Managing residues from geothermal installations: Introducing a socio-technical approach

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Introduction

Previous studies pointed out the presence of naturally occurring radionuclides (NORs) in geothermal host rocks and brines. During annual maintenance of the installations, scales are removed and filters replaced, possibly containing elevated levels of NORs. They are collected into barrels and usually remain on site without any future use. Little is known about the exact composition of these residues, resulting in a lack of knowledge about radiation and potential health risks. The aim of the current work is to address governance challenges related to the management of residues from the geothermal energy sector.

A socio-technical approach

Step 1: Sampling & characterization
- Gamma-ray spectrometry
- Radon-emulation measurements

Step 2: Radiological risk management
- Identify the risks
- Monitor and review the risk
- Analyze the risks
- Mitigate the risk
- Evaluate or rank the risk

Step 3: Responsible research and innovation
- Long-term disposal
- Potential reuse of NORM-residues

Conclusions

A socio-technical approach covers various aspects of geothermal energy installations
- Combined technical and socio-economical research
- Assess radiation and potential health risks through characterization
- Assess stakeholders’ perception
- Develop management solution for residues from geothermal industry
- To address governance challenges related to the management of residues

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