ANNUAL REPORT

2019/20

Commemorating the 20th Anniversary of the National Nuclear Regulatory Act, Act 47 of 1999

This 2019/2020 Annual Report of the National Nuclear Regulator (NNR) is presented 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 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) of the Public Finance Management Act (Act No. 1 of 1999) and Chapter 28 of the Treasury Regulations.

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GENERAL INFORMATION

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

A. GENERAL INFORMATION

Vision

- To be an independent leading nuclear regulator.

Mission

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

Corporate Values

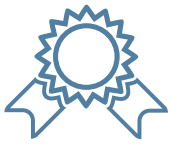
In carrying out its mission, the NNR subscribes to six corporate values as follows:

Safety and Security

We endeavour to instil a culture of safety and security within the organisation, with holders of nuclear authorisations and in our interactions with all other stakeholders.

Integrity

We strive for integrity based on non-biased, fair, objective, consistent, honest, reliable, principled attitudes and attributes.



Excellence

We endeavour to deliver outstanding quality, efficiently, effectively and innovatively.

Valuing People

We recognise and appreciate our people by valuing their input, showing empathy and creating a conducive and supportive working environment.

Teamwork

We strive to be a cohesive team that works in collaboration to realise common goals in order to deliver exceptional results.

Openness and Transparency

We strive for openness and transparency in the regulatory decision-making process and the communication of regulatory decisions.

1. Strategic Goals

The following strategic goals were adopted for 2019 – 2020:

Goal 1: To provide efficient and effective nuclear regulatory services

1. To provide an independent analytical verification capability and capacity.
2. To have in place a fully operational Regulatory Emergency Response Centre (RERC).
3. To ensure the protection of persons, property and environment.
4. To reverse the observed trend of degradation of safety and security culture at authorised facilities.
5. To review and update the regulatory framework for long-term operation (LTO).
6. To implement systematic ageing management inspections.
7. To provide manufacturing oversight for steam generator replacement (SGR).
8. To ensure that all stages of the NPP lifecycle are subject to regulatory control (SGR).

Goal 2: To operationalise the CNSS

1. To leverage strategic partnerships through the CNSS to build capacity.
2. To enhance collaboration with strategic partners to strengthen training and capacity development of regulatory staff.
3. To undertake research and ensure effective technical support to the regulator.

Goal 3: To ensure financial viability and sustainability of the organisation

1. To develop mechanisms to ensure financial viability and sustainability of the organisation.
2. To increase price competitiveness in procurement.

Goal 4: To provide robust internal business processes

1. To implement the ICT strategy.
2. To maintain an effective Internal Audit programme.
3. To build Security Management Capacity.

Goal 5: To optimise strategic people management practices

1. To enhance staff communication and involvement.
2. To implement the Leadership and Management Development programme.
3. To implement an organisational culture project.

2. Legislative and Other Mandates

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

- Provide for the protection of persons, property and the environment against nuclear damage through the establishment of Safety Standards and Regulatory Practices (SSRP).
- Exercise regulatory control related to safety over:
  - The siting, design, construction, operation, manufacture of component parts and the decontamination, decommissioning and closure of nuclear installations; and
  - Vessels propelled by nuclear power or having radioactive materials on board which are capable of causing nuclear damage (this, through the granting of nuclear authorisations).
- Exercise regulatory control over other actions to which the Act applies, through the granting of nuclear authorisations.
- Provide assurance of compliance with the conditions of nuclear authorisations through the implementation of a system of compliance inspections.

- Fulfil national obligations in respect of international legal instruments concerning nuclear safety.
- 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) (PFMA). The Board is the Accounting Authority in terms of the PFMA. In terms of section 8 (1) and (2), the NNR is governed and controlled by the Board in accordance with the Act to ensure that the objects of the Act are carried out, and to exercise general control over the performance of the NNR's functions. The Board is accountable for the overall formulation, monitoring and review of the NNR corporate strategy and related affairs, while delegating to management the responsibility for business performance and achievement of the NNR's objectives.

The NNR 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 NNR 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 with respect to 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 NNR's unique environment.

2.1. Legislative framework

The NNR operates within the following constitutional, legislative and policy frameworks:

- Constitution of the Republic of South Africa of 1996 (Act No. 108 of 1996)
- Nuclear Energy Act (Act No. 46 of 1999) (NEA)
- 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) (NEMA)
- Promotion of Administrative Justice Act (Act No. 3 of 2000) (PAJA)
- Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA)

2.2. Policy framework

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

2.2.1. 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.

The Policy covers:

- The prospecting and mining of uranium ore and any other ores containing nuclear properties and materials.
- The nuclear fuel cycle in its entirety, focussing on all applications of nuclear technology for energy generation. One of the 16 principles of this policy is that nuclear energy shall be used as part of South Africa's diversification of primary energy sources to ensure security of energy supply.

2.2.2. Radioactive Waste Management Policy and Strategy for South Africa

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 related to the management of radioactive waste are assessed, and compliance of NNR authorisation holders is monitored.

International Atomic Energy Agency (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
- African Regional Co-operative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA) – Fourth Extension

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 co-operation to enhance global nuclear safety. In terms of section 5(e) of the 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 (CNS), and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.


NATIONAL NUCLEAR REGULATOR

3. Employees Reporting to the CEO

Dr Mzubanzi Bismark Tyobeka
Chief Executive Officer

Mr Orion Phillips
Executive: Nuclear Power Plant

Ms Ditebogo Kgomo
Executive: Nuclear Technology & NORM

Ms Louisa Mpete
Executive: Regulatory Improvement & Technical Services

Mr Dakalo Netshivhazwaulu
Chief Financial Officer

Ms Anita Simon
Executive: Corporate Support Services

Ms Ntsikie Kote
Senior Manager: Strategy, Governance & Organisational Performance

Ms Phindile Masilo
Chief Audit Executive

Mr Fulufhelo Ndou
Senior Manager: Legal, Risk & Compliance

4. Chairperson's Overview

As Chairperson of the National Nuclear Regulator, it is my honour and privilege to present to you the Annual Report for the 2019/2020 financial year.

During the reporting period, the NNR Board is satisfied that in fulfilling its fiduciary duties for 2019/2020 that all governance and control frameworks within the NNR are functioning effectively and that the competent authority has successfully discharged its planned nuclear safety regulatory oversight responsibilities.

The NNR strived to reach the highest levels of good corporate governance and the Board was assisted by three sub-committees to achieve this. The ARMCOM, Technical Committee, and Transformation and Development Committee, ensured that the NNR fully embraced its enabling legislation, policies and processes to deliver effectively over the reporting period. The strong integration of a risk management culture was woven into the NNR's day-to-day practices which resulted in a risk maturity level of five out of six. A total of 17 internal audits were conducted and action plans were developed to address identified weaknesses.

The NNR complied with its national obligations with respect to international instruments concerning nuclear safety, and for acting as the national competent authority in connection with the International Atomic Energy Agency's (IAEA) Regulations for the Safe Transport of Radioactive Material.

During the reporting period the NNR compiled and submitted South Africa's 8th Convention on Nuclear Safety (CNS) report to the International Atomic Energy Agency (IAEA). In terms of global influence, the NNR CEO provided sterling leadership as the President of the Sixth Review Meeting of the Joint Convention on the Safety of Spent Nuclear Fuel Management and Safety of Radioactive Waste Management (Joint Convention), Chairperson of the Regulatory Cooperation Forum (RCF) and Vice Chairperson of the Forum for Nuclear Regulatory Bodies in Africa (FNRBA). NNR staff maintained active participation in the various IAEA Safety Standards Committees, as well as representation at international regulatory and global events.

During the 2019/2020 financial year, the entity collected R196 440 443 in Authorisation Fees and received a State Grant of R43 096 000. This financial year saw the merging of the Department of Energy and Department of Mineral Resources to Department of Mineral Resources and Energy (DMRE) under the leadership of the Honourable Minister Gwede Manstashe in June 2019. The NNR Board welcomes this merger and looks forward to working with the newly-formed department to achieve safe, secure and sustainable energy and

mineral resources goals for advancing socio-economic development in South Africa.

While it is my great privilege to serve as Chairperson of the NNR Board, it would not be possible to fulfil this responsibility without the invaluable leadership and judgement of all its non-executive Directors. The NNR is proud to be the beneficiary of the commitment and dedication of highly conscientious Board members who frequently go beyond the call of duty.

Finally, I wish to express my appreciation to the employees of the NNR who have continued to display full commitment to nuclear safety and security despite the difficult circumstances we are facing as both an organisation and a nation. This year has tested our mettle and the NNR is proud to have risen to the challenge.

Dr Thapelo Motshudi
Chairperson Board of Directors

5. Chief Executive's Review

I am pleased to present to you the 2019/2020 Annual Report of the NNR. This report covers the NNR's organisational performance as per the strategic plan and contains the nuclear safety regulatory performance activities for the reporting period.

During the reporting period, the attainment of the NNR's vision and mission were supported by a commitment to achieving five strategic goals, 19 strategic objectives and 34 key performance indicators as contained in the annual strategic plan for 2019-2024.The NNR achieved a performance rating of 92.29% against the set target of 85%.

Some of the notable highlights during the reporting period were;

- The government notice on charging interest on all debtors aged over thirty days was approved by the Board and submitted to the Minister.
- Increased procurement spend on designated groups.
- Increased nuclear safety reviews and assessments due to improved turnaround times.
- Reviewed decommissioning plans and financial provisions for both NTWP and NPP facilities.
- Conducted international benchmarking exercise for LTO.
- Developed an intergovernmental collaboration framework for regulating public exposures to radon and from contamination sites.
- Renewed regulatory bilateral cooperation agreements with USNRC, UKONR and signed a new agreement with ARPANSA.
- The CNSS signed three memoranda of co-operation agreements and one research funding agreement.
- The NNR commemorated the 20th anniversary of the National Nuclear Regulator Act.

The NNR Act, our regulatory framework, processes and actions enabled the NNR to protect workers and the environment from nuclear damage. Radiation exposure to workers and the environment at all regulated facilities were kept as low as reasonably achievable and found to be within regulatory limits. Based on the inspections and reviews conducted during the year, NNR staff concluded that all authorised facilities and actions operated with regulatory requirements during the reporting period.

Providing effective continuous nuclear safety regulatory oversight to a financially constrained industry in South Africa remains a challenge to the NNR. The emergence of the COVID-19 pandemic towards the end of the reporting period presented unprecedented challenges to the regulatory environment. As an essential service organisation, the NNR activated its business continuity plan which allowed remote working and enabled the NNR to effectively maintain nuclear safety and security oversight despite the challenges posed by the COVID-19 pandemic.

I would like to extend my appreciation to the Chairperson of the NNR, Board members for their oversight in ensuring that we make decisions that are in the best interest of our stakeholders. I would also like to thank all employees and management teams for their tireless dedication and drive under challenging environmental conditions.

Dr Bismark Tyobeka
Chief Executive Officer

B

CORPORATE GOVERNANCE

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

B. CORPORATE GOVERNANCE

Introduction

The Board reviews the systems and processes of the organisation timeously, and can assure stakeholders that the Regulator was managed and operated in compliance with the principles set out in the King IV Report and the precepts of the Public Finance Management Act (PFMA), as appropriate.

1. Portfolio Committee

The NNR presented its 2018-2019 Annual Report to the Portfolio Committee on Energy (PCE) on 09 October 2019. The NNR assured the Committee that all nuclear installations and regulated entities under the purview of the NNR did not expose workers to undue levels of ionising radiation or cause nuclear damage to the environment during the reporting period. The NNR successfully fulfilled its fiduciary duties and continued to discharge its mandate in accordance with best practices in governance whilst complying with regulatory and legislative requirements.

2. Board of Directors

The Board of Directors is the Accounting Authority in terms of the PFMA and the NNR Act. The Board is appointed for a renewable period of three years by the Minister of Mineral Resources and Energy. In terms of Section 8 (1) and (2) of the NNR Act, the Regulator is governed and controlled, in accordance with the NNR Act, by a Board of Directors to ensure that the objectives of the NNR 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 good 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.

2.1. Composition of the Board

The Board comprises 11 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 Chief Executive Officer, hold office for a maximum of three years, but are eligible for re-appointment.

Table 1: NNR Board Members

NNR Board Members For the Period December 2016 – November 2019			
Title	Full Name	Date Appointed	Stakeholder Represented
Dr	T Motshudi	7 Dec 2016	Chairperson of the Board
Dr	P Dube	7 Dec 2016	Board Member
Mr	J Leaver	7 Dec 2016	Board Member
Ms	D V Bendeman	7 Dec 2016	Board Member
Ms	E Monale	7 Dec 2016	Board Member
Mr	P Phili	7 Dec 2016	Board Member
Amb	M J Seekoe	7 Dec 2016	Board Member
Mr	K S Kakoma	7 Dec 2016	Board Member
Dr	B Sehlapelo	7 Dec 2016	Board Member
Mr	A P Le Roux	7 Dec 2016	Board Member
Ms	M B Mokoetle	7 Dec 2016	Board Member
Dr	M B Tyobeka	7 Dec 2016	Chief Executive Officer
Dr	T Tshepe	1 August 2017	Alternate Board Member
Dr	M Makgae	1 September 2017	Independent Member of the Technical Committee
Mr	P Fitzsimons	1 September 2017	Independent Member of the Technical Committee

Dr Thapelo Motshudi
Chairperson

Dr Pamela Z Dube
Deputy Chairperson and Chairperson of the Transfomation and Development Committee

Dr Bismark Tyobeka
Director and Chief Executive

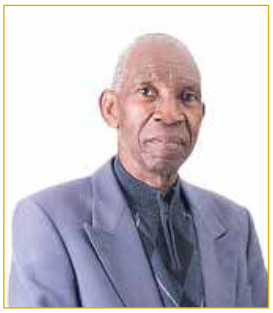
Mr Jeffery Leaver
Non-executive Director and Chairperson of the Technical Committee. Member of the Audit and Risk Management Committee

Mr Protas Phili
Non-executive Director and Chairperson of the Audit and Risk Management Committee

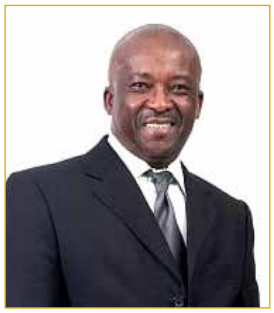
Ms Devinagie Bendeman
Non-executive Director. Member of Audit and Risk Management Committee

Ms Bridgette Mokoetle
Non-executive Director. Member of Technical Committee

Ms Elsie Monale
Non-executive Director. Member of Technical Committee. Member of Transformation and Development Committee



Mr Kabelo Kakoma
Non-executive Director. Member of Audit and Risk Management Committee.



Dr Bethuel Sehlapelo
Non-executive Director. Member of Technical Committee

Mr Abraham Le Roux
Non-executive Director Member of Technical Committee. Member of Transfomation and Development Committee

2.2. Board meetings

Table 2: Board meetings held (April 2019-March 2020)

Date of the meeting April 2019 - March 2020												
Names	24 April 2019Stakeholder engagement meeting	25 April 2019Board Meeting	27 May 2019 Board StrategicWorkshop	28 May 2019 Board StrategicWorkshop	29 May 2019 Board Strategic Workshop	31 July 2019Board Meeting	30 September 2019 Operational Risk Workshop	03 October 2019Regulatory Emergency Exercise Necsa	24 October 2019 Board Meeting	26 November 2019 Special meeting	30 January2020- Board Meeting	22 February 2020Special Board
Dr T Motshudi Chairperson of the Board	P	P	P	P	P	P	A	A	P	P	P	P
Prof P Dube- Deputy	P	P	P	P	P	P	A	A	P	P	P	P
Ms B M Mokoetle	P	A	P	P	P	P	P	A	P	P	P	P
Mr J Leaver	P	P	A	A	A	A	A	A	P	P	R	R
Ms V Bendeman	P	P	P	P	A	A	A	A	P	P	P	A
Mr P Phili	A	P	A	P	P	P	P	P	P	P	P	P
Ms E Monale	P	P	A	A	P	A	A	A	P	A	A	N/A
Dr M B Tyobeka	P	P	A	P	P	P	A	A	P	P	A	P
Dr B Sehlapelo	A	P	P	P	A	P	A	A	P	P	A	P
Mr K S Kakoma	P	P	P	P	P	P	P	A	P	P	A	P
Mr A Le Roux	A	P	P	A	A	P	P	A	P	P	A	P
Dr M Makgae	P	N/A	A	P	P	N/A	A	A	N/A	N/A	N/A	N/A
Mr P Fitzsimons	P	N/A	A	P	P	N/A	P	A	N/A	N/A	N/A	N/A

P Member present at the meeting.

A Member not present but tendered an apology

R Retired

N/A Not applicable refers to member not yet appointed to the Board/Board Committee or member resigned from such.

2.3. 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 (ARMCOM);
- Technical Committee; and
- Transformation and Development Committee (TDC).

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

2.3.1. ARMCOM

The Audit and Risk Management Committee comprised of five non-executive directors and a non-executive director, who is not the Chairperson of the Board, chaired the Committee.

The ARMCOM 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 members of the ARMCOM were:

- Mr P Phili (Chairperson)
- Mr K S Kakoma
- Mr J Leaver
- Ms B Mokoetle
- Ms V Bendeman

Table 3: ARCOM meetings held (April 2019-March 2020)

Date of the meeting April 2019 - March 2020							
Names	09 April 2019	23 May 2019	16 July 2019	15 October 2019	31 October 2019 Internal Audit Quality Assurance	21 Jan 2020	27 Feb 2020
Mr P Phili	P	P	P	P	P	P	P
Mr K S Kakoma	P	P	P	P	N/A	P	P
Mr J Leaver	P	A	A	A	N/A	Retired	Retired
Ms B Mokoetle	P	A	P	P	N/A	P	P
Ms V Bendeman	P	A	P	P	N/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 the Board/Board Committee

2.3.2. Technical Committee

The Technical Committee comprised of five non-executive Directors and two independent technical advisors, 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 Members of the Committee were:

- Mr J Leaver (Chairperson)
- Dr B Sehlapelo
- Ms E Monale
- Ms B Mokoetle
- Dr M Makgae
- Mr P Fitzsimons
- Mr A Le Roux

Table 4: Technical Committee meetings held (April 2019-March 2020)

Date of the meeting April 2019 - March 2020				
Names	10 April 2019	17 July 2019	16 October 2019	22 Jan 2020
Mr J Leaver - Chairperson	P	A	P	Retired
Dr B Sehlapelo	P	A	A	P
Ms E Monale	P	A	P	P
Ms B Mokoetle	P	P	P	P
Dr M Makgae	P	P	P	P
Mr P Fitzsimons	P	P	A	A
Mr A Le Roux	P	P	A	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.

2.3.3. TDC

The committee comprised of four non-executive member during the period under review.

The TDC 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 members of the TDC were:

- Prof P Dube (Chairperson)
- Mr A Le Roux
- Mr K S Kakoma
- Ms E Monale

Table 5: TDC meetings held (April 2019-March 2020)

Date of the meeting April 2019 - March 2020					
Names	17 April 2019	06 May 2019	18 July 2019	17 October 2019	23 January 2020
Prof P Dube(Chairperson)	P	P	P	P	P
Mr A Le Roux	P	P	P	P	P
Mr K S Kakoma	P	P	P	P	P
Ms E Monale	P	A	P	A	A

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 and other Board activities e.g. workshops. The details of the remuneration for the year ended 31 March 2020 are stated in Note 30 to the Annual Financial Statements on page 143.

3. Risk Management

3.1. Nature of risk management

The NNR continues to recognise 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, as well as providing assurance that it has done so. To implement the above, the NNR developed and implemented Risk Management Policy, Strategy, Risk Management Appetite and Tolerance Framework and Risk Implementation Plan.

A Risk Maturity Assessment was conducted for the year under review using the National Treasury Financial Management Capability Maturity Model (FMCMM) and it revealed that the NNR risk maturity level is at five out of six. The purpose of the risk maturity assessment was to assess the effectiveness of risk management within the organisation. This assessment assisted in establishing the extent to which the NNR has embedded risk management in its processes.

The outcome of the Risk Maturity Assessment indicated that the NNR has improved in embedding risk management culture into day-to-day activities. This indicates that risk management adds value, management of risks is subjected to close monitoring to ensure adequate risk rating and that the NNR has established risk tolerance parameters for major key risks, and the organisation takes risk informed decisions.

Aggregated risk management information was circulated to relevant officials and oversight structures as a matter of routine. Furthermore, risk and fraud awareness training sessions were rolled out to all employees in the NNR. Risk Champions were also trained to enable them to discharge their duties effectively and to assist their respective departments in risk management.

3.2. Risk management strategies to identify and manage risk

For the year under review, the strategic risk assessment was conducted to identify risks that could potentially impair the NNR's ability to achieve set objectives and to identify opportunities that risks present which could be channelled back to the organisational strategy.

The risk assessment was conducted following the risk assessment methodology which is embedded in the risk management strategy approved by the Board, and is in line with the National Treasury Public Sector Risk Management Framework.

The identified risks were continuously monitored throughout the financial year to minimise the risk exposure and its impact on achievement of the NNR strategic objectives, while improving performance and exploitation of identified opportunities.

3.3. Progress made in addressing identified risks

The Risk Steering Committee met on a quarterly basis to discuss the current and potential risks facing the organisation. This committee reviewed the risk management policy, strategy, and risk implementation plan on a regular basis to identify areas of improvement.

The Risk Champions also met on a quarterly basis to monitor and to ensure that actions aimed to address the identified risks were implemented during the period under review.

The following activities were carried out for all departments in conjunction with risk champions to monitor the risk profile of individual departments:

- Continuous engagement with both the risk and control owners to assess progress on the implementation of action plans.
- Continuous engagement with the control owners to review the strength of the current controls.
- Continuous engagement with risk owners to ensure that the risk profiles were updated on a regular basis.

The Implementation of risk management action plans were monitored on a regular basis through

the utilisation of a risk register and risk monitoring tool. Quarterly progress was reported to the Risk Steering Committee, which considered the progress and reported this to the Executive Committee, ARMCOM and the Board. Identification of new/emerging risks was a standing agenda item at the Risk Steering Committee. Identified risks were assessed and included in the relevant risk registers for monitoring purposes.

4. Internal Audit and ARMCOM

The NNR's Internal Audit department provides independent, objective, assurance and consulting services, designed to add value and improve the NNR's operations. These services are aimed at helping the NNR accomplish its objectives, by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes. This is done in accordance with the definition of internal auditing and the authority to establish and maintain an internal audit function, as contained in the PFMA and its Treasury Regulations.

To ensure independence, the Chief Audit Executive reports administratively to the CEO and functionally to ARMCOM.

The responsibilities of the Internal Audit department included the following:

- Evaluating the organisation's governance processes;
- Performing an objective assessment of the effectiveness of risk management and the internal control framework; and
- Systematically analysing and evaluating business processes and associated controls.

4.1. The scope of Internal Audit function

The scope of the internal audit department included:

- Developing and implementing rolling three-year and annual internal audit plans based on NNR's key areas of risk, including risks or control concerns identified by management.
- Reviewing the reliability and integrity of financial and operational information and the means used to identify, measure, classify and report such information.
- 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 NNR is in compliance.
- Reviewing the means of safeguarding assets and, when appropriate, verifying the existence of assets.
- Appraising the economy and efficiency with which resources are employed.
- 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; and,
- Providing a written assessment regarding the effectiveness of the system of internal and financial controls in the organisation and submitting a report to ARMCOM to enable it to formulate its comment for the financial statement.

The annual allocation of internal audit resources to audit activities is established on the basis of an approved annual internal audit plan. ARMCOM remained responsible for approving the rolling three year and annual internal audit plans.

4.2. Summary of audit assignments completed

For the 2019/2020 financial year, 17 internal audits were conducted in the following areas: Corporate Support Services (including Information Technology); Finance; Legislative; Compliance; Risk Management; Organisational Performance; Communication and Stakeholder Relations; Project Management and Regulatory Improvement and Technical Services (RITS). The results of the audits were discussed with management, economic recommendations to address identified weaknesses were provided and management provided action plans and implementation dates to address identified weaknesses.

The internal audit department conducted an external quality assessment review. The results were discussed with management and ARMCOM. A Quality Assurance and Improvement Plan (QAIP) was updated and is being implemented.

4.3. ARMCOM

The role of ARMCOM was to assist the Board to ensure that the NNR implemented an effective policy and plan for risk management that would enhance the organisation's ability to achieve its strategic objectives and to ensure that disclosure regarding risk was comprehensive, timely and relevant.

ARMCOM assisted the Board by reviewing the following:

- The effectiveness of the internal control systems.
- The effectiveness of internal audit function.
- The effectiveness of the risk management system.
- The adequacy, reliability and accuracy of financial information.
- Accounting and auditing concerns identified as a result of internal and external audits.

4.4. The NNR's compliance with legal and regulatory provisions

The activities of the internal audit function, including its internal audit charter and methodology, three-year strategic and annual internal audit plans, co-ordination with the external auditors, the reports of significant investigations and the responses of management to specific recommendations, include the following:

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; and,

- Providing a written assessment regarding the effectiveness of the system of internal and financial controls in the organisation,and submitting a report to ARMCOM to enable it to formulate its comment for the financial statement.

The annual allocation of internal audit resources to audit activities is established on the basis of an approved annual internal audit plan. ARMCOM remained responsible for approving the plan.

4.5. Fraud and corruption

In order to prevent fraud and corruption and create awareness among employees, the NNR developed and implemented Fraud and Corruption Prevention Policy, Fraud and Corruption Whistleblowing Policy, Fraud and Corruption Prevention Plan as well as Fraud and Corruption Response Plan.

The fraud and corruption prevention process was implemented and monitored in accordance with the approved Risk Implementation Plan which detailed the activities that were undertaken for the year under review. Fraud risk assessment was conducted internally with senior managers participating in identification and reviewing of possible fraud and corruption risks.

The identified fraud risks were rated according to the risk management matrix of the NNR and the risk owners were requested to provide mitigation plans to address the control deficiencies for all risks that fell outside the risk appetite. A consolidated fraud register was developed and approved by the Board. Identified action plans were allocated a start and due date to monitor progress throughout the financial year.

Monitoring and tracking of the implementation of action plans were conducted on a regular basis to manage identified fraud and corruption risks to an acceptable level within the organisation. Fraud and corruption prevention awareness training sessions were rolled out to employees of the NNR.

One incident of whistle-blowing was reported during the period under review. The incident was reported by a service provider who submitted a bid to the NNR and later indicated that he received a call from a person claiming to be working for the NNR requesting money to release the purchase order. The NNR investigated the matter and responded by issuing letters to all service providers who submitted their bids for that specific tender

to assure them that the NNR will never request any monies for awarding of bids or tenders. The matter was reported to the South African Police Services for further investigation.

5. Social Responsibility

Recruitment was implemented in terms of the NNR's transformation targets. NNR was compliant with the provisions of the PFMA and remained committed to the principles of social transformation and black economic empowerment.

Notable initiatives implemented during the reporting period included:

- NNR Women in nuclear raised awareness of the challenges and opportunities for Women in Africa during the WiN Global Conference 2019 which took place from 17-21 June 2019 at the Polytechnic University of Madrid in Spain.
- Donated grocery hampers to the underprivileged in Gauteng.
- Donated school shoes to learners from impoverished communities.

6. B-BBEE Compliance Performance Information

The Broad-based Black Economic Empowerment Act, 2013 as amended (the B-BBEE Act), read together with the B-BBEE Regulations, requires that all spheres of government, public entities and organs of state as well as companies listed on the Johannesburg Stock Exchange (JSE) report to the B-BBEE Commission annually on their compliance with broad-based black economic empowerment.

The National Nuclear Regulator (NNR) supports the broad impetus of B-BBEE to structure and transform the economy to enable meaningful participation of the majority of its citizens, and to further create capacity within the broader economic landscape at all levels. The NNR's B-BBEE compliance is measured by means of a scorecard, which is based on various elements. The following are the different elements used to measure the NNR's B-BBEE compliance:

- Ownership – this measures the percentage of black ownership shareholding in the business. This is regarded as a priority element and failure to comply with the minimum target (40% of Net Value) will result in the level as obtained being discounted.
- Management control – which measures the directorship, executive management, other executive management, senior management, middle management, junior management and disabled staff in the business.
- Skills development – which measures the amount of money spent on training of black employees and black people. This element is regarded as a priority, and failure to comply with the minimum target of 40% will result in the level as obtained being discounted.
- Enterprise and supplier development – this measures spending on helping other black owned enterprises grow, both suppliers to you and non-suppliers. This is regarded as a priority element and failure to comply with the minimum target 40% in all categories will result in the level as obtained being discounted; and
- Socio-economic development – this element measures spending on assisting charitable organisations.

