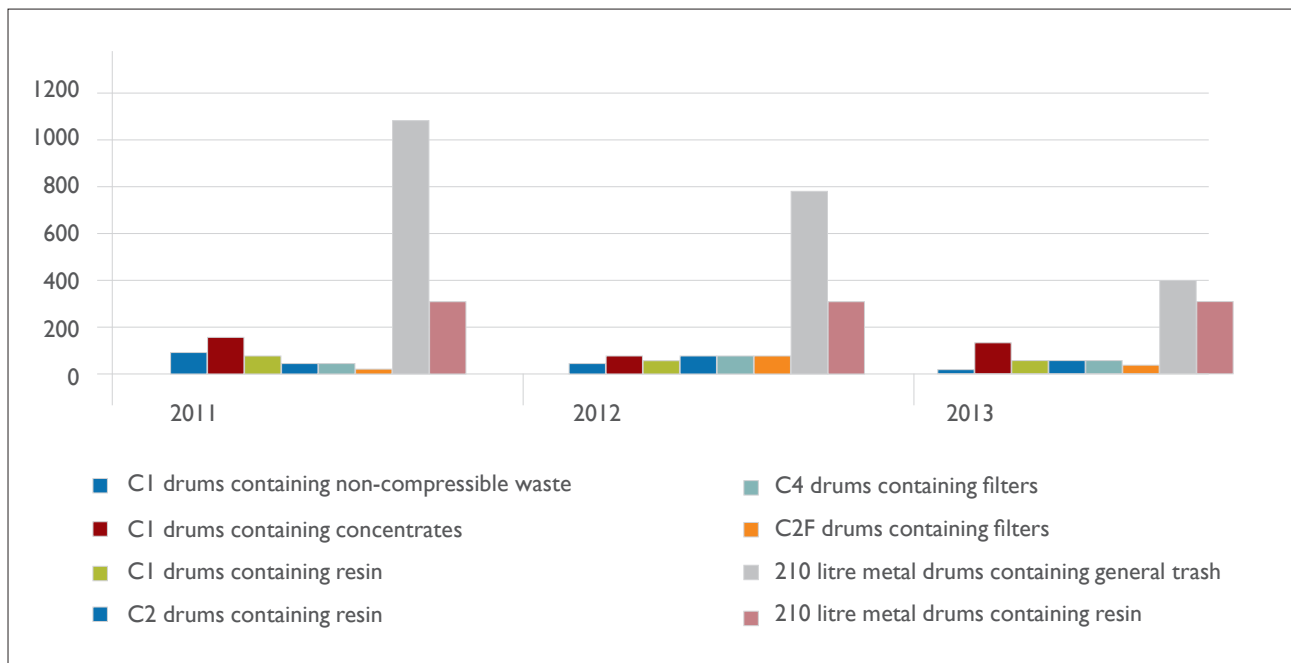


Figure 5. Inventory of solid radioactive waste produced and drummed from 2011-2013

## 5.4.7 RADIOACTIVE WASTE SAFETY

There were no safety concerns involving the transport of radioactive material in 2013.

The NNR performed pre-shipment inspections on the radioactive waste packages transported to Vaalputs. These inspections were performed to verify that initiatives implemented, following the previous suspension of radioactive waste packages, were effective in ensuring compliance. The operator demonstrated commitment to ensuring safety of radioactive waste, both in storage and transportation.

## 5.4.8 ENVIRONMENTAL PROTECTION

There were no safety concerns regarding the environment around KNPS during the period under review.

### 5.4.8.1 REGULATORY INDEPENDENT VERIFICATION

As part of the independent verification of the Environmental Monitoring Programme, the NNR conducted environmental sampling around the KNPS site. The samples collected were analysed by a radio analytical laboratory and the analysis results verified those obtained from Eskom.

## 5.4.9 NUCLEAR EMERGENCY PLANNING AND PREPAREDNESS

There were no safety concerns regarding nuclear emergency planning and preparedness during the review period.

## 5.4.10 PHYSICAL SECURITY

There were no concerns with respect to physical security at KNPS station during the period under review.

Both, the NNR and national key points security functionaries monitor the physical security requirements at KNPS. As part of its Compliance Assurance Programme, the NNR conducts regular inspections at Koeberg to verify conformance to licensing requirements pertaining to physical security. The inspections conducted, indicated compliance with the regulatory requirements. The NNR is a member of the security Joint Planning Committee (JPC) and participates actively in the security projects initiated. There were no concerns with respect to physical security at the KNPS during the period under review.

### 5.4.11 SAFETY OF SEALED RADIOACTIVE SOURCES

The safety of sealed radioactive sources, which falls under the jurisdiction of the NNR, is included in the compliance assurance programme. The inspection of sealed radioactive sources at the KNPS indicated that the radioactive sources were controlled in accordance with the regulatory requirements. No anomalies were detected by the routine compliance assurance inspections conducted. No safety concerns were raised with regard to the safety of sealed radioactive sources over the review period.

### 5.4.12 NUCLEAR INCIDENTS/ACCIDENTS REPORTED

There were no nuclear incidents or accidents, as defined in the NNR Act, reported during the period under review. The NNR was satisfied with the processes implemented at Koeberg, relating to incidents/occurrences.

The NNR monitors incidents/occurrences at Koeberg in the following manner:

- Audits conducted on the Eskom processes relating to occurrences (i.e. plant monitoring, reporting, follow-up and close-out)
- Monitoring of the implementation of these processes
- Quarterly meetings between Eskom and the NNR at which experience feedback is discussed
- Review of Eskom reports on experience feedback and safety performance indicators, which reflect occurrences and trends
- Direct assessment of selected significant occurrences.

### 5.4.13 REGULATORY COMPLIANCE INSPECTIONS

In order to verify the degree of compliance with the conditions of authorisation, the NNR undertakes independent inspections and audits. The NNR conducted 58 inspections at the Koeberg nuclear power station as part of its compliance assurance activities for 2013.

### 5.4.14 REGULATORY WARNINGS AND DIRECTIVES TO STOP WORK

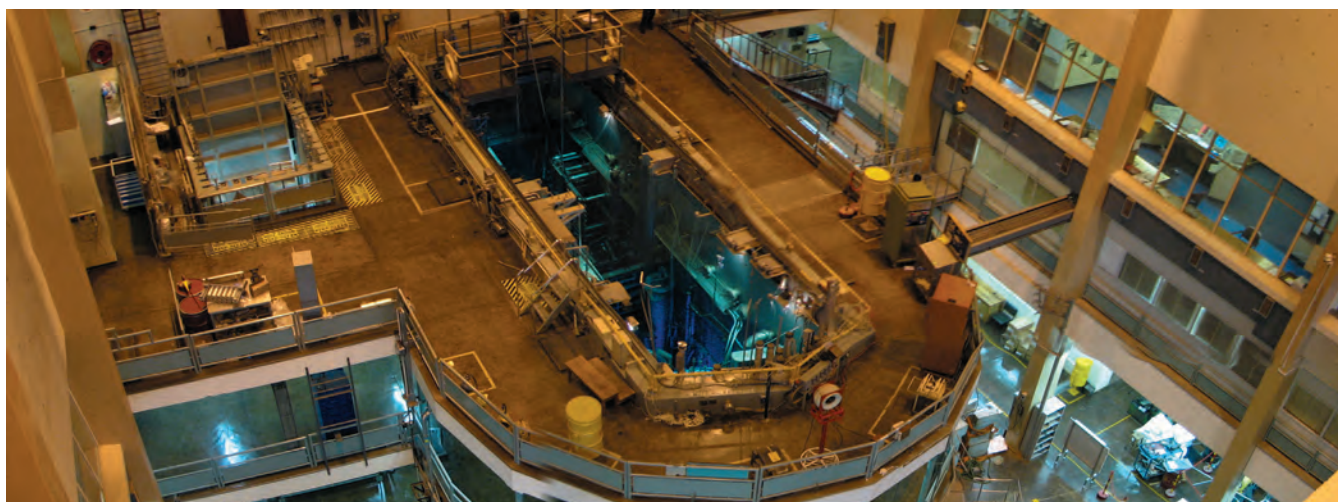
In 2013, the NNR raised the following non-compliances to the conditions of authorisation:

- 30 September 2013: In the area of maintenance there were 2 non-compliances raised related to Post Maintenance Testing and secondly related to Control of Measurement and Test Equipment. Eskom was required to submit a corrective action plan to address the issues identified in the inspection.
- 30 September 2013: In the area of Radiation Protection a directive was issued related to the management and storage of radioactive material. Eskom was required to submit a corrective action plan to address the issues identified in the inspection.
- 04 December 2013: In the area of Management and Oversight of the Civil Monitoring Programme, after a number of non-compliances related to the provisions of the Inspection, Survey, Testing and Monitoring of the Containment Structures, Aseismic Bearings and the Soil Cement Sub-foundation were established. Eskom was required to submit a corrective action plan to correct the findings identified, as well as prevent recurrence of the identified non-compliances.

### 5.4.15 APPEALS TO THE CHIEF EXECUTIVE OFFICER

No appeals were lodged with the CEO during the review period.

## 5.5 REGULATION OF NUCLEAR FACILITIES AND ACTIVITIES ON THE NECSA PELINDABA SITE



Established as a public company in terms of the Nuclear Energy Act, (Act No. 46 of 1999), the South African Nuclear Energy Corporation (Necsa), with its headquarters on the Pelindaba site, is wholly owned by the state. The Pelindaba site, comprising 658ha of land and 54ha of buildings and other improvements, is situated in the magisterial district of Madibeng in the North-West Province, approximately 25km west of Pretoria and 55km north-west of Johannesburg. Necsa employs approximately 1.400 people in diverse technical areas such as physics, engineering, chemistry radiopharmaceuticals and electronics.

Necsa undertakes and promotes Research and Development (R&D), in the fields of nuclear energy, radiation science and technology, medical-isotope manufacturing, nuclear liabilities management, radioactive waste management and decommissioning. In accordance with the conditions of licence, Necsa is required to ensure that arrangements, acceptable to the NNR, were established and implemented during the period under review.

### 5.5.1 OCCUPATIONAL EXPOSURE TO RADIATION

The worker doses at Pelindaba over the period under review were within regulatory limits.

Radiation exposure of personnel working at Pelindaba is subject to control by the operational radiation protection programme. This programme ensures that control within the annual individual dose limit is achieved. In addition, the programme also serves to ensure that all doses are kept As Low As Reasonably Achievable (ALARA). Pelindaba demonstrated control over occupational exposure of the workers, in line with the NNR requirements.

| General Regulatory Dose Limits prescribed by the NNR |  |
|--|--|
| Workforce  | Regulatory criteria  |
| Maximum individual worker dose                       | An (average) effective dose of 20mSv per annum averaged over five consecutive effective dose of 50mSv in any year. |
| Average individual worker dose                       | Controlled by application of the ALARA principle. The ALARA target for the annual dose is 4mSv per annum.          |

The average effective doses for occupationally exposed persons demonstrated that Necsa was in compliance with the dose limitation system for individual workers over the review period. The average effective radiation dose for the 2013 calendar year was 0.39 mSv per occupationally exposed person. The maximum cumulative dose accrued for an individual during the 2013 calendar year was 14.53 mSv and the total collective dose for the 1123 radiation workers was 431.86 person-mSv

The occupational exposure for calendar year 2013 for the workforce at Necsa was as follows:

| Exposure type      | Dose for January to December<br>December 2013 |
|--------------------|---|
| Maximum dose (mSv) | 14.53   |
| Average dose (mSv) | 0.39  |

## 5.5.2 PROJECTED PUBLIC EXPOSURE

Conditions of licence and the Regulations on Safety Standards and Regulatory Practices published as Regulation No. R388 dated 28 April 2006 require, that public doses resulting from effluent discharges from the Necsa Pelindaba site must comply with the dose constraint of 0.25 mSv per annum and the system of AADQs applicable to the site. Necsa demonstrated compliance with the AADQs and the projected public doses resulting from the liquid and gaseous effluent releases during the 2013 calendar year were 4.9 and 4.07  $\mu$ Sv respectively.

| Quarter   | Liquid pathway dose<br>mSv/a | Gaseous pathway dose<br>in $\mu$ Sv/a | Total projected dose<br>mSv/a |
|---|------------------------------|---------------------------------------|-------------------------------|
| 1   | 1.09                         | 0.62                                  | 1.71                          |
| 2   | 1.69                         | 1.31                                  | 3.00                          |
| 3   | 0.98                         | 1.51                                  | 2.49                          |
| 4   | 1.14                         | 0.63                                  | 1.77                          |
| Total for the calendar year<br>(January - December) | 4.9                          | 4.07                                  | 8.97                          |

## APPLICATION FOR NUCLEAR INSTALLATION SITE LICENCE FOR SAFARI-2

In August 2012, Necsa applied to the NNR for a Nuclear Installation Site Licence for the proposed SAFARI-2 Research Reactor. It is proposed that the reactor will use plate type low enriched uranium fuel, and its thermal power will not exceed 30 MW (generated by fuel assemblies). The facility is intended to be used for the following:

- Isotope production
- Beam-lines for research
- Material and fuel testing
- In-core irradiation facilities for research.

During the reporting period the NNR reviewed and commented on the following documents related to the project:

- Project Justification
- Organisational Structure
- Safety Health and Environmental Plan

Necsa was scheduled to have submitted a Public information Document (PID), intended to be used in the NNR public consultation on the project, at the end of September 2013, this has however been delayed and a revised date for the submission of the PID is awaited from Necsa.

## NUCLEAR AUTHORISATIONS FOR EXISTING NUCLEAR FACILITIES ON THE NECSA PELINDABA SITE

The nuclear facilities on the Necsca Pelindaba site are diverse and includes;

- The SAFARI-1 Research Reactor
- Various fuel cycle facilities involved in the manufacture of nuclear fuel for the SAFARI-1 Research Reactor
- Analytical Laboratories
- A Liquid Effluent Treatment Facility
- A variety of radioactive waste treatment and storage facilities
- An array of facilities in various stages of decommissioning.

These facilities are authorised in terms of Nuclear Installation Licences NIL-02 through NIL-27 and NIL-29 through NIL-42. In accordance with the conditions of licence, Necsca is required to ensure that arrangements, acceptable to the NNR, are established and implemented with respect to the following aspects:

|   |  |
|---|--|
| Plant Description and Configuration   | Safety Assessment                      |
| Scope of Activities that may be undertaken                                      | Controls and limitations on Operations |
| Maintenance and in Service Inspection   | Operational Radiation Protection       |
| Effluent Management   | Waste Management                       |
| Environmental Monitoring  | Emergency Planning and Preparedness    |
| Transport   | Physical Security                      |
| Quality Management  | Acceptance and Approval                |
| Decommissioning   | Organisational Change                  |
| Records Management and Reporting  | Plant Modifications                    |
| Medical Surveillance  | Radioactive Waste Management           |
| Public Safety Information Forums  | Financial Liability for Nuclear Damage |
| Holder Inspection Programme to ensure Compliance to Conditions of Authorisation |  |

## VARIATIONS OR AMENDMENTS TO NUCLEAR AUTHORISATIONS

### APPROVAL OF CONSTRUCTION AND COLD COMMISSIONING OF PROPOSED NECSA PRODUCTION SMELTER

Originating from Necsca's historical operations, approximately 14 000 tons of uranium- contaminated scrap metal is presently stored on the Pelindaba site. This scrap metal cannot be decontaminated with currently available decontamination techniques.

The proposed Production Smelter facility comprises two 4-ton induction furnaces, equipped with an extraction system for the control of gaseous and particulate emissions during melting, within Area 26 on the Pelindaba East site. During the smelting process the radioactivity (uranium), present primarily as fixed surface contamination, will be separated from the molten metal and concentrated in the slag. The slag, which contains about 98% of the uranium is collected, drummed and managed as radioactive waste. Necsca anticipates that approximately 1 400-tons of material will be smelted per annum. The facility therefore has a projected operation life time of 10 years. Thereafter it will be scheduled for decommissioning.



Having considered the inputs made by the interveners, during the public hearing process, as well as the safety case documentation submitted by Necsa, the NNR has concluded that the proposed facility is:

- Justified and in line with the Radioactive Waste Management Policy and Strategy for the Republic of South Africa (2005)
- Appropriately designed
- Would not represent an undue risk to workers or the members of the public.

Approval of the construction and cold commissioning of the proposed Production Smelter on the Necsa Pelindaba site was considered by the Technical Committee and approved by the NNR Board in April 2013. The Nuclear Installation Licence NIL- 29 was accordingly amended on 02 July 2013 to permit:

- The construction and cold commissioning of the Production Smelter
- The receiving of non-contaminated scrap to be used in the cold commissioning.

The amended NIL-29 further requires that:

- Cold commissioning of the Production Smelter must be undertaken in accordance with an NNR approved cold commissioning programme
- Only non-contaminated scrap may be used in the cold commissioning of the Production Smelter in Area 26.
- The licensee may not proceed to hot commissioning without prior NNR approval.

Approval for hot commissioning of the facility will be granted separately, following NNR review of the as built plant and results of the cold commissioning programme. Approval for routine operation of the facility will be subject to separate NNR approval, following review of the results of successful cold and hot commissioning of the facility, as well as an updated safety case reflecting the results of both the cold and hot commissioning programmes.

### 5.5.3 NUCLEAR SAFETY

#### PROCESSED BASED LICENSING

The regulatory approach adopted by the NNR is to set high level standards (dose, risk criteria and conformance to international norms), and to allow the authorisation holder the freedom to adopt a design basis and operating practices, which are appropriate for the plant and then justify the choice in terms of NNR standards. This approach places the responsibility for technical details relating to nuclear safety more clearly in the hands of the authorisation holder, in line with their prime accountability for safety. Once accepted by the NNR, the implementations of the holder processes are monitored, through surveillances, inspections, and audits.

In line with the approach, Necsa has developed a Safety, Health Environment and Quality (SHEQ) management system addressing the requirement of nuclear radiological and conventional safety in an integrated manner.

The system comprises a suite of processes that include:

- Identification of applicable fundamental nuclear and radiological safety standards
- Identification of the basis for authorisation, change control in respect of modifications, processes to update and maintain safety cases and relevant operational programmes
- Identification of nuclear and radiological safety requirements necessary to underpin the safety case and processes needed to maintain these in line with the safety case
- Monitoring and enforcement of compliance with the requirements identified.

During the review period the NNR undertook a review of 66 such processes applicable to the nuclear facilities operated by Necsa. Responses on 18 documents were provided to Necsa. The review comments for the remaining 48 processes are currently being consolidated and the responses on the reviewed processes will be issued to Necsa in the next reporting period of 2014/2015.

## SAFETY ANALYSIS REPORTS

A Safety Analysis Report (SAR), is a comprehensive report containing a complete analysis of a facility. This analysis serves to evaluate the performance of the systems of the facility and to demonstrate the safety of the facility, including risk to workers and the public.

During the review period, the NNR reviewed and responded to Necsa on SARs related to the following nuclear facilities on the Pelindaba site:

- (i) NTP Radiochemicals Facility
- (ii) ELPROD in Building P-2500
- (iii) SAFARI-1 Research Reactor
- (iv) Building P-1500
- (v) Thabana Complex
- (vi) Area 14 Waste Management Complex
- (vii) Area 21 Storage Facility
- (viii) P-1600 Laboratories
- (ix) Pelindaba Analytical Laboratories (PAL) in Building BEVA-E1

## OPERATING TECHNICAL SPECIFICATIONS (OTS)

An OTS is a specification document to be used by the operators of a facility, which contains the operating limits within which the facility is expected to safely operate. The operational limits in an OTS must link the contents of the SAR of the facility with the operation of the facility (as specified in Paragraph 4.2 of the SSRP).

During the period under review, the NNR reviewed and responded to Necsa on the following OTS submissions:

- (i) P-2700 Complex (UCHEM)
- (ii) Area 21 Storage Facility
- (iii) Pelindaba Analytical Laboratories (PAL) in Building BEVA-E1

## SAFARI-1 AGEING MANAGEMENT

Noting that the SAFARI-1 Research Reactor was initially commissioned in 1965 and that the expected operational life extends till 2030, the NNR has required that Necsa develop and implement an ageing management strategy. During the review period the NNR received from Necsa –

- (i) Ageing Management Strategy for the SAFARI-1 Research Reactor
- (ii) Ageing Management Plan for SAFARI-1 Research Reactor
- (iii) Master Management Plan for Ageing Management at SAFARI-1 Research

These documents are currently under NNR review and will be responded to in the next review period of the new financial year (2014/2015).

The development of the Ageing Management Programme for SAFARI-1 is consistent with guidance provided in the IAEA safety guide SSG-10. Specifically Ageing Management of the SAFARI-1 reactor will entail:

- (i) Modifications to the facility relating to replacement or refurbishment of structures systems and components of the reactor that is important to:
  - a. Safety of the facility
  - b. Sustainability of the reactor up to and possibly beyond 2030
- (ii) Review and update of the facility design basis, safety documentation and management systems.

The programme entails in excess of 100 modifications in total. To facilitate prompt review of the proposed modifications, the NNR and Necsa have established a technical working group to review the Necsa proposals, with respect to ageing management.

## ADDITIONAL REASSESSMENT IN LIGHT OF THE FUKUSHIMA DAIICHI NUCLEAR ACCIDENT

Following the initial safety reassessment of SAFARI-1 in light of Fukushima Daiichi nuclear accident, a number of improvement actions and recommendations have been identified relating to plant modifications, severe accident management procedures and suitability and compatibility of emergency response equipment. Necsa was required to undertake more detailed reassessment of these issues and to submit these assessments to the NNR.

During the review period, the NNR reviewed and commented on Necsa submissions related to the following SAFARI-1 safety systems:

- Emergency water return system
- Safety under severe external events
- Stabilisation of the fuel vault
- Proposed seismic trip system
- Core re-flooding nozzle
- Emergency control room and diverse instrumentation

### 5.5.4 TRANSPORT SAFETY

There were no concerns related to the safety of transport of radioactive material during the period under review.

The conditions of licence require that the transportation of radioactive material or any equipment or objects contaminated with radioactive material, must be carried out in compliance with the relevant provisions of the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material, 2005 Edition, IAEA Safety Standard Series No. TS-R-1, IAEA, Vienna, 2005.

Transport action undertaken by Necsa during the review period include:

- Transportation of low and intermediate level radioactive waste from the Necsa Pelstore, on the Pelindaba site, to Vaalputs National Radioactive Waste Disposal Facility
- Transportation of calibration sources between the Necsa Pelindaba site and the Vaalputs National Radioactive Waste Disposal Facility
- Transportation of radioactive sources from external waste generators to the Pelindaba site for storage
- Import, from CERCA in France and transportation from the OR Tambo International Airport to Pelindaba of uranium target plates and fuel plates
- Transportation of safeguards samples from Pelindaba to the IAEA Headquarters in Vienna, Austria.

## CERTIFICATES OF PACKAGE DESIGN APPROVAL FOR TRANSPORT CONTAINERS

In accordance with the provisions of section 7 of the National Nuclear Regulator Act, (Act No. 47 of 1999), the NNR acts as the competent authority in South Africa in compliance with the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material. In line with this mandate, during the period under review, the NNR reviewed and re-certified the package design approvals for the following transport containers used by Necsa, as having met the regulatory requirements for Type B(U) packages, as described in the International Atomic Energy Agency Safety Standards Series No. TS-R-1, Regulations for the Safe Transport of Radioactive Material, 2005 Edition, Vienna, 2005.

| Certificate Number              | Name of Transport | Effective Date | Expiry Date  |
|---------------------------------|-------------------|----------------|--------------|
| F/313/B(U) F-96 (Revision 06)   | TN-BG CI          | 14 March 2014  | 30 June 2018 |
| ZA/NNR 100/B(U) – 96 (Revision) | RIA               | 01 June 2014   | 31 May 2019  |

## 5.5.5 RADIOACTIVE WASTE SAFETY

There were no safety concerns regarding radioactive waste management on the Pelindaba site at Necsa, during the period under review. In accordance with the conditions of licence, Necsa is obliged to:

- Establish and implement arrangements for the minimisation and safe management of radioactive waste on the site
- Establish, implement and maintain a radioactive waste management programme for each facility on the site
- Ensure the identification, quantification, characterisation and classification of any radioactive waste generated
- Provide for the necessary steps leading to safe clearance, authorised discharge, disposal, reuse or recycling
- Provide for the safe storage of radioactive waste between any waste management processes.

