



SAFETY AND LICENSING DEPARTMENT



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TITLE	NECSA ENVIRONMENTAL MANAGEMENT PLAN SUMMARY

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REVISIONS

This document has been revised in accordance with the following schedule:

Rev. No.	Date approved	Nature of Revision	Prepared
1	See Title page	First issue: Replacement of document SLD-EGPGEN2014-PLN-0001 Rev3 and general revision. SLD-EGP-PLN-0001 Rev1	E van Heerden

Rev. No.	Date approved	Nature of Previous Revisions	Prepared
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2	20-01-2015	Second Revision: General revision SLD-EGPGEN2014-PLN-0001 Rev2	E van Heerden
3	24-04-2015	Third Revision: Revision to address NNR comments (AB5179) SLD-EGPGEN2014-PLN-0001 Rev3	E van Heerden



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1 PURPOSE AND SCOPE

The purpose of this document is to provide a summary Environmental Management Plan for Necsa for 2016/2017. This document was compiled in accordance with the requirements of King III [17] [11] [15] and meets the needs for submission of corporate plans in terms of section 52 of the PFMA (Act 1 of 1999) [12] by Necsa as a major National Public Entity.

2 REFERENCES

- | | | |
|------|----------------|---|
| [1] | SHEQ-INS-0103 | Overview of Necsa's Emergency Planning and fire prevention and protection requirements |
| [2] | SHEQ-INS-0110 | Overview of Necsa Waste Management Process |
| [3] | SHEQ-INS-0111 | Overview of Necsa's Project Management Processes |
| [4] | SHEQ-INS-6310 | Establishing Significant Environmental Aspects, Objectives and Targets |
| [5] | SHEQ-INS-6430 | SHEQ Communication |
| [6] | SHEQ-INS-6510 | Environmental Monitoring and Measurement |
| [7] | SHEQ-INS-8020 | Radiation Protection Organisation |
| [8] | SHEQ-INS-0001 | Necsa SHEQ Manual |
| [9] | SHEQ-INS-0213 | Necsa requirements for Management Responsibility |
| [10] | SHEQ-INS-0106 | Overview of Necsa's Environmental Management System |
| [11] | SANS ISO14004 | Environmental management systems- General guidelines on principles, systems and supporting techniques |
| [12] | Note 4 2009/10 | Submission of corporate plans in terms of section 52 of the PFMA |
| [13] | SHEQ-INS-0104 | Overview of Necsa's SHEQ compliance assurance process |
| [14] | SHEQ-INS-0100 | Necsa Safety, Health and Environmental Policy |
| [15] | ISO 14001 | Environmental management systems- Requirements with guidance for use |
| [16] | SHEQ-INS-4120 | Necsa Compliance with Environmental Management System Requirements (ISO 14001) |
| [17] | King III | South African Institute of Chartered Accountants (SAICA). Governance for South Africa. 2009. King Committee on Governance |

3 ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
BBS	Behavioural Based Safety
BPDM	Bojanala Platinum District Municipality
DWS	Department of Water and Sanitation
DEA	Department of Environmental Affairs
DoE	Department of Energy
EMC	Executive Management Committee
EMG	Environmental Management Group
EMS	Environmental Management System
ISO	International Organization for Standardization
mSv	Millisievert
NEA	Nuclear Energy Act (Act 46 of 1999)
Necsa	South African Nuclear Energy Corporation SOC Limited
NLM	Nuclear Liability Management
NNR	National Nuclear Regulator
PFMA	Public Finance Management Act (Act 1 of 1999)
PSIF	Public Safety Information Forum, Necsa
QES	Quality, Environmental and Safety group of S&LD



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QMS	Quality Management System
SAICA	South African Institute of Chartered Accountants
SHE	Safety, Health and Environment
SHEQ	Safety, Health, Environment and Quality
S&LD	Safety and Licensing Department, Necsa
SQEP	Suitable Qualified and Experienced Person

4 ENVIRONMENTAL MANAGEMENT PLAN

4.1 Identification of environmental aspects and evaluation of associated environmental impacts.

Projects are screened to ensure that those that have SHE consequences are formally approved [3]. Project requirements for SHE approval are established at the initiating phase of any project. These requirements are met before project approval is granted.