During the 2019/20 financial year, the NNR conducted a B-BBEE assessment to determine its level of compliance. The below table depicts the results obtained from the assessment:

Table 6: NNR B-BBEE Scorecard

B-BBEE Element	Maximum Weighted Points	NNR's Score
Ownership	25	0
Management Control	15 plus 4 bonus points	16.05
Skills Development	20 plus 5 bonus points	13.06
New Enterprise and Supplier Development	40 plus 4bonus points	5.36
Socio-Economic Development	5	0
Total	118	34.47

From the table above, the NNR scored below 40 points, and is therefore classified as a non-compliant entity. In its endeavour to becoming a compliant entity the NNR will embark on the following actions:

- Strive to improve on socio-economic development assessment criteria, in particular. Where possible, planning for outreach programmes will be aligned to the social responsibility criterion of the B-BBEE Act.
- Request an exemption from the New Enterprise and Supplier Development assessment criteria. This criterion is, largely, impractical for the NNR due to the nature of business and budget quantum.

C

PEFORMANCE OVERVIEW

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

C. PERFORMANCE OVERVIEW

1. Programmes

Programme	Programme Purpose
The Board of Directors	The Board sets the direction and governs the regulator in accordance with the NNR Act. The Board develops the strategic plan and oversees the organisation's performance with regards to the stated strategic objectives as well as being responsible for overseeing the risk based Internal Audit. The Board Secretariat services the Board and reports to the Chairperson of the Board.
Office of the CEO	As the face of the organisation, the office of the CEO has the overall responsibility. The functions in this office include **(a)** Legal Services and Enterprise Risk Management; and **(b)** Strategy, Governance and Organisational Performance responsible for the implementation of the organisation's strategic plan and oversees the performance of operations including the development of the organisational performance, reporting, as well as the monitoring of strategic projects and maintaining order through governance; and **(c)** Internal Audit (reporting to the Board's Audit and Risk Management Committee functionally and administratively to the CEO), is responsible for conducting risk based internal audits in all divisions/departments of the NNR.
Financial Management	Programmes in this portfolio provide organisational support in the area of financial management and administration. This is done through the following keyfunctional streams **(a)** Financial Planning and Management, **(b)** Financial Reporting, **(c)** Asset Management and Supply Chain Management (Procurement), **(d)** Accounts Payable, and **(e)** Accounts Receivable and Cash Book Management, and Payroll Management.
Nuclear Power Plant	The NPP division focusses on a holistic approach towards regulating safety and security for nuclear power plants technology. In terms of its core functions it delivers on the Compliance Assurance and Enforcement activities, Reviews and Assessments and general oversight of the KNPS licence. Additionally, the programme focusses on issuing of authorisations for Nuclear Vessel Licences (NVL), licence change request, and management of NPP projects throughout the facility life cycle.
Nuclear Technology & NORM	The NTN division provides a holistic approach towards regulating safety and security of the application of nuclear technologies and management of radioactive waste including various nuclear facilities on the Necsa Pelindaba site, Vaalputs National Radioactive Waste Disposal Facility as well as all facilities including mines that engage in activities involving Naturally Occurring Radioactive Material (NORM) and Regulation of public exposure resulting from radon contamination. The programme focusses on the issuing of nuclear authorisations including Nuclear Installation Licences (NIL), Nuclear Vessel Licences (NVL), Certificates of Registration (COR) and Certificates of Exemption (COE) and amendments thereto as well as conducting reviews and assessments related to the safety of these facilities. Further, it delivers on the compliance assurance and enforcement activities, which include conducting inspections, investigations, surveillances and environmental monitoring and sampling related to nuclear technology facilities, all identified naturally occurring radiation material (NORM) facilities.

Programme	Programme Purpose
Regulatory Improvement & Technical Services	Strategic leadership and management in delivering Regulatory Improvement and Technical Services to all the technical programmes of the NNR through its cross-cutting and in-depth review and assessments capabilities. The division offers technical services in emergency preparedness and response, laboratory services, nuclear safety and security culture, development of regulatory standards and nuclear projects and the co-ordination of nuclear security activities. Conduct in-depth reviews and assessments in the areas of waste management, environment and radiation protection, transport of radioactive materials and the issuing of nuclear vessel licenses, engineering services and the independent verification by computer codes. A key component of this programme is the research and development which is conducted on emerging issues regarding nuclear and radiation safety housed under the flagship of the Center for Nuclear Safety and Security (CNSS). The RITS workflow process has been developed, to concentrate on regulatory improvement. A key component of this programme is the research and development which is conducted on emerging issues regarding nuclear and radiation safety housed under the flagship of the Center for Nuclear Safety and Security (CNSS).
Corporate Support Services	This programme provides strategic organisational support through the key functions of human capital management, knowledge and information management, integrated management system, facilities management, information communication and technology, security and occupational health and safety, and communications and stakeholder relations management.

2. Performance Tables

The 2019-20 APP consisted of five Strategic Goals, 19 Strategic Objectives and 34 KPIs. The organisational performance for the year is 92.29% against the set target of 85%.

The RAGG indicator summary is summarised as follows:

Green (100% achievement of target)	27/34 KPIs
Amber (85-99% achievement to target)	2/34 KPIs
Red (non-achievement registered below 85% target)	5/34 KPIs
Grey (set aside / not applicable)	0/34 KPIs

NNR ANNUAL ORGANISATIONAL PERFORMANCE FOR 2019/2020 – POST-AUDIT

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
1. To provide efficient and effective Nuclear Regulatory Services	1.1 To provide an independent analytical verification capability and capacity.	SANAS application assessment report	RM1: % approved activities as per the plan	New KPI for 2019/20
	1.2 To have in place a fully operational RERC.	RERC Exercise	RM2: Effective response to a nuclear radiological emergency	New KPI for 2019/20
	1.3 To ensure the protection of persons, property and environment.	Compliance assurance activities conducted	RM3a: % Implementation of the CAP	100%
		Reviews and assessments	RM3b:Reviews and assessments undertaken	100%

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
SANAS Application Assessment Report	80% of plan for SANAS Application Assessment Report	80%	4/5 activities completed as planned. The site visit by SANAS is still outstanding which would have been final step required to conclude the Assessment report.	
Implemented RERC Exercise	Implemented RERC Exercise	100%		The exercise was conducted on the 6th November 2019 and the report compiled and approved.
100% of the CAP	100.30 % of the CAP	100%	2 NORM inspections could not be conducted due to the national lockdown in response to the COVID-19 pandemic. However, NPP conducted 3 more unplanned inspections	Inspections: NORM: 143/145 NPP: 38/35 NTWP:83/83 264/263=100.38%
100% reviews and assessments per program	115.49% reviews and assessments per program	100%	10 NORM submissions were not completed due to the COVID-19 pandemic. However, 67 additional reviews & assessments for the NTWP were completed due to improved turnaround times. 73 additional reviews & assessments for the NPP were completed due to improved turnaround times. 9 additional reviews & assessments for the SGR were completed due to improved turnaround times	242/252 submissions for authorisation change requests, applications and general letters were reviewed and assessed. 267/ 200 submissions related to Necsa Pelindaba Site and Vaalputs were reviewed and assessed. 303/ 225 submissions related to Koeberg NPP were reviewed and assessed. 269/ 259 submissions related to the SGR project were reviewed and assessed. 1081/936=115.49%

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
		Conditions of authorisation reviewed	RM3c: No. of conditions of authorisations reviewed	New KPI for 2019/20
			RM3d: No. of conditions of authorisations reviewed	New KPI for 2019/20
		Develop a methodology to assess capacity requirements of human resources and leadership for safety	RM3e: Methodology developed	New KPI for 2019/20
		Regional assessment of impact on the public from NORM facilities	RM3f: Impact assessed	New KPI for 2019/20
		Regulation of public exposures resulting from radon and contamination sites not covered by existing authorisations	RM3g: Framework for collaboration with stakeholders on contamination sites	New KPI for 2019/20

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
2 categories	Conditions in 2 categories	100%		Category 2 conditions for certificates of registration were reviewed and consolidated into the document GUI-RAS-001-Criteria for the Determination of NORM Authorisation Conditions.
12 Necsa Authorisations	41 Necsa Authorisations	100%		A consolidation of all proposed changes to the general conditions contained in Part A of the Nuclear Installation Licences issued for nuclear facilities on the Necsa Pelindaba Site and Vaalputs National Radioactive Waste Disposal facility was compiled.
Developed methodology	Developed methodology	100%		A methodology for regulatory assessment of leadership for safety and assessment of licensee capacity was developed and documented.
Impact assessment report	Impact assessment report	100%		The radiological regional impact assessment report was documented through the review and assessment of the historical confirmatory results.
Developed framework	Developed framework	100%		The Collaboration Framework is complete and will become the basis for further intergovernmental engagements.

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
			RM3h: Funding mechanism proposal	New KPI for 2019/20
		National action plan for radon	RM3i: Draft national radon action plan developed	New KPI for 2019/20
	1.4 To strengthen regulatory oversight of the back end of the nuclear fuel cycle.	Review decommissioning plans and associated financial provisions of Necsa facilities	RM4: Decommissioning plans and financial provisions reviewed (NTWP, NPP)	New KPI for 2019/20
	1.5 To reverse the observed trend of degradation of safety and security culture at authorised facilities.	Safety and security culture awareness session conducted	RM5: No. of awareness sessions conducted	New KPI for 2019/20
	1.6 To review and update Regulatory Framework for LTO.	Benchmarking with Regulatory counterparts in respect of LTO	RM6: Approved benchmarking report	New KPI for 2019/20
	1.7 To implement systematic ageing management inspections.	Inspection programme for ageing management	RM7:% of ageing management programme.	100%

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
Funding proposal document	Funding proposal document	100%		The funding mechanism document has been accepted by management and will be utilised as the base for consultations with external stakeholders.
Draft National Radon Action Plan developed	Draft National Radon Action Plan developed	100%		The Draft National Radon Action Plan was compiled and will be utilised for consultation with relevant external stakeholders
18 facilities plans	0	0	The NNR has reviewed conditions for decommissioning plans and financial provisions as there we no actuals plans to review.	
3 sessions held with holders	2 sessions held with holders	66%	Nuclear Security Culture awareness sessions were held at Necsa and a survey conducted with the respondents.	
Benchmarking Report	Benchmarking Report	100%		A benchmarking exercise was conducted with international counterparts in respect of LTO and a report compiled.
20% of ageing Management Programme	21% of ageing management	100%	3 inspections focusing on ageing management were conducted at Koeberg and Necsa respectively.	

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
	1.8 To provide manufacturing oversight for SGR.	Standards met and, compliance with requirements	RM8: % verification reports reviewed	New KPI for 2019/20
2. To operationalise the CNSS	1.9 To leverage strategic partnerships through the CNSS to build capacity.	Leveraging on existing strategic partnerships	RM9a: No: of CNSS staff placed at partner institutions	New KPI for 2019/20
		Establish new collaboration with strategic partners	RM9b: No. of new strategic partnership/ collaboration agreements signed	New KPI for 2019/20
	1.10 To enhance collaboration with strategic partners to strengthen training and capacity building.	Develop workforce capability	RM10a: No. of competency based training co-developed	New KPI for 2019/20
		Develop and implement training programmes	RM10b: No. of inspector training modules co-developed	2
	1.11 To undertake research and ensure effective technical support to the Regulator.	Identify and scope priority research projects	RM11a: No. of research projects scoped	7
			RM11b: No. of research projects initiated and managed	6

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
100% verification reports reviewed	80% verification reports reviewed	80%	The finalisation of the verification reports could not be completed due to the impact of COVID-19 pandemic on travel restrictions to China. The requirement was that the review of various End of Manufacturing records be conducted.	4/5 activities were completed.
2	2	100%		2 CNSS research associates were seconded to work with technical expects within the host institution as part of capacity building
2	4	100%	2 more strategic partnerships agreements signed due to improved international awareness of the CNSS	3 Memoranda of Cooperation agreements and 1 research funding agreement were signed.
2	2	100%		Training on Sampling Collection and Instrumentation and Nuclear Engineering in a Nutshell were developed and piloted
2	60%	60%	The process to develop modules was not concluded on time	
6	7	100%	1 additional project was scoped due to improved turnaround times by the CNSS.	7 research projects were scoped.
2	2	100%		2 research projects initiated and managed.

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
			RM11c: No. of various research projects presented at forums	New KPI for 2019/20
		Identify and scope priority TSS projects	RM11d: No. of TSS projects initiated	1
3. To ensure financial viability and sustainability of the organisation.	1.12 To develop mechanisms that ensure financial viability and sustainability of the organisation.	Proposed government notice	FM1a: Development and submission of the Board approved government notice	New KPI for 2019/20
		Pilot plan of action	FM1b: 100% implementation of pilot plan	New KPI for 2019/20
	1.13 To increase price competiveness in procurement	% of procurement spend on designated groups, as a percentage of total procurement	FM2: 50% of procurement spend on designated groups	88%
4. To provide robust internal business processes.	1.14 To implement ICT strategy.	100% of quarterly deliverables	PM1: Implementation of the ICT strategy	100%
	1.15 To maintain an effective internal audit programme.	No overdue actions to close out outstanding audit findings	PM2: Reduced number of outstanding audit findings	75%
	1.16 To build security management capacity.	Develop security strategic framework	PM3a: % of implementation of deliverables	New KPI for 2019/20

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
4	9	100%	3 more research papers were presented as a result of additional research associates appointed	9 research papers where presented at different forums.
2	2	100%		2 TSS projects initiated
Board approved government notice	Board approved government notice	100%		The government notice on charging interest on all debtors aged over 30 days was approved by the Board and submitted to the Minister
Final report on the fee structure	90% Report awaiting ministerial approval	90%		Fee Structure report was approved by Board and has been submitted to the Ministerial for approval.
50% of procurement spend on designated groups	164% of procurement spend on designated groups	100%		Procurement from designated groups was 82 %, surpassing the target of 50%
100% of annual deliverables	98.7% of annual deliverables	98.7%	The process to appoint a DRP service provider is 50% completed; the NSR is 90% completed; the ICT report for 2019/2020 has been drafted but will only be submitted to the July 2020 ARMCOM meeting	
100% close-off of audit findings per the action plan	80% close off of audit findings per the action plan	80%	132 audit issues were due this financial year and 105 of them were resolved.	
Approved Security Framework	Approved Security Framework	100%		The framework was approved by Board

Goal	Objective	Measure	KPI	Actual Achievement 2018/19
		Develop security policy	PM3b: % of Implementation of Deliverables	New KPI for 2019/20
5. To optimise strategic people management practices.	1.17 To enhance staff communication and involvement.	100% of quarterly deliverables	LM1: Implementation of an enhanced internal communications framework	New KPI for 2019/20
	1.18 To implement leadership and management development program.	100% of quarterly deliverables	LM2: Implementation of management and leadership development plan	100%
	1.19 To implement an organisational culture project.	100% of quarterly deliverables	LM3: Define the NNR culture	New KPI for 2019/20

Planned Target 2019/20	Actual Achievement 2019/20	Percentage (%) performance	Notes on variance	Notes on achievement
Approved Security Policy	Approved Security Policy	100%		The policy was approved by Board
100% of annual deliverables	100% of annual deliverables	100%		All deliverables were implemented as planned
100% of annual deliverables	83.3% of annual deliverables	83%	The training planned for March 2020 was cancelled due to the impact of the COVID-19. 5/6 planned actions were implemented.	
100% of annual deliverables	100% of annual deliverables	100%		The Organisational Culture Framework was developed, approved and implemented following extensive stakeholder engagement and communication
	Total organisational performance	92.29%		

3. Annual Report Financial Information – March 2020

Linking performance with budgets

The table below indicates the resource allocations and the utilisation for all the key objectives, respectively.

Table 7: 2019/2020 performance with budgets

Programme	Code	Description	2019/2020			2018/2019		
			Budget	Actual	Variance Under/ (Over)	Budget	Actual	Variance Under/ (Over)
			R'000	R'000	R'000	R'000	R'000	R'000
To process applications for nuclear authorisations in a timely and accurate manner	135, 137, 138, 146, 147, 148 & 149	Personnel	26 038	21 651	4 387	34 341	26 268	8 073
		Goods & Services	16 496	16 944	(448)	15 743	18 860	(3 117)
	Total		**42 534**	**38 594**	**3 939**	**50 084**	**45 128**	**4 956**
To ensure effective implementation of nuclear security measures by authorisation holders	139 & 175	Personnel	3 956	3 969	(12)	2 969	1 526	1 443
		Goods & Services	384	356	28	1 135	67	1 068
	Total		**4 340**	**4 325**	**16**	**4 104**	**1 593**	**2 511**
To establish an independent verification capability for the NNR	136 & 140	Personnel	9 698	8 717	981	20 247	8 520	11 727
		Goods & Services	839	346	493	5 226	457	4 769
	Total		**10 537**	**9 063**	**1 474**	**25 473**	**8 977**	**16 496**
To provide assurance of safety performance of authorisation holders through inspections, audits, investigation and taking enforcement action for identified non-compliance	171 - 179	Personnel	39 978	35 176	4 802	36 702	33 028	3 674
		Goods & Services	5 082	3 166	1 917	4 787	2 995	1 792
	Total		**45 060**	**38 342**	**6 719**	**41 489**	**36 023**	**5 466**
Good governance	124 - 128	Personnel	14 517	14 902	(385)	13 941	13 698	243
		Goods & Services	7 879	6 132	1 747	10 046	7 467	2 579
	Total		**22 396**	**21 034**	**1 362**	**23 987**	**21 165**	**2 822**
Financial viability and sustainability	155, 156 & 158	Personnel	12 706	30 184	(17 478)	20 704	23 070	(2 366)
		Goods & Services	22 900	24 520	(1 620)	13 747	26 896	(13 149)
	Total		**35 606**	**54 704**	**(19 097)**	**34 451**	**49 966**	**(15 515)**
High performance culture, effective human capital management	142, 144, & 145	Personnel	9 405	9 645	(241)	11 166	10 737	429
		Goods & Services	10 350	6 079	4 271	15 487	10 202	5 285
	Total		**19 755**	**15 724**	**4 030**	**26 653**	**20 939**	**5 714**

Programme	Code	Description	2019/2020			2018/2019		
			Budget	Actual	Variance Under/ (Over)	Budget	Actual	Variance Under/ (Over)
			R'000	R'000	R'000	R'000	R'000	R'000
Sound organisational infrastructure	143	Personnel	4 607	3 773	834	5 138	3 155	1 983
		Goods & Services	13 852	10 978	2 874	13 629	12 267	1 362
	Total		**18 459**	**14 751**	**3 708**	**18 767**	**15 422**	**3 345**
Stakeholder relations and corporate image	141	Personnel	2 783	2 652	131	-	-	-
		Goods & Services	3 999	3 643	356	-	-	-
	Total		**6 782**	**6 296**	**486**	**-**	**-**	**-**
To provide an independent analytical verification capability and capacity	160 - 167	Personnel	41 919	38 959	2 959	13 565	30 365	(16 800)
		Goods & Services	19 368	12 038	7 330	13 319	14 198	(879)
	Total		**61 287**	**50 997**	**10 289**	**26 884**	**44 563**	**(17 679)**

Table 8: Revenue

Sources of revenue	2019/2020			2018/2019		
	Budget	Actual	Variance Under/ (Over)	Budget	Actual	Variance Under/ (Over)
	R'000	R'000	R'000	R'000	R'000	R'000
Authorisation fees	199 926	196 440	3 486	180 339	183 647	(3 308)
Application fees	17 736	23 152	(5 416)	28 541	22 199	6 342
State grant	43 096	43 096	-	16 510	16 510	-
Other revenue	5 998	8 073	(2 075)	26 413	8 475	17 938
Total	**266 756**	**270 761**	**(4 005)**	**251 803**	**230 831**	**20 972**

4. Summary of Financial Information

Revenue collection

The NNR is mainly funded from authorisation fees and state grants (conditional and unconditional) in the form of transfers. As shown in Table 8 above, the NNR billed R196 million in authorisation fees in the 2019/20 financial year, which is 7% more than the previous financial year. The actual authorisation fees revenue is, however, less than the approved budget for the year, due to the reduction in regulated activities. The appropriated funds transferred from the fiscus for the year increased from R16 million in 2018/19 to R43 million, in line with the Medium Term Expenditure Framework. Revenue from application fees increased by 4,3% from the previous financial year. This revenue stream remains unpredictable, and fluctuates year on year based on applications received and additional work agreed upon with applicants on ongoing projects. Other revenue (which includes Other income and Interest received) slightly decreased from R8,4 million in 2018/19 to R8 million in the current financial year. This revenue stream relates mainly to recoveries from services rendered by the NNR on behalf of partner institutions, such as the IAEA, ENSTTI, etc.

Table 9: 2019/2020 performance with budgets

Programme	Description	2019/2020			2018/2019		
		Budget	Actual	Variance Under/ (Over)	Budget	Actual	Variance Under/ (Over)
		R'000	R'000	R'000	R'000	R'000	R'000
Administration	Personnel	44 033	61 156	(17 124)	41 798	50 659	(8 861)
	Goods & Services	58 980	51 383	7 597	62 060	57 002	5 058
	Total	**103 013**	**112 540**	**(9 527)**	**103 858**	**107 661**	**(3 803)**
Nuclear Power Plants	Personnel	35 735	30 368	5 368	37 310	34 788	2 522
	Goods & Services	17 336	17 305	31	16 878	19 317	(2 439)
	Total	**53 071**	**47 673**	**5 398**	**54 188**	**54 105**	**83**
Nuclear Technology & NORM	Personnel	43 934	39 145	4 789	36 702	34 555	2 147
	Goods & Services	5 082	3 521	1 561	4 787	3 062	1 725
	Total	**49 017**	**42 666**	**6 350**	**41 489**	**37 617**	**3 872**
Regulatory Improvements and Technical Services	Personnel	41 904	38 959	2 944	33 812	30 365	3 447
	Goods & Services	19 752	11 992	7 760	18 545	14 028	4 517
	Total	**61 655**	**50 951**	**10 704**	**52 357**	**44 393**	**7 964**

Administration (support services)

The support services programme incurred expenditure on compensation of employees of R61 million for the 2019/20 financial year. This is an increase of about R10 million from the previous financial year. The increase is attributed to the annual cost of living adjustment on salaries in terms of the new three-year salaries increase agreement with the labour union, and an increase in capacity in line with the human resources plan. The new three-year annual cost of living adjustment agreement with the recognised labour union was entered into from the 2019/20 financial year the end of the 2021/22 financial year.

The programme's expenditure on goods and services was R57 million, which is about 10,9% below the previous financial year's spending. A variance of R7,5 million, equivalent to 12,8%, was realised between the budget and actual expenditure on goods and services in this programme. This variance can be attributed to savings on operational and administrative expenditure, mainly in repairs and maintenance costs; data and network system costs and system development and upgrade costs, in line with the NNR's cost containment measures.

Nuclear Power Plants (NPP)

The programme's expenditure on compensation of employees decreased slightly from R34 million in the previous financial year to R30 million in the year under review. The decrease can be attributed the movements of staff members and delays in the filling of vacant positions.

Expenditure on goods and services reduced by about 11.6%, from R19,3 million in 2018/2019 to R17,3 million in the 2019/2020 financial year. The decrease is attributed to savings on operational and administrative expenditure, in line with cost saving measures implemented by the NNR. Savings on travelling, due to the Covid-19 pandemic also contributed to the reduction in goods and services spending.

Nuclear Technology and NORM (NTN)

The NTN division spent R4,5 million more on expenditure for compensation of employees in the year under review, compared to the previous financial year. This increase is attributed to additional appointment in the year under review in line with the human resources plan and the annual cost of living adjustments.

Expenditure on goods and services for the year under review was R3,5 million, against a budget of R5 million. The savings of about R1,5 million is mainly attributed to savings from catering, domestic training and domestic travelling, due to travelling restrictions during the last quarter of the financial year because of the Covid-19 pandemic.

Regulatory Improvements and Technical Services (RITS)

Total expenditure for compensation of employees in the RITS division amounted to R38 million, for the period ended 31 March 2020. This is an increase of R8,5 million (22%), compared to the previous financial year. The increase can be attributed to the filling of vacant posts in line with the NNR's resource plan, and because of the cost of living adjustments.

The division underspent on goods and services by about R7 million against the budget. This savings on goods and services is largely attributed to the cancellations of local and international travel and training, including other related expenditure, due to the Covid-19 and the national lockdown. The NNR's strict financial discipline, in line with the National Treasury Instruction on cost containment, also contributed to the low spending.

Table 10: The capital investment, maintenance and asset management plan

Sources of Revenue	2019/2020			2018/2019		
	Budget	Expenditure	Balance	Budget	Expenditure	Balance
	R'000	R'000	R'000	R'000	R'000	R'000
Regulatory emergency control centre	2 776	-	2 776	3 741	965	2 776
Cape Town office accommodation	10 281	110	10 171	9 384	455	8 929
Total	**13 057**	**110**	**12 947**	**13 125**	**1 420**	**11 705**

There was a slight movement in expenditure on capital investments, maintenance decreased slightly from R13 million in the previous year to R12.9 million. This expenditure related to the Cape Town office. The design of the office building is complete, and construction is expected to commence towards the middle of the 2020/21 financial year.

Table 11: Employee cost by salary band

Category	Personnel Expenditure	% of Employee to Total Personnel Cost	No. of Employees	Average Personnel Cost per Employee
Top management (JE Level 1)	2 751	1.78%	1	2 751
Senior management (JE Level 3)	18 507	11.96%	10	1 851
Professionally qualified (JE Level 4, 5, 6 & 7)	119 621	77.31%	120	997
Skilled (JE Level 8 & 9)	9 454	6.11%	24	394
Semi-skilled (JE Level 10)	2 965	1.92%	11	270
Interns & Learners	1 440	0.93%	12	120
Total	**154 738**	**100.00%**	**178**	**6 382**

Table 12: Performance rewards

Category	Performance Rewards	Personnel Expenditure	Average Personnel Cost per Employee
Top management (JE 1)	268	154 738	0.17%
Senior management (JE 3)	1 491	154 738	0.96%
Professionally qualified (JE 4,5,6 & 7)	8 263	154 738	5.34%
Skilled (JE 8 & 9)	565	154 738	0.37%
Semi-skilled (JE 10)	44	154 738	0.03%
Interns & Learners	-	154 738	0.00%
Total	**10 631**	**154 738**	**6.87%**

D

HUMAN RESOURCE MANAGEMENT

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

D. HUMAN RESOURCE MANAGEMENT

1. Overview

The primary focus during the 2019/20 financial year was on optimising people management practices and cultivating an environment for promoting a healthy organisational culture for the NNR. During the review period, the NNR implemented a leadership and development programme, finalised the organisational culture framework and launched the organisational culture project under the theme "Trust" and "Care."

The NNR remained committed to meeting its transformation objectives and delivered on its EE targets for the year under review. The NNR continued to make noteworthy progress in gender transformation.

2. HR Oversight Statistics

Table 13: Employment and vacancies at financial year end

Permanent employees	149
Interns and learners	12
Temporary employees	5
Vacant positions	20

Table 14: Employment changes

Ms D Kgomo	Executive: Nuclear Technology and NORM
Mr O Phillips	Executive: Nuclear Power Plant
Ms A Simon	Executive: Corporate Support Services
Ms L Mpete	Executive: Interim Regulatory Improvement and Technical Services (RITS)
Ms P Masilo	Chief Audit Executive
Ms N Kote	Senior Manager: Strategy, Governance and Organisational Performance
Mr F Ndou	Senior Manager: Legal, Risk and Compliance

Table 15: Employee relations: Misconduct and disciplinary action

Nature of Disciplinary Action	
Verbal warning	0
Written warning	0
Final written warning	0
Dismissal	0

Table 16: Employment equity statistics (as per the EE report filed in October 2018)

Occupational Levels	Male				Female				Foreign Nationals		Total
	A	C	I	W	A	C	I	W	Male	Female	
Top management	1	0	0	0	0	0	0	0	0	0	1
Senior management	3	3	1	0	2	0	1	0	0	0	10
Professionally qualified	42	7	4	8	41	0	1	4	3	2	112
Skilled technical	5	0	0	0	12	1	0	3	0	0	21
Semi-skilled	5	0	0	0	3	0	0	0	0	0	8
Unskilled	0	0	0	0	0	0	0	0	0	0	0
TOTAL PERMANENT	56	10	5	8	58	1	2	7	3	2	152
Temporary employees	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**56**	**10**	**5**	**8**	**58**	**1**	**2**	**7**	**3**	**2**	**152**

The Department of Labour conducted an employment equity compliance audit in November 2018 and the NNR was found to be compliant with all EE regulations.

