Evaluation of the activity of a ¹³⁷Cs radioactive source utilized in oil-welling in Albania.

*DRITAN PRIFTI1, KOZETA TUSHE1*

1. *Institute of Applied Nuclear Physics,*

*Street “ Thoma Filipeu” Qesarakë, P.O Box 85, Tirana, ALBANIA.*

*Email:* [*dritan.prifti@unitir.edu.al*](mailto:dritan.prifti@unitir.edu.al)

# *ABSTRACT*

The Institute of Applied Nuclear Physics (IANP) is responsible for the national management of radioactive waste and disused sealed radioactive sources (DSRS) in Albania. It collaborates with public and private entities to ensure the safe transport and storage of radioactive materials.

This study outlines the procedure used to evaluate the total activity of two ¹³⁷Cs sources with unknown activity. In 2018, IANP received five DSRS from the Geophysical Service Center in Fier, following the closure of their temporary storage facility. Based on source certificates and on-site measurements, the inventory included: two ²⁴¹Am-Be sources (5 Ci each), one ¹³⁷Cs source (300 mCi), and two ¹³⁷Cs sources (52 mCi and 51 mCi, dated July 1978) stored together in a single container.

To verify whether both ¹³⁷Cs sources were encapsulated together, activity was estimated using point-source geometry. The measured total activity was 1.418 GBq, closely matching the decay-corrected certificate value of 1.528 GBq (as of March 2018), confirming the presence of both sources in one capsule.

All sources were subsequently transferred to the National Radioactive Waste Storage Facility in Tirana.

**Keywords:** radiation protection, ionizing radiation, storage facility, DSRS.