4.2 Legal requirements

The South African Nuclear Energy Corporation SOC Limited (Necsa) is a state-owned public company mandated in terms of article 13 of the NEA:

- to undertake and promote research and development in the field of nuclear energy and radiation sciences and technology and, subject to the Safeguards Agreement, to make these generally available;
- to process source material, special nuclear material and restricted material and to reprocess and enrich source material and nuclear material; and
- to co-operate with any person or institution in matters falling within these functions subject to the approval of the Minister.

To achieve this mandate, Necsa:

- identifies relevant legislation, regulations and bylaws;
- liaises with regulators or seeks independent legal advice;
- obtains authorizations necessary to conduct business; and
- incorporates legal requirements [13] in the Necsa SHEQ system to enable personnel to ensure compliance with legislation, relevant standards and good management practices.

Regular audits and inspections ensure compliance with the requirements of this system.

4.3 Environmental policy

Necsa's environmental policy [14] is combined with its safety and health policy in an integrated SHE policy which, amongst other things, includes the principle of sustainability. The policy states that:

"Management and employees of Necsa are committed to providing a safe and healthy environment for its employees, visitors and the public and to manage the environmental impacts of their nuclear, chemical and related activities, products and services. Management has a leadership role in the communication and implementation of, and ensuring compliance with, SHEQ policies and standards."

4.3.1 Necsa strives for the prevention of injury and ill health, prevention of pollution, and continual improvement of the SHEQ System and performance by:

- keeping exposure to radiation as low as reasonably achievable (ALARA);



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- actively reducing the number of SHE related incidents and public concerns;
- identifying and removing barriers to safe behaviour;
- providing emergency planning and response services;
- preventing pollution of soil, water and air by eliminating or minimizing waste, effluent and emissions
- re-using, reducing and recycling of materials;
- conserving fauna and flora, energy, water and other resources; and
- regularly reviewing SHE performance.

4.3.2 Necsa shall comply with applicable legal and other requirements that relate to hazards and aspects by:

- conducting risk & impact assessments prior to establishing new facilities or modifying existing ones;
- monitoring the workplace, conducting audits, taking appropriate corrective actions; and
- maintaining product stewardship by taking responsibility for the full life-cycle of products.

4.3.3 The SHEQ System shall provide a framework for setting and reviewing objectives and targets by:

- establishing and measuring annual SHE performance objectives and targets; and
- providing the necessary resources to achieve these goals.

4.3.4 The SHEQ System shall be established, documented, implemented and maintained through integration of the SHE risks and aspects into business and other activities by:

- using an integrated process based management system, to ensure sustainable development; and
- utilising the Behavioural Based Safety (BBS) process to create and foster a positive safety culture.

4.3.5 All persons working under the control of, or on behalf of Necsa shall be made aware of their individual obligations and responsibilities by:

- providing communication, awareness, motivation, training, commitment, involvement of staff; and
- including SHE aspects in the strategic choices of current and new business areas.

4.3.6 Necsa promotes open communication on SHE activities as information is available on request to interested parties and the public:

- disclosing all related incidents and information at regular community forum meetings (PSIF);
- interacting timeously with authorities and the public regarding SHE matters; and
- promoting awareness among staff, contractors, suppliers, lessees, clients and the community [5].

"Management shall ensure the SHE Policy is communicated to personnel and is periodically reviewed for continuing suitability to Necsa operations. Management through leadership and active involvement will demonstrate adherence to this Policy [14]".

4.4 Internal performance criteria

Internal Necsa performance criteria are documented in the SHEQ system [8], a comprehensive, integrated system of procedures prescribing Necsa's SHEQ management processes. It includes safety, health, environment and quality. These documents form the basis for process based licensing of Necsa by the NNR. The Necsa SHEQ system is documented in accordance with the requirements of ISO 14001 [15].



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Part of the SHEQ system is Necsa's Environmental Management System. This part prescribes the identification of significant aspects, setting of environmental goals and targets, preparing environmental impact reports, monitoring and reporting on the environment and waste management requirements [2].

4.5 Environmental objectives and targets

In addition to Necsa's current environmental monitoring objectives [4], corporate environmental performance targets are set (Annexure 1).

Objectives and targets are reviewed annually to limit (minimize) and continually assess Necsa's sustainability and any impact on the workplace and the environment. The ALARA principle is always applied.

4.6 Environmental plans and management programme.

The environmental management plans and management programmes of Necsa are implemented through the SHEQ Environmental Management System. An overview of Necsa's Environmental Management System (EMS) is provided in document SHEQ-INS-0106 [10].