Table 17: Staff with disabilities

Occupational Levels	Male				Female				Foreign Nationals		Total
	A	C	I	W	A	C	I	W	Male	Female	
Top management	0	0	0	0	0	0	0	0	0	0	0
Senior management	0	0	0	0	0	0	0	0	0	0	0
Professionally qualified	1	0	0	1	3	0	0	0	0	0	5
Skilled technical	0	0	0	0	0	0	0	0	0	0	0
Semi-skilled	0	0	0	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0	0
TOTAL PERMANENT	1	0	0	1	3	0	0	0	0	0	5
Temporary employees	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**5**

Employee induction

Table 18: Employee induction

Dates	Number of Attendees
18 – 19 June 2019	11
04 September 2019	08

Training and development

Table 19: Training and development

NNR Bursaries	Competence Training	Funded Training	External Bursaries (universities)	Interns	Trainees
12	112	12	8	11	7

Leadership and management development

Table 20: Leadership and management development

Interventions	Dates	Number of Attendees
Labour Relations Training	14-15 March 2019	11
IMS and Finance Workshop	12 August 2019	13
Legal Liability for Managers	23 October 2019	21

E

REGULATION OF NUCLEAR ACTIONS

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

E. REGULATION OF NUCLEAR ACTIONS

List of Authorisations

Authorisation No.	Var.	Nuclear facilities	Date issued	B #
NIL-01	19	Koeberg Nuclear Power Station	7 March 2019	NA
NIL-02	3	SAFARI – 1 Research Reactor	21 May 2012	NIL02B0296
NIL-03	1	P2700 Complex	4 May 2012	NIL03B0041
NIL-04	0	Thabana Complex comprising the following facilities: • Thabana PipeStore • Thabana Radioactive Waste Storage facility • Thabana Containerised Radioactive Waste Storage facility CaF2 Ponds	30 October 2009	NIL04B0001
NIL-05	1	HEU Vault – K0090	4 May 2012	NIL05B0004
NIL-06	0	A-8 Decontamination Facility	11 May 2010	NIL06B0001
NIL-07	0	Building A-West Drum Store	9 February 2009	NIL07B0001
NIL-08	1	ELPROD in Building P-2500	4 May 2012	NIL08B0039
NIL-09	1	UMET in Building P2600	28 October 2011	NIL09B0004
NIL-10	0	Conversion Plant Complex	5 August 2010	NIL10B0001
NIL-11	1	Area 14 Waste Management Complex	18 April 2011	NIL11B0009
NIL-12	0	Quarantine Storage Facility	8 October 2009	NIL12B0001
NIL-13	0	V-YB Pelindaba East Bus Shed Complex	30 October 2009	NIL13B0001
NIL-14	0	Pelindaba East Evaporation Ponds Complex	30 October 2009	NIL14B0001
NIL-15	0	Oil Purification Facility	30 October 2009	NIL15B0001
NIL-16	0	Area 21 Storage Facility	11 May 2010	NIL16B0001
NIL-17	0	BEVA K3 Storage Complex	2 November 2009	NIL17B0001
NIL-18	0	Area 16 Complex	11 May 2010	NIL18B0001
NIL-19	1	Area 40 Complex	1 November 2011	NIL19B0012
NIL-20	0	Area 27 De-Heeling Facility	11 May 2010	NIL20B0001
NIL-21	0	J-Building	24 November 2009	NIL21B0001
NIL-22	0	D-Building	5 August 2010	NIL22B0001
NIL-23	0	C-Building	12 May 2010	NIL23B0001
NIL-24	0	Building P-2900	24 November 2009	NIL24B0001
NIL-25	0	Building XB	11 May 2010	NIL25B0001
NIL-26	0	BEVA Evaporation Ponds	11 January 2010	NIL26B0001
NIL-27	0	Building P-2800	11 May 2010	NIL27B0001
NIL-28	1	Vaalputs National Radioactive Waste Disposal Facility	18 April 2011	NIL28B0010

Authorisation No.	Var.	Nuclear facilities	Date issued	B #
NIL-29	1	Area 26	3 July 2013	NIL29B0027
NIL-30	0	E-Building	5 August 2010	NIL30B0001
NIL-31	0	Dorbyl Camp	25 October 2010	NIL31B0001
NIL-32	0	X-Building	25 October 2010	NIL32B0001
NIL-33	0	Building P-1500	25 October 2010	NIL32B0001
NIL-34	0	YM Vacuum Workshop	5 August 2010	NIL34B0001
NIL-35	0	V-H Building Laboratories	25 October 2010	NIL35B0001
NIL-36	0	P-1900 Laboratories	5 August 2010	NIL36B0001
NIL-37	0	P-1600 Laboratories	16 September 2010	NIL37B0001
NIL-38	0	Fuel Development Laboratories Complex	16 September 2010	NIL38B0001
NIL-39	0	NTP Radiochemicals Complex	06 August 2010	NIL39B0001
NIL-40	0	Pelindaba Analytical Laboratories (PAL) in Building BEVA-E1	05 August 2010	NIL40B0001
NIL-41	1	Liquid Effluent Treatment Facility Complex	24 February 2011	NIL41B0006
NIL-42	0	B-1 Building Basement	20 January 2012	NIL42B0001

List of CORS

No.	COR Number	Name of COR Holder	Category	Type of COR Issued
1	COR-2	Anglogold Ashanti Limited: Vaal River Operations	Category 5	Mining and Mineral Processing
2	COR-3	Anglogold Ashanti Limited - West Wits Operations	Category 5	Mining and Mineral Processing
3	COR-5	ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (Tshepong, Matjhabeng & Bambani Operations)	Category 5	Mining and Mineral Processing
4	COR-6	ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (Joel operation)	Category 4	Mining and Mineral Processing
5	COR-7	African Rainbow Minerals Gold Limited (Welkom Operations)	Category 4	Mining and Mineral Processing
6	COR-10	Avgold Limited - Target Division	Category 4	Mining and Mineral Processing
7	COR-11	Gravelotte Mines Limited	Category 4	Mining and Mineral Processing
8	COR-13	MTC Demolition	Category 2	Scrap Processor
9	COR-16	Nuclear Fuels Corporation of SA (Pty) Limited	Category 3	Mining and Mineral Processing
10	COR-18	South Deep Join Venture	Category 5	Mining and Mineral Processing
11	COR-20	Foskor Limited (Phalaborwa)	Category 4	Mining and Mineral Processing
12	COR-23	Steenkampskraal Monazite Mine (Pty) Limited	Category 4	Mining and Mineral Processing
13	COR-25	Eggerding SA (Pty) Limited	Category 2	Mining and Mineral Processing

No.	COR Number	Name of COR Holder	Category	Type of COR Issued
14	COR-26	Richards Bay Iron and Titanium (Pty) Limited	Category 4	Mining and Mineral Processing
15	COR-27	Foskor Limited (Richards Bay)	Category 3	Fertiler manufacturer
16	COR-28	Randfontein Estates Limited-(Kusasaletheu)	Category 4	Mining and Mineral Processing
17	COR-30	Mine Waste Solutions (Pty) Limited	Category 4	Mining and Mineral Processing
18	COR-31	Ya-Rona Scrap Metals	Category 2	Scrap Processor
19	COR-33	Rampete Metal Processors (Pty) Ltd	Category 2	Scrap Processor
20	COR-37	Harmony Gold Mining Company Limited (Free State Operations)	Category 5	Mining and Mineral Processing
21	COR-38	Omnia Phosphates (Pty) Ltd	Category 3	Fertiler manufacturer
22	COR-40	ARMgold/Harmony Freegold Joint Venture Company (Pty) Ltd (St Helena Operations)	Category 4	Mining and Mineral Processing
23	COR-43	Tronox KZN Sands	Category 4	Mining and Mineral Processing
24	COR-47	Grootvlei Properties Mines Ltd	Category 4	Mining and Mineral Processing
25	COR-48	DRDGOLD Limited	Category 1	Mining and Mineral Processing
26	COR-50	Rappa Resources (Pty) Limited	Category 1	Mining and Mineral Processing
27	COR-51	Consolidated Modderfontein (Pty) Limited	Category 4	Mining and Mineral Processing
28	COR-52	Nigel Gold Mining Company Limited	Category 4	Mining and Mineral Processing
29	COR-53	East Rand Proprietary Mines Limited	Category 4	Mining and Mineral Processing
30	COR-57	Crown Gold Recoveries Pty) Limited	Category 4	Mining and Mineral Processing
31	COR-58	Harmony Gold Mining Company Limited - Randfontein Operations	Category 4	Mining and Mineral Processing
32	COR-59	Industrial Zone Limited	Category 4	Mining and Mineral Processing
33	COR-61	Sedex Minerals	Category 1	Mining and Mineral Processing
34	COR-64	Potchefstroom Plastiek Herwinning BK	Category 1	Scrap Processor
35	COR-66	Mintek	Category 1	small user
36	COR-69	Sibanye Gold Limited (Driefontein Operations)	Category 4	Mining and Mineral Processing
37	COR-70	Sibanye Gold Limited (Kloof Operation)	Category 5	Mining and Mineral Processing
38	COR-71	Sibanye Gold Limited (Beatrix Operation)	Category 5	Mining and Mineral Processing
39	COR-77	Anglo American Research Laboratories (Pty) Limited	Category 1	small user
40	COR-74	Durban Roodepoort Deep Mine	Category 4	Mining and Mineral Processing
41	COR-79	Durban Roodepoort Deep Limited	Category 4	Mining and Mineral Processing
42	COR-80	Mogale Gold (Pty) Ltd	Category 4	Mining and Mineral Processing
43	COR-84	The Big Bin CC	Category 2	Scrap Processor
44	COR-86	Glenover Phosphate Limited (Mining Site) Operation)	Category 4	Mining and Mineral Processing
45	COR-87	Rand Refinery Limited	Category 1	Mining and Mineral Processing
46	COR-92	The Forensic Science Laboratory, SA Police	Category 1	Small user

No.	COR Number	Name of COR Holder	Category	Type of COR Issued
47	COR-100	South African Airforce (SAAF),Department of Defence (DoD), RSA	Category 3	Mining and Mineral Processing
48	COR-101	The Reclamation Group (Pty) Ltd (Richards Bay)	Category 2	Scrap Processor
49	COR-106	Mineral Sands Resources Pty Ltd	Category 1	Mining and Mineral Processing
50	COR-107	Vesuvius South Africa (Pty) Ltd	Category 2	Mining and Mineral Processing
51	COR-109	SM Mining Construction Pty Ltd	Category 2	Mining and Mineral Processing
52	COR-110	Geotron Systems (Pty) Limited	Category 1	Small user
53	COR-111	Bosveld Phosphate	Category 3	Fertiler manufacturer
54	COR-112	Scaw Metals Group	Category 2	Scrap Processor
55	COR-114	Interwaste Pty Ltd	Category 2	Scrap Processor
56	COR-116	Business Venture Investment 1692 Proprietary Limited	Category 4	Mining and Mineral Processing
57	COR-117	Vic Ramos CC	Category 2	Scrap Processor
58	COR-118	GoldPlats Recovery Ltd	Category 1	Mining and Mineral Processing
59	COR-131	East Rand Beneficiation (Pty) Ltd	Category 4	Mining and Mineral Processing
60	COR-135	Tioxide SA (Pty) Ltd	Category 2	Mining and Mineral Processing
61	COR-137	Manos Engineering (Pty) Ltd	Category 1	Scrap Processor
62	COR-138	Bright Refining (Pty) Ltd	Category 2	Mining and Mineral Processing
63	COR-140	China African Precious Metals (PTY) Ltd	Category 4	Mining and Mineral Processing
64	COR-141	Palabora Copper (Pty) Ltd	Category 4	Mining and Mineral Processing
65	COR-142	Pan African Resources - Evander Gold Mining	Category 4	Mining and Mineral Processing
66	COR-143	Zirco Roode Heuwel	Category 1	Mining and Mineral Processing
67	COR-144	Scamont Engineering (Pty) Ltd	Category 1	Scrap Processor
68	COR-148	Saldanha Dry Bulk Terminal Cc	Category 2	Service provider
69	COR-149	Cronimet RSA (Pty) Ltd	Category 2	Scrap Processor
70	COR-150	Minrite (Pty) Ltd	Category 2	Mining and Mineral Processing
71	COR-151	Covalent Water Company (Pty) Ltd	Category 4	Mining and Mineral Processing
72	COR-152	SGS South Africa (Pty) Ltd (Cooke operations)	Category 1	Small user
73	COR-153	Resource Reference Materials (Pty) Ltd	Category 2	Small user
74	COR-159	North West Reclaiming	Category 2	Scrap Processor
75	COR-160	Shiva Uranium One	Category 5	Mining and Mineral Processing
76	COR-156	Necsa, Calibration Pads	Category 1	Small user
77	COR-164	Sulzer Pumps (SA) Limited	Category 1	Service provider
78	COR-165	Uramin Mago Lukisa	Category 1	Mining and Mineral Processing
79	COR-167	Western Uranium (Pty) Ltd	Category 1	Mining and Mineral Processing
80	COR-178	Durban Container Terminal - Business Unit of SA Port Operations	Category 1	Mining and Mineral Processing

No.	COR Number	Name of COR Holder	Category	Type of COR Issued
81	COR-180	SA Port Operations - Container Terminal Cape Town	Category 1	Mining and Mineral Processing
82	COR-181	Transnet Limited (SA Port Operations -Multipurpose Terminal,Saldanha bay)	Category 1	Mining and Mineral Processing
83	COR-182	Buffelsfontein Gold Mine Limited	Category 5	Mining and Mineral Processing
84	COR-183	Tasman Pacific Minerals (Pty) Limited	Category 1	Mining and Mineral Processing
85	COR-184	HVH Gold (Pty) Limited	Category 2	Mining and Mineral Processing
86	COR-186	AfriSam (Pty) Limited	Category 1	Mining and Mineral Processing
87	COR-190	Sibanye Gold - Ezulwini	Category 4	Mining and Mineral Processing
88	COR-194	Exxaro Resources	Category 1	Mining and Mineral Processing
89	COR-195	Houlgon Uranium & Power (Pty) Ltd	Category 1	Mining and Mineral Processing
90	COR-197	Gold Reef City Theme Park	Category 1	Mining and Mineral Processing
91	COR-198	Set Point Industrial Technologies (Pty) Ltd (Isando)	Category 1	Small user
92	COR-199	Uramin Mago Lukisa	Category 1	Mining and Mineral Processing
93	COR-200	Uramin Mago Lukisa	Category 1	Mining and Mineral Processing
94	COR-201	A&S Mining Supplies	Category 1	Service provider
95	COR-203	Cemo Pumps (Pty) Ltd	Category 1	Service provider
96	COR-204	Holgoun Energy (Pty) Ltd	Category 1	Mining and Mineral Processing
97	COR-206	Uranium One and Micawber 397 (Proprietary) Limited	Category 1	Mining and Mineral Processing
98	COR-210	Tasman Pacific Minerals (Pty) Limited	Category 1	Mining and Mineral Processing
99	COR-215	Margaret Water Company	Category 4	Mining and Mineral Processing
100	COR-216	Paddy's Pad 1183 (Pty) Ltd	Category 1	Mining and Mineral Processing
101	COR-217	Cango Caves Oudtshoorn Municipality	Category 1	Mining and Mineral Processing
102	COR-218	Grindrod Terminals (Pty) Limited	Category 2	Mining and Mineral Processing
103	COR-219	Sibanye Gold Eastern Operations (Pty) Ltd.	Category 4	Mining and Mineral Processing
104	COR-220	African Empowered Aggregates CC	Category 1	Mining and Mineral Processing
105	COR-221	Tasman Pacific Minerals (Pty) Limited	Category 1	Mining and Mineral Processing
106	COR-225	New Kleinfontein Goldmine (Pty) Limited	Category 4	Mining and Mineral Processing
107	COR-226	Rand Uranium (Pty) Limited	Category 5	Mining and Mineral Processing
108	COR-228	Ergo Mining (Pty) Limited	Category 4	Mining and Mineral Processing
109	COR-230	ALS Chemex South Africa (Pty) Limited	Category 1	Small user
110	COR-232	Central Rand Gold South Africa (Pty) Limited (West)	Category 4	Mining and Mineral Processing
111	COR-233	Central Rand Gold South Africa (Pty) Limited (East)	Category 4	Mining and Mineral Processing
112	COR-236	Reclaim Invest 101 (Pty) Limited	Category 2	Scrap Processor
113	COR-238	Tronox (Namakwa Sands Operations)	Category 4	Mining and Mineral Processing
114	COR-240	Tantus Trading 180 (Pty) Ltd	Category 2	Mining and Mineral Processing
115	COR-242	Enviro Mzingazi Gypsum (Pty) Limited	Category 1	Mining and Mineral Processing

No.	COR Number	Name of COR Holder	Category	Type of COR Issued
116	COR-245	Namakwa Uranium (Pty) Limited	Category 1	Mining and Mineral Processing
117	COR-246	NTP Logistics (Pty) Limited	Category 2	Mining and Mineral Processing
118	COR-248	Foskor Zirconia (Pty) Limited	Category 2	Mining and Mineral Processing
119	COR-249	Pro Mass Transport (Pty) Ltd	Category 1	Mining and Mineral Processing
120	COR-250	JCI Gold Limited	Category 1	Mining and Mineral Processing
121	COR-252	Harmony Gold Mining Company Limited (South Operations)	Category 4	Mining and Mineral Processing
122	COR-253	Avgold Limited (North Operations)	Category 4	Mining and Mineral Processing
123	COR-256	Chifley Trading CC	Category 1	Service provider
124	COR-257	Samco Investments (Pty) Limited	Category 2	Scrap Processor
125	COR-258	SA Metal and Machinery Co (Pty) Limited	Category 2	Scrap Processor
126	COR-260	African Mineral Standards (a division of Set Point Industrial Technology (Pty) Ltd)	Category 1	Small user
127	COR-261	North West University	Category 1	Mining and Mineral Processing
128	COR-262	UIS Analytical Services (Pty) Ltd	Category 1	Small user
129	COR-263	Aklin Carbide (Pty) Ltd	Category 1	Service provider
130	COR-266	Nicolor	Category 1	Mining and Mineral Processing
131	COR-267	SGS(Randburg Operations)	Category 1	Small user
132	COR-264	Umhlathuze Imports and Exports	Category 2	Scrap Processor
133	COR-270	Trans-Med Shipping	Category 2	Service provider
134	COR-265	Tau Lekoa	Category 4	Mining and Mineral Processing
135	COR-268	Far East Gold	Category 4	Mining and Mineral Processing
136	COR-269	Newshelf 1186	Category 4	Mining and Mineral Processing
137	COR-272	Sasol gas Company	Category 1	Small User
138	COR-273	È&A Belt Sales CC	Category 2	Scrap Processor
139	COR-274	Freight Facilitators (Pty) Ltd	Category 2	service provider
140	COR-275	Vosloo and Lloyd Investments (Pty) Ltd T/A Scrapcore Secunda	Category 2	Scrap Processor
141	COR-276	Aquatro Investments CC	Category 2	Scrap Processor
142	COR-277	Donnlee Pump Tech (Pty) Ltd	Category 1	Refurbisher
143	COR-278	Phalaborwa Recycling CC	Category 2	Scrap Processor
144	COR-279	Harmony: Moab Khotsong Operations (Proprietary) Limited	Category 5	Mining and Mineral Processing
145	COR-280	Castle Ultra Trading T/A Nkhona Traders	Category 2	Scrap Processor
146	COR-281	DRD Gold Far West Gold Recoveries (Pty) Ltd	Category 4	Mining and Mineral Processing
147	COR-282	Kopanang Gold Mining Company(Pty) Ltd	Category 5	Mining and Mineral Processing
148	COR-283	Access World (South Africa) Pty Ltd	Category 1	Service provider
149	COR-284	Ncamiso Trading (Pty) Ltd	Category 1	Mining and Mineral Processing
150	COR-285	C. Steinweg	Category 1	Service provider

	COE No.	Name of COE Holder
1	COE-1	Hydropower Mining
2	COE-2	Oranje Mynbou Verwoer - Kynoch Gypsum
3	COE-3	Kynoch Modderfontein
4	COE-4	Oranje Mynbou Verwoer - Stilfontein Waste Rock
5	COE-5	Kalahari Gold Ridge Mining Company
6	COE-6	Neethling Plastics
7	COE-7	Glencore SA (Pty) Limited
8	COE-8	Necsa (Shipment of 5 iso containers)
9	COE-9	Norcros SA (Pty) Limited
10	COE-10	Dino Properties
11	COE-12	The Maretsel Property Trust
12	COE-14	Landscape Architect Environmental Planner
13	COE-16	JOSHCO
14	COE-17	Scientific Services CC
15	COE-18	Paterson & Cooke (Pty) Ltd
16	COE-19	University of Pretoria (Chemical Engineering Department)
17	COE-20	Denel SOC Ltd (T/A Denel Aviation)
18	COE-21	Huntrex 196 (Pty) Ltd T/A Ceracast
19	COE-22	Living Africa Developments (Pty) Ltd
20	COE-23	Jenco Mining (Pty) Ltd
21	COE-24	Little Creek Trading 368 Cc
22	COE-25	SCIP Engineering (Pty) Ltd
23	COE-26	MGTD Environmental (Pty) Ltd
24	COE-27	Oil for Africa
25	COE-28	Living Africa Developments (Pty) Ltd
26	COE-29	Aerospace Systems (Pty) Ltd
27	COE-30	South African Roll Company Pty Ltd
28	COE-31	Arch Import and Export CC
29	COE-32	Living Africa Developments (Pty) Ltd
30	COE-33	Chromatech Services (Pty) Ltd
31	COE-34	City of Ekurhuleni
32	COE-35	Geolabs Global (Pty) Ltd
33	COE-36	Urban Dynamics

Koeberg Nuclear Power Station (KNPS)

1. Regulation of Nuclear Power Plants – Koeberg Nuclear Power Station (KNPS)

The KNPS is located 35km north of Cape Town on the West Coast of South Africa and is the only nuclear power station on the African continent. KNPS is owned and operated by South Africa's national electricity supplier, Eskom. 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.

KNPS is operated in terms of the Nuclear Installation Licence, NIL-01 Variation 19 and associated 29 conditions, including specific licensing requirements and controls pertaining to:

Conditions of NIL-01 VARIATION 19			
1	General	16	Ageing Management and Long Term Operation
2	Nuclear Installation Description	17	Decommissioning
3	Demarcation of Site	18	Physical Security
4	Scope of Actions That May Be Undertaken	19	Dealing with Site
5	Radiological Protection	20	Authorised and Qualified Persons
6	Environmental Protection and Effluent Management	21	Quality and Safety Management
7	Radioactive Waste Management	22	Documents and Records
8	Emergency Planning and Preparedness	23	Organisational Changes
9	Medical Surveillance and Health Register	24	Safety Committees
10	Transport	25	Financial Security
11	Safety Assessment	26	Inspection Programme
12	Modification to Design of Plant	27	Events on Site
13	Design and Manufacturing of Components	28	Public Safety Information Forum
14	Limits and Conditions on Operations	29	Display of Installation License
15	Maintenance and In-Service Inspection		

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. 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.

1.1. Occupational exposure to radiation

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

1.1.1. General regulatory dose limits

Table 21: General regulatory dose limits

GENERAL REGULATORY DOSE LIMITS	
Workforce	Regulatory Criteria (RD-0022)
Maximum individual worker dose	A (maximum) effective dose of 50mSv in any single year
Average individual worker dose	20mSv per annum averaged over five consecutive years

The worker doses at KNPS during the reporting period were within regulatory limits as depicted in figures1 and 2 below. Radiation exposure of workers at KNPS remained subject to control by the Operational Radiation Protection Programme. This programme ensured that control within the annual individual dose limit was achieved. In addition, the programme also served to ensure that all doses are kept As Low As Reasonably Achievable (ALARA).

Figure 1: Highest individual occupational exposure (2015 – 2019)

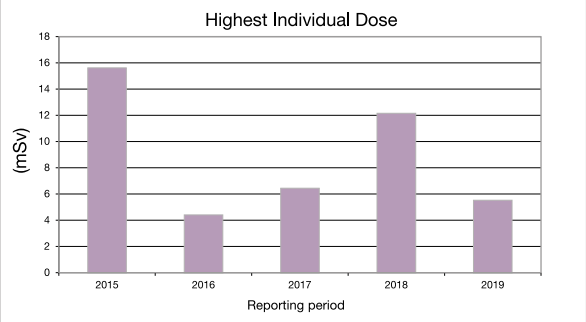
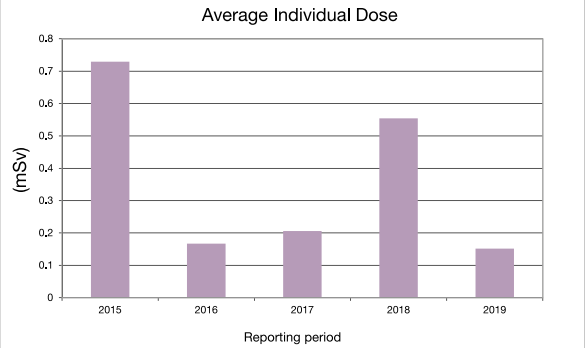


Figure 2: Average individual dose at KNPS (2015 – 2019)

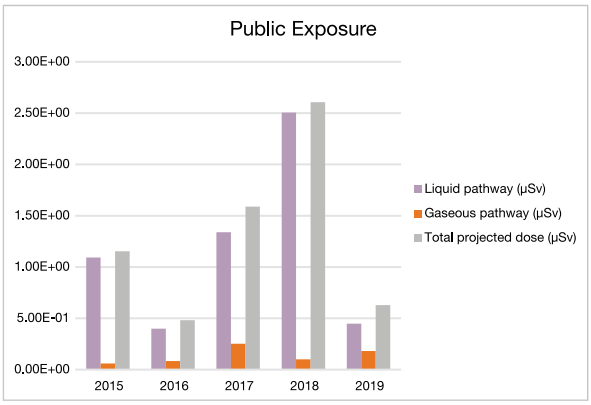


The average individual dose between for 2015 – 2019 was below 20mSv per annum, attesting to the ALARA programme being implemented by the operator. Further, no individual exceeded average individual dose averaged over five consecutive years as prescribed by the SSRP.

1.1.2. Projected public exposure to radiation

In accordance with the conditions of the licence and the SSRP, the public doses resulting from effluent discharges from KNPS must comply with the dose constraint of 250µSv/a and the system of Annual Authorised Discharge Quantities (AADQs) applicable to the site. KNPS complied with the AADQs and the projected public doses resulting from the effluent releases (both liquid and gaseous) for the 2019 calendar year were well within the dose constraint. There were no unauthorised effluent discharges and no safety concerns regarding the safety of the public living around the site during the period under review.

Figure 3: Projected public dose from effluent discharges (2015 – 2019)



The public doses resulting from effluent discharges between 2015 and 2019 were below 250µSv/a and comply with the dose constraints prescribed by the SSRP regulations.

1.2. Nuclear safety

The Authorisation Holder's commitment to safety of the plant and operations has been confirmed by the inspections that have been carried out. Where it has been observed that areas of weakness have occurred, these have been addressed by thorough investigations and the implementation of appropriate corrective actions.

During the year under review, the NNR focussed its safety assessment activities primarily on the areas summarised under the headings that follow.

1.2.1. Steam Generator Replacement (SGR)

During the year under review, the manufacturing of Replacement Steam Generators (RSGs) planned for installation in 2021 was progressed at Shanghai Electric Nuclear Power Equipment (SENPEC) in China.

Manufacturing is taking place in compliance with the NNR quality, safety management and manufacturing requirements, RD-0034 and PP-0012. All manufacturing activities are progressing at the main manufacturing facility in China, SENPEC. The NNR is monitoring the manufacturing processes as well as the close-out of non-conformances to specifications in accordance with the agreed process.
The review of safety analyses and engineering study documents continue to be received and reviews are in progress. The studies are submitted prior to the safety case in order to ensure a common understanding of safety criteria and analysis methods.

Eskom also submitted the Detailed Design that consolidates the earlier Safety Studies that were reviewed individually. The Detailed Design includes a "Mother Design" as well as a number of "Daughter Designs". In addition, a preliminary Installation Safety Case has been submitted, to be followed by a final Installation Safety Case. The NNR review is in progress as per the Review Plan.

Interfacing between the NNR and Eskom on the project took place through special monthly SGR licensing meetings where outstanding issues are discussed and tracked.

1.2.2. Refuelling water storage tank (PTR) replacement

During the year under review, the NNR continued its oversight of the replacement of the PTR tanks. The NNR approved the installation safety case for Unit 1 during the reporting period and Unit 1 PTR tank was successfully installed during Outage 124. The NNR performed necessary inspections on both installation and commissioning activities. The next phase of the project is to install the roof structures to protect the tanks against environmental effects. The NNR has reviewed the submission and sent comments to Eskom for response.

