

# International Conference on the Management of Naturally Occurring Radioactive Materials (NORM) in Industry

VIRTUAL EVENT

International Conference on  
**Management of Naturally  
Occurring Radioactive  
Material (NORM) in Industry**

19–30 October 2020

#NORM2020



Contribution ID: 26

Type: Poster

## Partitioning and removal of uranium and other elements within water treatment processes: A case study

Underground water treatment is essential in some cases to remove some of the radionuclides as well as trace elements to fulfill the quality standards of drinking water. Water samples were collected from underground water purification plant to study the variation in uranium concentration within the treatment processes and its relation to physical and chemical properties of water. Samples represent the different treatment processes (input, output, after filtration, sludge tank, reverse osmosis permeate and reject, and wastewater ponds). Uranium and other trace elements (e.g., As and Cd, Pb) concentration in the collected samples were measured using ICP-MS. Uranium concentrations in water samples show a wide range of variation from 0.06 to 35  $\mu\text{g}\cdot\text{L}^{-1}$ . The chemical properties of water samples Water physical and chemical properties, i.e. pH, EC, major cations (Ca, Mg and K) and major anions ( $\text{CO}_3$ ,  $\text{HCO}_3$ , Cl and  $\text{SO}_4$ ) were determined. The effect of water treatment processes on elements concentration; dose assessment due to water drinking (before and after treatment) and the radioecological risk assessment were discussed

**Primary author:** Prof. KHATER, Ashraf (Nuclear and Radiological Regulatory Authority)

**Presenter:** Prof. KHATER, Ashraf (Nuclear and Radiological Regulatory Authority)

**Session Classification:** Session IV - Characterization in Industrial Facilities and in the Environment

**Track Classification:** NORM Characterization, Measurement, Decontamination