The following are some of the primary principles that apply to the management of solid radioactive waste on the Necsa Pelindaba site:

- Waste management is aimed at optimising processes from waste generation to waste disposal
- The responsibility for solid waste management in the development of facility-specific programmes, application of safety standards, quality assurance, optimisation and compliance with waste acceptance requirements, is vested with the waste generator.

All waste generated and processed on the Necsa site shall after completion of the relevant predisposal activities, be channeled via the Nuclear Liabilities Management Department (NLM) for further predisposal activities (as applicable) followed by either long-term storage or disposal.

The waste generator is responsible for waste up to the point at which it has been formally transferred and accepted by NLM. The storage of radioactive waste on the Pelindaba site was found to be in conformance to the conditions of authorisation.

### APPROVAL OF THE NTP HIGH DENSITY CONCRETE WASTE CONTAINER (IP-2/ZA/NTP/I 10/5000/IP-2-96) FOR THE SOLIDIFICATION OF LIQUID EFFLUENT FROM THE MO-99 PRODUCTION PROCESS

During the reporting period, the NNR reviewed and approved the safety assessment and supporting documents that formed part of Necsa's request to approve the use of the High Density Concrete Container, with identification number IP-2/ZA/NTP/10/5000/IP-2-96, to be used for the solidification of liquid radioactive effluent. This liquid effluent has its origin from the production process of Molybdenum 99, and is allowed to decay for a minimum of 80 days before it is solidified. The radioactive waste package comprising the above-mentioned container, and the solidified liquid radioactive effluent, is destined to be transported to and be disposed of at Vaalputs, the South African National Radioactive Waste Disposal Facility.

### MODIFICATION TO CELLS 1 AND 2 IN THE NTP RADIOCHEMICAL COMPLEX

As part of radioactive waste management improvement and rationalisation project within the NTP Radiochemical Complex (Hot Cell Complex) on the Necsa Pelindaba site, Necsa had previously requested approval for modification of the utilisation of Cell 1 and 2 in the facility. Necsa proposed to use:

- Cell 1 as an interim store for the storage of uranium residue from the Mo-99 and I-131 radiopharmaceuticals manufacture processes
- Cell 2 as an interim decay store for low-density radioactive wastes and spent resin columns, originating from the radiopharmaceutical manufacture processes in the facility.

During the reporting period, the NNR completed the review on the safety documentation related to the proposed modifications, and granted approval for the proposed modification of Cells 1 and 2 in the NTP Radiochemical Complex.

## 5.5.6 ENVIRONMENTAL PROTECTION

There were no concerns regarding safety to the environment around Pelindaba in the review period. Further to the monitoring and controls of effluent discharges, Necsa is required to institute an environmental monitoring programme to ensure that discharges do not result in environmental build-up of radioactivity.

Samples were collected from various media in the environment around the Pelindaba site. The sampling locations were based on the surrounding land use. Samples were analysed and results were submitted to the NNR on a quarterly and annual basis. The sample media included:

- Air filter monitoring on the Pelindaba site
- Milk from surrounding farms
- Plant material in the surrounding area
- Water and fish samples from the Crocodile River and Hartebeespoort Dam.

The NNR employs a system of reporting, investigation and intervention levels to ensure an appropriate level of control and detection of radioactivity in the environment. The system is designed to rapidly detect any increases in environmental radioactivity and to ensure that appropriate action is taken to rectify the situation.

## 5.5.7 REGULATORY INDEPENDENT VERIFICATION OF RADIOLOGICAL ENVIRONMENTAL ANALYSIS

The NNR conducts an independent verification of radiological environmental analysis by collecting samples in and around Necsa Pelindaba site. During the review period, there were no discrepancies identified in this process.

## 5.5.8 NUCLEAR EMERGENCY PLANNING AND PREPAREDNESS

The NNR conducted a regulatory emergency exercise at Necsa on 11 September 2013. The primary purpose of the emergency exercise was to test the preparedness and response arrangements of the nuclear authorisation holder Necsa and the relevant intervening organisations in the event of a radiological emergency. Although there were a few weaknesses identified in the overall preparedness arrangements, the NNR is satisfied that the Necsa Emergency Plan complies largely to the regulatory requirements. Subsequently, the NNR has directed Necsa to implement corrective actions towards strengthening the overall emergency preparedness arrangements for the facility. The NNR will follow up and oversee the implementation of corrective actions during the next financial period.

## 5.5.9 COMPETENCY AND SUFFICIENCY OF NECSA'S PELINDABA WORKFORCE TO WORK SAFELY

In addition to the requirements in the SSRP, the conditions of licence requires that Necsa must establish and implement arrangements to ensure that suitably qualified and experienced persons perform any duties, which may affect the safety of operations on the site, or any duties assigned by or under the conditions of licence. Such arrangements must make provision for the appointment, as appropriate, of duly authorised persons to control and supervise operations, which may affect plant or facility safety.

The NNR is satisfied that Necsa complied with the above requirement during the period under review however, the sufficiency of the staff employed in the areas of safety case development and compliance monitoring is an area of concern for the regulator.

## SAFETY OF SEALED RADIOACTIVE SOURCES

There were no safety concerns regarding sealed radioactive sources at Pelindaba during the review period. In accordance with the conditions of licence, Necsa was required to maintain a register of all radioactive sources on the site. The radioactive source register must, as a minimum, detail the following information:

- Nuclear facility in which the source(s) were located
- Name of person responsible for the source
- Radionuclide or radionuclide composition
- Original activity
- Identification number- Reference date (date produced)
- Form of the source (e.g. sealed source, anodised disk, solution, powder, etc.)
- Company or facility of origin
- Location or storage space
- Date transferred
- Details of company or facility transferred to.

The radioactive source register is submitted to the NNR annually at the end of the calendar year, and Necsa provides a status report twice a year (in March and in September).

### 5.5.10 NUCLEAR INCIDENTS / ACCIDENTS REPORTED

There were no nuclear incidents or accidents reported during the period under review.

### 5.5.11 REGULATORY COMPLIANCE INSPECTIONS

NTWP conducted 115 planned compliance inspections at the Necsa Pelindaba site during the 2013/2014 financial year. Most of these inspections showed satisfactory compliance with the regulations. NTWP also conducted five (5) unplanned inspections at the Necsa facilities and they are as follows:

- (i) The NNR found discrepancies with the sample results submitted to the NNR. This was communicated to Necsa. NNR conducted an inspection at Radio Analysis Laboratories after which a directive was issued to Necsa.
- (ii) There were findings raised in the previous inspections at the K0090 facility at Necsa. The inspections showed very little progress regarding implementation of corrective action at the facility. A follow-up inspection was conducted at the K0090 facility and acceptable progress was made.
- (iii) A pre-shipment inspection was conducted at Pelstore. The inspection was conducted in order to ensure that the drums that were to be dispatched to Vaalputs, complied with the set requirements. The NNR was satisfied that the drums were in compliance with the requirements.
- (iv) Following Necsa's application to have the site removed from regulatory control, a confirmatory survey was conducted at the old calibration facility at Necsa. In the report, the NNR required Necsa to clean up some spots in the old calibration facility site.
- (v) Necsa had reported to the NNR a repeat event at P-1701 facility, which involved the lid of the DPTE container that was still connected to the cell door during the transfer of radioactive waste at cell 11.

Radioactive waste had fallen out of the DPTE container and led to contamination of the area behind the cell. The NNR conducted an inspection regarding this matter and Necsa is found to have addressed the matter satisfactorily.

## AUDITS

All of the four (4) planned audits were conducted during the review period. There were some minor deviations from compliance, and all those have been addressed as nuclear events.

## REGULATORY INVESTIGATIONS

The NNR conducted an investigation into the radiological event that occurred at the NTP Radiochemicals facility on the Necsa Pelindaba site on 2 November 2013.

Radioactive waste had fallen out of the DPTE container and led to contamination of the area behind the cell. The NNR conducted an inspection regarding this matter and Necsa is found to have addressed the matter satisfactorily.

## NUCLEAR EVENT

On 02 November 2013, the NNR received notification that the Necsa Emergency Control Centre (ECC), had been activated, in response to a radiological event at the NTP Radiochemicals Complex – Building P1701.

The NNR conducted preliminary dose evaluations and confirmed that the impact to persons off the Pelindaba site was low and posed no immediate danger.

The NNR issued a press release indicating:

- Confirmation that notification of an event had been received from Necsa
- And while there had been a release of noble gas and iodine there was no need to activate the Necsa off-site emergency plan.

Notwithstanding the fact that the off-site impacts were low, the NNR viewed the event as representing a weakness of the nuclear safety culture of the facility. Operations in the facility were suspended and the NNR undertook an investigation into the event.

### 5.5.12 REGULATORY WARNINGS OR DIRECTIVES TO STOP WORK

The NNR did not issue any directives to stop work at Necsa during the 2013/2014 financial year.

### 5.5.13 REGULATORY INDEPENDENT VERIFICATION OF RADIOLOGICAL ENVIRONMENTAL ANALYSIS

The NNR conducts an independent verification of radiological environmental analysis by collecting samples in and around Necsa Pelindaba site. During the review period, there were no discrepancies identified in this process.

### 5.5.14 REGULATORY CAPACITY AND NUMBER OF APPOINTED INSPECTORS

Three inspectors left NTWP and these have been replaced. There were no additional inspector appointed in the NTWP department during the review period.

### 5.5.15 APPEALS TO THE CHIEF EXECUTIVE OFFICER OR THE BOARD

There were no appeals lodged against the NNR during the reporting period.

## 5.6 REGULATION OF VAALPUTS NATIONAL RADIOACTIVE WASTE DISPOSAL FACILITY



The Vaalputs National Radioactive Waste Disposal Facility is located in the district of Kamiesberg in the Northern Cape Province. The farm, Vaalputs, covers an area of approximately 10 000 ha, and the disposal site is situated in the western half and is 99.54 ha (900 m x 1 106 m) in extent, including a 200 m exclusion zone along the perimeter, in which waste disposal is not permitted. Vaalputs is currently authorised (Nuclear Installation Licence NIL-28), for the receipt and shallow land disposal of solid low level waste originating from Koeberg Nuclear Power Station (KNPS) and the South African Nuclear Energy Corporation (Necsa).

The operational phase that commenced in November 1986 and, under the current nuclear programme, is estimated to extend for 50 years up to 2036, which is also the estimated end of the operational period for the Koeberg Nuclear Power Station.

### 5.6.1 OCCUPATIONAL EXPOSURE TO RADIATION

The worker doses at Vaalputs over the period under review were within regulatory limits.

Radiation exposure of personnel working at Vaalputs is subject to control by the operational radiation protection programme. This programme ensures that control within the annual individual dose limit is achieved. In addition, the programme also serves to ensure that all doses are kept As Low As Reasonably Achievable (ALARA). Vaalputs demonstrated control over occupational exposure of the workers, in line with the NNR requirements.

The average effective doses for occupationally exposed persons demonstrated that Vaalputs was in compliance with the dose limitation system for individual workers over the review period. The average effective radiation dose and the maximum cumulative dose accrued for an individual during the 2013 calendar year, were 0.23 mSv and 0.94 mSv per respectively.

### 5.6.2 PROJECTED PUBLIC EXPOSURE TO RADIATION

There was no safety concern regarding public exposure to radiation. In accordance with the conditions of licence and the Regulations on Safety Standards and Regulatory Practices (SSRP), published as Regulation No. R388 dated 28 April 2006, the public doses resulting from effluent discharges from Vaalputs must comply with the dose constraint of 0.25 mSv. The environmental surveillance programme for Vaalputs has shown no measurable radiological impact on the community living around Vaalputs.



### 5.6.3 NUCLEAR SAFETY

During the review period, the NNR completed reviews and commented on the following Vaalputs safety case documentation:

- (i) Vaalputs Waste Acceptance Criteria
- (ii) Vaalputs Safety Assessment Report
- (iii) Facility Description and Safety Assessment for the Waste Treatment Facility
- (iv) Operational Technical Specifications for Vaalputs
- (v) Vaalputs Inservice Inspection and Testing Programme

### 5.6.4 COMPETENCY AND SUFFICIENCY OF NECSA'S VAALPUTS WORKFORCE TO WORK SAFELY

In addition to the requirements in the SSRP, the conditions of licence require that Necsa must establish and implement arrangements to ensure that suitably qualified and experienced persons perform any duties, which may affect the safety of operations on the site, or any duties assigned by or under the conditions of licence. Such arrangements must make provision for the appointment, as appropriate, of duly authorised persons to control and supervise operations, which may affect plant or facility safety. The NNR remained satisfied that Necsa complied with the above requirement during the review period. The NNR however does have some concern regarding sufficiency of the Vaalputs radiation protection staff.

### 5.6.5 TRANSPORT SAFETY

Transport of waste to the Vaalputs site is the responsibility of the waste generator and is regulated by the NNR. The Vaalputs waste acceptance criteria requires that such transport be performed in compliance with the relevant provisions of the IAEA regulations for the safe transport of radioactive material. There were no safety concerns regarding the transport safety at Vaalputs during the period under review.

### 5.6.6 RADIOACTIVE WASTE SAFETY

Vaalputs received 1433 (100 litre), metal drums from Pelindaba and 1558 metal drums from KNPS for disposal during the calendar year 2013. The receiving and disposal of radioactive waste at Vaalputs was in conformance with the conditions of authorisation.

| Waste     | TYPE OF WASTE PACKAGE |       |       |
|-----------|-----------------------|-------|-------|
| Generator | Concrete              | Metal | Other |
| Koeberg   | 89                    | 1558  | 0     |
| TOTAL     | 89                    | 1558  | 0     |

| Waste     | TYPE OF WASTE PACKAGE |       |       |
|-----------|-----------------------|-------|-------|
| Generator | Concrete              | Metal | Other |
| Necsa     | 0                     | 1433  |       |
| TOTAL     | 0                     | 1433  |       |

| Trench       | Number of waste packages | Total activity as on 31 December 2013 |                 |
|--------------|--------------------------|---------------------------------------|-----------------|
|              |                          | Receive                               | Decayed         |
| A01          | 1174                     | 1.92E+0                               | 4.55E+04        |
| A02          | 840                      | 4.07E+0                               | 6.56E+01        |
| A03          | 1639                     | 8.53E+0                               | 4.48E+02        |
| A04          | 1079                     | 6.99E+0                               | 4.57E+02        |
| A05          | 167                      | 6.56E+0                               | 2.05E+03        |
| B01          | 3177                     | 1.02E+0                               | 2.31E+04        |
| B02          | 400                      | 1.87E+0                               | 1.33E+04        |
| B03          | 321                      | 1.32E+0                               | 1.20E+04        |
| B04          | 23                       | 7.14E+0                               | 6.27E+03        |
| <b>TOTAL</b> | <b>20 89</b>             | <b>3.35E+0</b>                        | <b>1.03E+05</b> |

### 5.6.7 ENVIRONMENTAL PROTECTION

There were no concerns regarding the safety of the environment at Vaalputs during the period under review.

### 5.6.8 NUCLEAR EMERGENCY PLANNING AND PREPAREDNESS

There were no safety concerns regarding the emergency planning and preparedness at Vaalputs during the period under review.

### 5.6.9 PHYSICAL SECURITY

There were no safety concerns relating to physical security at Vaalputs during the period under review.

### 5.6.10 SAFETY OF SEALED RADIOACTIVE SOURCES

The control of radioactive sources is managed in accordance with the stipulations of the Necsa PBL document "Control of Radioactive Sources". Necsa is required to maintain a source register of all sources onsite. There were no irregularities relating to sealed radioactive sources at Vaalputs during the period under review.

### 5.6.11 NUCLEAR INCIDENT / ACCIDENTS REPORTED

Although several minor occurrences were reported by Vaalputs, there were no nuclear occurrences that fell in the category of nuclear accident or nuclear incident, as defined in the NNR Act, during the period under review.

### 5.6.12 REGULATORY COMPLIANCE INSPECTIONS

Quarterly inspections are usually scheduled for Vaalputs. However, during the review period, three (3) inspections were conducted and the last one was replaced with an audit. All inspections showed acceptable compliance with regulations.

### 5.6.13 REGULATORY WARNINGS OR DIRECTIVES TO STOP WORK

The NNR issued no directives to stop work to Necsa during the period under review.

## 5.6.14 REGULATORY INDEPENDENT VERIFICATION OF RADIOLOGICAL ENVIRONMENTAL ANALYSIS

Due to insignificant environmental impact by Vaalputs in the past, the NNR decided not to conduct independent verification.

## 5.6.15 APPEALS TO THE CHIEF EXECUTIVE OFFICER OR THE BOARD

There were no appeals concerning Vaalputs during the review period.

## 5.7 NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM)

Natural resources that are extracted from the ground, such as coal, oil, gold, natural gas and other mineral ores, contain various amounts of natural radioactivity. When these resources are extracted and processed, their natural state can be modified, which may result in the enhancement of the natural radioactivity content originally present. Such enhancements may be observed in the residues or the waste generated and/or in the products or by-products and are sometimes high enough to pose a risk to both humans and the environment, if they are not adequately controlled.

Natural occurring radionuclides are present in all minerals and raw materials of natural origin, the most important of which, for the purposes of radiation protection, are the radionuclides in the U-238 and Th-232 decay series and K-40. These materials are commonly referred to as Naturally Occurring Radioactive Materials (NORM). In some materials the levels of NORM are significantly higher, to the extent that regulatory control may be required for radiation protection purposes. In terms of the National Nuclear Regulator Act (Act no. 47 of 1999), the NNR is responsible for exercising regulatory control over mining and mineral processing facilities handling NORM. Mining and mineral processing facilities which handle NORM require authorisation in terms of this Act. In terms of section 22(1) of the NNR Act, such facilities are authorised by means of a Certificate of Registration (COR). The COR is issued with certain conditions of authorisation, which all holders are required to comply with. A system of compliance assurance exercises (inspections, audits and investigation actions), are conducted at these various holders to ensure compliance to the conditions of authorisation and the applicable Safety Standards and Regulatory Practises R388.

The NNR currently grants nuclear authorisations for the following categories:

- Mining and mineral processing facilities
- Scrap smelters
- Fertiliser manufacturers
- Scrap processors
- Small users
- Service providers.

The activities at these facilities include actions such as:

- Mining and processing of gold, copper, uranium, heavy minerals and phosphate rock
- Recycling of scrap material (i.e. ferrous and non-ferrous metal, plastic, stainless steel, etc.), that is contaminated by NORM
- Laboratories conducting tests of small quantities of NORM samples for verification of proposed and existing actions, including samples from prospecting activities
- Some service providers are authorised for the cleanup of radiologically contaminated sites.

## BRIEF DESCRIPTIONS OF THE VARIOUS PROCESSES AT THE NORM PROCESSING FACILITIES REGULATED BY THE NNR:

### MINING AND MINERAL PROCESSING FACILITIES

The activities at these facilities include, mining and processing of gold, copper, uranium, heavy minerals and phosphate rock. The process for producing these ores can be divided into six main phases that include among others: finding the ore body; creating access to the ore body; breaking the ore body or removing the ore by mining; transporting the broken/mined material from the mining face to the surface plants for treatment; processing (this process occurs in multi-stage crushing and milling circuits), and refining. In the case of heavy minerals, the separation of the mined ore body at the treatment plant is through electromagnetic processes and no chemicals are applied on the mined ore.

### FERTILISER MANUFACTURING

Most of the fertiliser manufacturing industries authorised by the NNR, use sulphuric acid combined with phosphate rock as raw material, to produce phosphoric acid and finally, fertilisers. The phosphate industry produces fertiliser, animal feed, and phosphoric acid using phosphate rock, which contains Naturally Occurring Radioactive Materials. Before phosphate ore is turned into fertiliser or other products, it is transformed into either phosphoric acid (through the wet process), or elemental phosphorus (through the thermal process). A by-product, calcium sulphate (gypsum), is also produced. This gypsum is called phosphogypsum. There are approximately five tones of phosphogypsum produced for every ton of phosphoric acid product produced. During the production of the above products, radioactive waste is produced in the form of liquid (gypsum slurry), and solid wastes (scrap metal and filter cloths). Gypsum is normally stored on land, in waste heaps at a secluded area, or discharged off to the sea, whereas the scrap is either stored onsite or released, to be used for other purposes. Seventy five percent of the phosphate rock comes from Foskor Limited: Phalaborwa Division in the Limpopo Province and the rest (known as Togo rock, i.e. sedimentary phosphate rock with high <sup>238</sup>U content), is imported from North African countries.

### SCRAP PROCESSORS

A typical recycling process will start with the collection of plastic, ferrous and non-ferrous scrap metal, which is transported to an area under the scope of regulation. This scrap metal is collected underground and has been found to have elevated levels of radiation. Scrap metal collected, is recorded, segregated and will be either released to the public or released to authorised scrap smelters, according to the approved NNR procedure for radioactive waste management for smelting and conversion to other products.

### SCRAP SMELTERS

The process for melting scrap metal, involves superheating a quantity of metal to high temperatures in a metal heating furnace until it is molten. A scrap melt is formed by placing the superheated metal in contact with a quantity of scrap metal, and submerging the scrap metal therein, removing impurities from said scrap melt. The molten metal is now either exported/transported to various industries, like foundries, for use in other products, etc.

### SMALL USERS AND SERVICE PROVIDERS

These are laboratories or pilot plants for the testing of small quantities of NORM samples to verify the viability of the proposed mining projects. Here, samples are received from clients with detailed instructions. These samples are then reduced to a fine powder by crushing and milling, and the radiological content of the samples are determined through chemical analysis.

## REFURBISHERS

Some of the materials collected from the underground mining environments, such as pumps, electrical fans, etc., need to be repaired or refurbished for re-use. It has also been found that most of them, when screened have elevated levels of radiation, requiring that they be handled by competent radiation protection personnel. Once removed from underground and screened, they are sent to authorised engineering firms for refurbishment. The equipment may be sandblasted to remove radioactive scales before the refurbishing process.

### 5.7.1 OCCUPATIONAL EXPOSURE TO RADIATION

The primary radiation exposure pathway to workers in the underground mining environment is via the inhalation of particular radon progeny. The regulatory limits that are applicable for all workers classified as occupational exposed personnel are:

| General Regulatory Dose Limits prescribed by the NNR |  |
|--|--|
| Workforce  | Regulatory criteria  |
| Maximum individual worker dose                       | An (average) effective dose of 20mSv per annum averaged over five consecutive effective dose of 50mSv in any year. |
| Average individual worker dose                       | Controlled by application of the ALARA principle. The ALARA target for the annual dose is 4mSv per annum.          |

Based on these limits, the NNR requires the holders to demonstrate that the average effective dose of 20 mSv per year, averaged over five consecutive years, is not exceeded. This requires the holder to have proper dose records of all occupational exposed personnel for a rolling five years, as determined by the SSRP R388.

The NNR continued to focus much of its regulatory efforts on those mines, where the potential exists for workers to be exposed to radiation levels in excess of the annual dose limit. During the period under review, no workers exceeded the annual dose limit.

