



Contribution ID: 32

Type: Verbal

## Impact of U-mill tailings of the former uranium mine at Žirovski Vrh (Slovenia) on radionuclide accumulation by wetland plants

Thursday, April 22, 2010 6:00 AM (15 minutes)

### ABSTRACT

Transfer of radionuclides into the environment is a common phenomenon and due to its potential harmful effect of particular scientific interest in the vicinity of uranium mines. Radionuclides, especially uranium and thorium decay products are discharged with U-mill tailings into the soil and water and consequently into vegetation where they accumulate. Radionuclide soil-to plant transfer was observed in many studies. Uranium mine at Žirovski Vrh in Slovenia, which operated from 1985-1990, processed about 600,000 tons of U-ore. U-milling and mining tailings were deposited at the Boršt and Jazbec sites. Plants that grow in the vicinity of U-mill tailings may accumulate radionuclides in their tissues and thus represent a possible transfer of radionuclides into the food chain. This are so called metal-accumulating plants, that developed metal resistance mechanism and may grow on metal-contaminated or metalliferous soil. Plants, such as Marsh marigold (*Caltha palustris*), soft rush (*Juncus effusus*) and common reed (*Phragmites australis*) are known as accumulator plants, because they accumulate toxic metals in their above-ground tissues. Other plants, especially grasses may also grow on metal contaminated soils, but do not accumulate metals. Preliminary results of radionuclide accumulation by such plants growing in the contaminated area are presented. A common reed, that was grown on the uranium-mill tailings accumulated 0,01 Bq/g d.w. and 0,002 Bq/g d.w. of uranium in leaves and stems, respectively. In contribution, activity concentrations of other nuclides from uranium and thorium decay chains in other plants are also presented and discussed.

**Primary author:** Mr ČERNE, Marko (Jožef Stefan Institute)

**Co-authors:** Prof. SMODIŠ, Borut (Jožef Stefan Institute); Mr ŠTROK, Marko (Jožef Stefan Institute)

**Presenter:** Mr ČERNE, Marko (Jožef Stefan Institute)

**Session Classification:** Radionuclides in the Environment, Radioecology 4

**Track Classification:** Radionuclides in the Environment, Radioecology