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# Radioanalysis Lab Capabilities and Issues -Jordan

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Overview

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- Three governmental bodies in Jordan have radiation measurements labs.
- Each agency established their own labs to carry out their duties.
- More labs and new equipments will enter service in the second half of 2013.



## Radiation measurements labs JNRC

- Water Authority of Jordan (WAJ)
  - Isotopes Section.
- Jordan Atomic Energy Commission (JAEC)
- Jordan Nuclear Regulatory Commission (JNRC)



## Water Authority of Jordan (WAJ) JNRC

- **Mission:** Development and protection of water sources, provision of water and sewerage services to ensure the requirements of citizens, and improvement of infrastructure to preserve environment and public health.



## Water Authority of Jordan (WAJ) JNRC

- Isotopic Section: test the quality of water to ensure it's comply with the Jordanian Standards
  - Activity in water
  - Dose received from drinking water



WAJ

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Gamma Spectrometry BE5030



Gamma Spectrometer NaI Detector



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Gas Proportional Counter For Gross Alpha and Gross Beta



Low level Liquid Scintillation Counter (Quantulus 1220)



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Mass Spectrometer (Determination of Stable Isotopes , O18 and Deuterium)



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Liquid Scintillation Counter

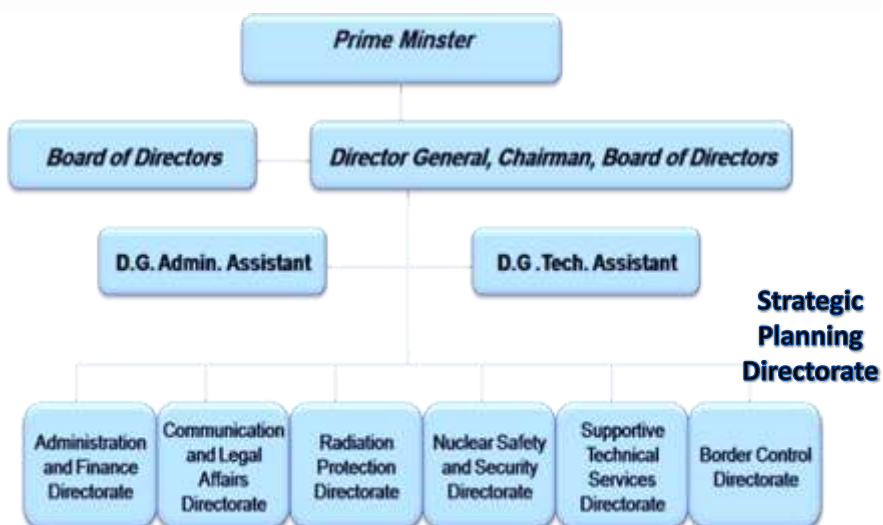


ICPMS For Heavy Metals



## JNRC STRUCTURE

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## ROLE OF JNRC

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- Regulating and monitoring the use of nuclear materials and radioactive sources;
- Protecting the environment and the human health from the hazards of radiation;
- Ensuring the availability of conditions and requirements of general safety, radiation protection, and nuclear safety and security.



## (JNRC)-Supportive Technical Services Directorate JNRC

### Missions:

- To be the scientific tool for JNRC and to do all the analysis and studies required by the other departments.
- To carry out the radiological monitoring system and radiological mapping projects to prepare a national records and observe any artificial fallout.
- To undertake the laboratorial experimentation project within JNRC.
- Technical support and assistance in case of emergency and whenever needed.



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## Radiation measurements Lab Consists from: •

- 8 chambers alpha spectroscopy system
- completely computer control system
- Extensive QA record keeping built in



Alpha spectroscopy



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- XtRa HPGe detector  
R.E. 50%
- BE HPGe detector  
R.E 50%



Gamma spectroscopy



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\* The Tri-Carb 3180TR/SL  
Is a computer-controlled benchtop  
Liquid scintillation analyzer  
For detecting small  
Amounts of alpha and radioactivity



The CANBERRA iSolo® is a  
portable, firmware based,  
single-sample, manual, gas-less  
alpha/beta counter. The iSolo is  
designed for the analysis of air  
filters and most other types of  
alpha/beta samples.



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- Nuclide-Specific Aerosol Monitor.
- Gamma spectroscopy R.E 15%
- Continuous sampling and analysis system







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- Iodine Monitors.

- NaI 3x3 detector

- Monitor gaseous iodine-131 in ambient air.



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- Alpha/Beta Aerosol Monitors.

- PiPS Detector

- Continuously monitors gross alpha and gross Beta activities





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- STSD and other Directorates also have their tools and equipments.
  - hand held equipments .
  - Quality Control equipments.
  - Mobile Radiation Detectors Vans.
  - Car Top Device.
  - Radiation Detection Gates.



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THANK YOU