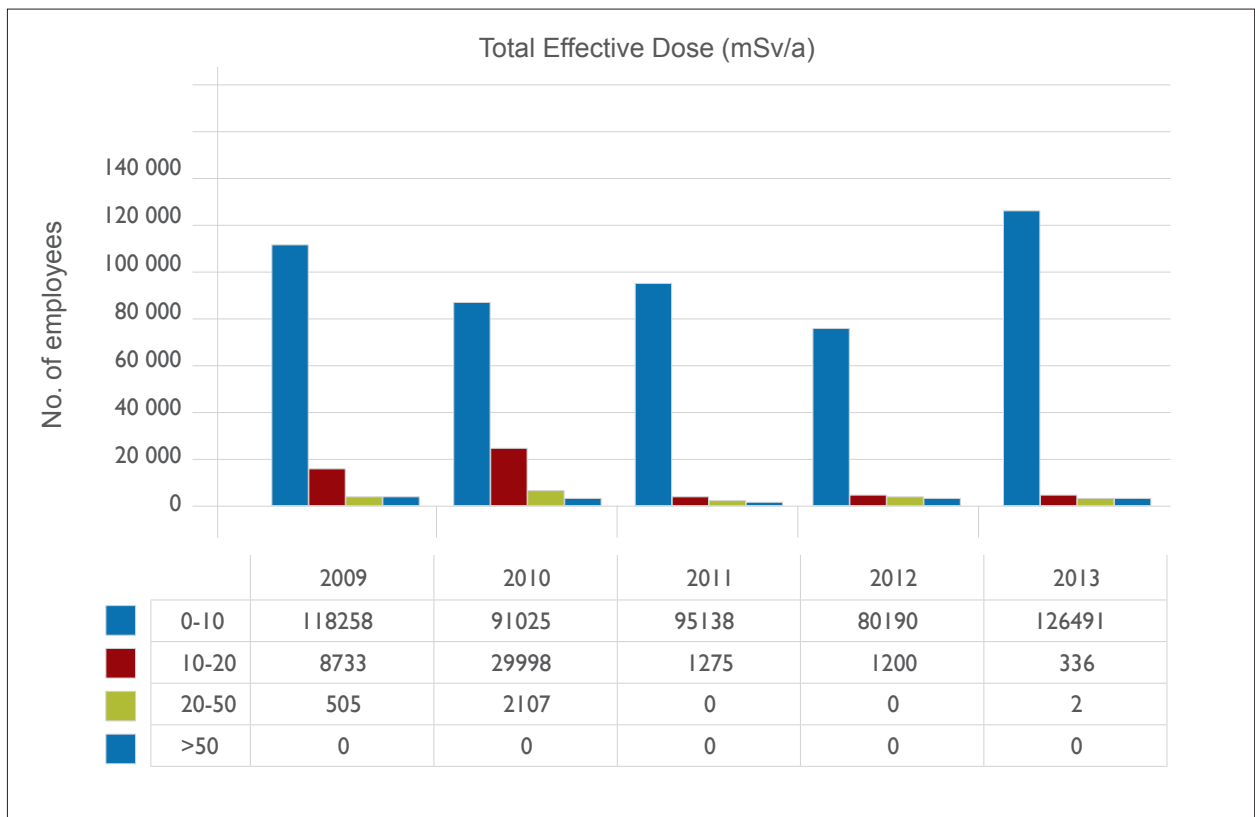
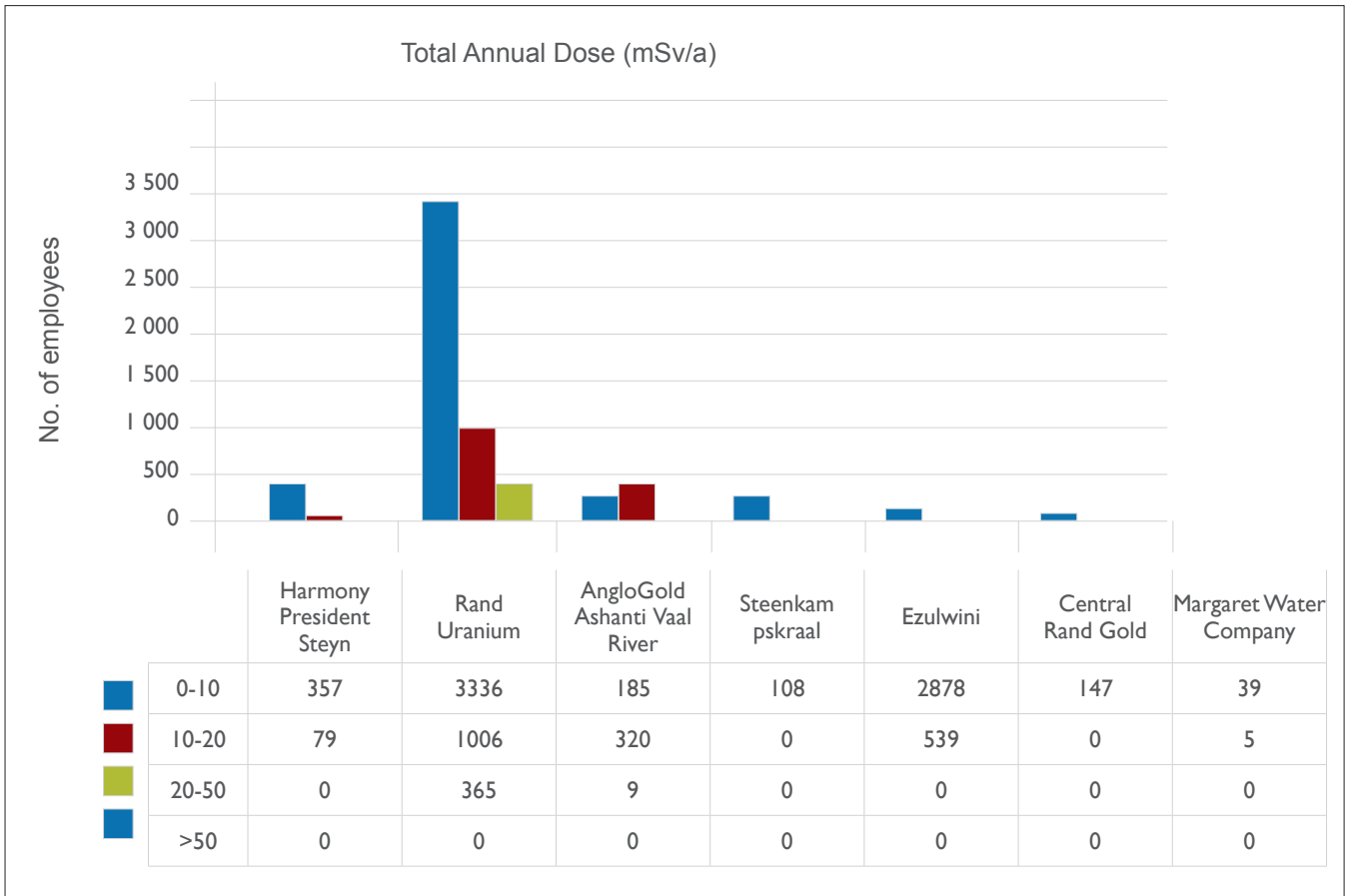
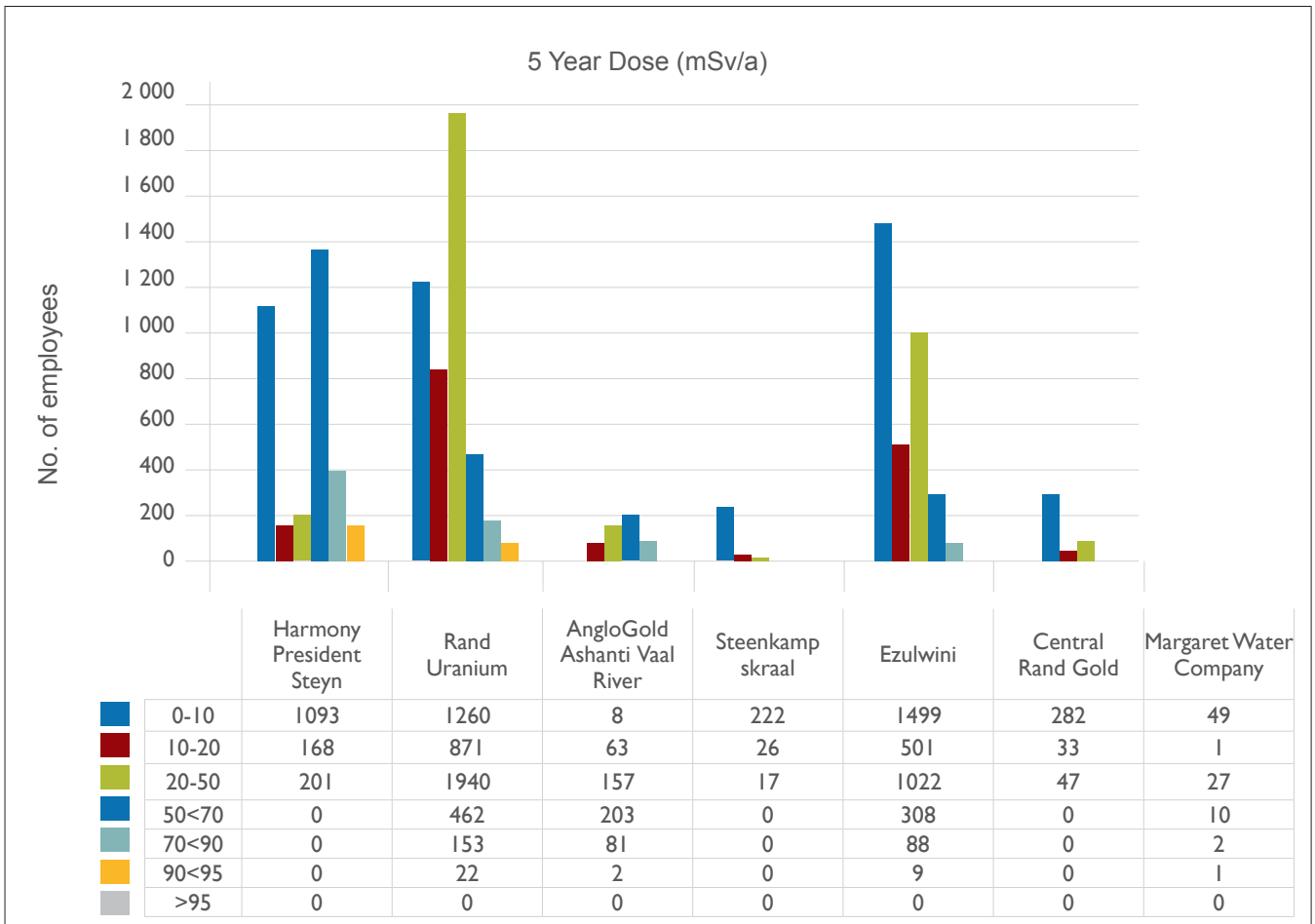


Figure 1: Annual dose summary for non-special case mines



**Figure 2: Annual dose summary for SCM**



**Figure 3: Five year accumulative dose for SCMs i.e. 2009-2013**

## 5.7.2 SPECIAL CASE MINES (SCM)

For a mine to be classified as special case by the NNR, the potential of the monthly dose rate must be 1.7 mSv and above, or the projected annual dose of 20 mSv should be exceeded. During the period under review, the NNR noted a slight improvement in observed worker doses, which can be attributed to the compliance assurance measures enforced by the NNR on the holders.

## 5.7.3 PUBLIC EXPOSURE TO RADIATION

In accordance with the Regulations on Safety Standards and Regulatory Practices, Regulation No. R388, dated 28 April 2006 (SSRP), the doses for members of the public must comply with the action specific dose constraint and a limit of 1 mSva-1 from all authorised actions. The NNR further requires the holders to submit the Public Safety Assessments (PSAs), to ensure that the authorised actions do not pose any undue health risks to members of the public. These documents have been reviewed by the NNR. The projected public exposures from authorised actions were all within the public dose limit.

## 5.7.4 TRANSPORT SAFETY

There were no safety concerns related to transport during the period under review. The transportation of NORM and NORM contaminated scrap was carried out in accordance with the requirements of the NNR. Routine transport of low specific activity (LSA-1) scrap materials takes place on a daily basis between authorised facilities.

## 5.7.5 RADIOACTIVE WASTE SAFETY

There was no safety concern related to radioactive waste safety during the period under review. Authorisation holders are required to manage their radioactive waste and associated waste products. Accordingly, section 1.5 of the COR requires that a waste management procedure be submitted to demonstrate compliance with NNR requirements.

The main aspects of a typical radioactive waste management procedure include:

- Identification of radioactive waste and its sources
- Segregation of radioactive waste into process and non-process waste
- Categorisation of process waste into homogeneous and non-homogeneous waste
- Radioactive waste management options
- Record keeping and reporting
- Quality assurance.

Routine and annual waste management reports were submitted to the NNR, summarising and interpreting the above programme and demonstrating compliance with the NNR requirements.

The summary of waste is presented in the Table below.

| Total                     | tonnes or m3 | No. of consignments |
|---------------------------|--------------|---------------------|
| Unrestricted Scrap (tons) | 3.434880E+05 | 3318                |
| Restricted Scrap (tons)   | 3.257231E+06 | 7637                |
| Gaseous Releases          | 2.759184E+11 | 461                 |
| Liquid Waste (m3/year)    | 5.892520E+08 | 2795                |
| Semi Solid (tons)         | 1.054180E+11 | 571                 |
| Solids (tons)             | 2.419516E+11 | 23928               |
| Other Waste (tons)        | 5.073665E+07 | 99434               |

**Table 1: Summary of the waste released from authorised facilities**

## 5.7.6 NUCLEAR EMERGENCY PLANNING AND PREPAREDNESS

The NNR requires that an emergency and preparedness plan be established to make provision for any occurrence involving radioactive material which has the potential to give rise to unplanned exposure to radiation in excess of the respective annual dose limits for workers, visitors to the site, or members of the public.

## 5.7.7 PHYSICAL SECURITY

As part of the conditions of a nuclear authorisation, the holders of a nuclear authorisation are required to establish, implement and maintain a physical security system that was approved by the NNR. Such a system would prevent, as far as reasonably possible, unauthorised access to areas containing radioactive material and would also prevent the unauthorised removal, diversion or theft of such material. In general, the holders demonstrated compliance with the physical security requirements.

## 5.7.8 SAFETY OF SEALED RADIOACTIVE SOURCES

There were no sealed radioactive sources regulated by the NNR at holders of certificates of registration. The safety and regulation of the radioactive sealed sources falls within the jurisdiction of the Directorate Radiation Control, under the Department of Health.

## 5.7.9 NUCLEAR INCIDENTS/ACCIDENTS/ REPORTED

There were no nuclear incidents related to NORM reported.

## 5.8 REGULATORY COMPLIANCE

In order to verify the degree of compliance with the conditions of nuclear authorisation, the NNR undertakes independent inspections and audits at authorised facilities. A total of 196 inspections were conducted during the reporting period. These inspections were conducted to verify the degree of compliance with the various programmes and procedures implemented by the holders. Holders were required to investigate the reasons for, and implement corrective actions related to all non-compliances identified. A total of eight audits were conducted at various mining facilities, to ascertain the degree to which these mines were implementing quality management systems. The audit findings concluded that the mines were deficient in terms of the requirements related to quality management systems. The mines were required to submit and implement action plans addressing corrective and preventive actions. The NNR will continue to monitor the implementation of the corrective and preventive measures during the next reporting period.

## ENVIRONMENTAL VERIFICATION SAMPLES

There were 411 environmental samples taken around the holders of CORs for verification, the samples were taken to NECSA's SANAS accredited radioanalysis laboratory for analysis. The results were received and interpretation indicated that there are traces of radioactivity around these facilities. During the review period, the NNR conducted 6 regulatory investigations on holders of COR and also on unauthorised facilities.



## INVESTIGATIONS

During the review period, the NNR conducted six regulatory investigations on holders of COR and also on unauthorised facilities. The outcomes were as follows;

**Investigation at Weston Scrap Metals yard (COR-166), was conducted on 05 April 2013, to verify if the scrap metals being handled by West Rand Scrap were cleared for radioactive contamination and to find out the status of the facility's intentions, with regards to their Certificate of Registration.**

### OUTCOME 1

The average levels of radioactivity concentration of naturally occurring Radioactive material, nuclides of uranium and thorium and their progeny except radon, are below 0.5 Bq/g and the effective dose expected to be incurred by any member of the public, due to the facility, was less than 1 mSv/a.

**Investigation conducted at an unauthorised facility (Reclamation Group-Eikenhoff), on 26 September 2013, to verify if there was any radioactive source at the above mentioned site, to identify the source and to take appropriate safety measures to secure the source.**

### OUTCOME 2

The radioactive source found was Cs-137, a source which is regulated by the Radiation Control Division: Department of Health (DOH). The NNR then contacted Mr Johan Petersen of the Department of Health (DOH): Radiation Control to report the incident and for further handling by DOH. The facility was required to continually monitor its premises for any radioactive material, and should any radioactive material be identified, it must be isolated into the locked container, and the NNR must be notified immediately.

**Investigation conducted at an unauthorised facility (CN Scrap Metal), on 16 January 2014, to verify the presence of the radioactive material at the mentioned area, to identify the material and ensure that the material was safely secured, disposed of, or stored at an authorised facility.**

### OUTCOME 3

The scrap dealer representative was requested to store the radioactive pieces, identified as a class 7 uranium source, away from being accessible by workers until directed by the NNR.

**Investigation conducted at Blyvooruitzicht Gold Mining (pty) Ltd (COR-41), on 25 February 2014, to verify the extent of slime spillages around the slime dams and the unauthorised removal of the scrap material from the facility.**

### OUTCOME 4

On 28 February 2014, a directive was issued to Blyvooruitzicht Gold Mining Company (COR-41), to address the non-compliances of the investigation conducted.

An investigation was conducted at an unauthorised facility (Cape gate (pty) Ltd), on 04 March 2014, to verify if there was any radioactive scrap metal at the above mentioned site, to identify the source of exposure and to take appropriate safety measures to secure the source.

## OUTCOME 5

Cape Gate (pty) Ltd was instructed to isolate the detected source material and store it inside the lockable room, until the DOH collects it. The Cape Gate company representative (Mr K Rolf), contacted Mr Johan Petersen of the Department of Health (DOH): Radiation Control, to report the incident and for further handling by DOH.

## OCCURRENCES

The following occurrences were registered.

- i) Class 1 = 19
- ii) Class 2 = 14
- iii) Class 3 = 8

The classification of occurrence e.g. Slime spillage

| Class    | Description  |
|----------|--|
| Class 1: | The spreading of contamination into an area where individuals would be present on a daily basis. |
| Class 2: | Anything between class 2 and 3.  |
| Class 3: | The spreading of contamination into an area which individuals would not normally occupy.         |

## 5.8.1 REGULATORY WARNINGS AND DIRECTIVES ISSUED

The following regulatory warnings and directives were issued to holders of nuclear authorisations:

**The directive was issued on 11 June 2013, to Bosveld Phosphates (COR-111), to close the recurring non-compliances.**

### OUTCOME I

The holder has responded to the directive to address the issues raised. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

**On 14 June 2013, a directive was issued to Crown Gold Recoveries (COR-57), with Regard to Slime Spillages at COR-57**

### OUTCOME 2

The holder has responded to the NNR to indicate the slime management plan. The directive remains in force until the holder has demonstrated full compliance with the NNR requirement. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

**On 03 December 2013, a directive was issued to South African Air Force (COR-100), to Comply with Section 2.10 of COR-100**

### OUTCOME 3

The directive remains in force until the holder has demonstrated compliance with the NNR requirement. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

**On 07 February 2014, a directive was issued to Buffelsfontein Gold Mines Limited (COR-182), for not complying to conditions of COR and a follow-up inspection was conducted.**

### OUTCOME 4

The holder has responded to the directive to address the issues raised. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

**On 26 February 2014, a directive to close out the recurring non-compliances of the inspections, conducted on 07 November 2012 and 16 July 2013, was issued to Anchor Support and Mining Pty Limited (COR-201).**

### OUTCOME 5

The directive remains in force until the holder has demonstrated compliance with the NNR requirement. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

**On 28 February 2014, a directive was issued to Blyvooruitzicht Gold Mining Company (COR-41), to address the non-compliances of the investigation conducted.**

### OUTCOME 6

The holder has ceased operations and is in a process of liquidation. A directive remains in force until the holder has demonstrated compliance with the NNR requirement. Compliance Assurance and Enforcement activities will be conducted to ensure compliance to the directive.

## 5.9 APPEALS TO THE CHIEF EXECUTIVE OFFICER (CEO)

There were no appeals to the CEO during the reporting period.

## 5.10 NUCLEAR SECURITY

The NNR conducts inspections on prevention and detection measures including communication and assessment processes. During the review period the NNR conducted a total of 28 nuclear security inspections and 5 investigations. A total of thirty four (34) reviews: twenty (20) for NORM, six (6) reviews for Koeberg Nuclear Power Station (KNPS), two (2) for Necsa, two (2) for IAEA, one (1) for 2014 Nuclear Security Summit, one (1) for WINS (World Institute of Nuclear Security), one (1) for NNEECC-DoE, South Africa's Nuclear Security Framework, two (2) for NNR internal processes (draft ICT Strategy, draft Enforcement Regulations), were completed during the reporting period.

During the review period the NNR participated in the following high-level Joint Planning Committee (JPC) and Government Sector Security Council (GSSC) engagements;

- JPC Necsa and JPC ESKOM Koeberg: the NNR addressed and exchanged information regarding developments and challenges in relation to assurance of adequate nuclear security measures in association with National key Points (SAPS) and State Security Agency (SSA) in relation to the nuclear installation concerned.
- GSSC is the high level security forum convened by SAPS (Government Security Regulator) for senior managers in government departments and State agencies responsible for all aspects of organisational security including nuclear security. The NNR played a key role in sharing various aspects of nuclear security in South Africa and IAEA nuclear security framework to ensure a common nuclear security doctrine across all State institutions.

## 5.1 | SPECIAL PROJECTS

During the period under review, the team focused primarily on regulatory research and development associated with the following key areas:

- Implementation of Self-Assessment national actions
- Populating the country's Radiation and Waste Safety Infrastructure profile using the web-based IAEA Radiation Safety Information Management System (RASIMS)
- Development of regulatory standards and positions
- Establishment of a National Dose Register (NDR) for South Africa
- Coordinating of two of the Forum for Nuclear Regulatory Bodies Technical Working Groups
- Upgrade of the NNR Emergency Control Centre
- Determination of appropriate levels of financial provisioning for nuclear damage from nuclear installations
- Investigation of facilities with a potential for NORM associated exposures, especially the oil and gas industry actions to be authorised.

## 5.12 HIGHLIGHTS FOR THE REVIEW PERIOD

### - SELF-ASSESSMENT

The NNR, together with the Directorate Radiation Control, is participating in the African Regional Cooperative Agreement for Research, Development and Training related to the Nuclear Science and Technology (AFRA) Project 00938 on "Self Assessment of Regulatory Infrastructure for Safety and Networking of Regulatory Bodies" to strengthen the effectiveness and sustainability of national regulatory infrastructure.

The first Lifecycle of the national Self-Assessment was conducted in 2010. The NNR embarked on a process to implement the national actions from the first Lifecycle of the Self-Assessment within three years, through twelve subprojects. By the end of 2013/14, about 80% of the projects will be completed. The implementation of the NNR Self-Assessment was managed by the National Self-Assessment Coordinator, and teams appointed for each subproject. This approach ensures input from all relevant NNR departments and also facilitates capacity building. In addition to the subprojects closed out during the past two years, deliverables achieved with the remaining subprojects are:

- Seven new regulations drafted and reviewed
- Three regulatory guides drafted and reviewed
- Training matrix reviewed and approved for implementation
- Technical training materials finalised for in-house training courses
- Management of radioactive sources regulated by the NNR formalised through the implementation of the IAEA Regulatory Authority Information System (RAIS)
- Quality Management System in the process of being established.