1.2.3. Spent fuel dry storage

The used nuclear fuel is currently stored in the spent fuel pools as well as four dry storage casks located in the Cask Storage Building (CSB) at KNPS. The storage space in both spent fuel pools is almost fully utilised. Eskom had adopted a strategy to load spent fuel in dry storage casks that will be stored in the CSB and a Transient Interim Storage Facility (TISF) on the Koeberg site, subject to NNR licensing. Eskom had obtained a positive record of decision from the Department of Environmental Affairs in 2017 for the construction of the TISF.

Phase 1 of the project entails the procurement of fourteen (14) HI-STAR 100 metal casks from Holtec, a company based in the US. The manufacturing of the last two casks is in progress in accordance with NNR requirements stipulated in RD-0034 and PP-0012. Twelve casks have been delivered to KNPS. During the reporting period, NNR continued with the review of Eskom's safety submissions related to the licensing of the HI-STAR 100 metal casks.

The HI-STAR 100 metal casks have been certified for use by the United States Nuclear Regulatory Commission (USNRC) and are being used extensively internationally. The USNRC has approved use of the casks in the horizontal position.

The CSB has been modified to house the additional casks. The NNR reviewed the design and construction safety case of the CSB pad upgrade and granted approval for the implementation of the modification to this building.

Eskom has submitted the TLCR and associated safety case for the loading, transport and on-site storage of the HI-STAR-100 Casks in the CSB. To date the NNR is in the processing of finalising its review of request for a Temporary Licence Change Request and associated safety documentation. Two casks should be loaded before outage 224 commence on Unit 2 to create space in the fuel pool prior to reloading fuel back into the reactor.

1.3. Long Term Operation (LTO)

The Koeberg safety analysis report assumes a design life of 40 years which limits current operations to July 2024. Eskom has established a programme in preparation for the planned LTO. The LTO programme includes IAEA technical support and expert missions prior to July 2024. An IAEA SALTO support mission took place in September 2018 reviewing the ageing management programmes at KNPS.

The Regulatory Guide on Periodic Safety Review (RG-0028) has been approved. The KNPS Nuclear Installation Licence, NIL-01, has been varied to include specific conditions relating to ageing management and LTO and provides for, in conjunction with RG-0027, the regulatory framework for long term operation for the plant. The draft regulations on Long Term Operation of Nuclear Installations have been submitted to the DMRE for promulgation. The NNR has completed the review of the Periodic Safety Review (PSR) III basis document and the LTO licensing strategy and has accepted with comments the respective documents.

The NNR attended IAEA training workshops on the Periodic Safety Reviews and also observed a SALTO audit on the consortium focusing on the implementation of SALTO methodology.

1.4. RPVH Replacement Project

The Unit 2 Reactor Pressure Vessel Head (RPVH) and Control Rod Drive Mechanisms (CRDMs) are due for replacement in Outage 225 in 2021. The project is progressing as planned and is currently in the manufacturing phase.

The RPVH is being manufactured in accordance with NNR requirements stipulated in RD-0034, PP-0012 and ASME III, Version 2007 code. The NNR continued the review of manufacturing related documents during the reporting period ensuring that the requirements are met during the manufacturing phase.

1.5. Competency and sufficiency of the operator workforce to work safely

Based on monitoring of events on the plant, the overall staffing and competency levels required for acceptable performance in work related to nuclear safety at KNPS were found to be satisfactory during the period under review.

1.6. Transport safety

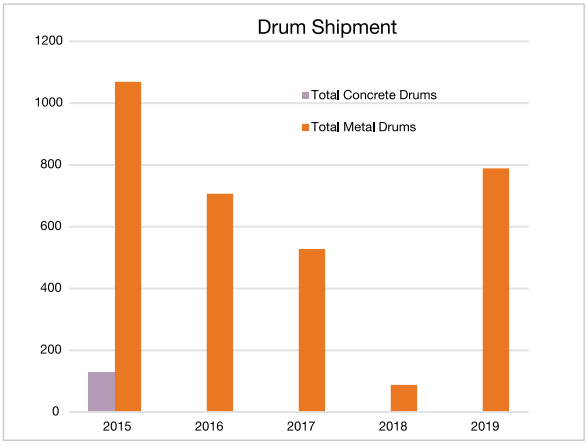
The NNR issued two Nuclear Vessel Licences for the transport of new fuel to KNPS. There were no concerns related to the safety of transport of radioactive material during the period under review.

1.7. Radioactive waste safety

Significant progress has been made in resolving the outstanding issues and Eskom is in the process of updating the respective safety reports.

Considering the progress made, the hazard associated with the waste packages and the implementation of a graded approach to regulation, 789 steel drums were delivered to Vaalputs during the 2019 calendar year (See figure 4). No concrete containers were transported to Vaalputs.

Figure 4: Inventory of solid radioactive waste produced and drummed for calendar years 2015–2019



1.8. Environmental protection

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

1.9. Nuclear emergency planning and preparedness

The last Regulatory Nuclear Emergency Exercise at KNPS was conducted in 2018. Non-compliances and general comments from that exercise were followed up and NNR continues to monitor corrective actions from KNPS. In the 2019/2020 financial year NNR continued to perform Emergency Preparedness inspections at KNPS evaluating the adequacy of the plan, ensuring that implementation procedures are updated and current, that public education and information is conducted as well as reviewing licensee's compliance with the Full Volume Siren Test in all populated areas within the 16km radius of KNPS in order to inform the public of any emergency at KNPS. This was done to identify areas of improvements in the existing Emergency Preparedness. The next Regulatory Nuclear Emergency Exercise is scheduled for October 2020.

1.10. Physical security

Both the NNR and the National Key Points' Security functionaries have responsibilities regarding physical security at KNPS. As part of its Compliance Assurance Programme, the NNR conducted regular compliance activities at KNPS to verify conformance to licensing requirements on nuclear security. Security-related incidents, and the NNR and SAPS National Key Points' security functionaries thereto, are monitoring Eskom's responses. Where necessary, Enforcement actions are called for and implemented.

The NNR conducted nine planned inspections during the reporting period, which covered a wide variety of related activities consisting of staffing, physical security, fitness for duty, and compliance with the Federal Aviation Regulation.

1.11. Safety of sealed radioactive sources

The safety of sealed radioactive sources on the KNPS site was found to be in compliance with regulatory requirements. There were no concerns regarding the safety of the sealed radioactive sources during the review period.

1.12. 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 KNPS relating to events/occurrences.

1.13. Regulatory compliance inspections and audits

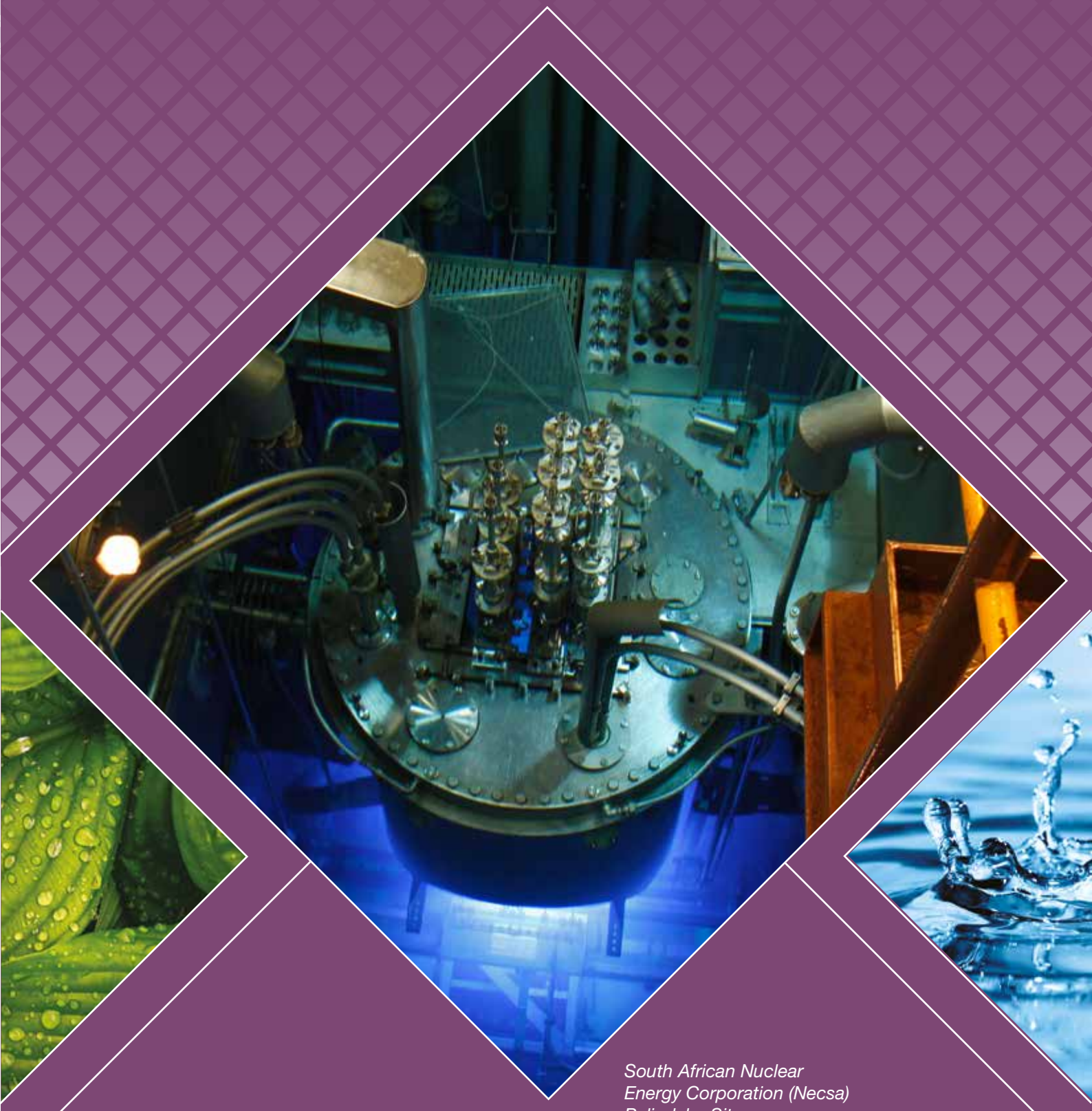
In order to verify the degree of compliance with the conditions of authorisation, the NNR undertakes independent inspections and audits. The NNR conducted 46 inspections at the KNPS as part of its compliance assurance activities in the year under review.

1.14. Regulatory warnings and directives to stop work

No enforcement actions in the form of directives were issued to KNPS during the reporting period.

1.15. Appeals to the CEO

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



South African Nuclear Energy Corporation (Necsa) Pelindaba Site

2. Regulation of Nuclear Facilities and Activities on the South African Nuclear Energy Corporation (Necsa) Pelindaba Site

Established as a public company in terms of Nuclear Energy Act, Act 46 of 1999, the South African Nuclear Energy Corporation (Necsa), with its headquarters at 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 1400 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 terms of Section 26(2) of the National Nuclear Regulator Act, Act 47 of 1999, Necsa, as the nuclear authorisation holder, implements an inspection programme to ensure compliance with the conditions of the Nuclear Installation Licences. The NNR implements an independent system of compliance inspections to provide assurance of compliance with the conditions of the nuclear authorisations in terms of section 5(d) of the NNR Act.

The nuclear facilities on the Necsa Pelindaba site are diverse and include:

- 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; and,
- 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 as well as COR-156. In accordance with the conditions of the authorisation, Necsa is required to ensure that arrangements, acceptable to the NNR, are established and implemented with respect to the following aspects:

- Plant/Facility description and configuration
- Scope of Activities that may be undertaken
- Demarcation of Site Boundary, Site Plans, Designs and Specifications
- Physical Security
- Transport of Radioactive Material
- Restrictions on Dealing with the Site
- Radiological Protection
- Medical Surveillance and Health Register
- Radioactive Waste Management
- Records Management and Reporting
- Management and Reporting of Events (including Incidents or Accidents) on the Site
- Emergency planning and Preparedness
- Environmental Protection
- Effluent Management
- Environmental Monitoring
- Appointment of Duly Authorised and Suitably Qualified and Experienced Persons
- Safety Committees
- Safety Documentation
- Quality and Safety Management
- Modification to Design of Existing Plant or Facility
- Construction and Commissioning of Plant or Process
- Limits and Conditions of Operation
- Examination, Inspection, Maintenance and Testing
- Decommissioning
- Management of Organisational Change
- Financial Security for Nuclear Liability
- Public safety Information Forum
- Self-Inspection Programme to ensure compliance with Conditions of Authorisation
- Display of the Licence

2.1. 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 below are not exceeded.

Table 13: General regulatory dose limits

GENERAL REGULATORY DOSE LIMITS	
Maximum individual worker dose	A (maximum) effective dose of 50mSv in any single year
Average individual worker dose	An (average) effective of 20mSv per annum averaged over five consecutive years

Radiation exposure of workers at the Pelindaba site is subject to control through the individual facility specific Operational Radiation Protection Programme and the corporate-wide Process Based Licensing (SHEQ-INS) system. In addition, Necsa has committed to implementing an ALARA Goal of 4mSv/a. Reporting of worker doses is undertaken on a quarterly basis and includes an evaluation of the doses over a rolling 12-month period. NNR review of the occupational exposure records for workers on the Pelindaba site over the reporting period has confirmed compliance to the regulatory requirements.

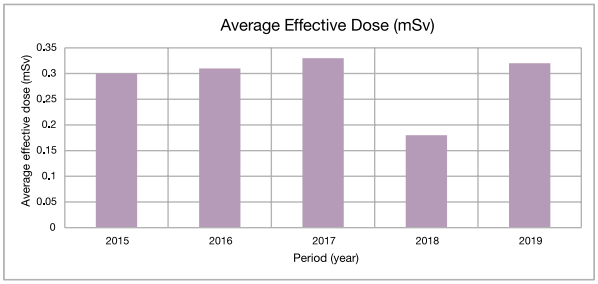


Figure 5: The average effective dose Pelindaba site (2015-2019)

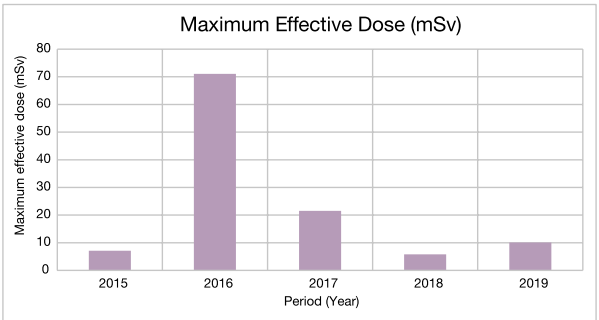


Figure 6: Maximum individual dose Pelindaba site (2015-2019)

The average effective dose and the maximum individual doses incurred by Necsa workers during the past five years are shown in Figure 5 and Figure 6 respectively. The reason for the high maximum effective dose in 2016 was due to an individual who accrued 70.05mSv while performing work outside of the country.

2.2. Projected public exposure

The conditions of authorisation and the SSRP Regulations require that public doses resulting from effluent discharges from the Necsa Pelindaba site must comply with the dose constraint of 250µSv per annum and the system of Annual Allowable Discharge Quantities (AADQs) applicable to the site. The system of AADQs limits the total quantity of individual radionuclides that may be released as effluent via the liquid and airborne pathways in a given period.

Necsa submits quarterly reports on the effluent releases and projected public doses from said releases to the NNR. Further, the projection of public doses is presented to the public at the quarterly Public Safety Information Forum (PSIF) meetings.

For the reporting period, Necsa demonstrated compliance with the AADQs and prescribed public dose limit. The projected public doses, resulting from the liquid and gaseous effluent releases during the past five years is as shown in Figure 7.

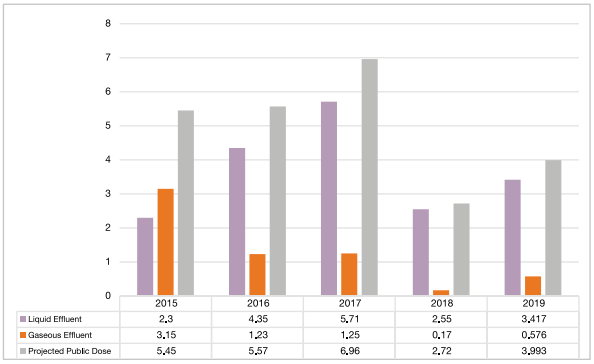


Figure 7: Projected public exposure from liquid and gaseous pathways for Necsa Pelindaba site (2015-2019)

2.3. Nuclear safety

2.3.1. Necsa response to COVID-19 pandemic

Following the declaration of the COVID-19 pandemic as a national disaster on Sunday, 15 March 2020, the Necsa executive management convened and established a COVID-19 Disaster Management Action Plan. The initial draft of the Necsa COVID-19 Disaster Management Action Plan was presented and discussed at a special meeting of the Necsa Joint Planning Committee (JPC). The JPC is a committee constituted to effectively plan and coordinate all activities concerning the safeguarding of a National Key Point, Strategic Installation or Place declared to be of importance. The NNR is represented on the Necsa JPC.

On 23 March 2020 Necsa submitted notification of its intent to scale down operations on the Necsa site due to the declared National Disaster relating to COVID-19. The notification included Necsa assurance that the management of safety and security remained a priority and that Necsa had:

(i) Identified critical activities that must be maintained in order to assure that the safety barriers of the site and its facilities are upheld.

(ii) Identified the critical resources needed for maintenance of operations.

(iii) Developed resource plans and backup resources where required.

Following the President's declaration of a national lockdown on 23 March 2020, Necsa submitted notification on 26 March 2020, that all Necsa facilities with the exception of identified essential services would be shut down as from midnight on 26 March 2020 and would remain so until 16 April 2020, or as otherwise directed by National Government. The notification reaffirmed that Necsa has developed action plans to be implemented in order to ensure the safe and secure operations of the facilities in compliance with the NNR license conditions as well as the Occupational Health and Safety Act 185 of 1993. The essential services that would continue to operate were confirmed as being:

[1] Production of Health Products
  (a) NTP Radiochemicals Complex
  (b) SAFARI-1 Research Reactor

[2] Production of Essential Goods
  (a) Pelchem Hydrofluoric Acid Plant

[3] Necsa Security Services

[4] Support Functions for facilities that would remain operational
  (a) Emergency Services and Planning
  (b) Radiation protection officers

Necsa also confirmed that other support functions would be maintained as a standby function, in an effort to minimise the number of staff on site.

2.3.2. Safety culture

Following on the regulatory concerns at the NTP Radiochemicals Facility, Necsa committed to hosting an independent review of their organisational safety culture. The IAEA was requested, by Necsa, to conduct an Independent Safety Culture Assessment (ISCA) Review.

The purpose of an IAEA ISCA review is to provide independent advice and assistance to Member States in enhancing the safety culture of a nuclear facility. The aim of this review is to further develop and strengthen the organisation's culture so that nuclear safety is the priority of all its members. The reviews give the requesting organisation the opportunity to better understand and fully address root causes of safety culture issues once they have been identified. The IAEA ISCA review at the Necsa Pelindaba site was conducted from 06 – 17 August 2018. Following the ISCA Review, Necsa was required to develop an action plan to address the recommendations and suggestions in the report. The NNR continues to monitor the Necsa progress in addressing the ISCA report recommendations. Safety culture will also be a focus of inspections at Necsa for the next reporting period.

Furthermore, the NNR hosted a nuclear safety culture awareness workshop in November 2019. The workshop was attended by members of Necsa's executive management, senior managers and nuclear facility managers. During the workshop the various Necsa managers made presentations on their facility specific activities and plans to enhance nuclear safety culture.

2.3.3. Review of the current conditions of authorisation

The conditions of authorisation included in Part A of the nuclear installation licences issued for the nuclear facilities on the Necsa Pelindaba site and the Vaalputs National Radioactive Waste Disposal Facility were originally formulated in 2005. A review of the conditions of authorisation was conducted in 2009, as part of the NNR Self-Assessment Project. As a result of this, updates to the conditions were implemented in the nuclear installation licences issued in the period February 2009 to November 2011.

In the subsequent years, valuable insights were gathered during the self-assessment process in preparation for the 2016 IAEA IRRS mission to South Africa. Further, lessons and insights were learnt from:

(a) The findings contained in the 2016 IAEA IRRS mission to South Africa.
(b) The reporting requirements under both the Convention for Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management (Joint Convention).
(c) Participation of NNR staff in various IAEA IRRS missions including the missions to Australia, Belgium, Canada, Finland, Japan and the Netherlands.
(d) Participation of NNR staff in the Artemis mission to Poland and the Joint IRRS/Artemis mission to Spain.
(e) The development and updates to various IAEA Safety Standards since 2010, in particular the:
    (i) GSR PART 1, Governmental, Legal and Regulatory Framework for Safety;
    (ii) GSR PART 2, Leadership and Management for Safety;
    (iii) GSR PART 3, Radiation Protection and Safety of Radiation Sources;
    (iv) GSR PART 4, Safety Assessment for Facilities and Activities;
    (v) GSR PART 6, Decommissioning of Facilities;
    (vi) SSR-1, Site Evaluation for Nuclear Facilities;
    (vii) SSR-3, Safety of Research Reactors; and
    (viii) SSR-4, Safety of Nuclear Fuel Cycle Facilities.

Based on the above, plus the lessons learnt from regulation of the Necsa facilities and Vaalputs, the current conditions of authorisation were reviewed and proposed changes were identified. Consultation with Necsa, regarding the proposed changes will be undertaken in the next review period.

2.3.4. Process-based Licence documents

Process-based Licensing (PBL) is the process where the authorisation holder has the responsibility for technical details relating to nuclear safety and more emphasis is placed on the licence holder to ensure that appropriate processes are in place to comply with the regulatory requirements. Application of PBL at Necsa run facilities commenced in the 2002/03 financial year and the system comprises of more than 200 Necsa designed documents, dealing with the full spectrum of process areas, including policy, security, project management, radiation protection and other regulatory processes.

During the reporting period the NNR reviewed and responded to Necsa process-based licensing documents related to:

(i) Fire Prevention and Control Measures;
(ii) Building Emergency Plans;
(iii) Necsa Controlled Emergency Exercises;
(iv) Emergency Alarm systems and Handling; and
(v) Storage of Flammable liquids.

2.3.5. SAFARI-1 Research Reactor

SAFARI-1 Research Reactor is owned and operated by South African Nuclear Energy Corporation (NECSA) at their facility in Pelindaba site and has been in operation since 1965. It is utilised mainly for the commercial production of medical and industrial isotopes, activation analyses, material modification (such as the neutron transmutation doping of silicon for the semi-conductor industry) and numerous support services such as neutron radiography and neutron diffraction, which are of both industrial and academic interest.

2.3.5.1. Ageing Management at SAFARI-1

Noting that the SAFARI-1 Research Reactor was initially commissioned in 1965 and that the expected operational life extends until 2030, the NNR had previously required that Necsa develop and implement an ageing management strategy.

The Ageing Management Programme for SAFARI-1 is consistent with the guidance provided in the IAEA safety guide SSG-10. The overall programme entails in excess of 100 modifications including –

(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 safety documentation related to the following ageing management activities were reviewed and commented on in the review period:

(i) Health Assessment on the Reactor Vessel and biological shield;
(ii) Commissioning and installation report for upgrade of the SAFARI-1 Area Monitoring System; and
(iii) Replacement of the Charcoal Absorber system which form part of the SAFARI-1 ventilation systems.

2.3.5.2. SAFARI-1 Alternate fuel plate supplier

SAFARI-1 currently makes use of Low Enriched Uranium (LEU) Fuel Assemblies and Control Rod Assemblies assembled at the ELPROD Facility on the Necsa site, using fuel plates that are procured from France. In order to enhance security of fuel supply, Necsa has undertaken to qualify an alternate supplier of fuel plates.

During the reporting period Necsa conducted a quality audit at the Novosibirsk Chemical Concentrates Plant in order to verify the capability of the manufacturer to provide safe and reliable components. The NNR reviewed and commented on submissions related to:

(i) Licensing strategy for new supplier.
(ii) Supplier Qualification Programme and Plan.
(iii) Project Management Plan.
(iv) Report on Audit of the proposed alternate supplier.

2.3.5.3 Review of SAFARI-1 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 Safety Assessment Report of the facility with its operation. During the reporting period the NNR reviewed and approved the revised SAFARI-1 Operating Technical Specification after Necsa has satisfactorily addressed the NNR comments.

2.3.6. P-1600 Radiological Laboratories

The P-1600 Radiological Laboratories are utilised for the analysis of radioactive samples on the Pelindaba site. During the reporting period the NNR reviewed and provided comments to Necsa on the following submissions from P-1600 Radiological Laboratories:

(i) Safety Assessment Report
(ii) Operating Technical Specification
(iii) Radiation Protection Programme

2.3.7. UMET SAR

The UMET facility housed in Building P2600 on the Necsa Pelindaba site, undertakes uranium metal processing activities, including melting and casting of uranium metal, as well as manufacture of uranium and depleted uranium shielding containers.

During the reporting period the NNR completed review of the UMET SAR and has identified comments that are required to be addressed by Necsa. These comments will be communicated to Necsa in the next reporting period.

2.4. Transport safety

2.4.1. On-site transfer of LEU used fuel from SAFARI-1 to the Thabana Complex

The used fuel from the SAFARI-1 Research Reactor is initially stored in the reactor pool for at least two years, to facilitate cooling of the used fuel, prior to it being cropped before shipment to the Thabana Pipe Store, an authorised dry storage facility on the Pelindaba site. The used fuel is transported to the Thabana Pipe Store in a transport cask specifically designed for this purpose. During the reporting period, the NNR granted approval for the transfer of 82 used LEU fuel elements to be conducted during the period 15 July 2019 to 08 August 2019.

Figure 8: Thabana Pipe Storage Facility

2.4.2. Import of fissile material to OR Tambo and Pelindaba

During the reporting period the NNR granted approval for the import of LEU target and fuel plates. The import actions and subsequent transport to the Necsa Pelindaba site were safely undertaken in three shipments during June and July 2019. The fuel plates are assembled, on the Pelindaba site, into fuel elements used in SAFARI-1 research Reactor. The target plates are initially irradiated in the SAFARI-1 Research Reactor and later processed at the NTP Radiochemicals Complex for the production of radioisotopes including Molybdenum-99 and Iodine-131.

2.4.3. Validation and revalidation of transport packages and transport containers

In accordance with the provisions of Section 7 of the National Nuclear Regulator Act, Act 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 Series No. SSR-6, Regulations for the Safe Transport of Radioactive Material, 2012 Edition Vienna, 2012.

Certificate of Package Design Approval	Transport Container	Authorised for	Effective Date	Expiry Date
ZA/NNR 1009/(B(U)-96 (Rev 03)	Erica	Transport of I-131 radiopharmaceutical in solid (powder) form within South Africa and internationally including Argentina, Canada, the United Kingdom and the United States of America using all modes of transport.	13 October 2019	12 October 2020
ZA/NNR 1006/B(U)-96 (Rev 05)	1006 Cobalt Flask	Transport of Co-60 and Cs-137 in solid form within South Africa and internationally including Argentina, Canada and the United Kingdom. Modes of transport limited to land, sea or inland waterways. Transport by air prohibited.	02 July 2020	01 July 2025
ZA/NN-R/313/B(U) F-96 (Rev 10)	French TN-BGC-1 Container	Transport of solid uranium bearing material comprising non-irradiated uranium not produced via reprocessing using all modes of transport. This container is primarily used by Necsa for the import of LEU Fuel plates and target plates from France.	21 June 2019	01 March 2024
ZA/NNR 1004/B(U)-96 (Rev 04)	RIA Transport Container	Transport Ir-192 and Se-75 sealed sources within South Africa and internationally including Argentina, Canada, the United Kingdom and the United States of America using all modes of transport.	01 June 2019	31 May 2024

Further the NNR reviewed and provided comments on the safety assessments for the following transport container/ package designs currently used or proposed to be used by Necsa:

Transport Package/ Container	Intended Purpose
(i) The SAFARI-1 Spent Fuel Transfer Cask	The SAFARI-1 Spent Fuel Transfer Cask is used for the onsite transfer of used fuel elements from SAFARI-1 to the Thabana Pipe Store.
(ii) NTP C5 Concrete Waste Package	The waste package is intended to be used for the interim storage, transport and disposal of solid compressible radioactive waste generated in the NTP Radiochemicals Complex.
(iii) Russian TK-C16 Transport Package	Necsa proposes to use the Russian TK-C16 transport package for future imports of LEU fuel plates and target plates as an alternative to the current French TN-BGC

2.4.4. Handling instruction for transport packages

Handling instructions prescribe information necessary to safely handle, load, unload, ship and maintain the transport packages during transport activities. During the reporting period the NNR reviewed and approved revised handling instructions for the following transport packages:

Certificate of Package Design Approval	Transport Container	Authorised for	Effective Date	Expiry Date
ZA/NNR 1009/(B(U)-96 (Rev 03)	Erica	Transport of I-131 radiopharmaceutical in solid (powder) form within South Africa and internationally including Argentina, Canada, the United Kingdom and the United States of America using all modes of transport.	13 October 2019	12 October 2020
ZA/NNR 1003/B(M)-96 (Rev 03)	1003	Transport of Co-60 sources in special form. Modes of transport limited to land, sea or inland waterways. Transport by air prohibited.	24 February 2016	23 February 2021

2.5. Radioactive waste safety

2.5.1. Thabana Complex

2.5.1.1 Proposed expansion of the Thabana Pipe Store

The Thabana Pipe Store, within the Thabana Complex, authorised under Nuclear Installation Licence NIL-04, is utilised for the interim storage of used fuel from the SAFARI-1 Research Reactor. This is a dry storage facility comprising of subsurface sealed stainless steel storage pipes, positioned in boreholes and the pipe openings are shielded with a lead plug and an airtight flange. The pipes are kept under a positive pressure with an inert gas. The operating technical specification limits the acceptance of used fuel to the Thabana Pipe Store to fuel that has undergone a cooling period of at least 2 years. This subsurface borehole design serves the dual purpose of shielding and heat transfer.

