

2.4-P04. Field Measurement of Xe-133 at the Resolute Bay Station (RN15)

The Radiation Protection Bureau (RPB) of Health Canada has operated a SPALAX noble gas sampler analyser since September 2012 at the Comprehensive Nuclear-Test-Ban Treaty (CTBT) radionuclide station located in Resolute Bay, NU. The SPALAX has collected and measured successfully 354 samples, from which the presence of Xe-133 was detected with a range of activity concentrations ranging from no detection to 0.78 mBq/m³, with some of the samples re-measured at the RPB noble gas laboratory for confirmation of the activity concentrations. The presence of Xe-133 confirms that medical isotope production may create interpretation difficulties at very remote monitoring sites. This noble gas system is also used to test modifications to the noble gas sampler analyser, in an effort to improve the mean time between failures and decrease operational costs. As of October 2014, a highly robust compressor combining oil/oil free technology was installed - this increased operational uptime and decreased the electrical operational cost by a factor of 20%.

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