

Environmental radioactivity and mitigation of radiological impact at legacy uranium sites in Portugal

Wednesday 25 June 2014 17:10 (1 minute)

Uranium legacy sites in the country contain large amounts of milling tailings, mining waste, old infrastructures, and acid mine drainage with high radioactivity concentrations. Radioactivity surveillance of these sites has been maintained for many years and institutional control kept beyond cessation of mining in 2001. A research programme (2003-2006) requested by the government to assess environmental contamination and public health risks in these regions advised implementing environmental remediation measures. A national programme was approved for remediation of abandoned mine sites, including radioactive and non-radioactive mines, that started in 2005 and since has completed significant remediation works in several old uranium mines. One amongst these sites, the Urgeiriça mine and milling site, was re-engineered, tailings were covered, the mine was closed, the area of mine and milling facilities cleaned, and an automated contaminated water treatment plant installed. Environmental radioactivity surveys carried out in this region showed reduced ambient radiation doses, lower radon concentrations in surface air, return to background radioactivity in surface air aerosols, and decrease of radionuclide concentrations in the river receiving water discharges from the mine site, resulting in a reduced radiation exposure to members of the public. Other legacy uranium mines without milling tailings, were mainly remediated for landscape engineering and the adopted solutions included, for example, preservation of non-contaminated ponds for public leisure. Although not completed yet in many sites, the remediation works implemented contributed already to a significant abatement of radiation exposure allowing for safer implementation of activities, such as agriculture and cattle grazing, in the surroundings of legacy sites. Environmental remediation and abatement of radiation exposure contributed to revitalize socio economic activities of the region and re build confidence in mining activities.

Author: Prof. CARVALHO, Fernando P. (Instituto Superior Técnico/Laboratório de Protecção e Segurança Radiológica, E.N. 10, Bobadela LRS, Portugal)

Presenter: Prof. CARVALHO, Fernando P. (Instituto Superior Técnico/Laboratório de Protecção e Segurança Radiológica, E.N. 10, Bobadela LRS, Portugal)

Session Classification: Poster Session

Track Classification: Health, safety and environment