Necsa proposes to increase the current storage capacity for used fuel elements and cater for the

long-term storage of uranium residue waste from the NTP Radiochemicals Complex. During the reporting period the NNR responded on:

- Proposed Licensing Strategy
- Project Management Plan
- Project Quality Plan
- Facility and Process Description
- SSC Classification
- Design Control Plan
- HSE Basis of Design and Design Requirements

Further noting that the proposed expansion will increase the basic footprint of the facility, the NNR has required that Necsa prepare a Public Information Document (PID) for the proposed expansion. The PID will provide the public with information on the project. It is the intent of the NNR to request written public comment on the planned expansion in the next reporting period.

2.5.1.2. Capping of CaF_2 Ponds

There are six (6) CaF_2 Ponds, within the Thabana Complex, authorised under Nuclear Installation Licence NIL-04. Two (2) of the ponds are empty and four (4) are authorised for the storage of historically deposited uranium bearing process waste from the discontinued Uranium Conversion Plant. The four ponds contain uranium having concentration of between 0.56% and 0.85% and are considered a resource for future uranium extraction.

Two (2) of the four (4) pans containing uranium process waste were capped in the 1990s. During the reporting period the NNR granted approval for the capping of the remaining two (2) ponds containing uranium process waste.

2.5.3. Uranium Residue Project in the NTP Radiochemical Complex

As part of the radioactive waste management improvements and rationalisation project within the NTP Radiochemical Complex (Hot Cell Complex), Necsa had previously requested approval for modification of the utilisation of Cell 2, Cell 6A and Cell 6B in the facility. Necsa proposed to use Cell 6A and Cell 6B for the conditioning of the uranium residue and Cell 2 as an interim store for the storage of the uranium residue from Mo-99 and I-131 radiopharmaceutical manufacturing processes.

During the previous reporting period, the NNR granted approval for the hot commissioning of Cell 2, Cell 6A and Cell 6B and monitored the hot commissioning activities. Necsa experienced a number of challenges during hot commissioning, which led to the suspension of hot commissioning in November 2018.

Following Necsa's satisfactory addressing of the NNR concerns approval for the resumption of hot commissioning activities associated with the Uranium Residue Project in Cell 2, Cell 3, Cell 6A and Cell 6B, limited to a maximum of ten (10) containers was granted in November 2019. The report on the outcomes of the hot commissioning activities is awaited from Necsa.

2.6. Environmental protection

As part of their environmental management programme, Necsa collects samples from various media in the environment around the Pelindaba site. The sampling locations were based on the surrounding land use. The sample media included:

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

Samples are analysed and results are submitted to the NNR on a quarterly and annual basis. The analyses showed that there were no nuclear safety concerns regarding the environment around the Pelindaba site in the review period.

2.7. Regulatory independent verification of radiological environmental analysis

The NNR conducted an independent verification of radiological environmental analysis by collecting samples in and around the Necsa Pelindaba site. Analysis of the samples revealed no safety concerns with regard to the environment around the Necsa Pelindaba site.

2.8. Nuclear emergency planning and preparedness

A Regulatory Nuclear Emergency Exercise (RNEE) was conducted at the Pelindaba site of the South African Nuclear Energy Corporation (Necsa) on 03 October 2019. The RNEE monitored the implementation of both Necsa and Madibeng local municipality emergency plans together with respective procedures for on-site and off-site response locations.

The NNR prescribed ground rules which were discussed with Necsa and the Intervening Organizations prior to the exercise and prepared a scenario matched to the specific objectives. The scenario simulated a release of radioactive material through SAFARI-1 Research Reactor stack due to a loss of coolant accident. The release mandated the taking of onsite and offsite protective actions. The implementation of protective action was monitored by a team of NNR umpires. The monitoring aimed to verify compliance to pre-established procedures as well as the effectiveness and efficiency thereof.

A number of deficiencies and areas for improvement in the form of non-compliances and observations, which need to be addressed for further improvement of plans and procedures, have been identified. The NNR nevertheless concluded that the Necsa Emergency Plan and Madibeng Disaster Management Plan remain viable for the protection of persons, property and the environment.

The NNR report detailing the deficiencies and areas for improvements in the form of non-compliances and observations, which need to be addressed for further improvement of plans and procedures was submitted to Necsa in November 2019. Necsa was required to formulate an action plan to address the same by 14 February 2020.

Necsa failed to meet the deadline for submission of the action plan and instead requested a meeting with the NNR. Said meeting was held on 28 February 2020, and Necsa submitted the required action plan on 05 March 2020. The action plan is currently being reviewed by the NNR and the NNR will monitor progress against the action plan as part of the Compliance Assurance Programme (CAP) for the next reporting period.

2.9. Competency and sufficiency of Necsa's Pelindaba workforce to work safely

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

The current severely strained financial position of Necsa has the potential to negatively impact nuclear and radiation safety as well as nuclear security at the authorised nuclear facilities on the Necsa Pelindaba site. Consequently, in February 2020, the NNR required Necsa to provide written affirmation regarding its continued ability to:

(a) To service the conditions of authorisation in particular the management of safety and fostering of a strong nuclear safety and nuclear security culture including:
    (i) Maintaining sufficient numbers of suitably qualified and experienced staff to maintain the facility specific safety case and safe operations;
    (ii) Ability to service creditors, in particular suppliers of Structures, Systems and Components (SSC's) and services important to nuclear and radiological safety and nuclear security;
    (iii) Ability to undertake all required plant modification, maintenance, aging management and refurbishments required in the interest of conventional safety as well as nuclear and radiation safety and nuclear security; and
    (iv) Effective review of events at authorised facilities and undertaking prompt and appropriate corrective and preventative measures.

(b) Effectively maintain all provisions required for conventional, chemical, nuclear and radiological emergency preparedness and response as well as nuclear security.
(c) Satisfy requirements related to funding and safe management of decommissioning, decontamination, radioactive waste management and used (spent) fuel management.

The Necsa response to the above was received in March 2020 and is currently under review by the NNR.

2.10. Physical security

During the reporting period, Necsa notified the NNR of temporary closure of Gate 2. This temporary closure of Gate 2 was initially intended to be for the period December 2019 to March 2020 and was aligned with the austerity measures being implemented due to Necsa's financial situation. However,r following the declaration of the National lockdown this period is expected to be extended.

The NNR inspects Necsa's security measures as part of the compliance assurance programme and tracks the improvements required as part of said programme.

2.11. Safety of sealed radioactive sources

The NNR conducts inspections on radioactive sources at the Necsa Pelindaba site and receives six-monthly reports on radioactive sources that are used, stored on site or transported to and from the site. There were no safety concerns regarding sealed radioactive sources at Pelindaba site during the review period.

2.12. Nuclear incidents/accidents reported

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

2.13. Regulatory compliance inspections

NNR conducted 70 planned and three (3) unplanned compliance inspections at Necsa's Pelindaba site during the reporting period. Overall, the inspections confirmed satisfactory compliance with NNR requirements and regulations. Nevertheless, a number of areas for improvement and some non-compliances were identified. The NNR continues to monitor progress against these as part of the annual compliance assurance programme and event reporting system.

2.14. Regulatory investigations

There were no investigations conducted during the reporting period.

2.15. Regulatory warnings or directives to stop work

There were no directives issued to Necsa facilities during the reporting period. The sections below provide an update on the status of Regulatory Concerns at both the NTP Radiochemicals Complex and the Volume Reduction Facility in the Pelstore.

2.15.1. NTP Radiochemicals Complex

During the reporting period, the NNR continued to monitor the Necsa progress in response to the regulatory concerns at the facility. Due to the violation of the operational technical specifications (OTS) at the end of February 2019 all operations in the facility were suspended. Resumption of operations with dissolution and process using only the Cell 19 production line was approved with effect from 08 April 2019.

Due to the many reported events in the facility relating to violations of the limiting conditions of operation or facility operational technical specifications (OTS), particularly with respect to control of cell pressures, contamination within the facility and problems with the facility Human Machine Interface (HMI) system, the facility operations were intermittent over the reporting period.

For the majority of the reporting period operations in the facility were limited to production of Mo-99 using only the Cell 19 production line. Approval for the resumption of I-131 production with elution in Cell 21, subsequent distillation in Cell 22, product dispensing in Cell 23, product packaging and dispatch in Cell 24 was granted in September 2019. Authorisation to commence operations using the Cell 20 production line was granted at the end of October 2019.

The failure of the facility UPS on 09 December 2019 resulted in all operations at the facility being suspended. Following replacement of the UPS, operations at the facility resumed on 19 December 2019.

During the period January to February 2020, the facility reported five (5) events involving contamination in the facility. Three (3) of these events, related to contamination in the Molybdenum dispatch cell, Cell15. Consequently, on 28 February 2020 all dispatch operations in Cell 15 were stopped, pending written confirmation from the Acting Necsa GCEO that:

(a) Necsa/NTP has completed the investigation into the seven similar events dating back to 2017, to the extent that safety in the facility can be assured and no further contamination of facility personnel will be incurred.
(b) Implementation of all the required immediate corrective and preventative actions has been confirmed, independently of NTP.

The required confirmation was received on 29 February 2020, and dispatch operations in Cell 15 were allowed to be resumed. The NNR is nevertheless undertaking further evaluation and monitoring of the situation.

The other two contamination incidents related to:

(a) Contamination of the red area above investigation limits on 22 January 2020. In this case, Necsa stopped all production activities in the facility until the affected area was decontaminated to within acceptable limits.
(b) Contamination above blue area limits in the support laboratory (Room3109). Necsa suspended access to the laboratory, until completion of the required decontamination activities.

Following NNR review of the routine report of operational readiness runs undertaken over the period November 2019 to December 2019, the NNR required Necsa to register an event for the repeated failure to perform certain required maintenance activities within the prescribed weekly and monthly schedules.

Furthermore, on 07 March 2020, Necsa registered event NIL39-OCC-0244, relating to exceedance of the OTS limits for cell pressure in Cell 19. All dissolution activities in Cell 19 were subsequently suspended. The NNR currently awaits the Necsa investigation into this event.

Current Mo-99 production activities in the NTP Radiochemicals Complex is limited to the Cell 20 production line.

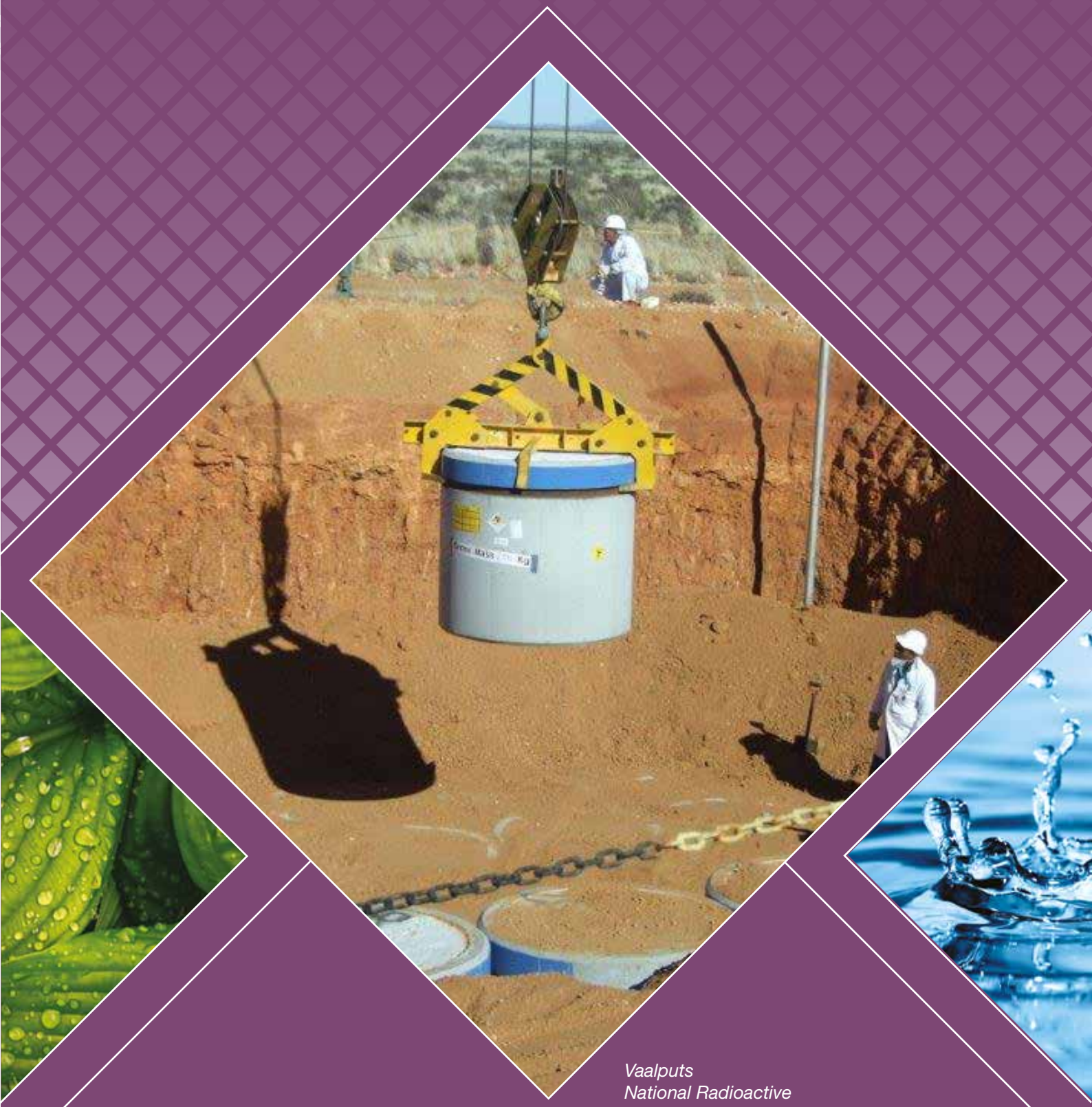
2.15.2. Hot commissioning of the Volume Reduction Facility in the Pelstore

Hot commissioning of the Volume Reduction Facility (VRF) was previously halted on 05 July 2017, following the detection of liquid in waste packages in the Pelstore. Following the implementation of corrective actions and assurances from Necsa, resumption of hot commissioning of the facility was approved at the beginning of May 2018. The hot commissioning was again suspended shortly thereafter due to the further detection of liquid in the waste packages.

During the reporting period Necsa made further requests for resumption of hot commissioning activities. NNR review of the Necsa submissions concluded that Necsa had not satisfactorily addressed the NNR concerns and approval for further hot commissioning activities was therefore refused. Necsa made a further submission at the end of February 2020. This is currently under NNR review and will be responded to in the next reporting period.

2.16. Appeals to the CEO or the Board

There were no appeals concerning the Pelindaba site during the period under review.



Vaalputs
National Radioactive
Waste Disposal Facility

3. Regulation of the Vaalputs National Radioactive Waste Disposal Facility

The Vaalputs National Radioactive Waste Disposal Facility (herein after abbreviated as Vaalputs) is located in the district of Kamiesberg in the Northern Cape Province. The farm, Vaalputs, covers an area of approximately 10 000 ha. In 1977, the South African Government mandated a specialist study group to look at waste management alternatives for the intended commercial nuclear programme. In 1978, the study group recommended that the state proceed with a programme to locate a suitable site for the disposal of radioactive waste in South Africa. From 1979 to 1982, a comprehensive site selection programme was undertaken in accordance with criteria that were regarded as internationally acceptable. The Vaalputs site was selected as the preferred option from three candidate sites and was subsequently acquired in 1983.

Figure 9: Truck arriving at Vaalputs National radioactive Waste Disposal Facility

Detailed site suitability studies commenced in 1983. A preliminary safety report was compiled and submitted to the regulatory authority in 1984 and an intermediate safety report was submitted to the regulatory authority in October 1986, according to which Vaalputs was granted a nuclear authorisation to operate. The first revision of the Vaalputs waste acceptance criteria was approved early in 1986 and the first waste shipments from Koeberg were received in November of the same year. Vaalputs is currently authorised for the receipt and shallow land disposal of solid low-level radioactive waste (LLW), originating from Koeberg and Necsa.

The disposal concept for the LLW is shallow land disposal consisting of near surface trenches located in the region above the groundwater table. Trenches are excavated in the surficial cover in the waste disposal area, which is up to 30 m thick in places and generally consists of an overlying layer of topsoil (sand), approximately 0.5m thick, a layer of indigenous calcrete 1m to 2m thick and 10m to 25m thick clay material that extends down to the underlying granite formations. The sand, calcrete and clayey material excavated from the trenches are kept separate in the stockpiling area and is later used to backfill and cap the trenches.

The waste disposal site comprises the following:

- A securely fenced-in area of 900 m x 1 120 m.
- A 700 m x 500 m area for the disposal trenches.
- An exclusion area, or buffer zone, between the trench area and the fence.
- A meteorological monitoring station.
- Covered carports and storage areas for waste-handling machinery and equipment.

The Vaalputs buildings include the administrative, operational and maintenance areas. The administrative area consists of a reception/display area, offices, a canteen, a conference room, controlled and uncontrolled area change rooms,

toilet facilities and a records room. The operational area consists of a laundry, a sample counting room, a waste reception area, a decontamination area, a shielded storage area and a liquid waste solidification area. The maintenance area consists of a mechanical workshop/vehicle service area; store facilities for components, spares, equipment and flammable liquids; a store facility for site maintenance equipment; and utility sections comprising a standby generator, a compressed air facility, a ventilation facility, fire extinguishing pumps, an electrical sub-station and a liquid effluent containment area.

3.1. 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 below are not exceeded.

GENERAL REGULATORY DOSE LIMITS	
Maximum individual worker dose	A (maximum) effective dose of 50mSv in any single year
Average individual worker dose	An (average) effective of 20mSv per annum averaged over five consecutive years

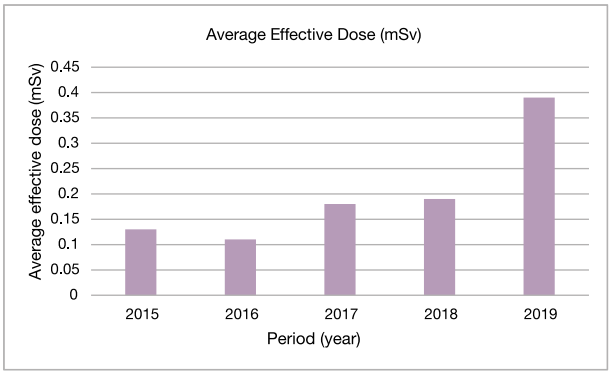


Figure 10: Average Effective Dose at Vaalputs site (2015-2019)

The worker doses at Vaalputs Radioactive Waste Disposal Facility over the past five years were within regulatory limits (see Figure 10). Radiation exposure of workers at Vaalputs remained subject to control through the Operational Radiation Protection Programme. This programme is applied to ensure that control within the annual individual dose limit is achieved. In addition, the programme also served to ensure that all doses are kept ALARA. The maximum effective doses accrued for individual workers during the past five years were below 1mSv (see Figure 11).

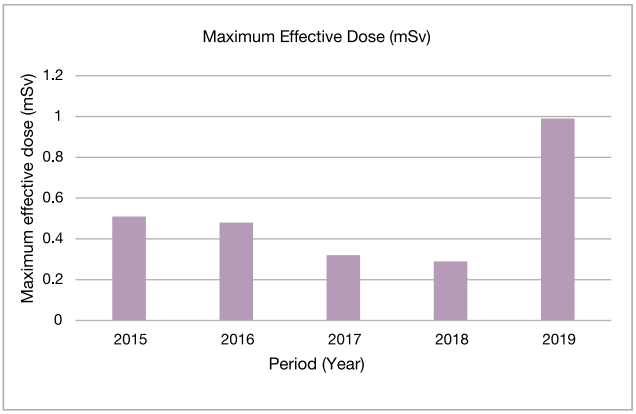


Figure 11: Maximum Effective Dose at the Vaalputs site (2015-2019)

3.1.1. Projected public exposure to radiation

There were no safety concerns regarding public exposure to radiation. In accordance with the conditions of authorisation and the SSRP Regulations, the public doses resulting from effluent discharges from Vaalputs Radioactive Waste Disposal Facility must comply with the dose constraint of 0.25mSv. The environmental surveillance programme for Vaalputs Radioactive Waste Disposal Facility has shown no measurable radiological impact on the community living around Vaalputs.

3.2. Nuclear safety

3.2.1. Safety documentation

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

(i) **Revised Waste Acceptance Criteria**

The Waste Acceptance Criteria is derived from the Vaalputs Safety Case and prescribes requirements for, amongst others:

- Approved containers used for packaging radioactive waste during transport and disposal;
- Type and form of waste that may be packaged in approved containers;
- Prohibited waste, i.e., waste that will not be accepted for disposal (e.g., asbestos);

- Data packs containing all relevant information regarding the waste package;
- Quality control measures;
- Radiological safety control measures;
- Health, safety and environmental requirements; and
- Verification requirements (prior to shipment and on delivery).

During the reporting period, the NNR reviewed the Necsa submission and raised several comments, which are required to be addressed prior to approval of the document. The Necsa response, addressing the NNR comments raised, is expected to be submitted in the next review period.

(ii) **In-service Inspection (ISI) and Maintenance programme,**

During the nuclear facilities operating lifetime, the operating organisation is required to examine the systems, structures and components (SSCs) for possible deterioration so as to determine whether they are acceptable for continued safe operation or whether remedial measures should be taken. In-service inspection (ISI) and maintenance programmes provide the systematic framework for these examinations. An effective ISI and maintenance programme ensures that both the safety of the plant is not adversely affected after the commencement of operation and that the levels of reliability and availability of all plant SSCs remain in accordance with the assumptions and intent of the design.

During the reporting period, the NNR reviewed the Necsa submission and raised several comments, which are required to be addressed prior to approval of the document. The Necsa response, addressing the NNR comments raised, is expected to be submitted in the next review period.

3.2.2. Public Safety Information Forum

PSIF meetings are required to be held on a quarterly basis. The aim of the PSIF meetings is 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 NNR Act on nuclear safety and radiation safety matters related to the relevant nuclear installation. Community members, who are nominated by the public and appointed by the NNR Board, chair the PSIF meetings. During the reporting period Mr Gerald Engelbrecht served as Chairperson of the Vaalputs PSIF and Mr John Corjeus served as Deputy Chairperson. Three Public Safety Information Forum (PSIF) meetings were hosted by Necsa during the reporting period. A fourth PSIF meeting was scheduled for 26 March 2020 but was postponed due to the declaration of the Covid-19 National Disaster and the consequent announcement of a National Lockdown.

3.3. Transport safety

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

3.4. Radioactive waste safety

The receiving and disposal of radioactive waste at Vaalputs was in conformance with the conditions of authorisation and the Vaalputs Waste Acceptance Criteria (WAC). During the reporting period Vaalputs received a total of seventeen (17) radioactive waste shipments comprising:

- Eight (8) shipments of metal and concrete waste packages from Necsa; and,
- Nine (9) shipments of metal waste packages from Koeberg Nuclear Power Station.

Following the declaration of the National Lockdown in the last week of March 2020, all activities including receipt of waste shipments were suspended, save for essential services.

3.5. Environmental protection

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

3.6. Nuclear emergency planning and preparedness

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

3.7. Competency and sufficiency of Necsa's Vaalputs workforce to work safely

In addition to the requirements in the SSRP Regulations, the conditions of authorisation require that Necsa 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 authorisation. Such arrangements must make provision for the appointment, as appropriate, of authorised persons to control and supervise operations, which may affect plant or facility safety. The NNR was satisfied that Necsa complied with the above requirement, in respect of the Vaalputs National Radioactive Waste Disposal facility, during the review period.

3.8. Physical security

There were no safety concerns regarding the physical security at Vaalputs Radioactive Waste Disposal Facility during the period under review.

3.9. Safety of sealed radioactive sources

The NNR conducts inspections on radioactive sources at the Vaalputs site and receives six-monthly reports on radioactive sources that are used, stored on site or transported to and from the site. There were no safety concerns regarding sealed radioactive sources at Vaalputs Radioactive Waste Disposal Facility during the review period.

3.10. Nuclear incident/accidents reported

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

3.11. Regulatory compliance inspections

During the review period, the NNR conducted six (6) inspections at Vaalputs. These inspections provided assurance that there was generally satisfactory compliance with regulations and conditions of authorisation. Nevertheless, some minor non-compliance issues were raised during these inspections, and the NNR continues to monitor the corrective actions against these.

3.12. Regulatory warnings or directives to stop work

There were no directives issued to stop work at Vaalputs Radioactive Waste Disposal Facility during the period under review.

3.13. Appeals to the CEO or the Board

There were no appeals concerning Vaalputs during the review period.

3.14. Request for the existing Vaalputs Nuclear Installation Licence (NIL-28) to be issued in the name of the National Radioactive Waste Disposal Institute (NRWDI)

During the previous reporting period, the NNR held meetings with the management of National Radioactive Waste Disposal Institute (NRWDI) to discuss the NNR comments on NRWDI's submission requesting the existing Vaalputs Nuclear Installation Licence (NIL-28) be issued in the name of NRWDI.

NRWDI was required to furnish the following information in support of the application to reissue the licence that was previously issued to Necsa regarding management and operation of the Vaalputs National Radioactive Waste Disposal Facility:

- An appropriate safety case that has been reviewed and accepted by the applicant, as an intelligent customer.
- Details of the organisational structure showing roles and responsibilities for the safe operation of a nuclear facility and the maintaining and updating of the facility safety case documentation. The required detail must include the following:
    - An evaluation of the technical resources required;
    - Demonstration that the said resources are available under the applicant's organisational control; and
    - Confirmation of the technical resources that are to be outsourced.

- Detail of the management system employed by the applicant. The said management system must:
    - Provide for an overriding priority to nuclear and radiation safety; and
    - Detail the various processes and arrangements for compliance with the conditions of authorisation, requirements of the NNR Act and associated regulations.

The NRWDI application for the issue of Vaalputs Nuclear Installation Licence in the name of NRWDI was received in February 2019. The application was supported by a licensing strategy and schedule of submissions to be made to the NNR. During the reporting period the NNR completed the review of the NRWDI safety case documentation submitted in support of their licence application.

The NNR review identified a number of deficiencies in the NRWDI safety case documentation. The NNR hosted a workshop with NRWDI staff on 10 December 2019. During this workshop the deficiencies were highlighted to NRWDI staff. The NRWDI responses to the NNR comments are expected to be received in the next reporting period.

Further, NRWDI was required to submit a Public Information Document (PID) related to their application. The application and PID will be published for written public comment in the next reporting period.

Naturally Occurring Radioactive Material (NORM)

4. Regulation of NORM

Radionuclides are present in all minerals and raw materials of natural origin, the most important of which, for the purposes of radiation protection, are those in the U238 and Th232 decay series and K40. These materials are commonly referred to as 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 NNR Act, the NNR is responsible for exercising regulatory control over facilities and activities handling NORM. Facilities and activities which handle NORM require authorisation in terms of the Act. In terms of section 22 (1) of the Act, such facilities and activities are authorised by means of a nuclear authorisation in a form of a certificate of registration (COR) or certificate of exemption (COE).

The nuclear authorisation (i.e. COR or COE) is issued with certain conditions of authorisation with which all holders are required to comply. A system of compliance assurance exercises (inspections, audits and investigation actions) are conducted upon these various holders to assure compliance with the conditions of authorisation and the SSRP Regulations.