Ten out of twelve subprojects have been completed. Due to the scope and realignment of the regulatory framework and the Management System projects, these will continue beyond the 2013/14 financial year. The project plan for Lifecycle 2 was approved and a training workshop on the new IAEA tool conducted. The responses and analyses, have been completed for the Core Modules by the NNR. The scope of Lifecycle 2 is aligned to the minimum modules required to be completed in preparation for an IAEA IRRS mission. Action plans have been developed and the Core modules have been merged into one report which will be updated and approved in the 2014/15 year, depending on further expansion of the scope of Lifecycle 2.

## - NATIONAL DOSE REGISTER

The project to establish a National Dose Register using the IAEA-developed Regulatory Authority Information System (RAIS), at the NNR is making progress. A data transfer mechanism was agreed with the Dosimetry Service Providers and other stakeholders. The second phase of the project, which includes installation of the RAIS 3.3 Web, the design of the NDR testing, and a programme to upload data and provide training to key stakeholders is being finalised for implementation in early April 2014.

## - UPGRADE OF THE REGULATORY EMERGENCY RESPONSE CENTRE (RERC)

A total of 6 capabilities were identified for the upgrade of the Regulatory Emergency

Response Centre, including:

- Redesign and refurbishment of RERC and associated facilities
- Plant Data Transfer from Nuclear Installations to the RERC
- Audio,visual and communication equipment
- Radiological Instrumentation for use during a Nuclear Accident
- On-line radiation monitoring network around nuclear authorised sites
- System of accident consequence codes

Project meetings are conducted monthly to track progress with the milestones identified in the project plan.

The project plan has been revised due to challenges experienced during the project, of which the main ones were:

- Difficulties in scheduling in-house specification, evaluation and adjudication meetings
- Minimum estimated timeframes needed by suppliers to provide services
- Lack of proposals for some of the specialised services advertised
- Receipt of proposals exceeding the initial budget estimates

A supplier has been appointed to redesign and refurbish the RERC. The design was finalised and the contract is in the process of being agreed upon. A plant data feasibility study was completed by a supplier, and practicalities relating to the transfer plant data to the RERC discussed with licensees. Specifications are being drafted for the systems necessary for capturing and transferring the data to the RERC. The signing of a contract with the appointed supplier for Audio, Visual and Communication Equipment has been put on hold due to the review and finalisation of the redesign of the RERC. Following the targeted procurement of suppliers for radiological instrumentation and system of accident consequence codes, proposals were evaluated and are awaiting adjudication.

The NNR has engaged with the successful supplier for the provision of an on-line radiation monitoring system to discuss and improve the design of the system, prior to agreeing on the design, schedule and contract contents.

The plan of activities for the project in 2014/15 has been updated and submitted for approval. The updated plan takes into account challenges and rescheduling of activities based on interactions with suppliers. The Business Case will be updated once all the proposals have been received, all designs and schedules have been agreed and contracts established.

## - ESTABLISHMENT OF NNR VERIFICATION LABORATORY

The Board resolved in 2010, that the Executive should continue with the laboratory project and find suitable partners for the establishment of the NNR radiological verification capability. The Business Case for the establishment of the laboratory was approved by the Board in 2011. The Executive concluded strategic partnerships with the Agricultural Research Council (ARC), and the National Metrology Institute of SouthAfrica (NMISA) Radioactivity Standards Laboratory to establish NNR verification facilities in Pretoria and Cape Town respectively.

During the course of the period under review, the refurbishment of the ARC laboratory has been completed, the design of the NMISA laboratory has been completed and a contractor will be appointed to perform the refurbishment of the NMISA Laboratory. 8 of the 9 nuclear analytical equipment have been installed, all analytical methods have been developed and the management system is in an advanced stage of development. New staff have been appointed and have received theoretical training. The plan is to complete the verification of all the methods and to commence with initial operation of the laboratory in the new financial year. The ARC Laboratory will have the capacity to perform gamma, beta, alpha, as well as gross alpha/beta analyses. The NMISA Laboratory will process the Koeberg Power Station samples and will perform gamma and beta analysis.

## - REGULATORY FRAMEWORK PROJECT

The NNR sets Safety Standards in the form of regulations. Regulations are mandatory and set down specific requirements to be upheld by the authorisation holder or an applicant for a nuclear authorisation. The NNR is in the process of revising its regulations.

The suite of regulations comprises of the General Nuclear Safety Regulations integrating all thematic areas in a coherent and harmonised set of requirements that will be complemented by a series of facilities and/or action Specific Safety Regulations. The General Nuclear Safety Regulations will address all radiation exposure situations (existing, planned and emergency), and will apply to all actions, whereas the Specific Safety Regulations apply to specific facilities and/or actions.

The General Nuclear Safety regulations include the following parts:

- (1) Scope of regulatory control
- (2) Management of safety
- (3) Nuclear authorisations
- (4) Safety assessment
- (5) Radiation protection and waste safety
- (6) Transport
- (7) Emergency planning.

The specific nuclear safety regulations include regulations on:

- i. Nuclear security and physical protection systems
- ii. Nuclear installations
- iii. Waste disposal facilities.

These regulations have all been developed in terms of Section 36 of the NNR Act, and will replace the current set of regulations, via:

- (a) Regulations and Safety Standard and Regulatory Practices
- (b) Siting regulations that have been promulgated in terms of Section 36 in 2006 and 2011, respectively.

In addition to the regulations listed above, 4 more regulations have been developed in terms of Section 47 of the Act. The regulations are on:

- Financial liability in case of nuclear damage
- Enforcement
- Public safety information forum
- Public participation.

The regulations on Radiation Protection and Waste, Safety Assessment, Emergency Planning, Waste Disposal Facilities, Enforcement and Liability for nuclear damage was completed during the period under review. The regulations on Scope of regulatory control, Management of Safety, Nuclear Authorisations, Public Safety Information Forum, Public Participation and Nuclear Security and Physical Protection Systems, completed in the previous financial year, have been updated to ensure consistency amongst all the regulations developed.

The remaining regulation on Transport Safety is at an advanced stage of completion and the finalisation of the regulations on Nuclear Installations have been put on hold pending the finalisation of the suite of General Nuclear Safety regulations.

## EMERGENCY PREPAREDNESS REVIEW (EPREV)

The EPREV mission was conducted from 3-12 February 2014, by the IAEA team of experts. Site visits and interviews were conducted at the Department of Cooperative Governance and Trade Traditional Affairs, the Department of Energy, the Department of Health, the National Disaster Management Centre, the National Nuclear Regulator, Koeberg Nuclear Power Station (KNPS), the South African Nuclear Energy Corporation (Necsa), the iThemba Laboratory for Accelerator-Based Sciences, Madibeng Municipality Disaster Management Centre, City of Cape Town Disaster Risk Management Centre, and the Synergy Health facility. The EPREV facilitators and staff from the NNR accompanied the IAEA team during the site visits, and participated in the interviews and discussions. The IAEA team visited the NNR on 04 February 2014 to discuss regulatory standards, arrangements and the role of the NNR during preparedness and response to a nuclear accident.

The NNR provided review comments on the draft EPREV report during the mission, as well as the final report after the mission. The IAEA EPREV team identified a number of recommendations and suggestions to improve arrangements for emergency preparedness and response. A number of good practices in South Africa's EPR arrangements were also noted. The NNR will provide input into the action plan that will be developed to address the findings from the EPREV.

## 5.13 INTERNATIONAL COOPERATION

As a member state of the International Atomic Energy Agency (IAEA), South Africa is required to fulfill its international obligations and support collaboration to enhance nuclear safety and security globally. The National Nuclear Regulator (NNR), is mandated as the competent authority for regulating nuclear safety and fulfilling South Africa's obligations in respect of international instruments concerning nuclear safety.

During the year under review, the NNR fulfilled all its national obligations and maintained active participation in the IAEA Safety Standards Committees, as well as several International Regulatory Forums.

Some of the international obligatory initiatives undertaken by the NNR, during the review period, are highlighted below:

## IAEA COMMISSION ON SAFETY STANDARD (CSS)

- The NNR participated in the 34th Commission on Safety Standards (CSS), held at the IAEA in Vienna from the 5th -7th of November 2013. The meeting was attended by senior regulators that were required to recommend Safety Standards for approval to the Board of Governors of the IAEA.

## IAEA SAFETY STANDARDS COMMITTEES

- The IAEA nuclear safety and radiation protection standards have served as references and benchmarks for the global community, including South Africa.
- During the period under review, NNR staff attended several working groups and technical committee meetings of the IAEA.

The NNR continued to participate in the following IAEA Safety Standards Committees:

- Nuclear Safety Standards Committee (NUSSC)
- Radiation Safety Standards Committee (RASSC)
- Waste Safety Standards Committee (WASSC)
- Transport Safety Standards Committee (TRANSSC)
- Commission on Safety Standards (CSS).

The IAEA General Conference is an important annual event, where international regulatory matters are discussed and agreed upon. Furthermore, the conference agrees the scope of work to be undertaken by the IAEA during the following year. The 57th Annual General Conference of the IAEA was held in Vienna, Austria from the 17th - 21st September 2013. The South African delegation was represented by officials from the Department of International Relations and Cooperation (DIRCO), DOE, NNR, Eskom and Necsa.

## IAEA TECHNICAL MEETINGS ATTENDED DURING THE REVIEW PERIOD

- Modelling and Data for Radiological Impact Assessments (MODARIA)
- Joint IAEA/NEA Meetings of IRS National Coordinators
- 24th meeting of the IAEA advisory group on nuclear security
- 19th International Conference on Radionuclides metrology and its application
- IAEA Workshop on Complementary Safety Assessments for Research Reactors following the lessons learned from the Fukushima Daiichi Accident
- IAEA Working Group for an Integrated Safety Demonstration for the Dual purpose cask for spent nuclear fuel.

## MULTINATIONAL DESIGN EVALUATION PROGRAMME (MDEP)

The MDEP was initiated by the United States Nuclear Regulatory Commission (USNRC), to facilitate co-operation among nuclear regulators involved in the safety review of new reactor designs which are intended for construction in world-wide markets or at least in more than one country. The purpose of the MDEP is to ensure that the design found suitable in one country, does not have to be substantially modified to meet licensing requirements elsewhere. This can be achieved if the requirements that must be satisfied in one country are consistent with, or at least not significantly different to, those that must be satisfied in another country. The NNR has been actively involved in all MDEP activities since its inception. In view of South Africa's envisaged nuclear expansion programme, participation in this initiative, is particularly important. The NNR attended the MDEP Steering Technical Committee from 21-23 May 2013 in Helsinki, Finland.



## BILATERAL COOPERATION



**Bilateral Cooperation meeting between NNR & Rostechnadzor (Russia)**



**Bilateral Cooperation meeting between NNR & Canadian Nuclear Safety Commission (CNSC)**

The NNR maintains nuclear regulatory cooperation arrangements with several foreign regulators, including leading countries in nuclear regulation such as France and the United States. It also maintains arrangements with countries, such as United Kingdom, Russia and South Korea. The NNR strives to develop strategic relationships to share regulatory experience and to ensure that best practices are available and used for the safety and security of South Africans.

- During the review period the NNR convened a successful bilateral meeting with the Russian Nuclear Safety Regulator - Rostechnadzor from 26-29 November 2013, in Cape Town. The purpose of the meeting was to discuss and share regulatory information of mutual interest and to set the foundation for future exchange between the two counterparts. The bilateral counterparts re-affirmed their commitment to work together to enhance nuclear safety and security in the respective countries. The counterparts acknowledged the open and good quality of discussions, which characterised the meetings and expressed their commitment to the realisation of the desired objectives.
- The NNR participated in the FRAREG meeting followed by a bilateral cooperation engagement with ASN (the Regulatory Authority), in France.
- The NNR team undertook a Bilateral study tour to the Canadian Nuclear Safety Commission. The study tour was aimed at sharing experiences and information on nuclear regulatory best practices, legislative tools, financial sustainability and performance management. The NNR benefitted from gleaning insights from CNSC experts on regulatory approaches and aspects of general management, which would not have been possible by working in isolation. Both parties welcomed the robust and insightful exchanges and re-affirmed the commitment to continued bilateral nuclear safety interaction in the future.
- The NNR is supportive of sharing regulatory information and experiences with regional counterparts in Africa, as well as countries that are planning on introducing nuclear as part of their energy mix, the so-called nuclear newcomer countries. A high-ranking Vietnamese delegation, comprising of the Vice Minister of Science and Technology, Director General Vietnam Atomic Energy Agency and the Vice President of Vietnam Electricity, participated in a bilateral meeting with the NNR on 28 February 2014. As a newcomer country in nuclear, Vietnam expressed interest in learning from the NNR's experiences in regulating nuclear safety. It is for this purpose that a high level delegation from Vietnam visited the NNR recently. The outcome of this interaction was a deep appreciation of the maturity of our regulatory framework and processes by our Vietnamese counterparts. We also committed ourselves to an ongoing interaction with Vietnam, as they embark on a long journey of establishing a new and independent nuclear regulatory body.

## REGIONAL CO-OPERATION



**IAEA Regional Workshop on Radiation Protection & Safety of Radiation Sources**

Within the regional African context, South Africa is a member of the African Regional Co-operative Agreement (AFRA), which was established by the heads of state of African countries that are members of the IAEA. South Africa and the NNR in particular, are being called upon to play an increasing role in the strengthening of nuclear and radiation safety regulatory infrastructure throughout the African region.



**IAEA Regional Workshop on Train the Trainer in Radiation Protection**

The NNR continued to represent South Africa in the technical working groups of the Forum for Nuclear Regulatory Bodies in Africa (FNRBA). During the review period, the NNR hosted and participated in the FNRBA Thematic Working Group on Regulatory Infrastructure for Emergency Preparedness and Response (TWG9-EPR) and IAEA RAF9047 Strengthening and Harmonising National Capabilities. During the review period, the NNR hosted and participated in the following IAEA Regional Technical Workshops in South Africa:

- Train the trainer workshop for Radiation Protection Officers held in Pretoria during 17-21 June 2013.
- Foundations of physical protection of facilities holding Security Nuclear or radioactive material – best practice workshop 15-19 April 2013.
- Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (GSR Part 3) (the BSS), from 22-25 October 2013, in Centurion Pretoria.

## 5.14 STAKEHOLDER RELATIONS



**NNR Schools Outreach in Western Cape**



**NNR Schools Outreach in Gauteng**

The NNR regards dialogue with the public as an important element for increasing awareness of its role for providing for the protection of persons and property against nuclear damage. The NNR's public outreach efforts during the review period were primarily focused on local communities affected by mining and minerals processing activities. The NNR conducted presentations to learners at schools and to residents residing in the local affected communities. For communities living near nuclear installations, the NNR utilised the Public Safety Information Forums to increase awareness and understanding of its regulatory processes. The NNR also convened an information-sharing meeting with representatives from Civil Society NGOs and affected parties.

Additionally, during the review period, the NNR also responded to stakeholder enquiries and hosted a VIP observer programme during the Necsa regulatory emergency exercise.

## ENGAGEMENT WITH CIVIL SOCIETY NGOs IN GAUTENG

In the spirit of openness and transparency, the NNR convened a stakeholder meeting to encourage bi-directional information sharing with Civil Society NGOs in Gauteng. The meeting took place on 6 March 2014, at the NNR offices in Centurion. In attendance were, representatives from Earthlife Africa, Off the Ground, PRISK/Pelindaba Working Group, Greenpeace, Community representatives and NNR staff. The presentations and discussions focused mainly on the NNR license issued for the Necsa Smelter, the noble gas incident in November 2013, financial liability and environmental sampling around Necsa.

## PUBLIC SAFETY INFORMATION FORUM (PSIF)



### Emergency Planning and Preparedness Exercise

In accordance with the NNR Act, the holder of a Nuclear Installation Licence must establish a Public Safety Information Forum (PSIF), to inform the persons living in the relevant municipal area in respect of which an emergency plan has been established, in terms of Section 38(1) of the Act on nuclear safety and radiation safety matters related to the relevant nuclear installation.

In accordance with the provisions of Government Notice No. 299, dated 12 March 2004, and Section 26(4) of the NNR Act, Public Safety Information Forums have been established by:

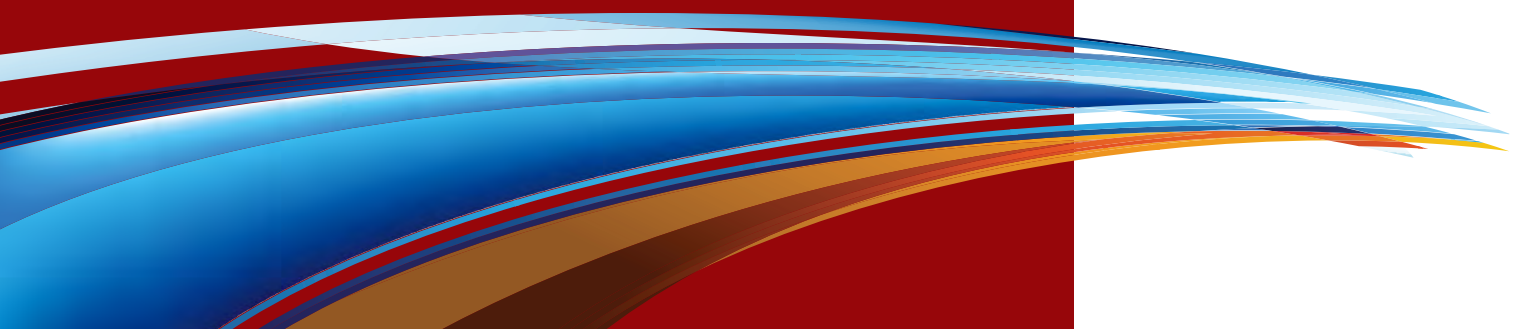
- Eskom for the Koeberg Nuclear Power Station.
- Necsa for Pelindaba and Vaalputs respectively.

In terms of Section 4 of the updated Regulations No. 968 dated 12 September 2008, on the establishment of the Public Safety Information Forum, the Board of the NNR is responsible for appointing chairpersons and deputy chairpersons for the respective Public Safety Information Forums.

During the period under review, NNR officials attended PSIF meetings and made presentations related to emergency planning and preparedness. The PSIF Chairpersons and Deputy Chairpersons were duly appointed by the NNR's Board of Directors, during the period under review.

Section 6

**ANNUAL FINANCIAL  
STATEMENTS FOR THE YEAR  
ENDED 31 MARCH 2014**



# INDEX

The reports and statements set out below comprises of the annual financial statements presented to parliament:

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# GENERAL INFORMATION

|   |   |
|---|---|
| <b>Country of incorporation and domicile</b>  | South Africa  |
| <b>Legal form of entity</b>   | Schedule 3A<br>National Public Entity   |
| <b>Nature of business and principal activities</b>  | To provide protection for persons, property and the environment against nuclear damage                                  |
| <b>Directors</b>  |   |
| Dr T Cohen  | Mr T Mofokeng   |
| Mr A Abader   | Ms N Cobinnah (alternative to Mr A Abader)  |
| Mr S Kakoma   | Mr J Leaver   |
| Mr N Lesufi   | Mr K Maphoto  |
| Mr S Mimi   | Ms E Monale (alternative to Mr K. Maphoto)  |
| Dr T Motshudi   | Prof. G Sibiya  |
| <b>Registered office</b>  | <b>Business address</b>   |
| Eco Glade Office Park<br>Eco Glade 2, Block 6<br>Witch Hazel Avenue<br>Highveld Ext 75,<br>Eco Park, Centurion 0046 | Eco Glade Office Park<br>Eco Glade 2, Block G<br>420 Witch Hazel Avenue<br>Eco Park, Centurion,<br>Highveld Ext 75 0046 |
| <b>Postal address</b>   |   |
| P.O Box 7106<br>Centurion, Eco Park<br>Highveld Ext 75 Pretoria<br>0046   |   |
| <b>Controlling entity</b>   | Department of Energy  |
| <b>Bankers</b>  | ABSA Bank   |
| <b>Auditors</b>   | Auditor-General of South Africa<br>Registered Auditors  |
| <b>Secretary</b>  | Ms N kote (Appointed 01 April 2014)   |
| <b>Attorneys</b>  | Goldenhuis Malatjie & Newtons Attorneys   |

# STATEMENT OF DIRECTOR'S RESPONSIBILITIES AND APPROVAL

The directors are required by the Public Finance Management Act (Act 1 of 1999), to maintain adequate accounting records and are responsible for the content and integrity of the annual financial statements and related financial information included in this report. It is the responsibility of the directors to ensure that the annual financial statements fairly present the state of affairs of the NNR as at the end of the financial year and the results of its operations and cash flows for the period then ended. The external auditors are engaged to express an independent opinion on the annual financial statements and were given unrestricted access to all financial records and related data.

The annual financial statements have been prepared in accordance with Standards of Generally Recognised Accounting Practice (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board.

The annual financial statements are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The directors acknowledge that they are ultimately responsible for the system of internal financial control established by the NNR and place considerable importance on maintaining a strong control environment. To enable the directors to meet these responsibilities, the accounting authority sets standards for internal control aimed at reducing the risk of error or deficit in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the NNR and all employees are required to maintain the highest ethical standards in ensuring the NNR's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the NNR is on identifying, assessing, managing and monitoring all known forms of risk across the NNR. While operating risk cannot be fully eliminated, the NNR endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The directors are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the annual financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or deficit.

The directors have reviewed the NNR's cash flow forecast for the year to March 31, 2017 and, in the light of this review and the current financial position, they are satisfied that the NNR has access to adequate resources to continue in operational existence for the foreseeable future.

The NNR is significantly dependent on the revenue from authorisation holders for continued funding of operations. The annual financial statements are prepared on the basis that the NNR is a going concern and that the Department of Energy has neither the intention nor the need to liquidate or curtail materially the scale of the NNR.

Although the accounting authority is primarily responsible for the financial affairs of the NNR, it is supported by the NNR's internal auditors.

The external auditors are responsible for independently reviewing and reporting on the entity's annual financial statements. The annual financial statements have been examined by the entity's external auditors and their report is presented on page 103 to 105.

The annual financial statements set out on pages 111 to 141, which have been prepared on the going concern basis, were approved by the accounting authority on May 31, 2014 and were signed on its behalf by:



Dr T Cohen  
Chairperson of the Board



Dr B Tyobeka  
Chief Executive Officer



# REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT: NATIONAL NUCLEAR REGULATOR

## REPORT ON THE FINANCIAL STATEMENTS

### INTRODUCTION

1. I have audited the financial statements of the National Nuclear Regulator set out on pages 111 to 141, which comprise the statement of financial position as at 31 March 2014, the statement of financial performance, statement of changes in net assets, and cash flow statement for the year then ended, as well as the notes, comprising a summary of significant accounting policies and other explanatory information.

### ACCOUNTING AUTHORITY'S RESPONSIBILITY FOR THE FINANCIAL STATEMENTS

2. The accounting authority, is responsible for the preparation and fair presentation of these financial statements in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA), and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error

### AUDITOR-GENERAL'S RESPONSIBILITY

3. My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA), the general notice issued in terms thereof and International Standards on Auditing. Those standards require that I comply with ethical requirements, and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.
4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.
5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

### OPINION

6. In my opinion, the financial statements present fairly, in all material respects, the financial position of the National Nuclear Regulator at 31 March 2014 and its financial performance and cash flows for the year then ended, in accordance with (SA Standards of GRAP) and the requirements of the PFMA.

## REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

7. In accordance with the PAA and the general notice issued in terms thereof, I report the following findings on the reported performance information against predetermined objectives for selected objectives presented in the annual performance report, non-compliance with legislation as well as internal control. The objective of my tests was to identify reportable findings as described under each subheading but not to gather evidence to express assurance on these matters. Accordingly, I do not express an opinion or conclusion on these matters.

