Emergency Preparedness with Ar-41 Measurement

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Abstract

The Nuclear Regulatory Authority (ARN) of Argentina is training their intervention group in the forecast of radiological consequences in case of a radiological or nuclear accident.

In this context it has begun the measurement of Ar-41 near the research reactor RA3.

It is well known the Ar-41 production inside research reactor, and it has been studied like a good mean to validate atmosphere dispersion model occurrence, or to develop method to improve the estimation of the characteristic of the emission

The measurements were made in two laboratories of ARN, Gamma Measurement Laboratory, and CTC (Total Body Counter) Laboratory near the research reactor RA 3.

The emission of Ar-41 were determined by Measurements Group of Environmental Control Division inside the research reactor

The laboratories are at SE and ESE direction from the reactor. After the passage of a cold front, the wind flown from SE, in this situation and if the reactor is operating we could detect the presence of Ar-41 in the environment

This meteorological situation can be forecast by information submitted by National Meteorological Service of Argentina (SMN) in a meteograma.

To correlate and evaluate the concentration in this laboratory, first it was determined the direction and persistence of wind in the site using the forecast of the National Meteorological Service (SMN) of Argentina to establish when the detectors were irradiated, during the radiological measurements, the , real time wind direction an velocities measurement were did, with a site meteorological tower. With this information and cloudiness we determined de stability class and concentration

To determine concentration we used the code Hotspot and our code SEDA developed in ARN.

In this paper are present the calibration of GeH detectors, and the location of them. We present several measurements did in this experience. We analyze the capacity developed by our teams to predict changes in wind direction and concentrations

KEYWORDS: Emergency preparedness, atmospheric dispersion, Ar-41, meteorological forecast.

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Page size	A4 (21 cm x 29.7 cm) - vertical (portrait) orientation
Margins	Top: 2 cm Bottom: 2.7 cm Left/right: 2.5 cm
Line spacing	Single
Justification	Full
Font	Times New Roman (only)
Font size	Title:14 point, bold Authors: 12 point, bold Affiliation:12 point cursive Main text: 12 point Keywords: (3 to 6) 12 point, bold, cursive
Length	250 to 500 words
Presentation	A second page showing data in graphs or tables could be acceptable if the authors consider it beneficial for the review, but should not be referenced in the abstract, since it will not be published in the Book of Abstracts.