



NORM IX CONCLUDED with messages on SCIENCE, AWARENESS AND SOLUTIONS for the Safe Management of NORM-



The Ninth International Symposium on Naturally Occurring Radioactive Material (NORM IX), hosted by the Conference of Radiation Control Program Directors (CRCPD) in cooperation with the IAEA was organized from 23 to 27 September 2019 in Denver, Colorado, the United States of America. The NORM IX Symposium was organized for the first time in the United States and cosponsored by EPA, US NRC, NCRP, ICRP, UNSCEAR, WHO, ILO, and IRPA. A total of 361 participants from 48 countries were in attendance. Numerous participants indicated it was the largest NORM focused meeting to date.

The Symposium mainly focused on how NORM is managed around the world. Safety and environmental impacts from NORM, as well as best practices for NORM management with progress since NORM VIII were also discussed.

The NORM IX included presentations, posters, training (4 workshops were organized within the framework of Symposium; the Cradle to Grave Practical Workshop, EPA Risk Assessment Overview, IAEA Safety Standards on NORM and CRCPD Workshop on NORM in Oil and Gas Sector) and roundtable sessions from industry representatives, scientists, regulators and other stakeholders. The parallel session topics were Worker Protection, Environmental Protection, Decommissioning and Site Clean-up, Legacy Sites/Existing Situations, Waste Management, Transportation and Border Security, Water and Wastewater Treatment, Radon & Thoron Measurement and Mitigation, Uranium Recovery and Legal Challenges.

The Symposium programme was built over the themes of NORM VIII. For each of the parallel session, a rapporteur was assigned. Their task was to present the summary of each session during the closing.

The overarching NORM issues were highlighted as follows:

- Continued desire for harmonisation (Radon reference levels and DCFs);
- The system of protection (ICRP system of exposure categories - planned/existing-for NORM may be problematic for industry because NORM is not introduced into these processes because of its radiation content;
- Models and measurements (Need to be sensible in approach and to recognise purpose, limitations & uncertainties);
- Radon & Thoron (Inconsistency in ICRP and UNSCEAR recommendations will create a significant challenge; a single value is critical. ICRP's new value will result in an economic impact on industry, requiring additional mitigation activities in many workplaces. The recommendation for a new value will be difficult to explain to industry; this could lead to a loss of trust and reluctance to comply with new monitoring or mitigation requirements);
- Management of NORM residues – phosphogypsum (Increasingly recognised as a resource. Reuse of phosphogypsum (PG) in construction material will help to preserve primary raw materials and reduce current PG inventory – by 2025 there will be 7 to 8 billion tons for stored PG - current recycling rate is only about 5%);
- Transport (IAEA needs greater involvement of industry bodies and key companies. Some progress on issues raised at NORM VIII but IAEA working on development of Safety Report to provide guidance on NORM).

The NORM IX Symposium presentations will be available for download at the ORPNET. End of November 2019 has been agreed as a deadline for submission of full papers, which will be incorporated into the NORM IX proceedings.