## PREDETERMINED OBJECTIVES

8. I performed procedures to obtain evidence about the usefulness and reliability of the reported performance information for the following selected objectives presented in the annual performance report of the public entity for the year ended 31 March 2014:
- To process applications for nuclear authorisations in a timely and accurate manner page 29.
  - To assure that holders have an effective Emergency Preparedness Plan page 29.
  - To benchmark and update safety standards and regulatory practices in line with national and international norms and requirements page 29.
  - To establish an independent verification capability for the NNR page 29.
  - To undertake regulatory research that ensures that the regulatory regime is strengthened page 29.
  - To ensure that the NNR is positioned to respond to initiatives relating to nuclear expansions page 29.
  - To provide assurance of safety performance of holders through inspections, audits, investigations and taking of enforcement action for identified non-compliance page 29.
  - To assure holders' compliance with regulatory requirements page 29.
  - To assure effective implementation of nuclear security measures by holders page 29.
9. I evaluated the reported performance information against the overall criteria of usefulness and reliability.
10. I evaluated the usefulness of the reported performance information to determine whether it was presented in accordance with the National Treasury's annual reporting principles and whether the reported performance was consistent with the planned objectives. I further performed tests to determine whether indicators and targets were well defined, verifiable, specific, measurable, time bound and relevant, as required by the National Treasury's Framework for managing programme performance information (FMPPi).
11. I assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
12. I did not raise any material findings on the usefulness and reliability of the reported performance information for the selected programmes

## ADDITIONAL MATTER

13. Although I raised no material findings on the usefulness and reliability of the reported performance information for the selected objectives, I draw attention to the following matters:

## ACHIEVEMENT OF PLANNED TARGETS

14. Refer to the annual performance report on page 28 to 42 for information on the achievement of the planned targets for the year.

## ADJUSTMENT OF MATERIAL MISSTATEMENTS

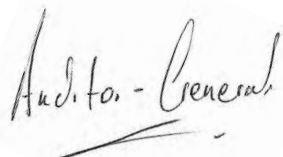
15. I identified material misstatements in the annual performance report submitted for auditing on the reported performance information for the selected objectives. As management subsequently corrected the misstatements, I did not raise any material findings on the usefulness and reliability of the reported performance information

## COMPLIANCE WITH LEGISLATION

16. I performed procedures to obtain evidence that the public entity had complied with applicable legislation regarding financial matters, financial management and other related matters. I did not identify any instances of material non-compliance with specific matters in key legislation, as set out in the general notice issued in terms of the PAA.

## INTERNAL CONTROL

17. I considered internal control relevant to my audit of the financial statements, annual performance report and compliance with legislation. I did not identify any significant deficiencies in internal control.



Pretoria  
31 July 2014



AUDITOR - GENERAL  
SOUTH AFRICA

*Auditing to build public confidence*

# AUDIT AND RISK MANAGEMENT COMMITTEE REPORT

It is with pleasure that we present this report for the financial year ended 31 March 2014.

## AUDIT AND RISK MANAGEMENT COMMITTEE MEMBERS AND ATTENDANCE

The Audit and Risk Management Committee comprises of the members listed on page 109 of the annual report, and is required to meet at least four times per annum, as per its approved terms of reference. During the period under review, the Committee met more than four times. The Committee members' meeting attendance is disclosed on page 110 of the annual report.

## RESPONSIBILITIES OF THE AUDIT AND RISK MANAGEMENT COMMITTEE

The Committee adopted appropriate formal terms of reference in its charter, which are in line with the requirements of Section 51(1)(a) of the Public Finance Management Act (Act 1 of 1999), and Treasury Regulation 27.1. The Committee also conducted its affairs in compliance with its charter. The charter was reviewed and approved by the Board.

The Committee's main duties and activities during the period under review may be summarised as follows:

## EFFECTIVENESS OF INTERNAL CONTROL

The system of internal control over the financial and operational activities, proved to be effective, efficient and transparent. In accordance with the PFMA and King III Report on Corporate Governance requirements, Internal Audit provided the Audit and Risk Management Committee and Management with the assurance that the internal controls were appropriate and effective.

This was achieved by means of the risk management process, as well as by the identification of corrective actions and the suggested enhancement of both controls and processes. From information gathered from reports received from the Auditor-General of South Africa, it was noted that no matters had been reported, indicating that there are no material deficiencies in the NNR system of internal control. Accordingly the Committee is in the position to report that, for the period under review, the system of internal control over financial reporting was reasonable, efficient and effective. A few areas as noted in the AGSA management letter will however be given attention by the executive in order to further strengthen the system of internal controls.

## EVALUATION OF FINANCIAL STATEMENTS

The Committee has:

- Reviewed and discussed the audited annual financial statements to be included in the annual report, with the Auditor-General of South Africa, as well as the Accounting Authority.
- Reviewed the Auditor-General of South Africa's audit and management report, as well as management's response to the report. Reviewed changes in accounting policies and practices.
- Reviewed adjustments resulting from the audit. The Committee concurs with, and accepts the Auditor-General of South Africa's report on the annual financial statements, and is of the opinion that the audited financial statements should be accepted.

## INTERNAL AUDIT

During the period under review, the NNR had an internal audit and risk management function that was assisted by an outsourced audit firm. The Committee approved the internal audit three year rolling strategic and annual plans and reviewed the quarterly reports. The head of internal audit had direct access to the chairpersons of both the Audit and Risk Management Committee and the Board of Directors. The Committee is satisfied with the performance of the internal audit activity in assisting to address the risks pertinent to the NNR.

## ENTERPRISE-WIDE RISK MANAGEMENT

The Committee reviewed the NNR's overall approach to risk management and control, as well as the risk management processes and practices, while specifically including the results of the risk management workshops which entailed:

Management strategies and initiatives in managing the risks facing the NNR; Periodic and year-end reports on the status of risk management within the NNR; and The review of the fraud and corruption prevention manual.

## PERFORMANCE INFORMATION

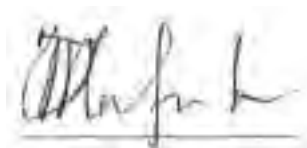
The committee reviewed the system on compiling performance information and considered the quarterly reports performance information. The committee is satisfied with the progress made by in improving the relevance, reliability and quality of performance information and concurs with the results of the Auditor General South Africa in this regard.

## AUDITOR-GENERAL OF SOUTH AFRICA

The Committee reviewed the scope and results of the external audit and its effectiveness. The Committee also met with representatives from the Auditor-General of South Africa to ensure that there were no unresolved issues.

## ASSESSMENT OF THE AUDIT AND RISK MANAGEMENT COMMITTEE

The Board of Directors evaluated the performance of the Committee and the Committee also conducted a self-assessment of its performance.



Mr. T Mofokeng CA (SA)

Chairperson:

Audit and Risk Committee Management Committee

# DIRECTORS' REPORT

The Directors have pleasure in submitting their report and the annual financial statements of the NNR for the year ended 31 March 2014.

## 1. INCORPORATION

The National Nuclear Regulator is listed as a national public entity in Schedule 3 Part A of the Public Finance Management Act, (Act 1. of 1999, as amended). It was established in terms of Section 3 of the National Nuclear Regulator Act, (Act No 47 of 1999). It is engaged in activities at the highest professional level to provide for the protection of persons, property and the environment against nuclear damage, through the establishment of safety standards and regulatory practices.

## 2. REVIEW OF ACTIVITIES

### MAIN BUSINESS AND OPERATIONS

The NNR is engaged in activities aimed at protecting persons, property and the environment against nuclear damage in South Africa.

## 3. GOING CONCERN

The annual financial statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

## 4. SUBSEQUENT EVENTS

The directors are not aware of any significant matter or circumstances affecting financial statements arising since the end of the financial year.

## 5. DIRECTORS' INTEREST IN CONTRACTS

All Directors have given general declarations of interest in terms of the NNR's Code of Conduct. These declarations indicate the nature of interest a director, spouse, partner or close family member holds in a Company, including any Directorship in a company classified as a related party to the NNR. No material contracts in which the Directors have an interest were entered into in the current financial year.

## 6. ACCOUNTING POLICIES

The annual financial statements are prepared in accordance with the South African Standards of the Generally Recognised Accounting Practice (GRAP), including any interpretations of such statements issued by the Accounting Practices Board, and in accordance with the prescribed Standards of Generally Recognised Accounting Practices (GRAP) issued by the Accounting Standards Board and the National Treasury.

# DIRECTORS' REPORT (CONT)

## 7. ACCOUNTING AUTHORITY

The Directors of the NNR during the year and to the date of this report are as follows:

| Name                                       | Nationality   | Changes                |
|--|---------------|------------------------|
| Dr T Cohen                                 | South African |                        |
| Mr T Mofokeng                              | South African |                        |
| Mr A Abader                                | South African |                        |
| Ms N Cobinnah (alternative to Mr A Abader) | South African | Resigned 01 April 2014 |
| Mr S Kakoma                                | South African |                        |
| Mr J Leaver                                | South African |                        |
| Mr N Lesufi                                | South African |                        |
| Mr K Maphoto                               | South African |                        |
| Mr S Mimi                                  | South African |                        |
| Ms E Monale (alternative to Mr K. Maphoto) | South African |                        |
| Dr T Motshudi                              | South African |                        |
| Prof. G Sibiya                             | South African | Resigned 01 April 2014 |

## 8. SECRETARY

The secretary of the NNR is Ms N Kote (Appointed 01 April 2014) of:

| Business address   |
|--|
| Eco Glades Office Park Eco Glades 2,<br>Block 6 Witch Hazel Avenue<br>Highveld Ext 75, Eco Park,<br>Centurion 0046 |
| Postal address   |
| P.o Box 7106 Centurion,<br>Eco Park Highveld Ext 75 Pretoria<br>0046   |

# ANNUAL FINANCIAL STATEMENTS

for the year ended March 31, 2014

## 9. CORPORATE GOVERNANCE

### BOARD OF DIRECTORS MEETINGS

The accounting authority has met on seven separate occasions during the financial year and schedules to meet at least four times per annum. The directors have access to all members of management of the NNR.

|   | Main Board Meeting | Audit and Risk Management Committee | Technical Committee | Transformation and Development Committee |
|---|--------------------|-------------------------------------|---------------------|--|
| <b>Number of meetings held</b>          | <b>7</b>           | <b>5</b>                            | <b>7</b>            | <b>5</b>                                 |
| Dr T Cohen (Chairperson)                | 7                  | -                                   | -                   | -  |
| Mr T Mofokeng (Deputy chairperson)      | 6                  | 4                                   | -                   | -  |
| Mr A Abader                             | 3                  | -                                   | -                   | -  |
| Ms N Cobinnah (Resigned-01-April-2014)  | 2                  | 1                                   | -                   | 2  |
| Mr S Kakoma                             | 7                  | 5                                   | -                   | -  |
| Mr J Leaver                             | 6                  | 4                                   | 7                   | 3  |
| Mr N Lesufi                             | 7                  | 4                                   | -                   | 5  |
| Mr K Maphoto                            | 4                  | -                                   | -                   | 3  |
| Dr T Motshudi                           | 5                  | -                                   | 7                   | -  |
| Mr S Mimi                               | 6                  | -                                   | -                   | 5  |
| Prof. G Sibiyi (Resigned-01-April-2014) | 5                  | -                                   | 7                   | -  |
| Independent Technical Committee member  |                    |                                     |                     |  |
| Dr B Sehlapelo                          | -                  | -                                   | 7                   | -  |

## 10. CONTROLLING ENTITY

The NNR's controlling entity is Department of Energy

## 11. BANKERS

ABSA Bank

## 12. AUDITORS

Auditor-General of South Africa will continue in office for the next financial period.



## STATEMENT OF FINANCIAL POSITION AS AT MARCH 31, 2014

| Figures in Rand                            | Note(s) | 2014               | 2013               |
|--|---------|--------------------|--------------------|
| <b>Assets</b>                              |         |                    |                    |
| <b>Current Assets</b>                      |         |                    |                    |
| Receivables from exchange transactions     | 7       | 8,884,764          | 9,466,785          |
| Receivables from non-exchange transactions |         | 236,975            | 84,894             |
| Cash and cash equivalents                  | 8       | 83,752,391         | 63,244,266         |
|  |         | 92,874,130         | 72,795,945         |
| <b>Non-Current Assets</b>                  |         |                    |                    |
| Property, plant and equipment              | 3       | 128,183,997        | 119,996,876        |
| Intangible assets                          | 4       | 1,581,339          | 1,986,254          |
|  |         | 129,765,336        | 121,983,130        |
| <b>Total Assets</b>                        |         | <b>222,639,466</b> | <b>194,779,075</b> |
| <b>Liabilities</b>                         |         |                    |                    |
| <b>Current Liabilities</b>                 |         |                    |                    |
| Other financial liabilities                | 10      | 7,118,915          | 6,630,793          |
| Operating lease liability                  | 5       | 65,450             | -                  |
| Payables from exchange transactions        | 12      | 6,278,920          | 2,664,556          |
| Provisions                                 | 11      | 11,236,275         | 8,839,448          |
|  |         | 24,699,560         | 18,134,797         |
| <b>Non-Current Liabilities</b>             |         |                    |                    |
| Other financial liabilities                | 10      | 65,000,359         | 72,410,711         |
| Operating lease liability                  | 5       | 2,111              | -                  |
| Employee benefit obligation                | 6       | 12,204,845         | 11,265,549         |
| Unspent conditional grants and receipts    | 9       | 31,057,374         | 29,557,320         |
|  |         | 108,264,689        | 113,233,580        |
| <b>Total Liabilities</b>                   |         | <b>132,964,249</b> | <b>131,368,377</b> |
| <b>Net Assets</b>                          |         | <b>89,675,217</b>  | <b>63,410,698</b>  |
| Accumulated surplus                        |         | 89,675,217         | 63,410,698         |

# ANNUAL FINANCIAL STATEMENTS

for the year ended March 31, 2014

## STATEMENT OF FINANCIAL PERFORMANCE

| Figures in Rand               | Note(s) | 2014                 | 2013                 |
|-------------------------------|---------|----------------------|----------------------|
| <b>Revenue</b>                |         |                      |                      |
| Authorisation fees            | 13      | 115,411,261          | 99,067,659           |
| Application fees              |         | 376,424              | 447,160              |
| Other income                  | 15      | 735,108              | 1,352,446            |
| Deferred Income               |         | 15,847,947           | 442,680              |
| Interest received             | 20      | 3,569,251            | 2,667,427            |
| Government grants             | 14      | 31,012,000           | 30,912,000           |
| <b>Total revenue</b>          |         | <b>166,951,991</b>   | <b>134,889,372</b>   |
| <b>Expenditure</b>            |         |                      |                      |
| Compensation of employees     | 18      | (87,890,857)         | (75,106,423)         |
| Depreciation and amortisation |         | (9,762,611)          | (9,153,676)          |
| Finance costs                 | 21      | (6,166,524)          | (4,652,517)          |
| Credit loss written off       | 19      | -                    | (226,051)            |
| Goods and services            | 16      | (36,867,475)         | (31,095,578)         |
| <b>Total expenditure</b>      |         | <b>(140,687,467)</b> | <b>(120,234,245)</b> |
| Operating surplus             | 17      | 26,264,524           | 14,655,127           |
| <b>Surplus for the year</b>   |         | <b>26,264,524</b>    | <b>14,655,127</b>    |

## STATEMENT OF CHANGES IN NET ASSETS

| Figures in Rand                  | Accumulated surplus | Total net assets  |
|----------------------------------|---------------------|-------------------|
| <b>Balance at April 01, 2012</b> | 48,755,571          | 48,755,571        |
| Changes in net assets            |                     |                   |
| Surplus for the year restated    | 14,655,127          | 14,655,127        |
| <b>Total changes</b>             | <b>14,655,127</b>   | <b>14,655,127</b> |
| <b>Balance at April 01, 2013</b> | 63,410,693          | 63,410,693        |
| Changes in net assets            |                     |                   |
| Surplus for the year             | 26,264,524          | 26,264,524        |
| <b>Total changes</b>             | <b>26,264,524</b>   | <b>26,264,524</b> |
| <b>Balance at March 31, 2014</b> | <b>89,675,217</b>   | <b>89,675,217</b> |

## CASH FLOW STATEMENT

| Figures in Rand   | Note(s) | 2014          | 2013          |
|---|---------|---------------|---------------|
| <b>Cash flows from operating activities</b>                   |         |               |               |
| <b>Receipts</b>   |         |               |               |
| Authorisation fees  |         | 116,886,008   | 119,994,168   |
| Government grants   |         | 48,360,000    | 42,912,000    |
| Interest income   |         | 3,569,251     | 2,667,427     |
| Application fees  |         | 376,424       | 447,160       |
| Other Income  |         | 257,119       | 8,199         |
|   |         | 169,448,802   | 166,028,954   |
| <b>Payments</b>   |         |               |               |
| Compensation of employees                                     |         | (84,554,734)  | (71,142,422)  |
| Goods & Services  |         | (33,775,237)  | (34,595,606)  |
| Finance costs   |         | (6,166,524)   | (4,652,517)   |
|   |         | (124,496,495) | (110,390,545) |
| Net cash flows from operating activities                      | 23      | 44,952,307    | 55,638,409    |
| <b>Cash flows from investing activities</b>                   |         |               |               |
| Purchase of property, plant and equipment                     | 3       | (17,014,941)  | (107,496,107) |
| Proceeds from sale of property, plant and equipment           | 3       | 53,388        | -             |
| Purchase of other intangible assets                           | 4       | (560,399)     | (554,672)     |
| Net cash flows from investing activities                      |         | (17,521,952)  | (108,050,779) |
| <b>Cash flows from financing activities</b>                   |         |               |               |
| (Decrease)/Increase on other financial liabilities            |         | (6,922,230)   | 79,041,504    |
| Net cash flows from financing activities                      |         | (6,922,230)   | 79,041,504    |
| <b>Net increase/(decrease) in cash and cash equivalents</b>   |         | 20,508,125    | 26,629,134    |
| <b>Cash and cash equivalents at the beginning of the year</b> |         | 63,244,266    | 36,615,133    |
| <b>Cash and cash equivalents at the end of the year</b>       | 8       | 83,752,391    | 63,244,267    |

## ACCOUNTING POLICIES

### I. PRESENTATION OF ANNUAL FINANCIAL STATEMENTS

The following are the principal accounting policies of the entity which are, in all material respects, consistent with those of the previous year.

The annual financial statements are prepared under the historical cost basis, except where otherwise specified. The annual financial statements are prepared in accordance with the South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) issued by the Accounting Standard Board, and in the manner required by the Public Finance Management Act, Act No.1 of 1999. These annual financial statements are presented in South African Rands.

Assets and liabilities or income and expenditure will not be offset, unless it is required or permitted by a standard.

#### I.1 SIGNIFICANT JUDGEMENTS AND SOURCES OF ESTIMATION UNCERTAINTY

In preparing the annual financial statements, management is required to make estimates and assumptions that affect the amounts represented in the annual financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the annual financial statements. Significant judgements include:

##### POST-EMPLOYMENT MEDICAL BENEFITS

The costs and liabilities of the post-employment medical care benefits are determined using methods relying on actuarial estimates and assumptions. Advice is taken from the independent actuaries relating to the appropriateness of the assumptions. Changes in the assumptions used may have a significant effect on the statement of comprehensive income and statement of financial position.

##### PROVISION FOR IMPAIRMENT OF RECEIVABLES

A provision for impairment of trade receivables is established when there is objective evidence that the NNR will not be able to collect all amounts due according to the original terms of receivables. The calculation of the amount to be provided for impairment of receivables requires the use of estimates and judgments, refer to note 7.

##### ANNUAL EVALUATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLES

In order to review property, plant and equipment and intangibles for possible impairment, changes in useful life and changes in residual values at the end of each financial year in accordance with notes 3 and 4, reference is made to historical information and intended use of assets.

The preparation of financial statements requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting periods. Although these estimates are based on management's best knowledge of current events and actions that the entity may undertake in the future, actual results may ultimately differ from those estimates.

The presentation of the results of operations, financial position and cash flows in the financial statements of the entity is dependent upon and is sensitive to the accounting policies, assumptions and estimates that are used as a basis for the preparation of these financial statements. Management has made certain judgments in the process of applying the entity's accounting policies.

## 1.2 REVENUE RECOGNITION

Revenue comprises authorisation fees and revenue from special projects. Revenue arising from authorisation fees which are published in the Gazette by the Minister on an annual basis is recognised on an accrual basis in accordance with the substance of the relevant arrangement with the licensed holders. Revenue from special projects is recognised in accordance with arrangements with authorisation holders.

## 1.3 GOVERNMENT GRANTS

Government grants are recognised in profit and loss when there is reasonable assurance that they will be received and that the entity will comply with the conditions associated with the grant.

## 1.4 PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment (owned and leased) is stated at historical cost less accumulated depreciation and adjustment for any impairments. Costs include those incurred initially to acquire an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it if it is probable that future economic benefits associated with the replacement will flow to the NNR and the cost can be measured reliably. If a replacement cost is recognised in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognised. Estimates are mainly based on historical information relating to use of the asset.

The depreciation charge for each period is recognised in surplus or deficit. The assets' residual values, useful lives and depreciation methods are reviewed, and adjusted if appropriate, at each reporting date. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

The gains or losses arising from derecognition of an item of property, plant and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item

Depreciation is calculated on the straight-line method to write off the cost, less residual value, of each asset over their estimated useful lives as follows:

The useful lives of items of property, plant and equipment have been assessed as follows:

| ITEM                   | AVERAGE USEFUL LIFE |
|------------------------|---------------------|
| Land                   | Not depreciated     |
| Buildings              | 20 Years            |
| Furniture and fixtures | 10-25 Years         |
| Motor vehicles         | 4-5 Years           |
| Office equipment       | 5-25 Years          |
| IT equipment           | 3-5 Years           |

## ACCOUNTING POLICIES

|                        |                      |
|------------------------|----------------------|
| Leasehold improvements | Over period of lease |
| Scientific equipment   | 5 Years              |

### 1.5 INTANGIBLE ASSETS

#### RESEARCH AND DEVELOPMENT

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in the Statement of Financial Performance as an expense in the period incurred.

Expenditure on development activities, whereby research findings are applied to a plan or design for the production of new or substantially improved products and processes, is capitalised if the development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the entity has sufficient resources to complete development, and to use or sell the asset. The expenditure capitalised includes the cost of materials, direct labour and an appropriate proportion of overheads. Capitalised development expenditure is stated at cost less accumulated amortisation and impairment losses.

#### COMPUTER SOFTWARE

Acquired computer software licences are capitalised on the basis of the costs incurred to acquire and bring to use the specific software. Estimates are mainly based on historical information relating to use of the asset and all residual values are nil.

Amortisation is charged to the Statement of Financial Performance on a straight-line basis over the estimated useful lives of intangible assets.

| Item                     | Useful life |
|--------------------------|-------------|
| Computer software, other | 1-3 Years   |

The gains or losses arising from derecognition of an item of intangible asset is included in surplus or deficit when the item is derecognised. The gain or loss arising from derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

### 1.6 SUBSEQUENT EXPENDITURE

Subsequent expenditure on item of property plant and equipment and intangible assets is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure is recognised in the Statement of Financial Performance as an expense when incurred.

### 1.7 IMPAIRMENT OF NON-FINANCIAL ASSETS

Assets are assessed at the end of each reporting period for any indication that they may be impaired. If indications exist, the recoverable amount of the asset is estimated. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. The NNR assesses at each reporting date whether there is any indication

that an impairment loss recognised in prior periods for assets may no longer exist or may have decreased. If any such indication exists, the recoverable amounts of those assets are estimated. The increased carrying amount of an asset attributable to a reversal of an impairment loss does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset in prior years. A reversal of an impairment loss of assets carried at cost less accumulated depreciation or amortisation is recognised immediately in Statement of Financial Performance.

