

## Announcement to IAEA Member States

**IAEA Programs at Argonne National Laboratory** will host the Joint ANL-IAEA Training Course on the Theory and Practical Application of RESRAD codes for the Determination of Dose, Risk and Authorized Limits at Radioactively Contaminated Sites at Argonne National Laboratory (Lemont, Illinois, USA) during July 15-26, 2024. **This event is organized in cooperation with the International Atomic Energy Agency.**

### Introduction

Human activities involving the use of radiation and radioactive materials can be linked with radiation exposure of the public and the environment. The assessment of radiological impact to the environment and the public due to radioactive releases is a required task which can be facilitated by use of computer models to estimate radiation doses and risks from residual radioactive materials. The RESRAD family of codes, developed at Argonne National Laboratory, USA, is designed to analyze potential radiation exposures for humans and biota resulting from environmental contamination by residual radioactive materials. These codes employ pathway analysis to systematically assess radiation exposure, associated risks, and establish cleanup criteria or authorized limits for radionuclide concentrations in the contaminated source medium.

### Objectives

The objective of this training course is to inform participants and provide practical training on the applicability and use of dose and risk models in the RESRAD family of codes (RESRAD-BIOTA, RESRAD-ONSITE, RESRAD-BUILD, RESRAD-RDD, and RESRAD-OFFSITE), for purposes of assessing potential human and biota radiation exposures at radioactively contaminated sites and for demonstrating compliance with radiation safety standards.

### Target Audience

The number of participants will be limited to a maximum of 25 and open to IAEA Member States.

The course is intended for specialists with proven experience in radioecology, radiobiology and/or radiation protection of humans and non-human species. Furthermore, participants should have higher education in a field relevant to the above, and they should be professionals working for governmental authorities or supporting organizations involved in radiological environmental impact assessment and monitoring programmes.

Applicants should note that it is a requirement to bring your own personal laptop with Windows Operating System 10 or 11 to the event.

### Working Language

English

### Expected Outputs

This training is designed to provide knowledge on the basics and applications of RESRAD-BIOTA, RESRAD-ONSITE, RESRAD-BUILD, RESRAD-RDD, and RESRAD-OFFSITE codes for the evaluation of radiation exposure to human and non-human biota. The course will enable the participants to learn about the RESRAD family of codes, in particular the models and parameters used in estimation of dose and risk for radioactive contamination through pathway and sensitivity/uncertainty analysis. After completion of this training course, participants can apply and further disseminate in their home countries to ensure the

protection of people and the environment at radioactively contaminated sites, as well as ensuring compliance with regulatory requirements.

The event will be conducted over a two-week period for approximately 8 hours per day at Argonne National Laboratory. Daily attendance will be required and monitored along with submission of requested evaluations and completion of assignments to receive a course certificate.

## Topics

The course will consist of lectures on the principles of radioecological risk assessment and modelling the transport of radionuclides in the environment, an overview of RESRAD family of codes and their applicability, as well as case studies and hands-on exercises.

The training will consist of the following main topics:

- Radiation doses and principles of radiological risk assessment,
- Concentration and transfer of radionuclides in the environment,
- Derivation of dose coefficients for animals and plants,
- Sensitivity analysis and probabilistic uncertainty analysis,
- Relevant radiation dose limits and guidelines, and
- The practical application of RESRAD family of codes for the estimation of radiation doses and risks from residual radioactive materials.

## Application Procedure

All persons wishing to participate in the event must be designated by an IAEA Member State.

The applicant's nomination form <https://anl.box.com/v/RESRAD-2024-NominationForm> should be submitted by the competent national authority through IAEA Programs at Argonne **Secure Application Upload Portal** <https://international.anl.gov/IAEA-Training.html> only due to personal information. Forms must be uploaded no later than **15 April 2024**. Applications received after that date cannot be considered.

## Administrative and Financial Arrangements

Nominated authorities and selected participants will be informed in due course regarding the procedures to be followed regarding administrative and technical matters.

No registration fee is charged to participants. IAEA Programs at Argonne will provide financial support (a round-trip air ticket based on Argonne procedures, paid hotel accommodations, a stipend for meals & incidental expenses & a contingency allowance) to the selected 25 participants. Health insurance is not provided.

## Contacts

IAEA Programs at Argonne  
[IAEA-ANLCourse@anl.gov](mailto:IAEA-ANLCourse@anl.gov)