National Nuclear Regulator
Environmental Surveillance Laboratory

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1. Introduction

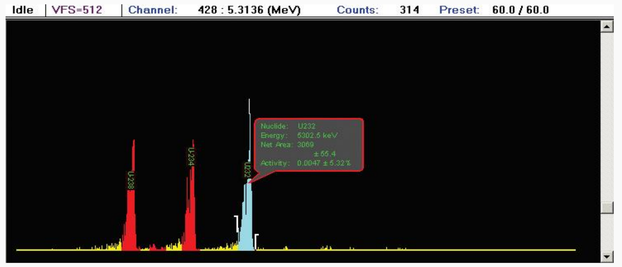
National Nuclear Regulator (NNR) of South Africa operates an Environmental Surveillance Laboratory (ESL). The laboratory has been providing radioanalytical services to the NNR as part of compliance assurance program since 2013. Its capabilities are based on extensive knowledge of radioanalytical techniques and methods. Compliance assurance programme includes independent radionuclide analyses verification of different samples collected from or surrounding the nuclear installations and sites such as Koeberg Nuclear Power Station, the nuclear technology and waste facilities of the South African Nuclear Energy Corporation (Necsa) located at Pelindaba plus other NORM facilities. The NNR Laboratory is ISO/IEC 17025 accredited since 2023.

2. Structure

- **Organisational Structure** – The Environmental Surveillance Laboratory forms part of Regulatory Improvement and Technical Services division within the regulatory body.
- **Partnership** – NMISA Radioactivity Standards laboratory, which is based in Cape town.
- **Workforce** – The laboratory has staff compliment of Seven staff members (Manager, Scientist, Quality Coordinator, three Technicians and an intern)
- **Membership** – The laboratory is in the IAEA ALMERA network of laboratories (Analytical Laboratories for Measurement of Environmental Radioactivity)
- Participates on the annual proficiency testing scheme (PTS) for environmental radioactivity measurements as part of assuring quality of analyses test results.
- **Management system** – accredited under ISO/IEC 17025 standard for testing laboratories and IMS for overall organizational processes

3. Some of Analytical Equipment

- 2 x Alpha Spectroscopy equipped with 12 counting chambers each
  Apex Alpha software
- 4 x Gamma Spectroscopy
  Genie 2000 and LABSOCS software
- 1 x Liquid Scintillation Counter
  Quanta Smart Software
- 1 x Gas Proportional Counter
  Apex alpha-Beta software



4. Existing Analytical Capabilities structure

- Gross alpha and beta
- Uranium-238 chain radionuclides: U-238, U-234 Th-234, Th-230, Ra-226, Po-210
- Thorium-232 chain radionuclides: Th-232, Ra-228, Th-228
- Uranium-235 chain radionuclides: U-235,
- K-40 , Tritium (H-3), Cs-134 and Cs-137, I-131, Am-241, Co-60, Sr-90

5. Under Development

- Ni-63
- Radon (Rn-222) and thoron (Rn-220)
- Uranium-238 chain radionuclides: Pb-210
- Offering regional proficiency analytical testing