The NNR currently grants nuclear authorisations for the following categories of NORM:

- 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.
- Small users (i.e. laboratories) conducting tests of small quantities of NORM samples for verification of proposed and existing actions, including samples from prospecting activities.
- Service providers (i.e. storage warehouse), supplying clean-up services of radiologically contaminated sites.

4.1. Occupational exposure to radiation

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

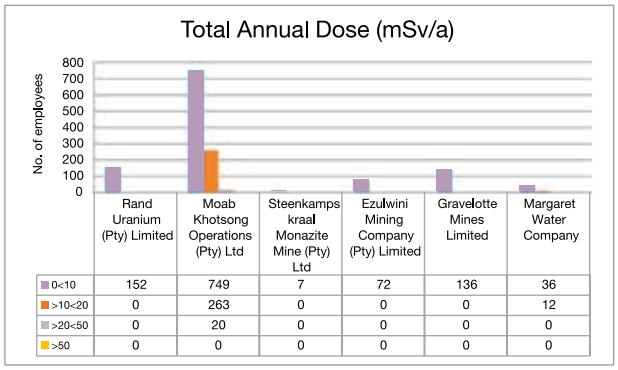
GENERAL REGULATORY DOSE LIMITS	
Workforce	Regulatory Criteria (SSRP R388)
Maximum individual worker dose	A (maximum) effective dose of 50mSv in any single year.
Average individual worker dose	20mSv per annum averaged over five consecutive years.

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

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 (see figure 10). The other areas with no potential of exceeding the regulatory annual dose limit (i.e. the so-called Non-Special Case Mines) remain well below the annual dose limit of 50 mSv/a (see figure 12).

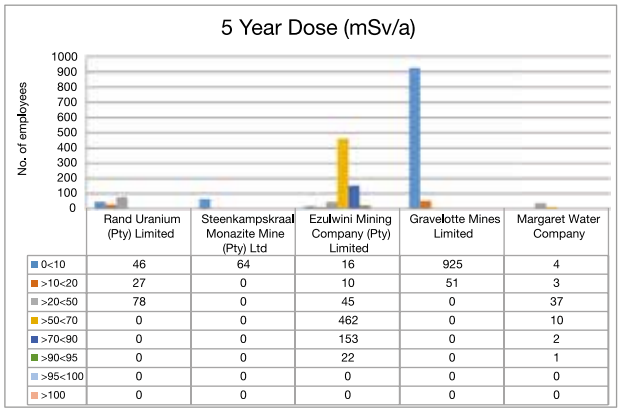
4.2. Special Case Mines (SCM)

For a mine to be classified as a special case by the NNR, the potential monthly dose rate should be 1.7 mSv and above, or the projected annual dose of 20 mSv is exceeded. During the period under review, the radiological exposures remain below the annual dose limit of 50 mSv/a and 20 mSv/a average over five consecutive years (2015 to 2019) as illustrated in figures 10 and 11.



	Rand Uranium (Pty) Limited	Moab Khotsong Operations (Pty) Ltd	Steenkamps kraal Monazite Mine (Pty) Ltd	Ezulwini Mining Company (Pty) Limited	Gravelotte Mines Limited	Margaret Water Company
0<10	152	749	7	72	136	36
>10<20	0	263	0	0	0	12
>20<50	0	20	0	0	0	0
>50	0	0	0	0	0	0

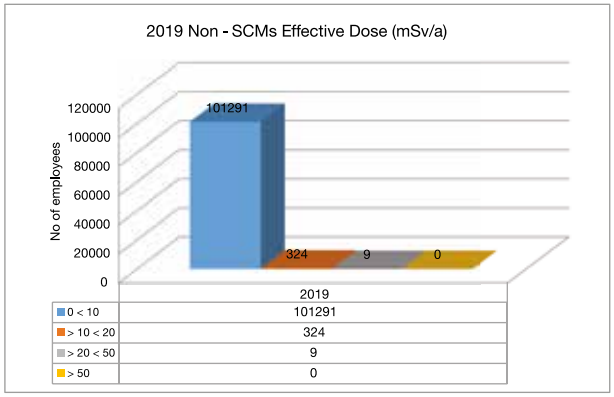
Figure 12: Annual (2019) effective dose for SCMs



	Rand Uranium (Pty) Limited	Steenkampskraal Monazite Mine (Pty) Ltd	Ezulwini Mining Company (Pty) Limited	Gravelotte Mines Limited	Margaret Water Company
0<10	46	64	16	925	4
>10<20	27	0	10	51	3
>20<50	78	0	45	0	37
>50<70	0	0	462	0	10
>70<90	0	0	153	0	2
>90<95	0	0	22	0	1
>95<100	0	0	0	0	0
>100	0	0	0	0	0

Figure 13: Five-year (2015 – 2019) cumulative dose for SCMs

Non-special Case Mines (SCMs)



	2019
0 < 10	101291
> 10 < 20	324
> 20 < 50	9
> 50	0

Figure 14: Annual (2019) effective dose for Non-SCMs

4.3. Public exposure to radiation

In accordance with the SSRP, the doses for members of the public must comply with the action specific dose constraint of 0.25mSv per annum and a dose limit of 1mSv per annum from all authorised actions. The NNR further required the holders on a five-year frequency to submit the Public Radiological Safety Assessments to ensure that the authorised actions did not pose any undue health risks to members of the public and the environment. These reports were reviewed by the NNR and the projected public exposures from these authorised actions were all within the public dose limit of 1mSv.

4.4. Transport safety

There were no safety concerns regarding transport of NORM 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 surface contaminated objects (SCO-1) scrap materials takes place on a daily basis between authorised facilities. The NNR continued to receive notifications of consignments triggering alarms at gamma drive-through monitors of facilities that are not authorised to handle radioactive materials. The NNR responded to all incidents reported.

4.5. Radioactive waste safety

There were no safety concerns related to radioactive waste during the period under review. Authorisation holders were 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 routine and annual waste management reports submitted to the NNR demonstrated compliance with the NNR requirements. The summary of waste is presented below.

Table 22: Total waste reported from all holders of operations

Type of waste	Quantities	Units	No. of consignments
Restricted Scrap	6.67E+06	tons	3.18E+03
Unrestricted Scrap	1.41E+05	tons	5.57E+03
Gaseous Releases	1.94E+11	m^3	n/a
Liquid Waste	6.10E+10	ml	n/a
Semi-solids (tons)	7.36E+07	tons	n/a
Solids	1.08E+09	tons	1.46E+05
Other Waste	1.38E+05	tons	3.97E+03

4.6. Safety of sealed radioactive sources

The safety and regulation of radioactive sealed sources at NORM facilities falls outside the scope of the NNR Act. However, any sealed source discovered by the NNR during inspections at the NORM regulated facilities is handle safely and reported to the Directorate: Radiation Control of the South African Health Products Regulatory Authority (SAHPRA).

4.7. Nuclear incidents/accidents/occurrences reported

There were thirteen (13) registered occurrences during the reporting period. The occurrences included pipeline failure incidents resulting in the spillage of the slurry into the environment, non-compliance to approved procedures, physical security system related, vehicle accidents during transport of radioactive material resulting in the spillage of radioactive material and those related to illegal mining activities. Corrective and preventive measures are being implemented to ensure that the incidents do not recur and/or rate thereof significantly reduced.

Two (2) occurrences were closed and eleven (11) are in the process of being closed. The NNR will continue to follow up on these incidents during compliance assurance inspections to ensure that they are closed.

4.8. Regulatory compliance

In order to verify the degree of compliance with the conditions of nuclear authorisation, the NNR undertakes independent inspections (announced and unannounced), investigations, environmental verification and review of compliance reports submitted by authorisation holders.

4.8.1. Inspections

A total of 145 inspections were conducted during the reporting period. These inspections were conducted to verify compliance of the authorised holders with provisions of the NNR Act, regulations articulated in Safety Standards and Regulatory Practices (R388), NNR requirements, various NNR approved programmes and procedures implemented by the holders.

Authorisation holders were required to investigate the root causes of the non-compliances and implementation of corrective and preventive actions. The corrective and preventive actions implemented by the authorisation holders are confirmed during the NNR compliance inspections.

4.8.2. Investigations

The NNR conducted four (4) regulatory investigations during the reporting period.

An investigation was conducted on 21 May 2019 at an unauthorised facility following allegations from a whistle blower that the facility is handling radioactive material. No radioactive material was detected on site following the survey of the site as part of the investigation. The investigation was closed but the facility will be monitored as part of compliance assurance.

An investigation was conducted on 21 June 2019 at an unauthorised facility following detection of radioactive material and notification by South African Police Services who were investigating the case. The radio analysis results confirming that the material is radioactive have been received and the investigation is ongoing.

An investigation was conducted on 26 August 2019 following the detection of material contaminated with radioactive material at an unauthorised scrap

smelter. The investigation confirmed that the material is contaminated with radioactive material that is regulated by the Directorate: Radiation Control. The matter has been handed to the Directorate and the investigation closed.

An investigation was conducted on 3 October 2019 following allegations of contamination of river water by the authorised mine. No evidence of contaminated water flowing into the river or seepage was found during investigation. The water samples from the river were taken for radio analysis and the investigation is to continue once the results are received.

4.8.3. Environmental verification samples

There were 283 environmental samples taken up and down stream of the authorised facilities and activities for independent verification purposes. Based on the radio analysis results, the NNR enforces compliance in the interest of protection of the public and the environment, and to inform future environmental sampling programmes.

4.9. Regulatory warnings and directives issued

There were no regulatory directives that were issued to authorisation holders, unauthorised activities and actions during this period.

4.10. Appeals to the CEO

There were no appeals submitted to the Chief Executive Officer (CEO) of the NNR in terms of section 43 of the NNR Act, 47 of 1999.

Naturally Occurring Radioactive Material (NORM)

5. Regulatory Improvement and Technical Services (RITS)

The NNR conducted a regulatory nuclear emergency exercise at the Pelindaba site of the South African Nuclear Energy Corporation (Necsa) on 03 October 2019. The aim of the exercise was to evaluate the effectiveness of Necsa and the local authorities (intervening organisations) response in dealing with a simulated emergency at the Necsa Safari-1 research reactor impacting the nuclear site and the public. The specific objectives for the exercise, amongst others, focussed on emergency responders' activation, communication between the onsite and offsite response organisations, operation of the Necsa Emergency Control and Madibeng Disaster Management Centres, protection of emergency responders, and implementation of the broader protective active actions as required by the scenario. Although a number of deficiencies and observations were identified for correction and improvement by Necsa and the intervening organisations, the NNR concluded that the Necsa and Madibeng nuclear emergency plans remain viable for protection of persons, property and the environment. The corrective action plan for Necsa emergency exercise was reviewed by the NNR. Implemented actions will be monitored and verified by the NNR to ensure adequacy of the preparedness and response arrangements.

Following completion of the upgrade of the Regulatory Emergency Response Centre (RERC) the capabilities, operability and functionality of the RERC were evaluated by means of an exercise on 6 November 2019. The scenario for the exercise used a simulated emergency at the Koeberg Nuclear Power Plant. Some of the specific objectives of the RERC exercise included the adequacy of the standby arrangement and resources, notification and activation of the emergency responders, communication arrangements, public protective actions verification, use of technical data and modelling tools, availability of portable equipment, and preparation of a media statement. The outcome of the exercise revealed that despite identification of deficiencies in some of the response actions, the NNR demonstrated an adequate internal capability to activate and operationalise the functioning of the RERC. A corrective action plan is being developed for approval to improve the RERC capabilities and operations.

During the reporting period the NNR expanded its suite of regulatory standards through the development of regulations, regulatory guides and position papers. The documents under development or completed cover topics such as transport of radioactive material for specific activities, periodic safety review of Nuclear Power Plants, recognition of holder personnel, control of technical services and long-term operation provisions.

In order to centralise occupational exposures in South Africa, the NNR continued to expand and implement improvements to the National Dose Register (NDR). The NDR Steering Committee monitors and has oversight of the initiatives to strengthen the NDR. There has been in an increase in the number of Data Providers from all groupings in registering and utilising the NDR. Improvements related to the upload portal and template have been implemented. The NNR is frequently verifying exposure records uploads and provide troubleshooting support to Data Providers. In 2019, NDR awareness/training sessions have been conducted in Western Cape, Kwazulu-Natal and NNR offices in Centurion in 2020.

The NNR made good progress in closing the recommendations and suggestions contained in the IAEA Integrated Regulatory Review Service (IRRS) Mission Report. At the end of 2019, the NNR had implemented close to 70% of the IRRS Actions. Major milestones achieved during the reporting period include initiating the implementation of a systematic approach for the acquisition of the operating and regulatory experience information, strengthening of the management system, as well as decommissioning provisions and joint inspections for relevant regulated entities.

The NNR continued to benefit from the IAEA Technical Co-operation National Project SAF9007 to strengthen regulatory infrastructure. Four scientific visit applications were processed and

submitted to the IAEA. Two IAEA Expert Missions were conducted in South Africa relating to Periodic Safety Review of Nuclear Power Plants and Safety Culture Self-Assessment for the Regulatory Body. As part of its compliance assurance and independent verification processes, the NNR Environmental Surveillance Laboratory, analysed close to 100% of environmental samples collected from regulated facilities and activities during the reporting period. The NNR Laboratory developed more radio-analytical techniques and increased its own analysis capacity to 85%. The laboratory conducted its first management review meeting in September 2019 to review and evaluate the effectiveness of its management system. The Laboratory continued its participation in the IAEA Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA) Proficiency Testing Scheme, as part of Quality Assurance Programme and to identify areas of improvements. Most of the Laboratory test results submitted for various radionuclides by different radio-analytical techniques were found to be acceptable. The laboratory accreditation process has been initiated, by officially submitting an application to SANAS, including quality management system documents for review.

5.1. Centre for Nuclear Safety and Security

The National Nuclear Regulator has established the Centre for Nuclear Safety and Security (CNSS). The mandate of the CNSS is to collaboratively develop and enhance nuclear safety and security capabilities, in order to support regulatory decision-making.

Figure 15: CNSS strategic pillars and objectives

Pillars		Strategic Objectives
Strategic Partnerships	Pillar 1	Leverage strategic partnerships through the CNSS to build capacity
Educations & Training	Pillar 2	Strengthen training and capacity development of regulatory staff
Regulatory Research	Pillar 3	Build regulatory research infrastructure and capacity
Technical & Scientific	Pillar 4	Ensure effective technical and scientific support to the regulator

5.2. Strategic activities implemented during the reporting period

5.2.1. Regulatory Research and Development (RRD)

To stay abreast with international developments, and to ensure that the regulatory decisions are based on the best scientific and technical information, NNR has identified the importance of initiating, co-ordinating and monitoring safety-related research and development in support of its regulatory functions. To achieve this, the CNSS utilises niche competencies of academic and/or research institutions for its research needs supplemented by CNSS researchers. This includes formulation and development of emerging issues that may have an impact on nuclear safety and security.

5.2.1.1. Research at Partner Institutions

The current research thematic areas are based on nuclear regulatory needs, with the intention to enhance regulatory decision-making, as well as add value to the national and international knowledge of nuclear safety and security are listed below:

Table 23: CNSS Research at Partner Institutions

NNR Programme Supported	Project Title	Student Researchers
NPP	1) Independent verification of the Environmental Hydrogeological Conditions of Thyspunt Nuclear Site	2
	2) Multi-physics platform for safety analysis based on NRC codes	2
	3) Neutron transmission and activation studies for concrete and other materials in the nuclear industry	2
	4) Investigation of accident tolerant fuel and cladding materials for light water reactor applications	4
RITS ERP / Laboratory	1) Assessment of natural radioactivity in drinking water in the surroundings of former uranium mines	2
	2) Design of national radon mapping study	2
	3) Natural radioactive toxicity in drinking water sources due to abandoned uranium mines	2
	4) Radon migration in groundwater surrounding mines and associated works	2
	5) Baseline assessment of radiological levels of water in the vicinity of gold and coal mines and distribution of radon and associated radionuclides	3
NORM	1) Effective controls of radon gas in underground mines	3

The total amount disbursed to date for the projects is R11 547 500. Due to the nature of these research projects, the funding spans from financial year 2018/19 to 2020/21 and may be beyond for some of the postgraduate students. CNSS has committed an additional amount of R3 480 600 that will be disbursed during the FY 2020/21.

CNSS has recruited six in-house Research Associates to work collaboratively with the Partner Institutions and undertaking individual research projects within CNSS Programme office, based on emerging issues**.**

5.3. Technical and scientific support

The following projects were supported during FY2019/20:

- Development of Design Database/archive and TRACE model for Koeberg Nuclear Power Plant, one MSc student funded and one staff member involved for skill and knowledge transfer amounting to R257 168 spend out of R488 400 disbursed.

5.4. Education and training

Education and Training, even though at times viewed in isolation, are both intertwined processes useful for the preparation of competent nuclear regulatory staff. In order to develop researchers and specialists in the nuclear safety and security, as well, as provide technical and scientific support; the CNSS has strived to harmonise the education component with the RRD at Partner Institutions. The ultimate goal is to establish a programme supporting capacity building and capability development for the nuclear safety and security within the regulatory body and the country at large. As a result, CNSS is addressing human resource shortages and in the process maintaining the skills and competency of staff. This ensures adequate and sustainable flow of new staff recruits and thus offsetting impending retirements.

5.4.1. Training offered by CNSS

CNSS developed and offered the following competency training for staff at CNSS Programme Office and Student Researchers at various Partner Institutions:

- **Sampling and Instrumentation**

Two-day training was hosted at the NNR Laboratory on 5 and 6 December 2019. The training covered topics on laboratory induction, sampling process and demonstrations, and instrument application and demonstration.

- **Introduction to Nuclear Engineering; Regulatory Philosophy; Regulations and Regulatory Documents**

CNSS developed and offered these training programmes from 11 – 13 December 2019 to funded researcher. The training topics included regulatory philosophy, nuclear engineering, understand of radiation and sources, reactor basic and nuclear technology.

5.4.2. Staff training at partner institution

- Through IAEA partnership, two staff members were sent to Ghana Atomic Energy Agency for a six month Post Graduate Education Course in Radiation training.
- Ten staff members attended various ENSTTI trainings with in-kind contribution of about R1.3million.

5.5. Strategic partnerships

CNSS operates on a Hub and Spoke model, forming partnerships and collaborations with various local and international partners. Some of these partnerships, formed with various academic and scientific institutions, offer training and professional development in nuclear safety and security, whereas other institutions offer research capabilities and opportunities to develop future workforce, using existing research infrastructures and facilities. In addition to academic institutions, CNSS seeks partnerships and collaborations with government departments, funders and international institutions in order to leverage and grow existing expertise and to ensure financial sustainability. The scope of co-operation includes, but is not limited to, the following areas:

- Training of scientific and technical personnel.
- Exchange and/or dissemination of information relating to training and research.
- Establishment and development of joint working groups.
- Mentoring of Technical and Scientific Organisation (TSO) staff.
- Collaborative regulatory research relating to areas of mutual interest.

5.5.1. Strategic partners established in 2019/20

South Africa is the only country in the continent with nuclear power plant. As such, most of the experience and expertise relating to nuclear power plant safety lies in other continents other than Africa. Thus, who is to be chosen as a partner has to be selected based mostly on what they have to offer to the NNR and the country:

- **Institute of Radiation Protection and Nuclear Safety (IRSN)** is a TSO directly supporting the French regulatory body. This partner is of strategic importance to the CNSS because Koeberg nuclear power plant is a sister plant to the Tricastin nuclear power plant based in France. Through this partnership, NNR can leverage on the experience and lessons learned and the work already done by IRSN on long-term operations and aging management in general. This is important because Eskom want to extend the lifetime of Koeberg power station for another twenty years.

- **Paul Scherrer Institute (PSI)** is a multi-disciplinary research centre based in Switzerland. They are involved in the following research areas that are beneficial to the NNR:
  - Safety of currently operating light-water reactors.
  - Safety characteristics of future reactor concepts and related fuel cycles.
  - Long-term safety of deep geological repositories for nuclear wastes of all kind.
  - Conducting of appropriate joint research programmes; and
  - Dissemination of information and training of new experts to train the trainers and work with them until CNSS can handle training fully on its own.

- **Bel V** is the Belgian Technical Safety Organisation (TSO) providing technical expertise to the Belgian nuclear regulator, FANC (Federal Agency for Nuclear Control). This TSO has extensive research infrastructure needed to support current research undertakings supported by CNSS at the universities. Through a survey and gap radio-analysis conducted on laboratory needs, to date, Bel V was identified as having the required complete infrastructure relating to radio-analytical verification analysis to complement the NNR laboratory.

- **European Nuclear Safety Training and Tutoring Institute (ENSTII)** is the professional training and tutoring institute focussing on the transfer of the knowledge and know-how of the European nuclear safety organisations experts. Their expertise is in wide range of activities, from the assessment of nuclear power plant safety to the analysis of the effects of interventional radiology on human health. The training and tutoring provided ensures that personnel at Nuclear Regulatory Bodies and Technical Safety Organisations can maintain skills in their current roles and remain knowledgeable and prepared to tackle emerging threats and technological advancements.

5.6. Noteworthy milestones achieved during 2019/2020

5.6.1. IAEA Practical Arrangement

In the previous financial year, the NNR has signed Practical Arrangements with the International Atomic Energy Agency (IAEA), designating the CNSS as the regional hub in the African continent. Under the auspices of this arrangement:

a) CNSS hosted the IAEA Technical and Scientific Support Organisations (TSO) Self-Assessment workshop on Developing and Strengthening Technical and Scientific capacity from 25 to 29 November 2019 in South Africa. The primary objective of the workshop was to evaluate the level of maturity of CNSS, provide support to identify needs, gaps, come up with recommendations for follow-up actions, and to help in the development of a national strategy.
The results of the self-assessment workshop will assist NNR to further develop an action plan for enhancing and sustaining technical and scientific capabilities, in line with South Africa's TSO policy and the elf-assessment outcomes.

b) CNSS hosted Board Members of Zambia Radiation Protection Authority (ZRPA) as part of the IAEA Group Scientific Visit from 20 – 24 January 2020. The purpose of the visit was for the Board Members to gain knowledge on how the NNR develops Regulations and safety standards that are used in regulating Nuclear Facilities, the implementation of a legal framework for licensing and inspections of nuclear materials and facilities.

5.7. CNSS Advisory Panel Inaugural Meeting

The NNR has established the CNSS Advisory Panel to provide advice to CNSS in support of the development of CNSS strategy and clear plans of action to identify and address future CNSS priorities. The CNSS Advisory Panel has an independent role, of providing advice to CNSS in support of the delivery of its strategy, identification and development of future priorities and opportunities.

The Inaugural meeting for the CNSS Advisory Panel was hosted on 2 and 3 December 2019 at the NNR Head Office. The two day meeting was attended by members appointed to represent academic institutions, independent members, and NNR officials. The outcome of the meeting were recommendations for CNSS to achieve its strategic mandate.

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FINANCIAL INFORMATION

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE NATIONAL NUCLEAR REGULATOR

Report on the audit of the financial statements

Opinion

1. I have audited the financial statements of the National Nuclear Regulator set out on pages 111 to 148, which comprise the statement of financial position as at 31 March 2020, statement of financial performance, statement of changes in net assets, cash flow statement and statement of comparison of budget and actual amounts for the year then ended, as well as the notes to the financial statements, including a summary of significant accounting policies.

2. In my opinion, the financial statements present fairly, in all material respects, the financial position of the National Nuclear Regulator as at 31 March 2020, and its financial performance and cash flows for the year then ended in accordance with the South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act (Act No.1 of 1999) (PFMA).

Basis for opinion

3. I conducted my audit in accordance with the International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the Auditor-General's responsibilities for the audit of the financial statements section of this auditor's report.

4. I am independent of the public entity in accordance with sections 290 and 291 of the *Code of ethics for professional accountants* and parts 1 and 3 of the *International Code of Ethics for Professional Accountants (including International Independence Standards)* of the International Ethics Standards Board for Accountants (IESBA codes) as well as the ethical requirements that are relevant to my audit in South Africa. I have fulfilled my other ethical responsibilities in accordance with these requirements and the IESBA codes.

5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Emphasis of matter

6. I draw attention to the matter below. My opinion is not modified in respect of this matter.

Subsequent events

7. With reference to note 33 in the financial statements, which deals with subsequent events and specifically the possible effects of the future implications of Covid-19 on public entity's future performance, management has stated that due to Covid-19, the Minister of the Department of Mineral Resources and Energy has approved an increase of 4.5% in authorisation fees instead of 7.5% proposed by the public entity and some license holders approached the public entity for the deferment of their debt and have entered into debt repayment agreements.

Responsibilities of the Accounting Authority for the financial statements

8. The Board of Directors, which constitutes the Accounting Authority is responsible for the preparation and fair presentation of the financial statements in accordance with the SA Standards of GRAP and the requirements of the 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.

9. In preparing the financial statements, the Accounting Authority is responsible for assessing the public entity's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the appropriate governance structure either intends to liquidate the public entity or to cease operations, or has no realistic alternative but to do so.

Auditor-General's responsibilities for the audit of the financial statements

10. My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

11. A further description of my responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

Report on the audit of the annual performance report

Introduction and scope

12. In accordance with the Public Audit Act of South Africa 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof, I have a responsibility to report on the usefulness and reliability of the reported performance information against predetermined objectives for the selected goal presented in the annual performance report. I performed procedures to identify material findings but not to gather evidence to express assurance.

13. My procedures address the usefulness and reliability of the reported performance information, which must be based on the approved performance planning documents of the public entity. I have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. My procedures do not examine whether the actions taken by the public entity enabled service delivery. My procedures also do not extend to any disclosures or assertions relating to planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, my findings do not extend to these matters.

14. I evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected goal presented in the annual performance report of the public entity for the year ended 31 March 2020:

Goal	Pages in the annual performance report
Goal 1 - To provide efficient and effective nuclear regulatory services	**32 - 40**

15. I performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. I performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.

16. The material finding in respect of the usefulness of the selected goal is as follows:

Goal 1 - To provide efficient and effective nuclear regulatory services

% of ageing management programme

17. The method of calculation for achieving the planned indicator was not clearly defined.

Other matters

18. I draw attention to the matters below.

Achievement of planned targets

19. Refer to the annual performance report on pages 32 to 43 for information on the achievement of planned targets for the year and explanations provided for the under/overachievement of a significant number of targets. This information should be considered in the context of the material finding on the usefulness of the reported performance information in paragraph 17 of this report.

Adjustment of material misstatements

20. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were on the reported performance information of goal 1 - to provide efficient and effective nuclear regulatory services. As management subsequently corrected only some of the misstatements, i raised a material finding on the usefulness of the reported pelformance information. Those that were not corrected are reported above.

Report on the audit of compliance with legislation

Introduction and scope

21. In accordance with the PAA and the general notice issued in terms thereof, I have a responsibility to report material findings on the public entity's compliance with specific matters in key legislation. I performed procedures to identify findings but not to gather evidence to express assurance.

22. I did not identify any material findings on compliance with the specific matters in key leglslation set out in the general notice issued in terms of the PAA.

Other information

23. The Accounting Authority is responsible for the other information. The other information comprises the information included in the annual report which includes the statement of directors' responsibilities and approval, the audit and risk management committee report and the directors' report. The other information does not include the financial statements, the auditor's report and the selected goal presented in the annual performance report that has been specifically reported in this auditor's report.

24. My opinion on the financial statements and findings on the reported performance information and compliance with legislation does not cover the other information and I do not express an audit opinion or any form of assurance conclusion thereon.

25. In connection with my audit, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements and the selected goal presented in the annual performance report, or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

26. I did not receive the other information prior to the date of this auditor's report. When I do receive and read this information, if I conclude that there is a material misstatement therein, I am required to communicate the matter to those charged with governance and request that the other information be corrected. If the other information is not corrected, I may have to retract this auditor's report and re-issue an amended report as appropriate. However, if it is corrected this will not be necessary.

Internal control deficiencies

27. I considered internal control relevant to my audit of the financial statements, reported performance information and compliance with applicable legislation; however, my objective was not to express any form of assurance on it. The matter reported below is limited to the significant internal control deficiencies that resulted in the material finding on the annual performance report included in this report.

28. Senior management did not adequately review and monitor compliance with the requirements of the performance management and reporting framework which resulted to some indicators and targets not meeting the SMART criteria. Furthermore, there was a lack of a proper records management system that could support the information reported in the annual performance reported which resulted in material misstatements that were identified during the audit process.

Auditor General

Johannesburg
15 October 2020

AUDITOR-GENERAL
SOUTH AFRICA

Auditing to build public confidence

ANNEXURE – AUDITOR-GENERAL'S RESPONSIBILITY FOR THE AUDIT

1. As part of an audit in accordance with the ISAs, I exercise professional judgement and maintain professional scepticism throughout my audit of the financial statements and the procedures performed on reported performance information for the selected goal and on the public entity's compliance with respect to the selected subject matters.