## I.8 FINANCIAL INSTRUMENTS

### RECOGNITION AND INITIAL MEASUREMENT

All financial instruments are initially recognised at fair value, plus, in the case of financial assets and liabilities not at fair value through surplus or deficit, transaction costs that are directly attributable to the acquisition or issue. Financial instruments are recognised when the entity becomes a party to their contractual arrangements. All regular way transactions are accounted for on settlement date. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the period generally established by regulation or convention in the market place.

### DERECOGNITION

Financial assets are derecognised when the contractual rights to receive cash flows have been transferred or have expired or when substantially all the risks and rewards of ownership have passed. All other assets are derecognised on disposal or when no future economic benefits are expected from their use.

Financial liabilities are derecognised when the relevant obligation has either been discharged or cancelled or has expired.

### SUBSEQUENT MEASUREMENT.

Subsequent to initial recognition, the entity classifies financial assets as 'at fair value through surplus or deficit', 'held-to-maturity investments', 'loans and receivables', or 'available-for-sale'.

### GAINS AND LOSSES

Gains or losses arising from changes in financial assets or financial liabilities carried at amortised cost are recognised in Statement of Financial Performance when the financial asset or financial liability is derecognised or impaired, and through the amortisation process.

### FINANCIAL ASSETS

The NNR classifies its financial assets into one of the categories discussed below, depending on the purpose for which the asset was acquired. The NNR has not classified any of its financial assets as held to maturity, fair value through profit and loss or available for sale.

The accounting policy for each category is as follows:

## ACCOUNTING POLICIES

### LOANS AND RECEIVABLES

These assets are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They arise principally through the provision of services to licensed holders. They are initially recognised at fair value plus transaction costs that are directly attributable to their acquisition or issue, and are subsequently carried at amortised cost less provision for impairment.

Impairment provisions are recognised when there is objective evidence (such as significant financial difficulties on the part of the counterpart or default or significant delay in payment) that the NNR will be unable to collect all of the amounts due under the terms receivable. Trade receivables, which are reported net of such provisions, are recorded in a separate allowance account with the loss being recognised within operational expenditure in the Statement of Financial Performance. On confirmation that the trade receivable will not be collectable, the gross carrying value of the asset is written off against the associated provision. The loans and receivables comprise trade and other receivables at reporting date.

### CASH AND CASH EQUIVALENTS

Cash and cash equivalents comprise cash on hand and other short term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. Cash and cash equivalents include cash on hand and deposits held at call..

### FINANCIAL LIABILITIES

Bank borrowings are initially recognised at fair value net of any transaction costs directly attributable to the issue of the instrument. Such interest-bearing liabilities are subsequently measured at amortised cost using the effective interest rate method, which ensures that any interest expense over the period to repayment is at a constant rate on the balance of the liability carried in the statement of financial position. Trade payables are initially recognised at fair value and subsequently carried at amortised cost using the effective interest method

## 1.9 ACCOUNTING FOR LEASES

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership to the lessee. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership to the lessee.

### FINANCE LEASES - LESSEE

Finance leases are recognised as assets and liabilities in the statement of financial position at amounts equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding liability to the lessor is included in the statement of financial position as a finance lease obligation.

The discount rate used in calculating the present value of the minimum lease payments is the interest rate implicit in the lease. The lease payments are apportioned between the finance charge and reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate on the remaining balance of the liability.



## OPERATING LEASES - LESSEE

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease liability. This liability is not discounted. Any contingent rents are expensed in the period in which they are incurred.

## 1.10 EMPLOYEE BENEFITS

The NNR provides defined benefit plans for certain post-retirement benefits. The entity's net obligation in respect of defined benefits is calculated by estimating the amount of future benefits earned in return for services rendered. The obligation and assets related to each of the post-retirement benefits are determined through an actuarial valuation. The assumptions determined by management make use of information obtained from the entity's employment agreements with staff and pensioners, market related returns on similar investments, and market related discount rates and other available information. The assumptions concerning the expected return on asset and expected change in liabilities are determined on a uniform basis, considering long-term historical returns and future estimates of returns and medical inflation expectations. In the event that further changes in assumptions are required, the future amounts of post-retirement benefits may be affected materially.

The overall expected rate of return on asset is determined based on the market prices prevailing at that date, applicable to the period over which the obligation is to be settled.

## POST-EMPLOYMENT BENEFITS

The NNR provides defined benefit and defined contribution plans for the benefit of employees. These plans are funded by the employees and the entity, taking into account recommendations of the independent actuaries. The post-retirement medical liability is unfunded.

## DEFINED CONTRIBUTION PLANS

The entity's funding of the defined contribution plans is charged to employee expenses in the same year as the related service is provided.

## DEFINED BENEFIT PLANS

The entity provides defined benefit plans for retirement and post-retirement medical aid benefits to qualifying employees. The entity's net obligation in respect of defined benefits is calculated separately for each plan by estimating the amount of future benefits earned in return for services rendered.

The amount recognised in the statement of financial position represents the present value of the defined benefit obligations, calculated by using the projected unit credit method, as adjusted for unrecognised actuarial gains and losses, unrecognised past service costs, if any, and reduced by the fair value of the related plan assets.

The amount of any surplus recognised and reflected as deferred expenses is limited to unrecognised actuarial losses and past service costs plus the present value of available refunds and reductions in future contributions to the plan. To the extent that there is uncertainty as to the entitlement to the surplus, no asset is recognised. No gain is recognised solely as a result of an actuarial loss or past service cost in the current period and no loss is recognised solely as a result of an actuarial gain or past service cost in the current period. The entity recognises actuarial gains and losses for all its defined plans in the period in which they occur.

Past service costs are recognised immediately to the extent that the benefits are vested, otherwise they are recognised on a straight-line basis over the average period the benefits become vested.

# ANNUAL FINANCIAL STATEMENTS

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## SHORT TERM EMPLOYEE BENEFIT

The cost of all short term Employee benefits is recognised during the period in which the employee renders the related service. Provision for employee's entitlement to annual leave represents a present obligation which NNR has to pay as a result of employee's services provided to the reporting date. Annual leave is provided for over the period that the leave accrues.

## 1.11 PROVISIONS AND CONTINGENCIES

Management judgment is required when recognising and measuring provisions and when measuring contingent liabilities as set out in Notes 11 and 25 respectively. The probability that an outflow of economic resources will be required to settle the obligation must be assessed and a reliable estimate must be made of the amount of the obligation.

The entity is required to recognise provisions for claims arising from litigation when the occurrence of the claim is probable and the amount of the loss can be reasonably estimated. Liabilities provided for legal matters require judgments regarding projected outcomes and ranges of losses based on historical experience and recommendations of legal counsel. Litigation is however unpredictable and actual costs incurred could differ materially from those estimated at the reporting date.

## 1.12 GOING CONCERN ASSUMPTION

The financial statements have been prepared on a going concern assumption that the entity will continue in operation for the foreseeable future.

## 1.13 RELATED PARTIES

Parties are considered to be related if one party has the ability to control the other party or to exercise significant influence or joint control over the other party in making financial and operating decisions.

## 1.14 COMPARATIVE FIGURES

Comparative figures are restated in the event of a change in accounting policy or prior period error..

## 1.15 IRREGULAR, FRUITLESS AND WASTEFUL EXPENDITURE

Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, a requirement of any applicable legislation, including the PFMA. Fruitless and Wasteful expenditure means expenditure that was made in vain and would have been avoided had reasonable care been exercised. All irregular, and fruitless and wasteful expenditure is charged against income in the period in which it is incurred.

## 1.16 FOREIGN CURRENCIES

Transactions in foreign currencies are accounted for at the rates of exchange ruling on the date of the transactions. Gains and losses arising from the settlement of such transactions are recognised in the income statement.

## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## 1.17 INTEREST RECEIVED

Interest is recognised on a time proportionate basis taking into account the principal amount outstanding and the effective interest rate.

## 1.18 BUDGET INFORMATION

GRAP 1, Presentation of Financial Statements, requires entities to provide information on their actual performance against the entity's approved budget. A reconciliation to ensure full compliance with GRAP1 is included as a disclosure note to the financial statements.

## 2. CHANGES IN ACCOUNTING POLICY

The annual financial statements have been prepared in accordance with Standards of Generally Recognised Accounting Practice on a basis consistent with the prior year.

## 3. PROPERTY, PLANT AND EQUIPMENT

|                        | 2014             |   | 2013              |                       |   |                   |
|------------------------|------------------|---|-------------------|-----------------------|---|-------------------|
|                        | Cost / Valuation | Accumulat-<br>ed depre-<br>ciation and<br>accumulated<br>impairment | Carrying<br>value | Cost / Valu-<br>ation | Accumulat-<br>ed depre-<br>ciation and<br>accumulated<br>impairment | Carrying<br>value |
| Land                   | 213,750          | -   | 213,750           | 213,750               | -   | 213,750           |
| Buildings              | 112,283,493      | (11,945,602)  | 100,337,891       | 112,283,493           | (6,411,086)   | 105,872,407       |
| Furniture and fixtures | 4,283,122        | (730,794)   | 3,552,328         | 4,162,066             | (543,659)   | 3,618,407         |
| Motor vehicles         | 210,848          | (186,947)   | 23,901            | 210,848               | (163,047)   | 47,801            |
| Office equipment       | 8,180,120        | (3,769,188)   | 4,410,932         | 8,042,663             | (2,642,988)   | 5,399,675         |
| IT equipment           | 9,561,468        | (5,971,049)   | 3,590,419         | 8,295,460             | (5,020,725)   | 3,274,735         |
| Leasehold improvements | 4,526,839        | (49,609)  | 4,477,230         | 442,680               | -   | 442,680           |
| Laboratory equipment   | 13,909,310       | (2,331,764)   | 11,577,546        | 3,019,228             | (1,891,807)   | 1,127,421         |
| Total                  | 153,168,950      | (24,984,953)  | 128,183,997       | 136,670,188           | (16,673,312)  | 119,996,876       |

## RECONCILIATION OF PROPERTY, PLANT AND EQUIPMENT - 2014

|                        | Opening balance | Additions  | Disposals | Depreciation | Total       |
|------------------------|-----------------|------------|-----------|--------------|-------------|
| Land                   | 213,750         | -          | -         | -            | 213,750     |
| Buildings              | 105,872,407     | -          | -         | (5,534,516)  | 100,337,891 |
| Furniture and fixtures | 3,618,407       | 121,056    | -         | (187,135)    | 3,552,328   |
| Motor vehicles         | 47,801          | -          | -         | (23,900)     | 23,901      |
| Office equipment       | 5,399,675       | 137,456    | -         | (1,126,199)  | 4,410,932   |
| IT equipment           | 3,274,735       | 1,782,190  | (30,526)  | (1,435,980)  | 3,590,419   |
| Leasehold improvements | 442,680         | 4,084,159  | -         | (49,609)     | 4,477,230   |
| Laboratory equipment   | 1,127,421       | 10,890,080 | -         | (439,955)    | 11,577,546  |
|                        | 119,996,876     | 17,014,941 | (30,526)  | (8,797,294)  | 128,183,997 |

# ANNUAL FINANCIAL STATEMENTS

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## RECONCILIATION OF PROPERTY, PLANT AND EQUIPMENT - 2013

|                        | Opening balance | Additions   | Disposals | Transfers In | Transfer Out | Depreciation | Total       |
|------------------------|-----------------|-------------|-----------|--------------|--------------|--------------|-------------|
| Land                   | 213,750         | -           | -         | -            | -            | -            | 213,750     |
| Buildings              | 64,125          | 105,316,870 | -         | 4,584,931    | -            | (4,093,519)  | 105,872,407 |
| Furniture and fixtures | 3,650,049       | 30,219      | -         | 123,101      | -            | (184,962)    | 3,618,407   |
| Motor vehicles         | 100,513         | -           | -         | -            | -            | (52,712)     | 47,801      |
| Office equipment       | 6,010,654       | 362,840     | (2,633)   | 333,523      | (177,901)    | (1,126,808)  | 5,399,675   |
| IT equipment           | 4,833,639       | 547,596     | (41,655)  | -            | (326,911)    | (1,737,934)  | 3,274,735   |
| Leasehold improvements | 4,757,950       | 755,414     | -         | -            | (4,584,931)  | (485,753)    | 442,680     |
| Laboratory equipment   | 1,201,238       | 483,168     | -         | -            | -            | (556,985)    | 1,127,421   |
|                        | 20,831,918      | 107,496,107 | (44,288)  | 5,041,555    | (5,089,743)  | (8,238,673)  | 119,996,876 |

Included in the value of property, plant and equipment are the following properties:

The NNR owns an Office building located at Erf 3078 in Highveld, Centurion, Gauteng and Land & Building located at Erf 3187 in Melkbosch Strand in the Blaauwburg Municipality, Western Cape.

## 4. INTANGIBLE ASSETS

|                          | 2014             |   | Carrying value | 2013             |   | Carrying value |
|--------------------------|------------------|---|----------------|------------------|---|----------------|
|                          | Cost / Valuation | Accumulated amortisation and accumulated impairment |                | Cost / Valuation | Accumulated amortisation and accumulated impairment |                |
| Computer software, other | 4,451,060        | (2,869,721)   | 1,581,339      | 3,890,661        | (1,904,407)   | 1,986,254      |

## RECONCILIATION OF INTANGIBLE ASSETS - 2014

|                          | Opening balance | Additions | Amortisation | Total     |
|--------------------------|-----------------|-----------|--------------|-----------|
| Computer software, other | 1,986,254       | 560,399   | (965,314)    | 1,581,339 |

## RECONCILIATION OF INTANGIBLE ASSETS - 2013

|                          | Opening balance | Additions | Transfer In | Transfer out | Amortisation | Total     |
|--------------------------|-----------------|-----------|-------------|--------------|--------------|-----------|
| Computer software, other | 2,298,400       | 554,672   | 56,510      | (8,322)      | (915,006)    | 1,986,254 |

## 5. OPERATING LEASE LIABILITY

|                         |  |  |  |  |        |   |
|-------------------------|--|--|--|--|--------|---|
| Non-current liabilities |  |  |  |  | 2,111  | - |
| Current liabilities     |  |  |  |  | 65,450 | - |
|                         |  |  |  |  | 67,561 | - |

## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

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The National Nuclear Regulator rents a laboratory space for independent environmental sample analysis at Agriculture Research Council for period of three years with renewal option. A lease agreement was entered into between the the National Nuclear Regulator and Agriculture Research Council effective 01 April 2013 and will be expiring on 31 March 2017. Monthly rental amounts to R 52 782 and allows for annual escalation of 10% per annum, total lease expense for the year amounts to R 633 384 . Equalisation of operating lease expense resulted on deferred lease liability amounting to R 67 561.

## 6. EMPLOYEE BENEFIT OBLIGATIONS DEFINED BENEFIT PLAN

The NNR has made provision for post employment medical benefit covering 12 employees in 2014.

The actuarial valuation was determined by Independent Actuarial Consultants (Pty) Ltd, who are registered with Actuary Society of South Africa. Valuation has been performed in accordance with GRAP 25 on the 24th April 2014.

### POST RETIREMENT MEDICAL AID PLAN

The NNR makes certain contributions to medical funds in respect of current and retired employees. The NNR has terminated future post-retirement medical aid benefits in respect of employees joining after 31 December 1995. The NNR pays 100% of the membership subscriptions for staff members who had retired from the services of the NNR (The Council for Nuclear Safety) on or before 30 July 1990 and also for those staff members retiring from the services of the NNR on or after 01 July 1990, who were in the continuous employment of the NNR before 01 July 1990 to the date of retirement.

The NNR introduced a sliding scale for membership subscriptions for staff joining after 01 July 1990. Subsidy reduced step wise from 100% to a minimum of 60% for employees that joined the NNR after 01 July 1990 and 31 December 1995. Eligible employees must be employed by the NNR until retirement age to qualify for the post retirement medical aid benefit. The most recent actuarial valuation of the benefit was performed at 31 March 2014.

The amounts recognised in the statement of financial position are as follows:

| CARRYING VALUE  |              |              |
|---|--------------|--------------|
| Present value of the defined benefit obligation-wholly unfunded         | (12,204,845) | (11,265,549) |
| Present value of the defined benefit obligation-partly or wholly funded | (63,306,000) | (63,977,000) |
| Fair value of plan assets   | 64,732,000   | 65,757,000   |
| Asset not recognised  | (1,426,000)  | (1,780,000)  |
|   | (12,204,845) | (11,265,549) |

### THE MAJOR CATEGORIES OF PLAN ASSETS AS A PERCENTAGE OF TOTAL PLAN ASSETS ARE AS FOLLOWS:

|                          |           |             |
|--------------------------|-----------|-------------|
| Equity                   | 70.00 %   | 70.00 %     |
| Bonds                    | 30.00 %   | 30.00 %     |
| Current service cost     | 126,418   | 114,000     |
| Interest cost            | 819,143   | 1,094,000   |
| Actuarial (gains) losses | 580,145   | (213,879)   |
| Benefits paid            | (586,410) | (2,783,572) |
|                          | 939,296   | (1,789,451) |

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| ACTUAL RETURN ON PLANNED ASSETS         |           |            |
|---|-----------|------------|
| Expected return on planned assets       | 6,357,000 | 5,314,000  |
| Actuarial gain (loss) on planned assets | 720,000   | 9,379,000  |
|   | 7,077,000 | 14,693,000 |

| CALCULATION OF ACTUARIAL GAINS AND LOSSES |             |              |
|---|-------------|--------------|
| Actuarial (gains) losses – Obligation     | (1,705,000) | (13,625,000) |
| Actuarial (gains) losses – Plan assets    | 720,000     | 9,379,000    |
|   | (985,000)   | (4,246,000)  |

### 6.1 POST RETIREMENT PENSION BENEFIT PLAN

| CHANGES IN THE PRESENT VALUE OF THE DEFINED BENEFIT OBLIGATIONS ARE AS FOLLOWS: |             |             |
|---|-------------|-------------|
| Opening balance   | 63,977,000  | 46,142,000  |
| Interest cost   | 5,208,000   | 3,769,000   |
| Current service cost  | 486,000     | 629,000     |
| Past service cost   | -           | 3,041,000   |
| Benefits paid   | (4,660,000) | (3,229,000) |
| Actuarial (gain) losses   | (1,705,000) | 13,625,000  |
| Closing Balance   | 63,306,000  | 63,977,000  |

| CHANGES IN FAIR VALUE OF PLANNED ASSETS ARE AS FOLLOWS: |             |             |
|---|-------------|-------------|
| Opening fair value of planned assets                    | 65,757,000  | 53,721,000  |
| Expected return on planned assets                       | 6,357,000   | 5,314,000   |
| Contributions by employers                              | 349,000     | 397,000     |
| Contribution by participants                            | 154,000     | 175,000     |
| Benefits paid   | (4,660,000) | (3,229,000) |
| Actuarial (gain) losses                                 | 720,000     | 9,379,000   |
| Adjustment to opening balance                           | (3,945,000) | -           |
| Closing Balance   | 64,732,000  | 65,757,000  |

During the current financial period the actuary has revised the estimated value of assets relating to a post retirement benefit obligations covering 12 employees, the change in estimated value of assets is as a result of understatement of of assets and liabilities relating to defined contribution plan. The effect of adjustment on current period is a decrease on opening fair value of planned assets disclosed on note 6.1 above relating to post retirement defined benefit plan amounting to R 3 945 000.

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## 6. EMPLOYEE BENEFIT OBLIGATIONS (CONTINUED)

| KEY ASSUMPTIONS USED                    |         |         |
|---|---------|---------|
| Assumptions used at the reporting date: |         |         |
| Discount rates used                     | 9.20 %  | 8.40 %  |
| Expected rate of return on assets       | 11.00 % | 10.60 % |
| General inflation                       | 7.00 %  | 6.60 %  |
| Salary inflation                        | 8.00 %  | 7.60 %  |
| Pension increase                        | 4.00 %  | 4.00 %  |
| Funding levels                          | 102%    | 103%    |

## 6.2 POST RETIREMENT MEDICAL AID BENEFIT OBLIGATION

| CHANGES IN PRESENT VALUE OF THE DEFINED BENEFITS ARE AS FOLLOWS:    |            |             |
|---|------------|-------------|
| Opening defined benefit obligation                                  | 11,265,549 | 13,055,000  |
| Interest cost   | 819,143    | 1,094,000   |
| Current service cost  | 126,418    | 114,000     |
| Benefits paid   | (586,410)  | (2,783,572) |
| Actual (gain) losses recognised in statement of finance performance | 580,145    | (213,879)   |
| Closing Balance   | 12,204,845 | 11,265,549  |

| ACTUARIAL PRINCIPAL ASSUMPTION USED AT THE REPORTING DATE |       |       |
|---|-------|-------|
| Discount rate used  | 9 %   | 8 %   |
| Medical inflation rate                                    | 8 %   | 7 %   |
| General inflation   | 7 %   | 5 %   |
| Post retirement interest rate                             | 1 %   | - %   |
| Proportion of continuing membership at retirement         | 100 % | 100 % |
| Proportion of retiring member who are married             | 90 %  | 90 %  |
|   | -     | -     |

|  |   |   |
|--|---|---|
| Age of spouse                            | In service members:<br>Husbands 3 years older<br>than wives | In service members:<br>Husbands 3 years older<br>than wives |
|  | Retirement age<br>of members - 65                           | Retirement age<br>of members- 65                            |
| Mortality of in-service members          | SA SA85-90 (L)  | SA SA85-90 (L)  |
| Mortality of continuation members        | PA (90)-2 Years   | PA (90)-2 Years   |
| Annual rate of withdrawal - from age 55+ | - %   | 2.50 %  |
| Number of members in active employment   | 3   | 4   |
| Number of pensioners                     | 9   | 8   |
|  | 12  | 12  |
| Average retirement age                   | 60  | 60  |

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|-----------------|------|------|
|-----------------|------|------|

### 6. EMPLOYEE BENEFIT OBLIGATIONS (CONTINUED)

The most significant assumption are those relating to the discount rate and medical inflation. It is the relationship between surplus these assumptions that is important for the purpose of the calculations rather than their absolute values. Assumed healthcare cost trends rates have a significant effect on the amounts recognised in NNR or deficit. A one percentage point change in assumed healthcare cost trends rates would have the following effects:

|   | One percentage point increase | One percentage point decrease |
|---|-------------------------------|-------------------------------|
| Effect on the aggregate of the service cost and interest cost-Medical inflation | 557,420                       | (481,101)                     |

|  |            |            |
|--|------------|------------|
| Percentage change effect on aggregate of service and interest cost-Medical inflation | 9          | 7          |
| Effect on defined benefit obligation-Medical inflation                               | 12,762,265 | 11,723,744 |
| Percentage change effect on defined benefit obligation-Medical inflation             | 1          | 1          |
| Effect on the aggregate of the service cost and interest cost-Discount rate          | 472,169    | 556,312    |
| Percentage change effect on aggregate of service and interest cost-Discount rate     | 10         | 8          |
| Effect on defined benefit obligation-Discount rate                                   | 11,732,676 | 12,761,157 |
| Percentage change effect on defined benefit obligation-Discount rate                 | 1          | 1          |

#### AMOUNTS FOR THE CURRENT AND PREVIOUS FOUR YEARS ARE AS FOLLOWS:

|  | 2014<br>R  | 2013<br>R  | 2012<br>R  | 2011<br>R   | 2010<br>R  |
|--|------------|------------|------------|-------------|------------|
| Defined benefit obligation                 | 12,204,845 | 11,265,549 | 13,055,000 | 5,877,654   | 33,360,650 |
| Experience adjustments on plan liabilities | 580,145    | (213,879)  | 6,960,000  | (4,773,000) | 1,970,000  |

### DEFINED CONTRIBUTION PLAN

It is the policy of the NNR to provide retirement benefits to all its employees. A defined contribution pension fund, which is subject to the Pensions Fund Act exist for this purpose. The NNR is under no obligation to cover any unfunded benefits.



