Certification and Approval of French Medical Biology Laboratories (MBL) involved in the monitoring of workers exposed to ionising radiations in the frame of Occupational Health

ICOH CANCUN, MÉXICO

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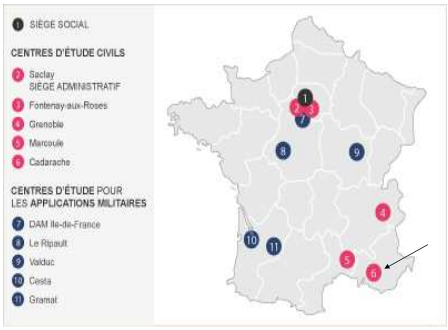
French Atomic Energy Commission



Monitoring of workers exposed to ionising radiations

- **External irradiation** - Radionuclides outside of the body
  - Dosimetry by film
  - Criticality accident: MBL analysis
- **External contamination** - Radionuclide on the surface of the skin
  - contamination on skin : MBL analysis
- **Internal contamination** - Radionuclide inside the body
  - Inhalation, ingestion or wound: MBL analysis

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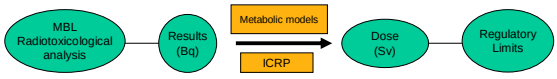
Dosimetry is calculated by Occupational Physicians and in conformance with regulatory limits

Analysis performed by MBL

External irradiation: Criticality accident
- Measurement of Na^{24} by whole body counting and in blood
- Measurement of P^{32} in the hair and nails

External contamination
- Direct measurement of Gamma-X emitters on the skin

Internal contamination
- Measurement of Apha – Beta – Gamma emitters in urine and/or in faeces
- Measurement of Gamma-X emitters in the body and/or lungs by whole body counting (Anthroporadiometry)
- Direct measurement of Gamma-X emitters in wounds



Certification of French MBL

In order to be allowed to monitor workers exposed to ionising radiations, the French MBL must meet 3 conditions

1- Accreditation of MBL by COFRAC (Technical part)

Cofrac French Comity of Accreditation — EA European Accreditation — ILAC Int[el] Lab.Accreditation Cooperation

Standards of accreditation
- ISO CEI 15189 - specific to MBL - radiotoxicology
- ISO CEI 17025 - anthroporadiometry

2- Recommendation from the French Radioprotection and Nuclear Safety Institute (IRSN)

3- Approval by the French Nuclear Safety Authority (ASN)

Focus on technical accreditation requirements

Quality Management
- Quality policy
- Management commitment
- System of management
- Program, procedures, instructions
- Control of the documentation
- Customer satisfaction evaluation
- Follow-up of corrective actions…

Technical requirements
- Personnel: skills - training
- Installation and surroundings conditions
- Validation of methods
- Uncertainty estimations
- appropriate equipment and follow-up of performances: calibration – periodic checks…
- Quality of results and of analysis reports

Quality assurance of analysis results

Focus on the IRSN recommendation

- Appropriate materials and methodes
  - Pertinent detection levels
- Results of regulatory proficiency testings
  - Good results in terms of accuracy
- Transmission of all radiotoxicological results to the IRSN national data bank: SISERI

→ Favorable recommendation from the IRSN

Focus on the ASN approval

- Notification of accreditation from COFRAC
- Last accreditation evaluation reports
- Notification of favorable advice from IRSN

→ approval issued by the ASN

Approval of the MBL

Accreditation by COFRAC

– Objective technical competence to perform radiotoxicological analysis - evaluation every 12-16 months

Recommendation from the IRSN

– Certfication that analytical techniques performed are in accordance with the best practices used in detecting pertinent levels of contamination

Approval by the ASN

– Authorization of workers monitoring by MBL

Conclusion

Regulatory certification of French MBL by Cofrac - IRSN - ASN

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guarantee

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- Accuracy of measurements performed
- Adequacy of subsequent dosimetric calculations for workers exposed to ionizing radiations