

Title: Radiological Characterisation and its Role in the Efficient Management of Low-Level Radioactive Material Supporting Concurrent Reuse, Recycling and Disposal

Abstract:

There are currently 435 operating civil nuclear power reactors in the world with an impressive number planned or already under construction as well as a range of associated nuclear fuel cycle and research facilities.

Advances in the prior radiological characterisation of the materials which exist within these facilities and which are produced through their operation have enabled these materials to be characterised to a very high degree of precision and sensitivity with associated improvements in the limits of detection for radioactivity. This has enabled an accurate and reliable knowledge of their radiological properties to be gained along with an evaluation of the associated risks from radioactive components even down to very small values.

Following their use, either at the end of an operational process or at the end of the facility's life, these materials, if they cannot be re-used, must be recycled or disposed of. The knowledge derived from characterisation has shown that the major volume of such materials (excluding used nuclear fuel) fall into a category which is amenable to re-cycling through the application of established survey and treatment techniques. Such materials contain valuable resources which, in a world committed to greater efficiency and sustainability, must be conserved through recycling in order to optimise the demand for fresh resources which must be found, extracted and processed as well as to conserve valuable space in national disposal facilities.

Despite these advances irrationality concerning the reuse, recycling and disposal of materials containing low levels of radioactivity continues to prevail, even in countries with large nuclear power programmes. Should the facts about the true nature of the materials, gained and refined through advances in radiological characterisation, become more widely known then this could depolarise an often negatively charged debate. Combined with a knowledge of the safe and effective treatment techniques that already exist this would show that, properly managed and regulated, these materials and practices pose no genuine health issues for people or the environment.

Through the Position Paper of the Working Group the WNA emphasizes the importance of converging towards greater efficiency in the management of low-level radioactive material. This requires internationally consistent strategies and approaches for proper reuse, recycling and disposal.

The WNA statement sets the stage for constructive discussions toward this international goal with a view to facilitate practical implementation at the national level.

Authorship: jointly developed by the members of the World Nuclear Association working group on *Waste Management and Decommissioning*.

The World Nuclear Association is the international private-sector organization supporting the people, technology, and enterprises that comprises the global nuclear energy industry. WNA members include the full range of enterprise involved in producing nuclear power – from uranium miners to equipment suppliers to generators of electricity. With a secretariat headquartered in London, the WNA serves as a global forum for industry experts and as an authoritative information resource on nuclear energy worldwide.