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Radioactivity monitoring and environmental restoration of a legacy mine and milling site

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A former radium and uranium producing mine at Forte Velho, Guarda, Portugal, was in activity during the 40s-60s last century. After mine closure, waste piles remained uncovered for decades, until a radiological assessment of the site attracted attention to elevated ambient radiation doses. An aerial radiation dose rate survey was carried out using a detector mounted on a drone and also at ground level. Ambient radiation dose rates attained 9.5 μSv/h on waste piles. As waste piles were on the mountain slope, the site was a source of contaminated materials and leaching gradually transported down the slope with surface runoff. Natural vegetation covered the waste piles and radionuclides were analyzed in herbaceous plants and pine trees. Results showed that uranium daughters were easily transferred to plants. Remediation action was taken in 2015.After the clean-up of Forte Velho mine site, a clean soil layer and plants were introduced. A post-remediation radiation survey of the Forte Velho site was made and confirmed suitable abatement of ambient radiation doses and conformity with basic safety standards and remediation goals.

Country or International Organization

Portugal

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