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## IMPLEMENTATION OF THE REGULATORY CONTROL TO THE DECOMMISSIONING OF BACAU FOSFORIC ACID PLANT

A decision for decommissioning of Bacau phosphoric acid plant was taken based on a safety assessment of radiation doses at workplaces.

The phosphoric acid production process consists of crashing of phosphoric rocks, chemical attack of the rocks using sulphuric acid, cooling of the resulted products, filtering of the products, concentration and storage of phosphoric acid and disposal of phosphogypsum waste.

Scale samples have been collected for all pieces of equipment and pipes which are dismantled and measured to determine the activity concentrations of radionuclides in the  $^{238}\text{U}$ ,  $^{235}\text{U}$  and  $^{232}\text{Th}$  decay series.  $^{226}\text{Ra}$  has been found in all samples varying from 200 Bq/kg to 6700 Bq/kg.  $^{238}\text{U}$  activity concentration varies from 520 Bq/kg to 2175 Bq/kg.  $^{228}\text{Ra}$  and  $^{212}\text{Pb}$  was not identified in the samples.

According to the national regulations criteria of 1Bq/g is used to decide whether decommissioning of this facility shall be under regulatory control.

The dose investigations outside the process plant show that ambient radiation dose rates vary from 93 to 103 nSv/h. Inside the facilities, in 47 measured points, dose rates vary from 2 to 22,8  $\mu\text{Sv/h}$ , the highest value founded at filtration unit. External radiation dose rates at the surfaces of the transfer pipes and pumps recorded values of 19  $\mu\text{Sv/h}$ .

Based on dose assessment it was decided that decommissioning of Bacau phosphoric acid plant needs to be registred by regulatory authority.

The paper contains the description of site, methods, materials, results of the measured values of activity concentration and dose rate in the Bacau phosphoric acid plant as well as the basis for radiation protection measures implemented in the plant.

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