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## 6. EMPLOYEE BENEFIT OBLIGATIONS (CONTINUED)

The amount recognised as an expense for defined contribution plans is

8,641,932

7,549,535

## 7. RECEIVABLES FROM EXCHANGE TRANSACTIONS

| RECEIVABLES FROM EXCHANGE TRANSACTIONS |                  |                  |
|--|------------------|------------------|
| Trade debtors                          | 8,066,019        | 8,800,156        |
| Staff advance                          | 214,187          | 297,150          |
| Deposits & Prepayments                 | 604,558          | 369,479          |
|  | <b>8,884,764</b> | <b>9,466,785</b> |

## TRADE AND OTHER RECEIVABLES PAST DUE BUT NOT IMPAIRED

Trade and other receivables which are less than 12 months past due are not considered to be impaired. At March 31, 2014, R 8,066,027 (2013: R 9,111,091) were past due date but not impaired.

## THE AGEING OF AMOUNTS PAST DUE BUT NOT IMPAIRED IS AS FOLLOWS:

|                   |           |           |
|-------------------|-----------|-----------|
| 1 month past due  | 6,064,212 | 8,800,155 |
| 2 months past due | -         | 310,935   |
| 5 months past due | 17,956    | -         |
| 8 months past due | 1,939,087 | -         |
| 9 months past due | 44,772    | -         |

## TRADE AND OTHER RECEIVABLES IMPAIRED

As of March 31, 2014, trade and other receivables of R 1,366,348 (2013: R 1,812,302) were impaired and provided for.

## THE AGEING OF THESE RECEIVABLES IS AS FOLLOWS:

|                |           |           |
|----------------|-----------|-----------|
| Over 4 months  | -         | 1,812,302 |
| Over 12 Months | 1,366,348 | -         |

## RECONCILIATION OF PROVISION FOR IMPAIRMENT OF TRADE AND OTHER RECEIVABLES

|                                      |                  |                  |
|--------------------------------------|------------------|------------------|
| Opening balance                      | 1,812,302        | 3,156,549        |
| Amounts written off as uncollectable | -                | (226,051)        |
| Unused amounts reversed              | (445,954)        | (1,118,196)      |
|                                      | <b>1,366,348</b> | <b>1,812,302</b> |

The creation and release of provision for impaired receivables have been included in operating expenses in the NNR surplus or deficit (note 15). Amounts charged to the allowance account are generally written off when there is no expectation of recovering additional cash.

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### 8. CASH AND CASH EQUIVALENTS

| CASH AND CASH EQUIVALENTS CONSIST OF: |                   |                   |
|---------------------------------------|-------------------|-------------------|
| Cash on hand                          | 2,859             | 7,500             |
| Bank balances                         | 772,708           | 3,178,044         |
| Short-term deposits                   | 82,976,824        | 60,058,722        |
|                                       | <b>83,752,391</b> | <b>63,244,266</b> |

- Included in the cash balance above is R 31 million unspent conditional grant, refer to note 9 for more details

### 9. UNSPENT CONDITIONAL GRANTS AND RECEIPTS

**Unspent conditional grants and receipts comprises of:**

| UNSPENT CONDITIONAL GRANTS AND RECEIPTS |                   |                   |
|---|-------------------|-------------------|
| Government grant                        | 31,057,374        | 29,557,320        |
| Movement during the year                |                   |                   |
| Balance at the beginning of the year    | 29,557,320        | 18,000,000        |
| Additions during the year               | 17,348,000        | 12,000,000        |
| Income recognition during the year      | (15,847,946)      | (442,680)         |
|   | <b>31,057,374</b> | <b>29,557,320</b> |

- The NNR was granted R 18 million earmarked for establishment and commissioning of the Environmental Radioactivity Analytical Laboratory to be used for independent sample analysis. The total amount of R 15 539 338 was disbursed during the current financial year bringing the total spent to R 15 982 017. The remaining amount was committed to the final stages of the project at year end.
- The establishment of Regulatory Emergency Control Centre initiated during the previous financial year is under way. An amount of R 19 million is allocated to this project, R 14.9 million of this amount was committed as at the end of financial year.
- The process of providing adequate office space for the Cape Town site office was delayed due to due diligence process that took longer than anticipated. The NNR is in the process of acquiring the services of transaction advisor for the project. This project is allocated R 10 million.

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## 10. OTHER FINANCIAL LIABILITIES

| AT AMORTISED COST   |                   |                   |
|---|-------------------|-------------------|
| Re-imburement agreement   | 3,900,000         | 5,100,000         |
| An agreement between NNR & Faerie Glen Waterpark (Pty) Ltd exists for re-imburement of tenant installation cost incurred by Faerie Glen Waterpark (Pty). The re-imburement is repayable on monthly instalment of R 100 000 over the period of five years effective from 22 June 2012 and final settlement due on the 07 June 2017. The liability bears no interest. |                   |                   |
| Mortgage bond   | 68,219,274        | 73,941,504        |
| ABSA mortgage bond loan is repayable on monthly instalments of R 991 101 effective 22 June 2012 over the next 10 years and final settlement due 07 June 2022. The loan bears interest at a variable rate of 8.5% per annum. The effective interest rate for the year is 9%.   |                   |                   |
|   | <b>72,119,274</b> | <b>79,041,504</b> |
| Total other financial liabilities   | <b>72,119,274</b> | <b>79,041,504</b> |
| Non-current liabilities   |                   |                   |
| At amortised cost   | 65,000,359        | 72,410,711        |
| Current liabilities   |                   |                   |
| At amortised cost   | 7,118,915         | 6,630,793         |

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### 11. PROVISIONS

| RECONCILIATION OF PROVISIONS - 2014 |                 |           |                          |            |
|-------------------------------------|-----------------|-----------|--------------------------|------------|
|                                     | Opening Balance | Additions | Utilised during the year | Total      |
| Annual Leave                        | 4,943,482       | 1,106,799 | -                        | 6,050,281  |
| Annual performance bonus            | 3,895,966       | 5,152,931 | (3,862,903)              | 5,185,994  |
|                                     | 8,839,448       | 6,259,730 | (3,862,903)              | 11,236,275 |

| RECONCILIATION OF PROVISIONS - 2013 |                 |           |                          |           |
|-------------------------------------|-----------------|-----------|--------------------------|-----------|
|                                     | Opening Balance | Additions | Reversed during the year | Total     |
| Annual Leave                        | 4,875,440       | 68,042    | -                        | 4,943,482 |
| Performance Bonus                   | -               | 3,895,966 | -                        | 3,895,966 |
| Other provisions                    | 150,000         | -         | (150,000)                | -         |
|                                     | 5,025,440       | 3,964,008 | (150,000)                | 8,839,448 |

#### PROVISION FOR ANNUAL LEAVE

The leave provision represents management's best estimate of the NNR's liability for leave provision based on the NNR approved leave policy. Leave provision represents the amount due to employees for unutilised leave days accrued for services rendered to the NNR as of 31 March 2014. The NNR cannot determine the number of leave days to be utilised or forfeited by its employees during the next financial year with certainty, hence management of the NNR has reasonably estimated the leave provision based on the employee's daily rate and leave balance which are due to employees as at 31 March 2014.

#### PERFORMANCE BONUS

Performance bonus represents management's best estimate of bonus payable to qualifying NNR employees who signed the performance agreement with the NNR for financial year ending 31 March 2014. Performance target is set by the board at the beginning of each financial year, employees performance score is linked to overall performance of the NNR. Management has reasonably provided for a bonus in accordance with bonus payment for 2012/13 at an average individual score of 4 achieved during prior year.

### 12. PAYABLES FROM EXCHANGE TRANSACTIONS

|                              |                  |                  |
|------------------------------|------------------|------------------|
| Trade payables               | 2,392,424        | 1,671,982        |
| Payments received in advance | 101,298          | 356              |
| Accruals                     | 2,932,995        | 217,196          |
| 13th Cheque accrual          | 852,203          | 775,022          |
|                              | <b>6,278,920</b> | <b>2,664,556</b> |

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## 13. REVENUE

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Authorisation fees | 115,411,261        | 99,067,659         |
| Application fees   | 376,424            | 447,160            |
| Other income       | 735,108            | 1,352,446          |
| Deferred Income    | 15,847,947         | 442,680            |
| Interest received  | 3,569,251          | 2,667,427          |
| Government grants  | 31,012,000         | 30,912,000         |
|                    | <b>166,951,991</b> | <b>134,889,372</b> |

The amounts included in revenue arising from exchanges of goods or services are as follows:

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Authorisation fees | 115,411,261        | 99,067,659         |
| Application fees   | 376,424            | 447,160            |
| Interest received  | 3,569,251          | 2,667,427          |
|                    | <b>119,356,936</b> | <b>102,182,246</b> |

The amount included in revenue arising from non-exchange transactions is as follows:

| GOVERNMENT GRANTS |            |            |
|-------------------|------------|------------|
| Government grants | 31,012,000 | 30,912,000 |

## 14. GOVERNMENT GRANTS AND SUBSIDIES

| GOVERNMENT GRANT                        | 31,012,000        | 30,912,000        |
|---|-------------------|-------------------|
| UNCONDITIONAL                           |                   |                   |
| Unconditional grants received           | 31,012,000        | 30,912,000        |
| CONDITIONAL GRANT                       |                   |                   |
| Balance unspent at beginning of year    | 29,557,320        | 18,000,000        |
| Current-year receipts                   | 48,360,000        | 42,912,000        |
| Conditions met - transferred to revenue | (31,012,000)      | (30,912,000)      |
| Conditional grant disbursed             | (15,847,946)      | (442,680)         |
|   | <b>31,057,374</b> | <b>29,557,320</b> |

# The NNR has an obligation to establish and commission the Environmental Radioactivity Analytical Laboratory (see note 9) for details.

# The NNR has an obligation to upgrade an Emergency Control Centre and refurbish Cape Town site office (see note 9) for details.

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### 15. OTHER INCOME

|                                    |                |                  |
|------------------------------------|----------------|------------------|
| Other sundry income                | 188,810        | 8,199            |
| Provision for bad debts adjustment | 445,597        | 1,344,247        |
| Bad debts recovered                | 4,500          | -                |
| Proceeds from sale of assets       | 63,810         | -                |
| Profit on sale of assets           | 32,391         | -                |
| <b>Total</b>                       | <b>735,108</b> | <b>1,352,446</b> |

### 16. GOODS AND SERVICES

|                                      |                   |                   |
|--------------------------------------|-------------------|-------------------|
| Advertising                          | 1,020,722         | 575,128           |
| Assessment rates & municipal charges | 683,602           | 315,123           |
| Auditor's fees                       | 1,566,388         | 1,508,243         |
| Bank charges                         | 40,097            | 39,524            |
| Consulting and professional fees     | 6,702,659         | 6,675,912         |
| Consumables                          | 350,674           | 148,741           |
| Insurance                            | 761,757           | 778,711           |
| Community development and training   | 174,077           | 727,447           |
| Conferences and seminars             | 1,241,953         | 1,016,074         |
| Operating lease expense              | 943,239           | 663,695           |
| Marketing                            | 226,642           | 185,223           |
| Magazines, books and periodicals     | 45,192            | 252,129           |
| Medical expenses                     | 60,187            | 21,480            |
| Postage and courier                  | 111,649           | 399,760           |
| Printing and stationery              | 736,381           | 1,021,410         |
| Protective clothing                  | 63,370            | 58,061            |
| Software expenses                    | 2,121,766         | 849,075           |
| Subscriptions and membership fees    | 941,364           | 602,649           |
| Telephone and fax                    | 1,682,714         | 1,739,295         |
| Transport and freight                | 26,500            | 18,867            |
| Training                             | 925,165           | 1,146,970         |
| Travel - local                       | 4,372,514         | 4,075,454         |
| Travel - overseas                    | 4,553,815         | 2,930,982         |
| Electricity                          | 979,142           | 990,515           |
| Water                                | 2,936             | 8,416             |
| Repairs & Maintenance                | 4,787,120         | 3,510,137         |
| Other expenses                       | 1,745,850         | 836,557           |
|                                      | <b>36,867,475</b> | <b>31,095,578</b> |

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## 17. OPERATING SURPLUS

| OPERATING SURPLUS FOR THE YEAR IS STATED AFTER ACCOUNTING FOR THE FOLLOWING: |                |                |
|--|----------------|----------------|
| Operating lease charges  |                |                |
| Premises   |                |                |
| • Contractual amounts  | 700,945        | 452,225        |
| Equipment  |                |                |
| • Contractual amounts  | 242,294        | 211,470        |
|  | <b>943,239</b> | <b>663,695</b> |
| Depreciation on property, plant and equipment                                | 9,762,611      | 9,153,676      |
| Employee costs   | 87,890,857     | 75,106,423     |
| Amount expensed in respect of retirement benefit plans:                      | 8,641,932      | 6,288,398      |
| Pension-Defined contribution funds   | 8,641,932      | 7,549,535      |
| Pension-Defined benefit funds  | 484,409        | 527,968        |
| **Post medical-Defined benefit plan  | 939,296        | (1,790,105)    |
| Credit loss written off  | -              | 226,051        |

## 18. EMPLOYEE RELATED COSTS

|  |                   |                   |
|--|-------------------|-------------------|
| Basic                                  | 46,422,251        | 43,715,246        |
| Performance Bonus                      | 3,862,903         | 1,168,789         |
| Medical aid - company contributions    | 2,661,703         | 2,515,632         |
| UIF                                    | 355,786           | 311,814           |
| SDL                                    | 741,214           | 644,212           |
| PAYE                                   | 21,158,439        | 18,078,221        |
| **Post medical-Defined benefits plan   | 939,296           | (1,790,105)       |
| Pension fund-Defined benefit plan      | 484,409           | 527,968           |
| Pension fund-Defined contribution plan | 8,641,932         | 7,549,535         |
| 13th Cheques                           | 2,622,924         | 2,385,111         |
|  | <b>87,890,857</b> | <b>75,106,423</b> |

\*\*During prior financial year post retirement medical aid obligation decreased from R 13 055 654 to R 11 265 549. The Net effect of amount recognised on the statement of performance amount to (R 1 790 105).

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### 19. CREDIT LOSS WRITTEN OFF

|                |   |         |
|----------------|---|---------|
| Debts impaired | - | 226,051 |
|----------------|---|---------|

### 20. INVESTMENT REVENUE

|                     |           |           |
|---------------------|-----------|-----------|
| Interest revenue    |           |           |
| Short-term deposits | 3,569,251 | 2,667,427 |

### 21. FINANCE COSTS

|                        |           |           |
|------------------------|-----------|-----------|
| Non-current borrowings | 6,166,524 | 4,652,517 |
|------------------------|-----------|-----------|

### 22. AUDITORS' FEES

|      |           |           |
|------|-----------|-----------|
| Fees | 1,566,388 | 1,508,243 |
|------|-----------|-----------|

### 23. CASH GENERATED FROM OPERATIONS

|  |                   |                   |
|--|-------------------|-------------------|
| Surplus  | 26,264,524        | 14,655,127        |
| Adjustments for:                                       |                   |                   |
| Depreciation and amortisation                          | 9,762,611         | 9,153,676         |
| Movements in operating lease assets and accruals       | 67,561            | (2,729,524)       |
| Movements in retirement benefit assets and liabilities | 939,296           | (1,790,105)       |
| Movements in provisions                                | 2,396,827         | 3,814,008         |
| Profit (Loss) on assets written off                    | (22,870)          | 44,287            |
| <b>Changes in working capital:</b>                     |                   |                   |
| Receivables from exchange transactions                 | 582,021           | 21,152,563        |
| Other receivables from non-exchange transactions       | (152,081)         | -                 |
| Payables from exchange transactions                    | 3,614,364         | (218,943)         |
| Unspent conditional grants and receipts                | 1,500,054         | 11,557,320        |
|  | <b>44,952,307</b> | <b>55,638,409</b> |



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## 24. COMMITMENTS

**Authorised capital expenditure****Already contracted for but not provided for**

|                                     |                   |                   |
|-------------------------------------|-------------------|-------------------|
| • Property, plant and equipment     | 2,018,531         | 8,897,681         |
| • Intangible assets                 | -                 | 91,664            |
| • Commitment and contractual amount | 9,319,035         | 3,621,781         |
| • Operating leases                  | 2,525,332         | 198,018           |
|                                     | <b>13,862,898</b> | <b>12,809,144</b> |

This committed expenditure relates to plant and equipment, intangible assets and other contractual amount to be financed by available retained surpluses plus internal generated funds.

**Operating leases - as lessee (expense)**

|                                     |                  |                |
|-------------------------------------|------------------|----------------|
| <b>Minimum lease payments due</b>   |                  |                |
| - within one year                   | 1,060,910        | 198,018        |
| - in second to fifth year inclusive | 1,464,422        | -              |
|                                     | <b>2,525,332</b> | <b>198,018</b> |

The NNR rent eleven photocopiers under operating lease for a period of three years effective from 01 March 2013,expiring on 28 February 2017 from Seartec (Pty) Ltd. The lease allows for no escalation on rental of photocopiers. Lease expense for the year amounts to R 24 473.

NNR rents a laboratory space for the radioactivity analysis at the Agriculture Research Council for period of three years with renewal option. A lease agreement was entered into between the NNR and Agriculture Research Council effective 01 April 2013 and will be expiring on 31 March 2017. Monthly rental amounts to R 52 782 and allows for annual escalation of 10% per annum,total lease expense for the year amounts to R 633 384. Rental agreement between NNR and Ubuntu Technology for rental of eight photocopies expired on the 28 February 2014, total lease expense amounted to R 217 820.

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### 25. CONTINGENCIES

| Matter  | Case  | Amount            |
|---|---|-------------------|
| Application has been made to National Treasury under S 53(3) of the PFMA to retain cash surpluses reported in the current financial year ending 31 March 2014. Should permission to retain this cash surplus not be granted then the NNR may be required to surrender surplus to National Treasury through its Executive Authority. | S 53(3) of the PFMA to retain cash surpluses  | 24,981,062        |
| Siphiwe Tshabalala V Marleze Swanepoel, CCMA and NNR – This is a matter currently under review in the CCMA.   | Siphiwe Tshabalala V Marleze Swanepoel, CCMA and NNR  | 2,883,033         |
| Mike Blumenthal – Mr. Blumenthal instituted proceedings in the CCMA against the NNR for unfair dismissal.   | Mike Blumenthal – Mr. Blumenthal instituted proceedings in the CCMA against the NNR for unfair dismissal. | 1,014,637         |
|   |   | <b>28,878,732</b> |

### 26. RELATED PARTIES

| RELATIONSHIPS                                    |   |
|--|---|
| Directors  | Refer to note 27 on directors emoluments  |
| Controlling entity                               | Department of Energy  |
| Entities ultimately under common control         | National Nuclear Energy Corporation of South Africa (NECSA)<br>National Energy Regulator of South Africa (NERSA)<br>National Energy Development Institute of South Africa (SANEDI)<br>The National Radioactive Waste Disposal Institute (TNRWDI)<br>The Petroleum, Oil and Gas Corporation of South Africa (PetroSA)<br>Electricity Distribution Industry Holding (EDI Holdings (PTY) LTD)<br>Central Energy Group Fund (CEF (PTY) LTD) |
| Post retirement pension for employees of the NNR | ABSA pension administrators   |
| Key Management Personnel                         | Dr M Tyobeka (Appointed 01 October 2013)<br>Mr D Netshivhazwaulu<br>Ms Z Mbatha (Resigned 30 November 2013)<br>Mr T Tselane (Resigned 31 March 2014)<br>Mr O Phillips<br>Ms A Simon (Appointed 01 December 2013)  |

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## 26. RELATED PARTIES (CONTINUED)

|  | 2014        | 2013        |
|--|-------------|-------------|
| Related party balances   |             |             |
| Amounts included in Trade receivable (Trade Payable) regarding related parties |             |             |
| NECSA  | (100,824)   | (222,513)   |
| NECSA  | 24,204      | 24,204      |
| Related party transactions   |             |             |
| Services rendered to related party   |             |             |
| NECSA  | 33,439,400  | 28,069,642  |
| Government transfers   |             |             |
| Department of Energy   | 48,360,000  | 42,912,000  |
| Purchase from related party  |             |             |
| NECSA  | (1,859,535) | (1,979,808) |
| Other  |             |             |
| ABSA pension administrators  | 8,641,932   | 8,077,503   |

## 27. DIRECTORS' EMOLUMENTS

## EXECUTIVE

| 2014   |                  |                   |                   |                |                  |
|--|------------------|-------------------|-------------------|----------------|------------------|
|  | Basic Salary     | Performance Bonus | Acting Allowances | Contributions  | Total            |
| Dr M Tyobeka (CEO)<br>Appointed 01 October 2013      | 893,782          | -                 | -                 | 106,238        | 1,000,020        |
| Mr T Tselane<br>(Acting CEO until 31 September 2013) | 1,279,851        | 107,324           | 177,039           | 243,804        | 1,808,018        |
| Mr D Netshivhazwaulu (CFO)                           | 1,324,436        | 66,288            | -                 | 98,210         | 1,488,934        |
| Ms Z Mbatha<br>(Resigned 31 November 2013)           | 916,336          | 79,420            | -                 | 27,973         | 1,023,729        |
| Ms A Simon<br>(Appointed 01 December 2013)           | 293,657          | -                 | -                 | -              | 293,657          |
| Mr O Phillips  | 1,344,662        | 92,245            | -                 | 207,296        | 1,644,203        |
|  | <b>6,052,724</b> | <b>345,277</b>    | <b>177,039</b>    | <b>683,521</b> | <b>7,258,561</b> |

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| 2013  |                  |                   |                  |                |                  |
|---|------------------|-------------------|------------------|----------------|------------------|
|   | Basic salary     | Performance bonus | Acting Allowance | Contributions  | Total            |
| Adv. B Mkhize<br>(CEO resigned 30 November 2012)        | 1,143,652        | 263,834           | -                | 106,386        | 1,513,872        |
| Mr T Tselane<br>(Acting CEO Appointed 01 December 2012) | 1,100,897        | 22,534            | 42,088           | 141,419        | 1,306,938        |
| Mr D Netshivhazwaulu<br>(CFO Appointed 01 July 2012)    | 840,866          | -                 | -                | 50,424         | 891,290          |
| Ms Z Mbatha   | 998,829          | -                 | -                | 76,487         | 1,075,316        |
| Mr O Phillips   | 1,220,462        | 23,518            | -                | 128,416        | 1,372,396        |
|   | <b>5,304,706</b> | <b>309,886</b>    | <b>42,088</b>    | <b>503,132</b> | <b>6,159,812</b> |

## DIRECTORS

| 2014                                   |  |  |  |                 |                |
|--|--|--|--|-----------------|----------------|
|  |  |  |  | Directors' fees | Total          |
| Dr T Cohen-(Chairperson)               |  |  |  | 81,679          | 81,679         |
| Mr T Mofokeng                          |  |  |  | 102,038         | 102,038        |
| Mr S Kakoma                            |  |  |  | 88,565          | 88,565         |
| Mr J Leaver                            |  |  |  | 161,698         | 161,698        |
| Mr N Lesufi                            |  |  |  | 107,192         | 107,192        |
| Mr S Mimi                              |  |  |  | 109,942         | 109,942        |
| Dr T Motshudi                          |  |  |  | 94,128          | 94,128         |
| Prof. G Sibiyi                         |  |  |  | 100,780         | 100,780        |
|  |  |  |  | <b>846,022</b>  | <b>846,022</b> |
| Independent Technical Committee member |  |  |  | Fees            | Total          |
| Dr B Sehlapelo                         |  |  |  | 58,025          | 58,025         |

| 2013                                   |  | Directors' fees | Total          |
|--|--|-----------------|----------------|
| Dr T Cohen-(Chairperson)               |  | 69,984          | 69,984         |
| Mr T Mofokeng                          |  | 135,284         | 135,284        |
| Mr S Kakoma                            |  | 17,352          | 17,352         |
| Mr J Leaver                            |  | 133,931         | 133,931        |
| Mr N Lesufi                            |  | 87,288          | 87,288         |
| Mr S Mimi                              |  | 20,244          | 20,244         |
| Dr T Motshudi                          |  | 71,400          | 71,400         |
| Prof. G Sibiyi                         |  | 17,352          | 17,352         |
| MR D Netshivhazwaulu                   |  | 28,920          | 28,920         |
| Mr D Elbrencht                         |  | 49,164          | 49,164         |
|  |  | <b>630,919</b>  | <b>630,919</b> |
| Independent Technical Committee member |  | Fees            | Total          |
| Dr B Sehlapelo                         |  | 23,136          | 23,136         |

## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## 28. CHANGE IN ESTIMATE

### PROPERTY, PLANT AND EQUIPMENT

Management has reasonably extended the useful lifespan of motor vehicle from four years to five years this is as a result that after the vehicle was assessed and inspected it was found to be in good working conditions and management intend to continue to use the vehicles in ordinary cause of NNR's business. The effect of this revision is decrease on depreciation by R 23 901 on the current financial year and an increase on depreciation by R 23 901 on future periods.

