

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: 51

Type: **Poster**

Sustainability aspects of the Uranium Production Cycle and NORM in Argentina

From 1952 to 1997 Argentina produced 2 600 tU at an average grade of 0.1 %U, in the form of yellowcake. Some 10 uranium deposits were exploited, distributed along the national territory where both open pit and underground mining have been used with shares of 82% and 18%, respectively. Acidic heap-leaching was the milling technology applied to recover uranium. Consequently, as a result of the low grade of the mineral ore and the processing technology a large amount of waste has remained in the former mining-milling facilities which has been object of remediation at low scale so far.

Other than the Uranium Production Cycle, there are other current and potential sources of NORM in the country, such as oil and gas industry, metal mining, coal extraction, phosphate mining, REE mining, and tourism and recreation .

The country has five hydrocarbon producing sedimentary basins and between 2011 and 2017 reached an average annual production of 31 million square meter of oil and 44 billion square meter of gas.

Copper mining can be also described as a source of NORM. The average annual production has been by 100 000 t Cu, with a peak in 2014 consisting of some 180 000 tCu. Identified resources account for 81.5 million tons of Cu with an estimated uranium content in the mineral ore of 5-10 ppm U. Silver and gold underground mining are also included as NORM industry of the country.

In the southernmost part of the country there is the only coal deposit, which has been objective of intermittent exploitations. Total resources have been evaluated in 700 million tons, with uranium contents of about 5 ppm. Several phosphate basins and events are very well represented in the country, but to date economical phosphate deposits have not been found nor production has been carried out in Argentina. Phosphate identified resources, which belong to restricted sites of Northwest and Neuquen Basins, have been evaluated at 1 M t of P₂O₅ with grades ranging from 2.5 to 6.3 per cent P₂O₅. The highest U contents have been found in the Patagonia Fm with values between 12 and 135 ppm U.

Because of the international concern driven by the REE export restrictions of China, there has been a renewed interest in REE and other critical materials. In this regards, junior companies have set up and carried out different REE projects that exhibit encouraging geological prospects and uranium and thorium resources are being evaluated and reported.

Activities in caverns and thermal baths on tourism and recreation purposes are also identified as NORM in the country.

It is thought that sustainability aspects of UPC and management of NORM have to be improved in line with IAEA safety standards and good practices. On the one hand, the remediation of uranium mining legacies will help to change the social perception for future uranium recovery projects. On the other hand, it would be also beneficial to establishing a regulatory framework and carrying out new surveys and inventory for NORM industry.

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Session Classification: Session I - NORM National Policies and Strategies

Track Classification: NORM Policy, Strategy and Regulations