

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: 176

Type: **Poster**

Security analysis of monazite in Bangka Island, Indonesia

Monazite is a side mineral in the tin mining process in Bangka Island and categorized as waste. This material consists of thorium of 3-6% that can be converted to uranium 233 using radiative captured reaction. This is a special nuclear materials (SNM) that should be protected and monazite become SNM precursor. Some questions arise on accumulated monazite. Should monazite be protected from theft and adversary actions using physical protection system? How much monazite should protected? What PPS can be designed? How effective the designed PPS will be? Study is conducted to answer the questions.

We make survey and simulation to calculate the amount of monazite that can be converted to 1 SQ of Uranium 233. Then an hypothetical PPS is designed. Finally, the designed PPS is assessed using an attack defense tree. The study shows that 628 tonnes of monazite can be converted to 1 SQ of U233. The assessment of hypothetical PPS designed shows that the opportunity of theft to be succeed is less than 20 %.

Primary authors: Mr MASKURA, Ega Sa'yan (Universitas Gadjah Mada); Mr SANTOSA, Haryono Budi (Universitas Gadjah Mada); Mr PUTERO, Susetyo Hario (Universitas Gadjah Mada); Mr ALFARUQI, Fadhlur Rahman (Institute of Nuclear Material Management Student Chapter UGM)

Presenter: Mr MASKURA, Ega Sa'yan (Universitas Gadjah Mada)

Session Classification: Session VI - Solutions for Residue and Waste Management

Track Classification: NORM Residue and Waste Management