### POST RETIREMENT BENEFIT PLAN

During the current financial period the actuary has revised the estimated value of assets relating to a post retirement benefit obligations covering 12 employees, the change in estimated value of assets is as a result of understatement of of assets and liabilities relating to defined contribution plan. The effect of adjustment on current period is a decrease on opening fair value of planned assets disclosed on note 6.1 relating to post retirement defined benefit plan amounting to R 3 945 000.

## 29. RISK MANAGEMENT

### FINANCIAL RISK MANAGEMENT

The NNR's activities expose it to a variety of financial risks: fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk.

The NNR's overall risk management program focuses on the unpredictability of liquid cash and seeks to minimise potential adverse effects on the NNR's financial performance. Risk management is carried out by executive committee of the NNR under policies approved by the accounting authority. NNR finance division identifies, evaluates and hedges financial risks in close co-operation with the NNR's audit and risk management committee. The accounting authority provides written principles for overall risk management, as well as written policies covering specific areas, such as, interest rate risk, credit risk.

### LIQUIDITY RISK

Prudent liquidity risk management implies maintaining sufficient cash. The NNR's primary source of funding is authorisation fee which are gazzeted in terms of 28 of the National Nuclear Act,1999,(Act No. 47 of 1999). The NNR maintains liquidity by collecting and paying within 30 days and by limiting capital and operational expenditure within the pre-approved budget.

### CREDIT RISK

Credit risk consists mainly of cash deposits, cash equivalents, and trade debtors.

Trade receivables comprise of licence and certificate holders by major reputable mining and scrap metal companies. Management evaluate credit risk relating to each licence or certificate holder on an ongoing basis.

# ANNUAL FINANCIAL STATEMENTS

for the year ended March 31, 2014

## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

There is no independent crediting ratings, risk control assesses the credit quality of customers, taking into account financial position, past experience and other factors before a licence or certificate can be granted.

### 29. RISK MANAGEMENT (CONTINUED)

#### MARKET RISK

##### INTEREST RATE RISK

The NNR's interest rate risk arises from long-term borrowings. Borrowings issued at variable rates expose the NNR to cash flow interest rate risk.

The entity analyses its interest rate exposure on a dynamic basis. Various scenarios are simulated taking into consideration refinancing, renewal of existing positions, alternative financing. Based on these scenarios, the NNR calculates the impact on NNR surplus or deficit of a defined interest rate shift.

##### CASH FLOW INTEREST RATE RISK

| Financial instrument                    | Current interest rate | Due in less than a year | Due in one to two years | Due in two to three years | Due in three to four years | Due after five years |
|---|-----------------------|-------------------------|-------------------------|---------------------------|----------------------------|----------------------|
| Mortgage Bond over head office building | 8.50 %                | 11,893,213              | 11,893,213              | 11,893,213                | 11,893,213                 | 24,777,529           |

##### FAIR VALUE INTEREST RATE RISK

##### PRICE RISK

NNR's exposure to price risk is minimal as NNR determines authorisation fees based on cost recovery principle, time spent and effort required for each of the authorisations holders which are gazetted in terms of Section 28 of the National Nuclear Act, 1999, (Act No. 47 of 1999).

### 30. GOING CONCERN

The annual financial statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

The ability of the NNR to continue as a going concern is dependent on a number of factors. The most significant of these is that the authorisation holders continue to promptly settle their accounts. The Directors have reviewed the financial performance of the NNR for the year ending 31 March 2013, and the new financial year ending 31 March 2014 as well as the budget over MTEF, in light of this review and the current financial position, they are satisfied that the entity has access to resources to continue in operational existence for the foreseeable future.

### 31. UNAUTHORISED EXPENDITURE

The NNR incurred no Unauthorised expenditure during the financial year under review.

## NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand

2014

2013

## 32. FRUITLESS AND WASTEFUL EXPENDITURE

|                                    |   |           |
|------------------------------------|---|-----------|
| Fruitless and wasteful expenditure | - | 199,157   |
| Less: Amount recovered             | - | (199,157) |
|                                    | - | -         |

## 33. IRREGULAR EXPENDITURE

|  |           |         |
|--|-----------|---------|
| Opening balance                              | 284,373   | -       |
| Add: Irregular Expenditure<br>- current year | -         | 284,373 |
| Less: Amounts condoned                       | (284,373) | -       |
|  |           | 284,373 |

## 34. RECONCILIATION BETWEEN BUDGET AND STATEMENT OF FINANCIAL PERFORMANCE

Reconciliation of budget surplus/deficit with the surplus/deficit in the statement of financial performance:

|  |              |              |
|--|--------------|--------------|
| Net surplus per the statement of financial performance | 26,264,524   | 14,655,127   |
| <b>Adjusted for:</b>                                   |              |              |
| Loss on assets written-off                             | 9,817        | 44,288       |
| Credit loss written-off                                | -            | 226,051      |
| Provision for doubtful debts                           | (445,954)    | (1,344,247)  |
| Provision for leave pay                                | 2,396,827    | 68,042       |
| Provision for retirement benefit obligation            | 939,296      | (1,790,105)  |
| Variance in government grant                           | 17,348,000   | 11,557,320   |
| Variance in authorisation fees                         | 5,432,739    | 3,047,341    |
| Variance in other income                               | (1,111,532)  | 3,524,838    |
| Variance in investment income                          | (1,994,251)  | (1,357,759)  |
| Variance in compensation                               | (10,229,316) | (14,738,336) |
| Variance in goods or services                          | (18,073,054) | (3,401,611)  |
| Variance in depreciation                               | (2,773,880)  | 3,973,106    |
| Variance in finance cost                               | (184,476)    | 485,945      |
| Variance in capital expenditure                        | (17,578,760) | (14,950,000) |
| <b>Net deficit per approved budget</b>                 | <b>-</b>     | <b>-</b>     |

## NATIONAL NUCLEAR REGULATOR (NNR)

Country of incorporation and domicile:  
South Africa

Legal form of entity:  
Schedule 3A National Public entity

Nature of business and principal activities:  
To provide protection of persons, property and the environment against nuclear damage

### REGISTERED OFFICE:

Eco Glade Office Park  
Eco Glade 2,Block G Witch Hazel Avenue  
Highveld Ext 75, Eco Park, Centurion 0046

### BUSINESS ADDRESS:

Eco Glade Office Park Eco Glade 2,Block G  
420 Witch Hazel Avenue  
Highveld Ext 75, Eco Park, Centurion 0046

### POSTAL ADDRESS:

P.O Box 7106  
Pretoria  
Eco Park, Centurion Highveld Ext 75  
0046

### CONTROLLING ENTITY DEPARTMENT OF ENERGY

Bankers      ABSA Bank  
Auditors     Auditor-General of South Africa

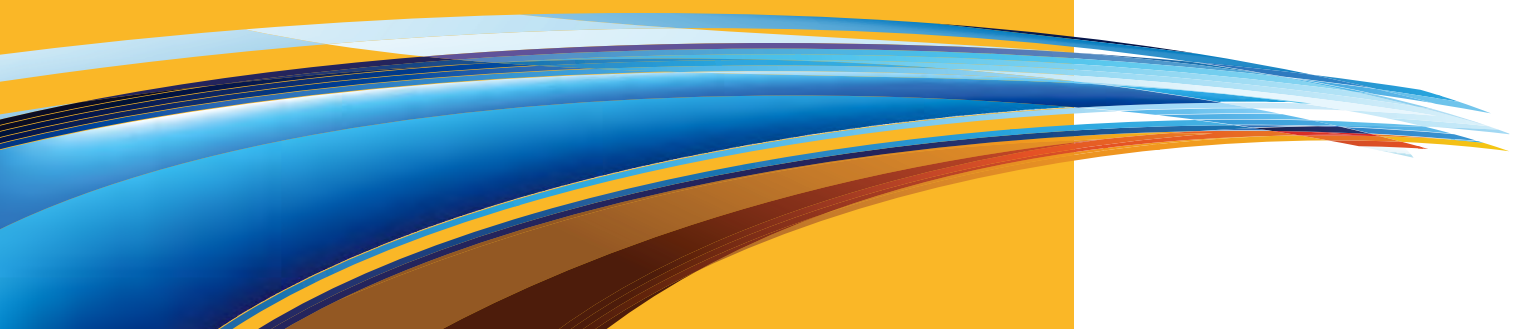
### REGISTERED AUDITORS

Secretary    Vacant  
Attorneys    Geldenhuys Malatjie & Newtons Attorneys

The NNR is listed as a national public entity in Schedule 3 Part A of the Public Finance Management Act, (Act No. 1 of 1999, as amended). The Board of Directors is the Accounting Authority in terms of the Public Finance Management Act. In terms of Section 8 (1) and (2), the Regulator is governed and controlled, in accordance with the NNR Act, by a Board of Directors to ensure that the objects of the Act are carried out and to exercise general control over the performance of the Regulator's functions.



# ACRONYMS



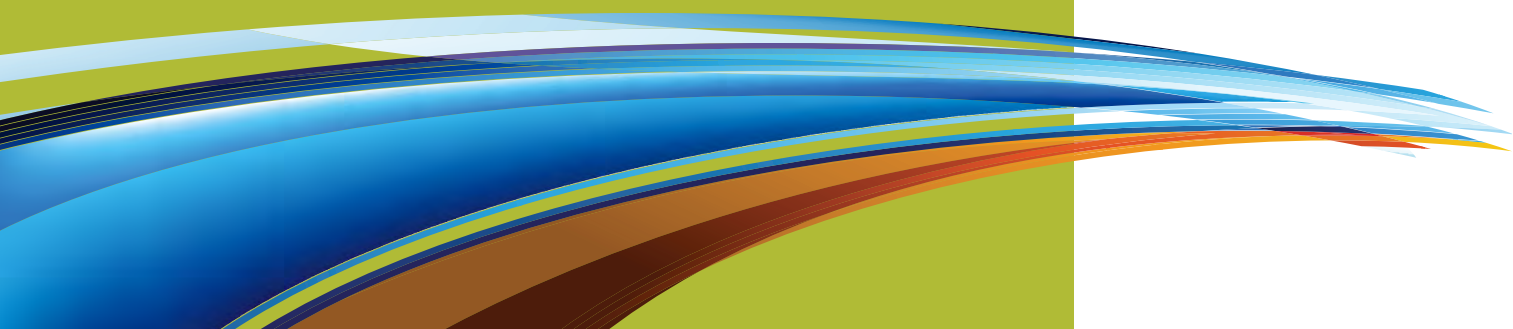
## I LIST OF ABBREVIATIONS / ACRONYMS

**AA:** Accounting Authority  
**ARMCOM:** Audit and Risk Management Committee  
**AADQ:** Annual Authorised Discharge Quantity  
**AFRA:** African Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology  
**AFS:** Annual Financial Statements ACR: Authorisation Change Request  
**AGSA:** Auditor General of South Africa  
**ALARA:** As Low As Reasonably Achievable  
**ARPC:** Assistant Radiation Protection Controller  
**ASDPL:** Aerodynamic Separation Process  
**ASME:** American Society of Mechanical Engineers  
**ASN:** French Nuclear Regulatory Authority  
**CAA:** Civil Aviation Authority  
**CAE:** Compliance Assurance and Enforcement  
**CEO:** Chief Executive Officer  
**CFO:** Chief Financial Officer  
**CNS:** Convention on Nuclear Safety  
**COE:** Certificate of Exemption  
**COM:** Chamber of Mines  
**COR:** Certificate of Registration  
**CPI:** Consumer Price Index  
**CSS:** Commission on Safety Standards  
**DIPR:** Dedicated Isotope Production Reactor  
**DSP:** Dosimetry Service Providers  
**ECC:** Emergency Control Centre  
**EPD:** Electronic Personal Dosimeter  
**DoE:** Department of Energy  
**ENIQ:** European Network for Inspection and Qualification  
**EPSOC:** Emergency Planning, Steering and Oversight Committee  
**FET:** Further Education and Training  
**FNRBA:** Forum for Nuclear Regulatory Bodies In Africa  
**GRAP:** Generally Recognised Accounting Practice  
**HEU:** Highly Enriched Uranium  
**HR:** Human Resources  
**IAEA:** International Atomic Energy Agency  
**ICRP:** International Commission on Radiation Protection  
**ICT:** Information Communication Technology  
**ILT:** Initial Licence Training  
**INES:** International Nuclear Event Scale  
**INPO:** Institute of International Nuclear Power Operations  
**INSAG:** International Nuclear Safety Advisory Group  
**ISI:** In-Service Inspection  
**IT:** Information Technology  
**JCC:** Joint Co-ordinating Committee  
**KNPS:** Koeberg Nuclear Power Station  
**KPI:** Key Performance Indicator  
**LETF:** Liquid Effluent Treatment Facility  
**LEU:** Low Enriched Uranium  
**LG:** Licensing Guide  
**LLM:** Low Level Waste  
**LSA:** Low Specific Activity  
**LTAM:** Long-Term Asset Management  
**MDEP:** Multinational Design Evaluation Programme  
**mSv:** Millisievert

**MWe:** Megawatt Electrical  
**NDR:** National Dose Register  
**Necsa:** South African Nuclear Energy Corporation  
**Nehawu:** National Education, Health And Allied Workers Union  
**NEPROC:** Nuclear Emergency Preparedness Regulatory Oversight Committee  
**NERS:** Network of Regulators of Countries with Small Nuclear Programmes  
**NGO:** Non-Governmental Organisation  
**NIL:** Nuclear Installation Licence  
**NNR:** National Nuclear Regulator  
**NNRA:** National Nuclear Regulator Act  
**NORM:** Naturally Occurring Radioactive Material  
**NTWP:** Nuclear Technology and Waste Projects  
**NUFCOR:** Nuclear Fuels Cooperation of South Africa  
**NUSSC:** Nuclear Safety Standards Committee  
**NVL:** Nuclear Vessel Licence  
**PSM:** Power Station Manager  
**QMS:** Quality Management System  
**OTS:** Operating Technical Specification  
**PFMA:** Public Finance Management Act  
**PLEX:** Plant Life Extension  
**PPC:** Parliamentary Portfolio Committee  
**PSA:** Public Safety Assessor  
**RAIS:** Regulatory Authority Information System  
**RASIMS:** Radiation Safety Information Management System  
**RASSC:** Radiation Safety Standards Committee  
**RDD:** Radiological Dispensive Device  
**RED:** Radiation Emission Device  
**RPO:** Radiation Protection Officer  
**RTMC:** Road Traffic Management Corporation  
**RSR:** Railway Safety Regulator  
**SALTO:** Safety Assessment of Long-Term Operation  
**SAMSA:** South African Maritime Safety Authority  
**SAPS:** South African Police Service  
**SARA:** Standards, Authorisations, Reviews and Assessments  
**SARS:** South African Revenue Service  
**SAT:** Self-Assessment Tool  
**SCM:** Special Case Mines  
**SGR:** Steam Generator Replacement  
**SHEQ:** Safety, Health, Environment and Quality Management  
**SHEQD:** Safety, Health, Environment and Quality Management Department  
**SSRP:** Safety Standards and Regulatory Practices  
**SQEP:** Suitably Qualified and Experienced Person  
**TPU:** Thermal Power Uprate  
**TRANSSC:** Transport Safety Standards Committee  
**TSO:** Technical Support Organisation  
**USNRC:** United States Nuclear Regulatory Commission  
**WAC:** Waste Acceptance Criteria  
**WASSC:** Waste Safety Standards Committee  
**WiNSA:** Women in Nuclear South Africa  
**WiN-NNR:** Women in Nuclear National Nuclear Regulator  
**WCA:** Wonderfonteinspruit Catchment Area



# GLOSSARY



**Action:** The use, possession, production, storage, enrichment, processing, reprocessing, conveying or disposal, or causing to be conveyed, of radioactive material.

Any action, the performance of which may result in persons accumulating a radiation dose resulting from exposure to ionising radiation

Any other action involving radioactive material.

**Assessment:** The process, and the result, of systematically analysing the hazards associated with sources and actions, and associated protection and safety measures, aimed at quantifying performance measures for comparison with criteria.

**Becquerel (Bq):** The unit of radioactivity in nuclear transformations (or disintegrations) per second.

**Clearance:** Removal of radioactive materials or radioactive objects within actions authorised by a nuclear installation licence, nuclear vessel licence or certificate of registration from any further control by the Regulator.

**Collective dose:** An expression of the total radiation dose incurred by a population, defined as the product of the number of individuals exposed to a source and their average radiation dose. The collective dose is expressed in person-sievert (person.sv).

**Critical group:** A group of members of the public that is reasonably homogeneous with respect to its exposure to a given radiation source and given exposure pathway, and is typical of individuals receiving the highest effective dose or equivalent dose (as applicable) by the given exposure pathway from the given source.

**Decommissioning:** Administrative and technical actions taken to allow the removal of all of the regulatory controls from a facility (except for a repository which is closed and not decommissioned).

**Defence in depth:** The application of more than a single protective measure for a given radiation or nuclear safety objective, so that the objective is achieved, even if one of the protective measures fails.

**Discharge:** A planned and controlled release of radioactive nuclides into the environment.

**Disposal:** The emplacement of radioactive waste in an approved, specified facility without the intention of retrieval. The term “dispose of” has a corresponding meaning.

**Disused sealed source:** A radioactive source, comprising radioactive material that is permanently sealed in a capsule or closely bonded and in a solid form (excluding reactor fuel elements) that is no longer used and is not intended to be used for the action for which an authorisation had been granted.

**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.

**Dose constraint:** A prospective and source-related restriction on the individual dose, arising from the predicted operation of the authorised action, which serves exclusively as a bound on the optimisation of radiation protection and nuclear safety.

**Dose limit:** The value of the effective dose or equivalent dose to individuals from actions authorised by a nuclear installation licence, nuclear vessel licence or certificate of registration, which must not be exceeded.

**Emergency planning:** The process of developing and maintaining the capability to take action that will reduce the impact of an emergency on persons, property or the environment. The capability to promptly take action that will effectively reduce the impact of an emergency on persons, property or the environment.

**Emergency response:** The performance of action to reduce the impact of an emergency on persons, property or the environment.

**Environmental monitoring:** The measurement of external dose rates, due to sources in the environment, and of radioactive nuclide concentrations in environmental media.

**Exposure:** The act or condition of being subject to irradiation.

**Exposure pathways:** A route by which radioactive material can reach or irradiate humans.

**Inspector:** The person appointed as such in terms of Section 41(1) of the NNR Act.

**Minister:** The Minister of Minerals and Energy.

**Monitoring:** The continuous or periodic measurement of radiological and other parameters, or the determination of the status of a system.

**Nuclear accident:** Any event or succession of events having the same origin and resulting in an unintended/unauthorised exposure to radiation or the release of radioactive material, which is capable of giving rise to an effective dose in excess of 1 msv to the public off-site within a year, or in excess of 50 msv to a worker on site, essentially received at the time of the event.

**Nuclear authorisation:** A nuclear installation licence, nuclear vessel licence, certificate of registration or certificate of exemption.

**Nuclear damage:** Any injury to or the death or any sickness or disease of a person; or other damage, including any damage to or any loss of use of property or damage to the environment, which arises out of, or from, or is attributable to, the ionising radiation associated with a nuclear installation, nuclear vessel or action.

**Nuclear incident:** Any unintended event that 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 radiation, which could reasonably give rise to an effective dose in excess of 20 msv to a worker on site, received essentially at the time of the event, or significant failure of safety provisions.

**Nuclear installation:** A facility, installation, plant or structure, designed or adapted for, or which may involve the conducting of any process, other than the mining and processing of ore, within the nuclear fuel cycle, involving radioactive material, including, but not limited to:

- a uranium or thorium refinement or conversion facility;
- a uranium enrichment facility;
- a nuclear fuel fabrication facility;
- a nuclear reactor, including a nuclear fission reactor or any other facility intended to create nuclear fusion;
- a spent nuclear fuel reprocessing facility;
- a spent nuclear fuel storage facility;
- an enriched uranium processing and storage facility; and
- a facility, specifically designed to handle, treat, condition, temporarily store or permanently dispose of any radioactive material that is intended to be disposed of as waste material; or
- any facility, installation, plant or structure, declared to be a nuclear installation, in terms of Section 2(3) of the NNR Act.

**Nuclear safety:** The achievement of safe operating conditions, the prevention of nuclear accidents or the limiting of nuclear accident consequences, resulting in the protection of workers, the public and the environment, against the potential harmful effects of ionising radiation or radioactive material.

**Radiation protection:** The protection of people from the effects of exposure to ionising radiation, and the means of achieving this.

**Radiation protection monitor:** A person, technically competent in radiation protection matters, relevant to a given type of action, who is designated by the holder of a nuclear authorisation to perform radiation measurements.

**Radiation protection officer:** A person, technically competent in radiation protection matters, relevant for a given type of action, who is designated by the holder of a nuclear authorisation to oversee the application of relevant requirements.

**Radiation protection specialist:** A person trained in radiation protection and other areas of specialisation necessary to be able to assess radiological conditions, to limit radiological consequences or to control doses.

**Radioactive material:** Any substance consisting of, or containing any radioactive nuclide, whether natural or artificial, including, but not limited to, radioactive waste and spent nuclear fuel.

**Radioactive nuclide:** Any unstable atomic nucleus, which decays spontaneously with the accompanying emission of ionising radiation.

**Radioactive waste:** Any material, whatever its physical form, remaining from an action requiring a nuclear installation licence, nuclear vessel licence or certificate of registration, and for which no further use is foreseen, and that contains or is contaminated with radioactive material and does not comply with the requirements for clearance. The quantitative or qualitative criteria, specified by the operator and approved by the regulator, for radioactive waste to be accepted by the operator of a repository for disposal, or by the operator of a storage facility for storage.

**Risk:** (Qualitatively expressed), the probability of a specified health effect occurring in a person or a group of persons, as a result of exposure to radiation or (quantitatively expressed), a multi- attribute quantity expressing hazard, danger or chance of harmful or injurious consequences associated with actual or potential exposure relating to quantities, such as the probability that specific deleterious consequences may arise, as well as the magnitude and character of such consequences.

**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.

**Safety case:** A collection of arguments and evidence in support of the safety of a facility or action. This normally includes the findings of a safety assessment and a statement of confidence in these findings.









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**Public Access to Information**

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