Financial statements

2. In addition to my responsibility for the audit of the financial statements as described in this auditor's report, I also:
   - Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
   - Obtain an understanding of internal control relevant to the audit 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 public entity's internal control.
   - Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Board of Directors, which constitutes the Accounting Authority.
   - Conclude on the appropriateness of the board of directors, which constitutes the Accounting Authority's use of the going concern basis of accounting in the preparation of the financial statements. I also conclude, based on the audit evidence obtained, whether a material uncertainty exists relating to events or conditions that may cast significant doubt on the ability of the National Nuclear Regulator to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements about the material uncertainty or, if such disclosures are inadequate, to modify my opinion on the financial statements. My conclusions are based on the information available to me at the date of this auditor's report. However, future events or conditions may cause a public entity to cease operating as a going concern; and
   - Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and determine whether the financial statements represent the underiying transactions and events in a manner that achieves fair presentation.

Communication with those charged with governance

3. I communicate with the Accounting Authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.
4. I also confirm to the Accounting Authority that I have complied with relevant ethical requirements regarding independence, and communicated all relationships and other matters that may reasonably be thought to have a bearing on my independence and, where applicable, actions have been taken to eliminate threats or apply safeguards.

GENERAL INFORMATION

Country of incorporation and domicile	South Africa
Nature of business and principal activities	To provide protection for persons, property and the environment against nuclear damage, through the establishment of safety standards and regulatory practices.
Directors	Dr T Motshudi (Chairperson) Dr P Dube (Deputy Chairperson) Dr B Tyobeka (CEO) Mr A Le Roux Ms E Monale Ms B Mokoetle Dr B Sehlapelo Mrs D Bendeman Mr P Phili Mr KS Kakoma
Registered office	Eco Glades Office Park Eco Glades 2, Block 6 Witch Hazel Avenue Highveld Ext 75, Eco Park, Centurion 0046
Business address	Eco Glades Office Park Eco Glades 2, Block G 420 Witch Hazel Avenue Eco Park, Centurion, Highveld Ext 75, 0046
Postal address	P.O. Box 7106 Centurion, Eco Park Highveld Ext 75 Pretoria, 0046
Executive Authority	Minister of Mineral Resources and Energy
Bankers	ABSA Bank
Auditors	Auditor-General South Africa (AGSA) Registered Auditors
Secretary	Ms N Kote

STATEMENT OF DIRECTORS' RESPONSIBILITIES AND APPROVAL

The directors are required by the Public Finance Management Act (Act No. 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 members to ensure that the annual financial statements fairly present the state of affairs of the entity 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 entity and place considerable importance on maintaining a strong control environment. To enable the members 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 entity and all employees are required to maintain the highest ethical standards in ensuring the entity's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the entity is on identifying, assessing, managing and monitoring all known forms of risk across the entity. While operating risk cannot be fully eliminated, the entity 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.

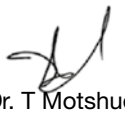
The directors have reviewed the entity's cash flow forecast for the year to 31 March 2021 and, in the light of this review and the current financial position, they are satisfied that the entity has access to adequate resources to continue in operational existence for the foreseeable future.

The entity is significantly dependent on the authorisation holders for continued funding of operations. The annual financial statements are prepared on the basis that the entity is a going concern and that parliament has neither the intention nor the need to liquidate or curtail materially the scale of the entity or to invoke section 19 of the NNR Act.

Although the Accounting Authority is primarily responsible for the financial affairs of the entity, it is supported by the entity'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 100.

The annual financial statements set out on pages 111 to 148, which have been prepared on the going concern basis, were approved by the Accounting Authority on 30 June 2020 and were signed on its behalf by:



Dr. T Motshudi
Chairperson of Board

Dr B Tyobeka
Chief Executive Officer

AUDIT AND RISK MANAGEMENT COMMITTEE REPORT

The Audit and Risk Management Committee is pleased to present its report for the financial year ended 31 March 2020.

Membership and Attendance

The membership and attendance of the Audit and Risk Management Committee are as reflected in the Corporate Governance section of the annual report. The committee is required to meet at least four times per annum as per its approved terms of reference.

Audit and Risk Management Committee Responsibility

The Audit and Risk Management Committee reports that it has adopted appropriate formal terms of reference in its charter in line with the requirements of sections 51(1) (a)(ii) of the Public Finance Management Act (PFMA) and Treasury Regulation 27.1. The Audit and Risk Management Committee further reports that it has conducted its affairs in compliance with its charter.

The Quality of In-Year Quarterly Reports Submitted in Terms of the PFMA

The Audit and Risk Management Committee reviewed the in-year quarterly reports submitted by management during the period under review and it is satisfied with the quality of these reports.

The Effectiveness of Internal Control

In line with the PFMA and the King Report on Corporate Governance requirements, Internal Audit provides the Audit and Risk Management Committee and management with assurance whether or not the system of internal controls is adequate and effective. This is achieved by means of adopting transparent risk management processes and risk based internal audit plans that are reviewed regularly.

From the various reports of the Internal Audit, the audit report on the annual financial statements and the management letter of the Auditor-General South Africa, it was noted that the audit report has significant internal control deficiencies reported, refer to paragraph 28 and 29 of the Audit Report. Management is continuously putting in place corrective action plans to address weaknesses identified and reported by the Internal Audit. The Audit and Risk Management Committee regularly reviews action plans implemented by management to address the reported weaknesses.

Accordingly, the Audit and Risk Management Committee is satisfied that the system of internal controls over the financial reporting for the period under review was transparent, adequate and effective.

The Review of Risk Management Processes

The Audit and Risk Management Committee is responsible for the oversight of the risk management function. Management reports to the Audit and Risk Management Committee on the organisation's risk management processes. The Audit and Risk Management Committee reviewed the risk management policy, risk management strategy and enterprise risk management plan. The Audit and Risk Management Committee has monitored the implementation of the risk management plan and is generally satisfied with how the risk management processes are being managed.

Internal Audit

The Audit and Risk Management Committee is satisfied that the internal audit function is operating effectively and that it has addressed the risks pertinent to the entity in its audits.

The Audit and Risk Management Committee has met separately with the Internal Audit to ensure that the function is executed effectively and objectively.

Evaluation of Annual Financial Statements

The Audit and Risk Management Committee has:

- Reviewed and discussed the audited annual financial statements to be included in the annual report with the Auditor-General South Africa and management.
- Reviewed the management letter issued by Auditor-General South Africa and management's response thereto;
- Reviewed changes in accounting policies and practices, where applicable.
- Reviewed the entity's compliance with legal and regulatory provisions; and
- Reviewed significant adjustments resulting from the audit.

Auditor-General South Africa

The Audit and Risk Management Committee has met with the Auditor General South Africa to ensure that there are no unresolved issues of concern.

The Audit and Risk Management Committee recommended the approval of the audited annual financial statements by the Board.

Protas Phili CA(SA)
Chairperson of the Audit and Risk Management Committee
31 July 2020

DIRECTORS' REPORT

The directors have pleasure in submitting their report and the annual financial statements of the NNR for the year ended 31 March 2020.

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 No. 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 members 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.

7. Accounting Authority

The members of the entity during the year and to the date of this report are as follows:

Name	Nationality	Changes
Dr T Motshudi (Chairperson)	South African	
Dr P Dube (Deputy Chairperson)	South African	
Dr B Tyobeka (CEO)	South African	
Mr J Leaver	South African	Retired in November 2019
Mr A Le Roux	South African	
Ms E Monale	South African	
Ms B Mokoetle	South African	
Dr B Sehlapelo	South African	
Mrs D Bendeman	South African	
Mr P Phili	South African	
Mr KS Kakoma	South African	

8. Secretary

The secretary of the entity is Ms N Kote, of:

Business address	Eco Glades Office Park Eco Glades 2, Block G 420 Witch Hazel Avenue Eco Park, Centurion, Highveld Ext 75, 0046
Postal address	P.O. Box 7106 Centurion, Eco Park Highveld Ext 75 Pretoria, 0046

9. Corporate governance Board of Directors meetings

The Accounting Authority has met as scheduled during the financial year, see page 20 for details of the annual report for schedule of meetings. Directors have access to all organisational information and executive management necessary to discharge its roles and responsibilities as mandated.

10. Controlling authority

The entity's controlling authority is the Minister of Mineral Resources and Energy.

11. Bankers

ABSA Bank.

12. Auditors

Auditor-General South Africa (AGSA) is the permanent auditor of National.

Statement of Financial Position as at 31 March 2020

Figures in Rand	Note(s)	2020	2019
Assets			
Current assets			
Receivables from exchange transactions	8	39 841 769	22 640 242
Receivables from non-exchange transactions	9	42 339	933 862
Cash and cash equivalents	10	71 208 635	71 605 671
		111 092 743	**95 179 775**
Non-current assets			
Property, plant and equipment	4	103 263 937	111 162 547
Intangible assets	5	674 080	1 160 304
		103 938 017	**112 322 851**
Total Assets		**215 030 760**	**207 502 626**
Liabilities			
Current liabilities			
Other financial liabilities	12	9 746 292	9 074 209
Operating lease accrual	6	324 616	433 966
Payables from exchange transactions	14	8 099 999	10 688 594
Other payables from non-exchange transaction		169 284	169 284
Provisions	13	17 855 438	15 840 667
		36 195 629	**36 206 720**
Non-current liabilities			
Other financial liabilities	12	14 309 190	24 385 345
Employee benefit obligation	7	9 392 438	8 708 245
Unspent conditional grants and receipts	11	12 947 116	13 057 153
		36 648 744	**46 150 743**
Total Liabilities		**72 844 373**	**82 357 463**
Net Assets		**142 186 387**	**125 145 163**
Accumulated surplus		142 186 389	125 145 163

Statement of Financial Performance

Figures in Rand	Note(s)	2020	2019
Revenue			
Revenue from exchange transactions			
Authorisation fees		196 440 443	183 647 433
Application fees		23 151 784	22 198 560
Actuarial gain		-	1 820 953
Other income	17	2 306 590	661 944
Interest received	22	5 766 265	5 585 548
Total revenue from exchange transactions		**227 665 082**	**213 914 438**
Revenue from non-exchange transactions			
Transfer revenue			
Government grants	16	43 096 000	16 510 000
Deferred income		110 037	405 645
Total revenue from non-exchange transactions		**43 206 037**	**16 915 645**
Total Revenue	15	**270 871 119**	**230 830 083**
Expenditure			
Compensation of employees	20	(169 628 422)	(150 367 296)
Depreciation and amortisation		(11 599 905)	(10 854 279)
Finance costs	23	(3 029 617)	(3 909 064)
Lease rentals on operating lease	25	(3 697 796)	(3 702 070)
Debt impairment	21	(142 110)	(3 055 219)
Actuarial losses		(684 193)	-
Goods and services	18	(65 047 850)	(71 888 273)
Total Expenditure		**(253 829 893)**	**(243 776 201)**
Surplus (deficit) for the year		**17 041 226**	**(12 946 118)**

Statement of Changes in Net Assets

Figures in Rand	Accumulated Surplus	Total Net Assets
Balance at 01 April 2018	**138 091 281**	**138 091 281**
Changes in net assets		
Surplus/(Deficit) for the year	(12 946 118)	(12 946 118)
Total changes	(12 946 118)	(12 946 118)
Balance at 01 April 2019	**125 145 163**	**125 145 163**
Changes in net assets		
Surplus/(Deficit) for the year	17 041 226	17 041 226
Total changes	17 041 226	17 041 226
Balance at 31 March 2020	**142 186 389**	**142 186 389**

Cash Flow Statement

Figures in Rand	Note(s)	2020	2019
Cash flows from operating activities			
Receipts			
Authorisation fees		180 712 718	200 853 815
Goverment grants		43 096 000	16 510 000
Interest income		4 883 241	4 831 412
Application fees		22 611 990	13 788 431
Other Income		2 306 590	577 761
		253 610 539	236 561 419
Payments			
Compesation of employees		(167 484 849)	(152 307 163)
Goods & Services		(70 876 948)	(79 781 323)
Finance costs		(3 029 617)	(3 909 064)
		(241 391 414)	(235 997 550)
Net cash flows from operating activities	26	**12 219 125**	**563 869**
Cash flows from investing activities			
Purchase of property, plant and equipment	4	(3 261 201)	(2 969 284)
Proceeds from sale of property, plant and equipment	4	49 112	84 183
Purchase of other intangible assets	5	-	(1 086 103)
Net cash flows from investing activities		**(3 212 089)**	**(3 971 204)**
Cash flows from financing activities			
(Decrease)/Increase on other financial liabilities		(9 404 072)	(8 342 821)
Net cash flows from financing activities		**(9 404 072)**	**(8 342 821)**
Net increase/(decrease) in cash and cash equivalents		**(397 036)**	**(11 750 160)**
Cash and cash equivalents at the beginning of the year		71 605 671	83 355 831
Cash and cash equivalents at the end of the year	10	**71 208 635**	**71 605 671**

Statement of Comparison of Budget and Actual Amounts

Budget on Accrual Basis

Figures In Rand	Approved Budget	Adjustments	Final Budget	Actual Amounts on Comparable Basis	Difference Between Final Budget and Actual	Ref.
Statement of Financial Performance Revenue						
Revenue from exchange transactions						
Authorisation fees	199 925 740	-	**199 925 740**	196 440 443	**(3 485 297)**	Note 34.1
Application fees	17 736 395	-	**17 736 395**	23 151 784	**5 415 389**	Note 34.2
Other income	497 841	-	**497 841**	2 306 590	**1 808 749**	
Interest received	5 500 000	-	**5 500 000**	5 766 265	**266 265**	Note 34.4
Total revenue from exchange transactions	**223 659 976**	-	**223 659 976**	**227 665 082**	**4 005 106**	
Revenue from non-exchange transactions						
Transfer revenue						
Government grants	43 096 000	-	**43 096 000**	43 096 000	-	
Deferred income	-	-	**-**	110 037	**110 037**	
Total revenue from non-exchange transactions	**43 096 000**	-	**43 096 000**	**43 206 037**	**110 037**	
Total revenue	**266 755 976**	-	**266 755 976**	**270 871 119**	**4 115 143**	
Expenditure						
Compensation of employees	(165 705 901)	-	**(165 705 901)**	(169 628 422)	**(3 922 521)**	
Depreciation and amortisation	(9 449 664)	-	**(9 449 664)**	(11 599 905)	**(2 150 241)**	
Finance costs	(3 922 490)	-	**(3 922 490)**	(3 029 617)	**892 873**	
Lease rentals on operating lease	-	-	**-**	(3 697 796)	**(3 697 796)**	
Debt impairment	-	-	**-**	(142 110)	**(142 110)**	
Goods & Services	(87 677 921)	-	**(87 677 921)**	(65 047 850)	**22 630 071**	
Total expenditure	**(266 755 976)**	-	**(266 755 976)**	**(253 145 700)**	**13 610 276**	
Operating surplus	**-**	-	**-**	**17 725 419**	**17 725 419**	
Actuarial gains/losses	-	-	**-**	(684 193)	**(684 193)**	
Surplus/(Defict) for the year	**-**	-	**-**	**17 041 226**	**17 041 226**	
Actual Amount on Comparable Basis as Presented in the Budget and Actual Comparative Statement	**-**	-	**-**	**17 041 226**	**17 041 226**	

ACCOUNTING POLICIES

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

1.1 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 financial performance 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 21).

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 4 and 5, 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

ACCOUNTING POLICIES

1.2 Revenue recognition

Revenue comprises authorisation fees and revenue from special projects, including application fees. 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 holders of authorisation. Revenue from special projects is recognised on accrual basis in accordance with the terms and conditions agreed upon with the other party.

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 grants.

1.4 Property, plant and equipment

Property, plant and equipment is initially measured at cost.

The cost of an item of property, plant and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

Where an asset is acquired through a non-exchange transaction, its cost is its fair value as at date of acquisition.

Where an item of property, plant and equipment is acquired in exchange for a non-monetary asset or monetary assets, or a combination of monetary and non-monetary assets, the asset acquired is initially measured at fair value (the cost). If the acquired item's fair value was not determinable, it's deemed cost is the carrying amount of the asset(s) given up.

When significant components of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. 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.

The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located is also included in the cost of property, plant and equipment, where the entity is obligated to incur such expenditure, and where the obligation arises as a result of acquiring the asset or using it for purposes other than the production of inventories.

Recognition of costs in the carrying amount of an item of property, plant and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management.

Items such as spare parts, standby equipment and servicing equipment are recognised when they meet the definition of property, plant and equipment.

Major inspection costs which are a condition of continuing use of an item of property, plant and equipment and which meet the recognition criteria above are included as a replacement in the cost of the item of property, plant and equipment. Any remaining inspection costs from the previous inspection are derecognised.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses.

ACCOUNTING POLICIES

1.4 Property, plant and equipment (continued)

Property, plant and equipment are depreciated on the straight line basis over their expected useful lives to their estimated residual value.

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

Item	Depreciation Method	Average Useful Life
Land	Straight line	Not depreciated
Buildings	Straight line	20-25 years
Furniture and fixtures	Straight line	10-25 years
Motor vehicles	Straight line	8 years
Office equipment	Straight line	5-25 years
IT equipment	Straight line	3-10 years
Leasehold improvements	Straight line	Over the lease period
Scientific equipment	Straight line	5-20 years

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Items of property, plant and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

The gain or loss arising from the 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 the 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.

1.5 Intangible assets

An asset is identifiable if it either:

- Is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so; or
- Arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

An intangible asset is recognised when:

- It is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the entity; and
- The cost or fair value of the asset can be measured reliably.

The entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

ACCOUNTING POLICIES

1.5 Intangible assets (continued)

Where an intangible asset is acquired through a non-exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Reassessing the useful life of an intangible asset with a finite useful life after it was classified as indefinite is an indicator that the asset may be impaired. As a result the asset is tested for impairment and the remaining carrying amount is amortised over its useful life.

Internally generated brands, mastheads, publishing titles, customer lists and items similar in substance are not recognised as intangible assets.

Internally generated goodwill is not recognised as an intangible asset.

Amortisation is provided to write down the intangible assets, on a straight line basis, to their residual values as follows:

Item	Useful life
Computer software, other	1 -10 years

1.6 Subsequent expenditure

Subsequent expenditure on item of property, plant and equipment and intangible assets is capitalized 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 impaired. If indication exists, the recovarable amount of the assets 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 assess 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 increase in carrying amount of assets 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 assets in prior years. A reversal of an impairment loss of assets carried at cost less accumulated depreciation or amortisation is recognised immediately in the statement of financial performance.

ACCOUNTING POLICIES

1.8 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:

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.

ACCOUNTING POLICIES

1.8 Financial instruments (continued)

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

Post-employment benefits

The NNR provides defined pension benefit and medical plan to certain qualifying employees. 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 post-retirement medical liability is unfunded.

ACCOUNTING POLICIES

1.10 Employee benefits (continued)

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.

The NNR provides a defined contribution plans for all other employees. 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 gain or loss recognised and reflected as expenses is limited to actuarial losses or gain 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.

Short-term employee benefits

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 note 13. 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.

ACCOUNTING POLICIES

1.12 Commitments

Items are classified as commitments when an entity has committed itself to future transactions that will normally result in the outflow of cash. Disclosures are required in respect of unrecognised contractual commitments. Commitments for which disclosures is necessary to achieve a fair presentation should be disclosed in a note to the financial statements.

1.13 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.

1.14 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.

1.15 Comparative figures

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

1.16 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.

1.17 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.

1.18 Interest received

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

1.19 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.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

2. Basis of preparation

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. New standards and interpretations

3.1 Standards and interpretations effective and adopted in the current year

In the current year, the entity has adopted the following standards and interpretations that are effective for the current financial year and that are relevant to its operations:

Standard/ Interpretation:	Effective Date: Years beginning on or after	Expected Impact:
GRAP 20: Related Parties	01 April 2019	The adoption of this has not had a material impact on the results of the company, but has resulted in more disclosure than would have previously been provided in the financial statements
GRAP 108: Statutory Receivables	01 April 2019	The adoption of this has not had a material impact on the results of the company, but has resulted in more disclosure than would have previously been provided in the financial statements
IGRAP 18: Interpretation of the Standard of GRAP on Recognition and Derecognition of Land	01 April 2019	01 April 2019

3.2 Standards and interpretations issued, but not yet effective

The entity has not applied the following standards and interpretations, which have been published and are mandatory for the entity's accounting periods beginning on or after 01 April 2020 or later periods:

Standard/ Interpretation:	Effective Date: Years beginning on or after	Expected Impact:
IGRAP 20: Accounting for Adjustments to Revenue	01 April 2020	Unlikely there will be a material impact
GRAP 1 (amended): Presentation of Financial Statements	01 April 2020	Unlikely there will be a material impact

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

4. Property, plant and equipment

	2020			2019		
	Cost / Valuation	Accumulated Depreciation and Accumulated Impairment	Carrying Value	Cost / Valuation	Accumulated Depreciation and Accumulated Impairment	Carrying Value
Land	213 750	-	213 750	213 750	-	213 750
Buildings	122 381 558	(46 382 317)	75 999 241	122 381 558	(40 347 177)	82 034 381
Buildings - improvements (WIP)	2 628 923	-	2 628 923	2 567 803	-	2 567 803
Furniture and fixtures	5 440 356	(2 313 414)	3 126 942	5 450 240	(1 997 034)	3 453 206
Motor vehicles	906 438	(522 926)	383 512	906 438	(409 621)	496 817
Office equipment	6 062 119	(4 522 287)	1 539 832	5 448 273	(3 811 586)	1 636 687
IT equipment	18 167 464	(9 882 748)	8 284 716	17 642 506	(9 067 501)	8 575 005
IT equipment - improvements (WIP)	3 065 359	-	3 065 359	3 065 359	-	3 065 359
Leasehold improvements	5 343 134	(4 963 301)	379 833	5 343 134	(4 583 467)	759 667
Laboratory equipment	18 019 429	(10 377 600)	7 641 829	18 007 009	(9 647 137)	8 359 872
Total	**182 228 530**	**(78 964 593)**	**103 263 937**	**181 026 070**	**(69 863 523)**	**111 162 547**

Reconciliation of property, plant and equipment - 2020

	Opening Balance	Additions	Disposals	Depreciation	Total
Land	213 750	-	-	-	213 750
Buildings	82 034 381	-	-	(6 035 140)	75 999 241
Buildings - improvements (WIP)	2 567 803	61 120	-	-	2 628 923
Furniture and fixtures	3 453 206	29 280	(19 367)	(336 177)	3 126 942
Motor vehicles	496 817	-	-	(113 305)	383 512
Office equipment	1 636 687	613 845	-	(710 700)	1 539 832
IT equipment	8 575 005	2 544 537	(26 175)	(2 808 651)	8 284 716
IT equipment - improvements (WIP)	3 065 359	-	-	-	3 065 359
Leasehold improvements	759 667	-	-	(379 834)	379 833
Laboratory equipment	8 359 872	12 420	-	(730 463)	7 641 829
	111 162 547	**3 261 202**	**(45 542)**	**(11 114 270)**	**103 263 937**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

4. Property, plant and equipment (continued)

Reconciliation of property, plant and equipment - 2019

	Opening Balance	Additions	Additions through Transfer of Functions / Mergers	Disposals	Depreciation	Total
Land	213 750	-	-	-	-	213 750
Buildings	88 068 641	-	-	-	(6 034 260)	82 034 381
Buildings - improvements (WIP)	2 113 241	454 562	-	-	-	2 567 803
Furniture and fixtures	3 603 853	239 555	-	(62 023)	(328 179)	3 453 206
Motor vehicles	610 122	-	-	-	(113 305)	496 817
Office equipment	1 741 498	379 508	136 037	(27 871)	(592 485)	1 636 687
Office equipment - improvements (WIP)	136 037	-	(136 037)	-	-	-
IT equipment	4 527 170	1 926 462	4 329 133	(90 793)	(2 116 967)	8 575 005
IT equipment - improvements (WIP)	7 511 476	965 300	(5 411 417)	-	-	3 065 359
Leasehold improvements	1 139 500	-	-	-	(379 833)	759 667
Laboratory equipment	9 542 347	86 181	-	-	(1 268 656)	8 359 872
	119 207 635	**4 051 568**	**(1 082 284)**	**(180 687)**	**(10 833 685)**	**111 162 547**

The cumulative expenditure recognised in the carrying value of property, plant and equipment as Work In Progress (WIP) is disclosed per class of asset, in aggregate, as follows:

Figures in Rand	Note(s)	2020	2019
Buildings - improvements (WIP)		2 628 923	2 567 803
IT equipment - improvements (WIP)		3 065 359	3 065 359
		5 694 282	**5 633 162**

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

The NNR owns an office buiding located at Erf 3078 in Highveld, Centurion, Gauteng (Pledged as a secutiry for ABSA mortgage bond) and land and building located at Erf 3187 in Melkbosch Strand in the Blaauberg Municipality, Western Cape.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
Other information			
Property, plant and equipment fully depreciated but still in use (carrying amount at the beginning of the year)			
Office equipment		10 933	-
IT equipment		366 667	-
Laboratory equipment		40 549	-
		418 149	-

5. Intangible assets

	2020			2019		
	Cost / Valuation	Accumulated Amortisation and Accumulated Impairment	Carrying Value	Cost / Valuation	Accumulated Amortisation and Accumulated Impairment	Carrying Value
Computer software, other	3 552 726	(2 878 646)	674 080	3 827 348	(2 667 044)	1 160 304

Reconciliation of intangible assets - 2020

	Opening balance	Disposals	Amortisation	Total
Computer software, other	1 160 304	(588)	(485 636)	674 080

Reconciliation of intangible assets - 2019

	Opening balance	Additions	Disposals	Amortisation	Total
Computer software, other	98 615	1 086 103	(3 820)	(20 594)	1 160 304

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
5. Intangible assets (continued)			
Change in accounting estimate: Useful life of assets review			
A review of the useful economic life of property, plant and equipment and intangible assets was performed during the previous financial year. These changes (refer to accounting policies 1.4 and 1.5), resulted in a change in depreciation for the year. The NNR discloses the nature and the amount resulting from the change in an accounting estimate, that has an effect in the current period and is expected to have an effect in future. This change in estimate is applied prospectively.			
Effect of change in accounting estimate on current and future periods:			
Statement of financial performance			
Decrease in surplus		-	(159 860)
Increase in depreciation and amortisation expense		-	159 860
Statement of financial position			
Increase in non-current assets		-	190 863
Increase in accumulated surplus		-	190 863
6. Operating leases			
Current liabilities		(324 616)	(433 966)

7. Employee benefit obligations

The National Nuclear Regulator has retirement employee benefit obligations which consists of:

- Post retirement pension benefit plan
- Post retirement medical benefit plan
- Defined pension contribution

The amounts recognised in the statement of financial position are as follows:		
Carrying value		
Present value of the defined benefit obligation-wholly unfunded	(9 392 438)	(8 708 245)
Present value of the defined benefit obligation-partly or wholly funded	(51 222 000)	(59 990 000)
Fair value of plan assets	53 175 000	62 213 000
Asset not recognised	(1 953 000)	(2 223 000)
	(9 392 438)	**(8 708 245)**
The major categories of plan assets as a percentage of total plan assets are as follows:		
South African equities	70,00 %	70,00 %
Bonds	30,00 %	30,00 %

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
7. Employee benefit obligations (continued)			
Net expense (gain) recognised in the statement of financial performance			
Current service cost		15 500	44 071
Interest cost		857 786	903 323
Actuarial (gains) losses		438 430	(1 996 993)
Expected return on plan assets		(627 523)	(771 354)
		684 193	**(1 820 953)**
Actual return on plan assets			
Expected return on plan assets		5 548 000	6 430 000
Actuarial gain (loss) on plan assets		(9 627 000)	(3 357 000)
		(4 079 000)	**3 073 000**
Calculation of actuarial gains and losses			
Actuarial (gains) losses – Obligation		8 875 000	5 214 000
Actuarial (gains) losses – Plan assets		9 627 000	3 357 000
		18 502 000	**8 571 000**

7.1 Post-retirement pension benefit plan

The NNR makes contributions towards post retirement pension benefits for certain eligible employees.

