E1-15: Atmospheric monitoring after the Indian nuclear tests

R Hewamanna, C S Sumithrarachchi
(*Radioisotope Centre, University of Colombo, Colombo 3*)

Five underground nuclear tests were conducted by India on 11th and 13th May 1998 in the Pokhran range state of Rajasthan. These sub kilo ton tests ware said to be fully contained with no release of radioactivity into the atmosphere.

A database on the radiation levels and the radionuclides present in air and soil in 3 Provinces in Sri Lanka was already available from an environmental monitoring programme launched in early 1996. Following the Indian tests, continuous measurements were carried out in Colombo. This study presents the external exposure and the measured radionuclides in the environment in Colombo during 14^{th}-28^{th} May 1998.

In situ gamma spectrometry was carried out in 5 different locations in the University of Colombo. Two measurements were recorded at 1m above ground and 3 at roof top level in the Departments of Chemistry and Physics. Genie PC software was used to identify the photopeaks. Five air filters collected for 24h at the Fort high volume air sampling station during the said period were analysed by gamma spectrometry in the laboratory. GANAAS software was used to analyse the photopeaks. External exposure was measured by a hand held survey meter and 0.125 μSvh^{-1} was recorded.

Air filter and *in situ* spectral analysis identified only natural radionuclides ^{7}Be, ^{40}K, and daughters of the series ^{232}Th and ^{238}U. Any artificial gamma emitter was not detected.

These results are identical to air filters monitored in April 1998 and *in situ* measurements carried out in the University of Colombo in Jan. 1998.

Air monitoring is a sensitive system for early warning in a surveillance programme. Metreorological data can help to provide information from accident source terms based on the radioactive cloud. An increase in external exposure was not measured indicating that the passing air did not have any increase in concentration of radionuclides. Meteorological data during 11th - 14th May indicate that the wind movement was not in the direction of Sri Lanka from the test site. Properly planned underground testing does not lead to any release of radioactivity into the atmosphere.

With the availability of the database the results of the present study confirms that radiation contamination of the environment in Colombo did not occur following the tests carried out by India.

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