

Radioanalytical Laboratory (RAL)

A supporting laboratory for SSM's monitoring and regulatory work

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Radioanalytical Laboratory

Swedish Radiation Safety Authority (SSM)





Overview

- > Staff
- Responsibilities
- Laboratory facility
- Instrument and measurement capabilities
- Servises provided by RAL
- Looking for staff





Staff



Obaidur Rahman Radiochemist



Maisa Al-Zahili Radiophysicist





Responsibilities of RAL

Major responsibilities

- To provide radioanalytical services for national environmental radioactivity monitoring program
- To support SSM's control program of nuclear facilities regarding discharges and site related environmental monitoring
- To provide radioanalytical services supporting the authority's regulation, supervision and control functions over other non-nuclear industries and activities subjected to license
- RAL is a part of the national network of expertise and measurement capacity for emergency preparedness

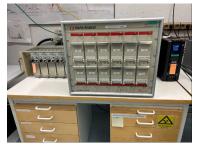


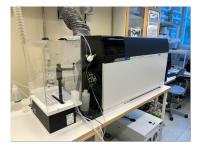
Laboratory facility

- > 4 measurement labs
- > 2 sample preparation labs









Gamma lab

Beta & alfa lab

Mass spectrometry lab



Whole body counter



Sample preparation room 1



Sample preparation room 2





Instruments and measurement capabilities

Instruments and methods

- Gamma spectrometry (5 HPGe detectors from Canbera):
 - Measurement of gamma emitting radionuclides (norm and anthropogenic) in diverse geometries and matrices
- Beta spectrometry (LSC Hidex 300 SL):
 - H-3 in water
 - Sr-90 in water, milk and mixed diet
 - Gross alfa-beta in water (method validation in progress)





Instruments and measurement capabilities

- In-vivo gamma measurement (whole body counter with 3xNal detectors from Canbera)
 - In-vivo measurement of Cs-137 and K-40 in human
- Alfa spectrometry (Alfa analyst from Canbera):
 - Validated method for measurement of Po-210, Po-222, U-234, U-235, U-238 is available but no competent staff is in place
- Mass spectrometry (ICP-MS, Agilent 8900 QQQ):
 - No competent person or validated method is in place right now





Services provided by RAL

Services provided under different program

Services provided for	Sample Martix	Measured Radionuclides
National environmental radioactivity monitoring program	Milk	Cs-137 and other gamma- emitting radionuclides, Sr- 90
	Surface water Drinking water	Gamma- emitting radionuclides, Sr-90, H-3, gross alpha/beta, Ra-226
	Sea water	Gamma- emitting radionuclides, H-3
	Marine fishes	Cs-137
	Mixed diet	Gamma- emitting radionuclides, Sr-90
	<i>In-vivo</i> measurements (Control group of people)	Cs-137, K-40 (Whole body counting)

Services provided by RAL

Strål säkerhets myndigheten

Swedish Radiation Safety Authority

Services provided for	Sample Martix	Measured Radionuclides
Site-related environmental radioactivity monitoring program	Moss, local sediments and fishes, spruce shoots, fucus	Gamma- emitting radionuclides
Control program for discharges	Water discharges before/after outage and pooled yearly	Gamma- emitting radionuclides, H-3
	Particle filters	Gamma- emitting radionuclides
SSM's own regulatory functions and inspections	Different matrices (ashes, samples from NORM-industry, decommissioning activities, etc.)	Gamma- emitting radionuclides NORM Sr-90, gross alpha/beta
Accredited commercial laboratories	Drinking water Mushrooms, berries, meat from wild boars, etc	Rn-222, Cs-137
National and international inter-comparisons and proficiency tests	Different matrices	Gamma- emitting radionuclides, Sr-90, H-3, gross alfa/beta





Looking for staff

- We need 2 skilled radiochemist/radiophysicst in our laboratory.
- Interested candidates are requested to contact with me.

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Questions?

