

ROMANIAN EXPERIENCE IN REMEDIATION OF NORM CONTAMINATED SITES - case study -

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1. Regulatory Framework: • Law 111 on the safe deployment of nuclear activities, republished, stating that for the carrying out of a nuclear activity generating or having generated radioactive waste, the authorisation holder shall compulsorily be responsible for the management of radioactive waste generated by his own activity; bear the expenses related to the collection, handling, transport, treatment, conditioning and temporary storage or final disposal of this waste; pay the legal contribution to the financial sources for the management and final disposal of radioactive waste and spent nuclear fuel and for the decommissioning of nuclear installations. Therefore, the holder of the authorisation issued by CNCAN shall develop a programme for the preparation of the decommissioning and submit it for approval to the Commission and produce the proof of having paid the legal contribution to the financial sources for the management and final disposal of radioactive waste and spent nuclear fuel and for the decommissioning of nuclear installations. - art. 26, 27 • Fundamental Norms of Radiological Safety are setting up the requirements concerning the assurance of radiological safety of occupational exposed workers, population and environment, in accordance with the provisions of Law 111/1996 on the safe deployment of nuclear activities, republished. Chapter VII sets the provisions for regulating the significant increase of exposure due to natural radiation sources, detailing the radiation protection against exposure from terrestrial natural radiation sources. Nevertheless, CNCAN is empowered to carrying out of interventions in order to ensure the implementation of measures with a view to reduce the exposure of workers and/or public, in accordance with the provisions of these norms referring to the interventions. • NORM regulation is drafted
2. Identification of radioactive contamination Whenever the notification is made, CNCAN investigates the area by in situ gamma dose rate measurements and environmental sampling for laboratory analyses. The case study presents the actions taken following an official letter from the Mayor of a Romanian village, claiming a radioactive contamination of the environment, due to some past liquid discharges from gas exploitation in the area.
3. Regulatory dispositions 3.1. Immediate actions required that as soon as the polluter company was identified, based on the provisions of the Fundamental Norms on Radiological Safety, it was asked: to mark the perimeter of the contaminated area and to limit the access of the public inside the perimeter, to assess the level of radioactive pollution of the contaminated area and to send the results to CNCAN, in order to establish the appropriate remedial actions, if necessary. 3.2. First assessment of radioactive contamination The radiological investigation consisted in: • radiological mapping, performed by systematic measurements of the count rate 10 cm above the ground with different steps along the 3 mapping elements, • measurement of the ambient equivalent dose rate, 1 m above ground, and • field sampling and laboratory analysis by high resolution gamma spectrometry. 3.3. Proposals for remedial actions • removing of vegetation and drainage of water from contaminated area; • removing of a soil layer up to 35 cm thick in areas in which the dose rate exceeds twice the natural background, under radiological supervision; • final disposal of removed material by one of the following methods: in the National LILW Repository or in a sludge pile of the National Uranium Company; slurry of the soil and injection of the mud in an oil extraction well or, the dilution of the contaminant concentration by mixing the contaminated soil with uncontaminated soil on the same location. 3.4. Second assessment of radioactive contamination • new measurements and analyses on the same area, after the removal of vegetation and water, the same methods being used, with slightly different approaches. 3.5. Other remedial proposals • removal of the 35 cm top layer of soil from the hot spots, under radiological supervision; • intermediate storage of the removed material, in one of the Polluter's facilities, located near the contaminated site; • disposal of the contaminated soil in one of the future disposal facilities designed for hydrocarbon contaminated soil.

Country or International Organization

National Commission for Nuclear Activities Control (CNCAN)/ROMANIA

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YES

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