Integrating dose assessments for humans and the biota in routine discharges of radionuclides

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Underlying problem to be addressed by the proposal

- The paradigm “the standards of environmental control needed to protect the general public would ensure that other species were not put at risk” changed to “the need to be able to demonstrate (rather than to assume) that the environment is being protected against radionuclides”.

- The practical application of this change could raise unforeseen problems.
Aims and Objectives

• Evaluate, with a practical view, the impact to both humans and biota against ionizing radiations, where an explicit assessment of the protection of the environment is required. In particular the specific case of the assessment of routine releases from different radioactive and nuclear installations to the environment.

• Establish examples of application of the developed framework (including IAEA DS427 and DS422, DS432).

• Additionally, benchmark the results obtained with different models, codes and set of parameters.
Main working steps

1. Identify practical international and national guidance for the demonstration of the compliance with requirements for the protection of the environment against ionizing radiations (Guidances).

2. Identify state of the art tools, calculation tools and methods for performing dose assessments in routine radioactive discharges which can be used in integrated assessments of the humans and the biota, including uncertainties (Codes).

3. Identify a set of cases and scenarios where explicit assessment of the environment would be necessary (Reference Installations & Scenarios).

4. Carry out dose assessments for humans and the biota in those scenarios with associated uncertainty analysis (Practical Examples).

5. Evaluate and compare models, approaches, parameters and other characteristics of the codes used in the assessments + WG10 (Benchmark).

6. Discuss the results and give advice to the IAEA on future needs and gaps related to performing dose assessments (Gaps).
Expected results and benefits

- Analysis of the existing tools, codes and methodologies which can be used in the dose assessments of humans and biota.

- Evaluation of the change in the approach to explicit assess the non-human species and to demonstrate compliance with requirements for the protection of the environment against ionizing radiations in routine releases.

- Improvement of the models and codes by the comparison with others and better understanding of the uncertainties in these assessments.