Necsa senior management conducts an annual review of the SHEQ system. Management in their areas of responsibility reviews the implementation of the relevant parts of the SHEQ system [9; 7].

Failures (events) are reported, categorized and investigated by SQEP according to Necsa SHEQ system [13]. Corrective and preventive actions are implemented before events are closed out. The potential for environmental events is considered during emergency planning [1]. Necsa uses suitable qualified and experienced Personnel (SQEP) to manage and oversee its environmental management responsibilities [7].

4.6.1 Environmental monitoring

Necsa has established a comprehensive process [6] to monitor workplace and extended environmental impact of radiological, chemical and other aspects to ensure that set objectives and targets are met. Wastes (solid, gaseous and liquid effluent) are monitored to ensure that releases are within limits set by the relevant regulators (e.g. Department Environmental Affairs (DEA) and National Nuclear Regulator (NNR)). Radiological impact is converted to dose impact to ensure that it remains ALARA and within limits.

Streams, river (both up and down stream), soil, air contamination, fish, invertebrates, etc. are monitored to obtain a comprehensive footprint of Necsa's impact on the environment. Results of monitoring, together with the requirements of permits and licences, are reported to the relevant authorities in accordance with agreed schedules. Necsa reports and manages any non-compliance in accordance with the compliance assurance process (Annexure 2).

4.6.2 Resource management

Necsa actively manages the natural resources that it uses, including:

- raw materials;
- energy sources (fuel and electricity);
- water resource (Rand Water, Crocodile River water, borehole water); and
- land owned by the corporation and development on this land including:



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- removal of invasive vegetation and species,
- rehabilitation of all disturbed areas with indigenous species will be undertaken in order to restore the aesthetic and ecological value of the site; and
- reasonable measures will be taken to prevent erosion caused by any excavation and construction activities;
- protection of biodiversity through management plans and species identification and management.

4.6.3 Links to long-term infrastructure and other capital plans

As part of Necsa's water license application, Necsa is currently developing long term effluent management strategies. This includes the evaluation, rehabilitation and refurbishment of the evaporation pans and associated infrastructure on the Pelindaba site for Department of Water and Sanitation.

Under section 53 of NEM: AQA (39/2004), DEA has made regulations for phasing out and management of Ozone depleting substances (GN 351 GG37621 08/05/2014). Necsa developed a long term strategy to phase out all old air conditioners and chillers to comply with new regulation.

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Annexure1:

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Public Dose (mSv) *	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050

* Agreed in 2011 to set the minimum Public Protection Target at 0,050 mSv (20% of the Regulatory Public Dose limit).



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Annexure 2a: Reporting to Regulators.

REGULATOR	REPORTING	FREQUENCY
NNR	Pelindaba Site Radiological Environmental Report	1 st Quarter – End of June 2 nd Quarter – End of September 3 rd Quarter – End of December 4 th Quarter + Annual – End of March of the following year
	Containerized Radiological Waste Report - Pelindaba	1 st Quarter – End of May 2 nd Quarter – End of August 3 rd Quarter – End of November 4 th Quarter – End of February of the following year
	Vaalputs Radiological Environmental Report	End of March
	Pelindaba Meteorological Report	Annual – End of February
	Vaalputs Meteorological Report	Annual – End of February
	Water Management Report	Annual – End of March (Water year: 1 October – 30 September)
	Surface Water Report	Annual – End of January (Water Year: 1 October – 30 September)
	Ground Water Report	Annual – End of January (Water Year: 1 October – 30 September)
	Chemical Emissions Monitoring Report	Monthly – 15 Days after reporting month
		Quarterly – End of March, June, September and December Annual – End of January (Reporting Year: 1 January to 31 December)

Annexure 2b: Internal Reporting

REGULATOR	REPORTING	FREQUENCY
S&LD Manager	Environmental Performance Report	1 st Quarter – End of June 2 nd Quarter – End of September 3 rd Quarter – End of December 4 th Quarter + Annual – End of March
	Environmental Legislation Update	Monthly – Month end following the relevant month
	Environmental Events and Spills	Monthly – first week each month following the relevant month 1 st Quarter – End of March (first week April) 2 nd Quarter – End of June (first week July) 3 rd Quarter – End of September (First week in October) 4 th Quarter + Annual – End of December (second week in January of following year)
	Vaalputs Ground Water Report	Annual

Annexure 2c: External Reporting

REGULATOR	REPORTING	FREQUENCY
DoE	Necsa Annual Report	End of July

