

Noble Gas Equipment Development – System Technical Specifications and Capabilities

A high throughput system for processing and detection of radio-xenon for On-Site Inspection (OSI) purposes is currently being developed at FOI. To locate an underground event during an OSI it is important to cover and narrow down a large area of interest in a short time period. This will require a large number of sub-soil gas samples to be analyzed per day. Even if samples are combined, a noble gas system has to have a much higher throughput than currently available. The new system is intended to achieve this and have the capacity of separating high levels of Rn, CO₂ and other gases in combination with the high sensitivity and performances of the current SAUNA II system. The new optimized beta-gamma detector design, and its sensitivity will be presented. Four detectors are collocated in one single lead-shield which is re-designed for simplified field deployment. The improved gas process and its capabilities, e.g. radon separation and re-quantification, will also be covered.

Primary author: FRITIOFF, Tomas (Swedish Defence Research Agency, FOI)

Presenter: FRITIOFF, Tomas (Swedish Defence Research Agency, FOI)

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