**How past and actual releases from a U-conversion facility impact the aquatic environment?**

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A U-conversion facility located in the south of France, is designed to purify uranium from the “yellow cake” (i.e. uranium ores concentrate) and to convert U into UF4. Since the beginning of the conversion activity in the early 1960s, the conversion process has produced amounts of nitrate liquid effluents stored in ponds surrounding conversion workshops. Currently, the storage ponds contain 350,000 m3 of nitrate-bearing liquid effluents. The main radionuclides stored in these ponds are uranium isotopes, 230Th, 234Th, 226Ra, 90Sr, 99Tc, 239Pu, 241Pu and 241Am. The presence of artificial radionuclides is due to the conversion of irradiated uranium from spent nuclear fuels, between 1960-1982.

Previous studies underline the role of wind in disseminating radioactive droplets and particles in the terrestrial environment located around the site. This process could also be involved in the delivery of radionuclides into the aquatic environment. For more than 15 years current site discharges into the canal no longer include industrial effluents but consist mainly of rainwater collected on the whole site which still contains substantial uranium activity. Thereafter, the canal flows down into the Bages lagoon wich is connected with the Mediterranean Sea.

In 2023-2024, ASNR conducted a specific study around this U-conversion facility to assess the radiological status of the aquatic environment in addition to other studies carried out in the atmospheric and terrestrial environments. Various types of environmental indicators were sampled in channels and in the Bages lagoon: surface waters, sediments, aquatic plants, fishes and mollusks. Measured radionuclides included those involved in the conversion of the “yellow cake” such as natural uranium and main 238U decay products. In addition, the legacy of the conversion of irradiated uranium namely the artificial radionuclides cited above were also measured. The aim of this communication is to assess both the impact of current discharges downstream in the canal, and the persistence of the past discharges into the lagoon.