Changes in present value of the defined benefit obligations are as follows:		
Opening balance	59 990 000	69 306 000
Interest cost	5 006 000	5 752 000
Current service cost	281 000	554 000
Benefits paid	(5 180 000)	(10 408 000)
Actuarial (gain) losses	(8 875 000)	(5 214 000)
Closing balance	**51 222 000**	**59 990 000**
Changes in fair value of plan assets are as follows:		
Opening balance fair value of plan assets	62 213 000	69 226 000
Expected return on plan assets	5 548 000	6 430 000
Contribution by employer	151 000	221 000
Contributions by participants	70 000	101 000
Benefits paid	(5 180 000)	(10 408 000)
Actuarial gain/(losses)	(9 627 000)	(3 357 000)
	53 175 000	**62 213 000**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
7.1 7.1 Post-retirement pension benefit plan (continued)			
Key assumptions used			
Assumptions used at the reporting date:			
Discount rates used		11,40 %	8,70 %
Expected rate of return on assets		10,00 %	9,30 %
Expected rate of return on reimbursement rights		6,00 %	5,30 %
Actual return on reimbursement rights		7,00 %	6,30 %
Funding level		103,8	103,7
Sensitivity Analysis			
One percentage point increase			
Effect on defined benefit obligation-discount rate		(3 195 000)	(4 364 000)
Percentage change effect on defined benefit obligation-discount rate		(6)	(7)
Effect on defined benefit obligation-salary inflation		78 000	116 000
		PA (90)	PA (90)
Effect on defined benefit obligation-post-retirement mortality		(1 548 000)	(1 907 000)
Percentage change effect on defined benefit obligation-post-retirement mortality		(3)	(3)

7.2 Post-retirement medical aid benefit obligation

The NNR has made provision for post-employment medical benefit covering three (3) employees in active employement and six (6) pensioners. The actuarial valuation was determined by IAC Independent Actuaries & Consultants, an independent actuary registered with Actuary Society of South Africa. Valuation has been performed in accordance with GRAP 25.

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 has an obligation to pay 100% of the membership subscriptions for staff members who had retired from the services of the NNR (or then 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 as at 31 March 2020.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
7.2 Post-retirement medical aid benefit obligation (continued)			
Changes in present value of the defined benefits are as follows:			
Opening defined benefit obligation		8 708 245	10 529 198
Current service cost		15 500	44 071
Interest cost		857 786	903 323
Benefits paid		(627 523)	(771 354)
Actuarial (gain) losses		438 430	(1 996 993)
		9 392 438	**8 708 245**
Actuarial principal assumption used at the reporting date			
Discount rate used		11 %	10 %
Medical inflation rate		8 %	8 %
General inflation rate		6 %	7 %
Post-retirement interest rate		2 %	2 %
Proportion of continuing membership at retirement		100 %	100 %
Proportion of retiring members who are married		30 %	90 %
In service members			
Age of spouse (husbands: three years older than wives)		65	65
Mortality of in-service members		SA SA85-90 (L)	SA SA85-90 (L)
Mortality of continuation members post-retirement		PA (90)-2 Years	PA (90)-2 Years
Annual rate of withdrawal - from age 55+		4,00 %	4,00 %
Number of members			
Number of members in active employment		3	3
Number of pensioners		6	6
		9	**9**
Average retirement age		60	60

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019

7.2 Post-retirement medical aid benefit obligation (continued)

The most significant assumptions are those relating to the discount rate and medical inflation. It is the relationship between 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 surplus or deficit. A one percentage point change in assumed healthcare cost trends rates would have the following effects:

Sensitivity Analysis		
One percentage point increase		
Effect on the aggregate of the service cost and interest cost	366 615	351 845
Effect on defined benefit obligation	9 759 054	9 060 091
Effect on the aggregate of the service cost and interest cost-discount rate	(692 792)	(663 747)
Defined benefit obligation-discount rate	8 699 646	8 044 498
Percentage change effect on defined benefit obligation-discount rate	1	1

	2020 R	2019 R	2018 R	2017 R	2016 R
Defined benefit obligation	9 392 438	8 708 245	10 529 198	9 361 667	10 124 054
Experience adjustments on plan liabilities	(905 463)	298 570	699 802	(36 395)	(916 549)

7.3 Defined contribution plan

It is the policy of the entity to provide retirement benefits to all its employees. A defined contribution pension fund, which is subject to the rules of the fund and to the Pensions Fund Act exists for this purpose.

The entity is under no obligation to cover any unfunded benefits.		
The amount recognised as an expense for defined contribution plans is	18 866 670	17 619 478

8. Receivables from exchange transactions		
Trade debtors	37 807 706	21 484 573
Staff advance	73 610	82 436
Deposits and prepayments	968 268	319 098
Other receivables	992 185	754 135
	39 841 769	**22 640 242**

During the year the NNR disbursed R733,571 recoverable from FRAMATOME (AREVA). The amount is paid for providing funding to external bursary holders who intend pursuing a career in nuclear science and engineering.

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 31 March 2020, R38 362 193 (2019: R21 180 604) were past due but not impaired.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
8. Receivables from exchange transactions (continued)			
1 month past due		31 803 546	6 321 923
2 months past due		29 785	8 061 315
3 months past due		6 528 862	6 797 367
Trade and other receivables impaired			
As of 31 March 2020, trade and other receivables of R10 794 701 (2019: R10 992 895) were impaired and provided for.			
The ageing of these loans is as follows:			
Over 12 months		10 794 701	10 992 895
Reconciliation of provision for impairment of trade and other receivables			
Opening balance		10 992 895	7 937 766
Provision for impairment		-	3 055 129
Provision for impairment (recoveries)		(198 194)	-
		10 794 701	**10 992 895**

The creation and release of provision for impaired receivables have been included in operating expenses in surplus or deficit (refer to note 21). Amounts charged to the allowance account are generally written off when there is no expectation of recovering the amount. The NNR's policy is to provide for impairment on receivables which are more than a year outstanding.

9. Receivables from non-exchange transactions			
Other receivables from non-exchange revenue		42 339	933 862
10. Cash and cash equivalents			
Cash and cash equivalents consist of:			
Cash on hand		15 000	15 000
Bank balances		1 281 673	2 127 484
Short-term deposits		69 911 962	69 463 187
		71 208 635	**71 605 671**

Included in the cash balance above is R 12,9 million unspent conditional grant relating to establishment of Regulatory Emergency Control Centre and refurbishment of Cape Town office, refer to note 11 for more details.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
11. Unspent conditional grants and receipts			
Unspent conditional grants and receipts comprises of:			
Unspent conditional grants and receipts			
Government grant		12 947 116	13 057 153
Movement during the year			
Balance at the beginning of the year		13 057 153	13 462 798
Income recognition during the year		(110 037)	(405 645)
		12 947 116	**13 057 153**

The design of the Cape Town office building is complete, and the construction of the building is expected to commence towards the middle of the 2020/21 financial year. The total amount spent to date on this project amounts to R 2,6 million.

12. Other financial liabilities			
At amortised cost			
Mortgage bond		24 055 482	33 459 554
ABSA mortgage bond over head office building, effective 22 June 2012 over the 10 years and final settlement due on 07 June 2022. The loan bears interest at a variable rate of 7,75% per annum.The loan has a remaining period of 27 months as at 31 March 2020. The loan is currently payable at a monthly instalment of R 1 027 243. The loan is secured over head office building with carrying value of R 64 million.			
Non-current liabilities			
At amortised cost		14 309 190	24 385 345
Current liabilities			
At amortised cost		9 746 292	9 074 209

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019

13. Provisions

Reconciliation of provisions - 2020

	Opening Balance	Additions	Utilised During the Year	Reversed During the Year	Total
Annual leave	6 734 124	4 917 973	(4 443 079)	-	7 209 018
Annual performance bonus	9 106 543	10 646 420	(10 631 446)	1 524 903	10 646 420
	15 840 667	**15 564 393**	**(15 074 525)**	**1 524 903**	**17 855 438**

Reconciliation of provisions - 2019

	Opening Balance	Additions	Utilised During the Year	Reversed During the Year	Total
Annual leave	7 141 052	3 447 807	(3 854 735)	-	6 734 124
Performance bonus	10 958 589	9 106 543	(9 131 721)	(1 826 868)	9 106 543
	18 099 641	**12 554 350**	**(12 986 456)**	**(1 826 868)**	**15 840 667**

Provision for annual leave

The leave provision represents management's best estimate of the NNR's liability for leave based on the NNR's 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 2020.

Performance bonus

Performance bonus represents management's best estimate of bonus potentially payable to qualifying NNR employees who signed the performance agreement with the NNR for financial year ending 31 March 2020. Performance target is set by the Board at the beginning of each financial year, and employees' performance scores are linked to the overall performance of the NNR. Management has reasonably provided for a bonus in accordance with bonus payment of the 2018/19 financial year at an average individual payout rate of 7,5% of total cost to company. The payment of bonus is discretionary in terms of the NNR policy and is only due and payable after declaration and approval by the Board.

14. Payables from exchange transactions

Trade payables	3 823 527	7 107 394
Accruals - trade creditors	2 457 577	1 891 107
Accruals - staff accounts	121 888	139 807
13th cheque accrual	1 697 007	1 550 286
	8 099 999	**10 688 594**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
15. Revenue			
Authorisation fees		196 440 443	183 647 433
Application fees		23 151 784	22 198 560
Actuarial gain		-	1 820 953
Other income		2 306 590	661 944
Interest received		5 766 265	5 585 548
Government grants		43 096 000	16 510 000
Deferred income		110 037	405 645
		270 871 119	**230 830 083**
The amount included in revenue arising from exchanges of goods or services are as follows:			
Authorisation fees		196 440 443	183 647 433
Application fees		23 151 784	22 198 560
Actuarial gain		-	1 820 953
Interest received		5 766 265	5 585 548
		225 358 492	**213 252 494**
The amount included in revenue arising from non-exchange transactions is as follows:			
Transfer revenue			
Government grants		43 096 000	16 510 000
Deferred income		110 037	405 645
		43 206 037	**16 915 645**
16. Government grants			
Government grant		43 096 000	16 510 000
Unconditional			
Unconditional grants received		43 096 000	16 510 000
Conditional grant			
Balance unspent at beginning of year		13 057 153	13 462 798
Conditions met - transferred to revenue		(110 037)	(405 645)
		12 947 116	**13 057 153**

The NNR has an obligation to refurbish the Regulatory Emergency Control Centre and establish the Cape Town site office (see note 11 for details).

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
17. Other income			
Other sundry income **		2 108 396	661 944
Provision for impairment (recoveries)		198 194	-
		2 306 590	**661 944**

** Other sundry income includes revenue generated from the NNR's new Centre for Nuclear Safety and Security (CNSS), of about R1,3 million.

18. Goods and services			
Advertising		614 352	613 519
Property rates & municipal charges		2 294 444	2 115 760
Auditor's fees		1 538 149	1 295 551
Cleaning		764 434	741 356
Consulting and professional fees		17 331 373	19 539 888
Consumables		402 926	552 124
Insurance		803 056	737 291
Community development and training		998 867	1 144 998
Conferences and seminars		695 982	891 288
IT expenses		3 404 632	4 979 593
Marketing		381 287	395 502
Magazines, books and periodicals		121 480	37 362
Medical expenses		136 915	91 536
Postage and courier		84 358	556 415
Printing and stationery		1 579 706	975 120
Security		1 741 785	1 653 772
Software expenses		4 525 396	3 769 601
Subscriptions and membership fees		1 401 951	2 141 568
Telephone and fax		1 567 009	1 620 366
Training		1 273 407	1 230 150
Travel - local		5 290 776	5 166 825
Travel - overseas		5 885 185	6 495 321
Electricity		1 429 287	1 499 125
Repairs & maintenance		1 778 497	2 145 274
Board fees		737 797	1 066 408
Bursaries		499 897	334 633
Other expenses		7 764 902	10 097 927
		65 047 850	**71 888 273**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
19. Operating surplus (deficit)			
Operating surplus (deficit) for the year is stated after accounting for the following:			
Operating lease charges			
Premises			
Contractual amounts		2 752 685	2 769 664
Equipment			
Contractual amounts		930 153	932 406
Other			
Contractual amounts		14 958	-
		3 697 796	**3 702 070**
Depreciation on property, plant and equipment		11 599 905	10 854 279
Employee costs		169 628 422	150 367 296
Defined contribution funds		18 866 670	17 302 288
Defined benefit funds		203 574	317 189
20. Employee-related costs			
Basic		88 160 331	76 989 183
Performance Bonus		10 631 446	9 106 543
Medical aid		5 869 725	5 035 870
UIF		608 222	554 767
Workmen's compensation fund		163 727	179 589
SDL		1 456 584	1 322 268
PAYE		43 668 143	39 559 599
Pension fund-Defined benefit plan		203 574	317 189
Pension fund-Defined contribution plan		18 866 670	17 302 288
		169 628 422	**150 367 296**
21. Debt impairment			
Contributions to debt impairment provision		-	3 055 129
Bad debts written off		142 110	90
		142 110	**3 055 219**
22. Interest received			
Short-term deposits		5 766 265	5 585 548

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
23. Finance costs			
Non-current borrowings		3 029 617	3 909 064
24. Auditors' fees			
Fees		1 538 149	1 295 551
25. Lease rentals on operating lease			
Premises			
Contractual amounts		2 752 685	2 769 664
Equipment			
Contractual amounts		930 153	932 406
Lease rentals on operating lease - Other			
Contractual amounts		14 958	-
		3 697 796	**3 702 070**
26. Cash generated from operations			
Surplus (deficit)		17 041 226	(12 946 118)
Adjustments for:			
Depreciation and amortisation		11 599 905	10 854 279
Movements in operating lease assets and accruals		(109 348)	121 460
Movements in post retirement obligation		684 193	(1 820 953)
Movements in provisions		2 014 771	(2 258 974)
(Profit) Loss on assets written off		46 129	170 371
Proceeds on disposal of assets		(49 112)	(84 183)
Changes in working capital:			
Receivables from exchange transactions		(17 201 527)	10 681 562
Other receivables from non-exchange transactions		891 523	(854 133)
Payables from exchange transactions		(2 588 598)	(2 833 841)
Other payable from non exchange transaction		-	(59 956)
Unspent conditional grants and receipts		(110 037)	(405 645)
		12 219 125	**563 869**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
27. Commitments			
Capital commitments			
Approved and contracted for:			
Property, plant and equipment		835 071	945 111
Total capital commitments			
Already approved and contracted for but not provided for:		835 071	945 111
Operational commitments			
Approved and contracted for:			
Leases		3 150 554	6 898 886
Other		26 200 542	36 945 752
		29 351 096	**43 844 638**
Total operational commitments			
Already approved and contracted for but not provided for:		29 351 096	43 844 638
Total commitments			
Total commitments			
Capital commitments		835 071	945 111
Operational commitments		29 351 096	43 844 638
		30 186 167	**44 789 749**

This committed expenditure relates to property, plant and equipment and operational expenditure committments mainly for technical support organisation that will be financed by available retained cash surpluses and existing cash resources.

Operating leases - as lessee (expense)			
Minimum lease payments due			
- within one year		3 119 522	3 798 963
- in second to fifth year inclusive		31 032	3 099 923
		3 150 554	**6 898 886**

28. Contingencies

28.1 The National Nuclear Regulator expects to settle an estimated amount of R90 000, relating to services rendered by external attorneys for the collection of outstanding debts on behalf of the NNR.

28.2 The entity also has an outstanding CCMA matter against an external candidate. The matter relates to an alleged unfair labour practice during the recruitment and appointment process. The total estimated cost of the claim is R800 000.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
29. Related parties			
Directors	Refer to members' report note		
Executive Authority	Minister of Mineral Resources and Energy		
Entities ultimately under common control	National Nuclear Corporation of South Africa (NECSA) National Energy Regulator of South Africa (NERSA) South African National Energy Development Institute (SANEDI) National Radioactive Waste Disposal Institute (NRWDI) The Petroleum, Oil, Gas Corporation of South Africa (PetroSA) Central Energy Group Fund (CEF) (Pty) Ltd Council for Mineral Technology (Mintek) Council for Geoscience (Geoscience) Mine Health and Safety Council (MHSC) Petroleum Agency South Africa (PASA) African Exploration Mining and Finance Corporation (AEMFC) South African Diamond & Precious Metals Regulator (SADPMR) State Diamond Trader		
Post retirement pension for employees	NNR Pension Fund		
Members of key management	Dr M Tyobeka (CEO) Mr D Netshivhazwaulu (CFO) Ms A Simon (Executive: CSS) Ms D Kgomo (Executive: NTN) Mr O Phillips (Executive: NPP) Ms L Mpete (Executive: RITS)		
Related party transactions			
Amounts included in trade receivable (trade payable) regarding related parties			
NECSA		-	(208 503)
NECSA		13 199 285	-
Services rendered to related party			
NECSA		52 648 696	48 962 989
NRWDI		3 741 476	-
MINTEK		62 305	-
Government transfer			
Department of Mineral Resources and Energy		43 096 000	16 510 000
Services from related party			
NECSA		(1 149 903)	(1 268 879)
Other			
NNR Pension Fund		19 087 410	17 941 798

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

30. Executive and directors' emoluments

Executive

2020

	Basic Salary	Performance Bonus	Contributions	Allowances	Total
Dr B Tyobeka (CEO)	2 719 917	267 621	-	-	2 987 538
Mr D Netshivhazwaulu (CFO)	1 863 094	183 315	50 736	-	2 097 145
Ms A Simon (Executive: CCS)	1 721 973	169 430	-	-	1 891 403
Ms D Kgomo (Executive: NTN)	1 847 071	136 304	47 136	-	2 030 511
Mr O Phillips (Executive: NPP)	1 920 121	200 887	87 160	-	2 208 168
Ms L Mpete (Acting Executive: RITS)	1 534 731	108 448	121 568	231 000	1 995 747
	11 606 907	**1 066 005**	**306 600**	**231 000**	**13 210 512**

2019

	Basic Salary	Performance Bonus	Contributions	Allowances	Total
Dr B Tyobeka (CEO)	2 644 346	229 389	-	-	2 873 735
Mr D Netshivhazwaulu (CFO)	1 783 163	122 210	28 166	-	1 933 539
Ms A Simon (Executive: CSS)	1 674 130	145 226	-	-	1 819 356
Ms D Kgomo (Executive: NTN)	1 769 579	121 159	26 172	-	1 916 910
Mr O Phillips (Executive: NPP)	1 878 010	172 189	67 882	-	2 118 081
Ms L Mpete (Acting Executive: RITS)	1 269 664	123 940	85 644	372 137	1 851 385
	11 018 892	**914 113**	**207 864**	**372 137**	**12 513 006**

Performance bonuses are for provided during the year of actual performance, and paid on the subsequent period if so declared in line with NNR approved remuneration and rewards policy.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

30. Executive and directors' emoluments (continued)

Directors

2020

	Directors' Fees	Total
Dr MT Motshudi (Chairperson)	136 430	136 430
Dr P Dube (Deputy Chairperson)	111 218	111 218
Mr J Leaver **	59 754	59 754
Ms B Mokoetle	126 231	126 231
Mr P Phili	180 326	180 326
Mr A Le Roux	124 759	124 759
Dr B Sehlapelo	92 028	92 028
Mr KS Kakoma	121 750	121 750
	-	-
	952 496	**952 496**

Independent Technical Committee Advisors	Advisors' Fees	Total
Mr P Fitzsimons	33 115	33 115
Dr ME Makgae	35 734	35 734
	68 849	**68 849**

** Retired in November 2019

2019

	Directors' Fees	Total
Dr M T Motshudi (Chairperson)	146 440	146 440
Dr P Dube(Deputy Chairperson)	118 541	118 541
Mr J Leaver	72 720	72 720
Ms B Mokoetle	120 797	120 797
Mr P Phili	148 999	148 999
Mr A Le Roux	103 950	103 950
Dr B Sehlapelo	89 586	89 586
Mr KS Kakoma	109 350	109 350
	910 383	**910 383**

Independent Technical Commitee Advisor	Advisors' Fees	Total
Mr. P Fitzsimons	41 904	41 904
Dr. ME Makgae	54 999	54 999
	96 903	**96 903**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

31. Risk management

Financial risk management

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

The entity's overall risk management program focusses on the unpredictability of liquid cash and seeks to minimise potential adverse effects on the entity's financial performance. Risk management is carried out by the executive committee of the NNR under policies approved by the Accounting Authority. Entity finance division identifies, evaluates and hedges financial risks in close co-operation with the entity'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 and credit risk.

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash. The NNR's primary source of funding are authorisation fees which are gazetted in terms of section 28 of the National Nuclear Act (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. Impairment rate for the year as reported on note 8 was 5,5% (5,99% - 2018/19) against the total authorisation fees recognised on the Statement of Financial Performance. Payables for the year was 3,19% (4,38% - 2018/19) against the total expenditure. The NNR maintained a positive cash balance of R 71,208,635 compared to R 71,605,671 of the previous financial year.

Credit risk

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

Trade receivables comprises of licence and certificate holders by major reputable mining and scrap metal companies. Management evaluates credit risk relating to each licence or certificate holder on an ongoing basis and continuously implement a strict collection terms. There are 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. Impairment rate for the year as reported on note 8 was 5,5% (5,99% - 2018/19) against the total authorisation fees recognised on the Statement of Financial Performance.

Interest rate risk

The entity'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 and alternative financing. Based on these scenarios, the entity calculates the impact on 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
Bond over property - floating rate	7,75 %	12 326 927	12 326 927	3 081 732	-	-

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

31. Risk management (continued)

Price risk

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

32. 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.

33. Events after the reporting date

33.1 A contingent liability of R800,000 in respect of a grievance lodged by an external candidate relating to an alleged unfair labour practice during the recruitment and appointment process. The matter was subsequently withdrawn by the applicant on the 29th of July 2020.

33.2 On 23 March 2020, the president of South Africa announced a national lockdown, starting from 26 March 2020. Because of the lockdown many industries, including some NNR licence holders, were forced to close their operations. This closure negatively affected their ability to generate revenue, and to subsequently pay their licence fees to the NNR. Some of the licence holders approached the NNR to request the deferement of their debts and to enter into a debt repayment agreement. On 21 April 2020, a R500 million stilumus package was also announced to deal with the pandemic. The National Nuclear Regulator contributed R5 million, from its government transfer, to the government's Covid-19 initiative. Because of the Covid-19 and the country experiencing a recession, the DMRE Minister recommended for the autorisation fees to be increased by 4,5 percent, as compared to the 7,5 percent proposed by the NNR. All of these events will negatively affect the NNR's revenue and liquidity in the short term, as lesser fees will be levied and more licence holders may struggle to pay their licence fees.

33.3 Subsequent to the reporting date, the National Nuclear Regulator implemented the Revised Framework for Strategic Plans and Annual Performance Plans (2020), in terms of the National Treasury Instruction No. 10 of 2020/21, issued on 29 July 2020.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
34. Fruitless and wasteful expenditure			
Opening balance			1 119
Add: Fruitless and wasteful expenditure - current year		21 331	14 083
Less: Amounts recovered		-	(1 119)
Less: Amounts condoned		-	(14 083)
		21 331	**-**
During the year under review, fruitless and wasteful expenditure of R21 331 was incurred for late renewal of systems licence fees.			
35. Irregular expenditure			
Opening balance		600 238	864 899
Add: Irregular expenditure - current year		7 151	1 487 549
Less: Amounts condoned		-	(1 752 210)
Less: Amounts written off		(437 400)	-
		169 989	**600 238**

Details of irregular expenditure – current year

During the year under review:

35.1 Irregular expenditure to the value of R7,151.49 was incurred for services procured without an approved purchase order. At the time of reporting, this matter was still under investigation, and no disciplinary action had been taken against the official involved in the irregularity.

35.2 Irregular expenditure in the amount of R437,400 incurred in the 2017/18 was not condoned by Natonal Treasury. This expenditure was subsequently removed by the Accounting Authority, in accordance with paragraph 59 of the Irregular Expenditure Framework.

Details of irregular expenditure written off

Contract awarded without inviting the minimum number of written price quotations from prospective supplier.	437 400

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

Figures in Rand	Note(s)	2020	2019
36. 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 (deficit) per the statement of financial performance		17 041 226	(12 946 118)
Adjusted for:			
Provision for doubtful debts		142 110	3 055 219
Actuarial gain/loss		684 193	(1 820 953)
Actuarial gain/loss		3 485 297	(3 466 032)
Variance on authorisation fees		(266 265)	(4 036 548)
Variance on compensation		3 922 520	743 930
Variance on goods and services		(18 932 274)	(11 620 046)
Variance on depreciation		2 150 241	385 417
Variance on finance cost		(892 873)	(590 936)
Variance on capital expenditure		(110 037)	(405 646)
Variance on investment income		(7 224 138)	30 701 713
Net surplus per approved budget		**-**	**-**

37. Budget differences

"Material differences between budget and actual amounts".

37.1 Authorisation fees

Authorisation fees revenue for the year amounted to R196,4 million. This is in line with the gazetted fees for the 2019/2020 financial year. Nonetheless, this amount is 2% below the annual budgeted amount of R199,9 million. This variance is mainly attributed to changes in the number of licences during the budgeting and invoicing periods.

37.2 Application fees

This revenue stream remains unpredictable, and fluctuates year on year based on applications received and additional work agreed upon with applicants on ongoing orojects. A significant portion of the total revenue of R23,1 million relates to NISL application fees.

37.3 Finance cost

Finance cost relates to interest on the mortgage bond serviced for the Centurion office building. A total of R3 million was incurred in the current financial year. The 23% variance in finance cost is linked to favourable decreases in the repo rate, and the subsequent lending rate during the course of the current financial year.

37.4 Other income

Other income relates mainly to recoveries from services rendered by the NNR on behalf of partner institutions, such as the IAEA, ENSTTI, etc. Total amount received in this revenue stream for the year amounted to R2,1 million. About R1,3 million of this amount was received as recoveries from the ISTC.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

37.5 Actuarial loss

Actuarial loss is comprised of the difference between the the amount of pension paid by the National Nuclear Regulator and the amount that was expected to be paid. The actuarial loss of R684,000 was due to the market fall in the market value of the assets of the fund during March 2020, as a result of the impact of the coronavirus epidemic on the financial markets.

37.6 Interest received

Interest income earned for the year, amounted to R5,7 million. The 5% variance between the budget and interest earned is attributed to the continuous positive cash balances on our investment accounts, coupled with prudent cash management practices, which include effective debtors collection strategies and weekly cash flow forecasting.

37.7 Depreciation and amortisation

Total depreciation of R11,5 million was realised, inclusive of amortisation for computer software. This expense is budgeted for in line with the CAPEX annual acquisition provision and has increased in line with new IT and other assets procured in the current financial year.

37.8 Debt impairment

The National Nuclear Regulator provides for debt impairment when there is some evidence that outstanding debts over 365 days may not be collected. Although there have been some improvements in the collection of outstanding debts, this figure has continued to increase, from R2,3 million in the 2017/18 financial year to R3 million in the current finacial year.

37.9 Compensation of employees

Compensation of employees exceeded budget by 2%. Total expenditure amounted to R169,6 million, against a budget of R165,7 million. This resulted in overspending of R3,9 million. The overspending is attributed to the payment of performance bonuses that are not budgeted for, and the delay in the filling of vacant funded positions, in the year under review.

37.10 Goods and services

The NNR continues to maintain strict financial discipline in line with the National Treasury Instruction on the cost containment. Spending for the year, on goods and services was 23% below budget. The cancellations of local and international travel and training, including other related expenditure, due to Covid-19 and the national lockdown, also contributed to the low spending on good and services. Included in goods and services is the budget amount for lease rentals on operating leases.

38. B-BBEE performance

Information on compliance with the B-BBEE Act is included in the annual report under the section titled B- BBEE Compliance Performance Information

G

G. ACRONYMS, ABBREVIATIONS AND DEFINITIONS

Commemorating the 20th Anniversary of the National Nuclear Regulator Act, Act 47 of 1999

G. ACRONYMS, ABBREVIATIONS AND DEFINITIONS

1. Acronyms, Abbreviations and Definitions

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 Coordinating Committee
KNPS	Koeberg Nuclear Power Station
KPI	Key Performance Indicator
LETF	Liquid-Effluent Treatment Facility
LEU	Low Enriched Uranium
LG	Licensing Guide
LLW	Low-Level Waste
LSA	Low Specific Activity

LTAM	Long-Term Asset Management
MDEP	Multinational Design Evaluation Programme
mSv	Millisievert
MW	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
NUSSC	Nuclear Safety Standards Committee
NVL	Nuclear Vessel Licence
OTS	Operating Technical Specification
PFMA	Public Finance Management Act
PLEX	Plant Life Extension
PPC	Parliamentary Portfolio Committee
PSA	Public Safety Assessor
PSM	Power Station Manager
QMS	Quality Management System
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
UFCOR	Nuclear Fuels Cooperation of South Africa
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

2. Glossary of Terms

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: The 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 subjected to radiation.

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 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/ exposure to radiation or the release of radioactive material, which is capable of giving rise to an effective dose in excess of 1msv to the public on-site within a year, or in excess of 50msv 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 0.1msv to the public on-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 20msv 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 session 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 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 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.

WCA: Wonderfonteinspruit Catchment Area

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