ID: Type: **Poster**

T2.2-P03. An Atmospheric Release of 140La to Simulate a Small-Scale Vent from an Underground Nuclear Explosion

Researchers have performed an experiment to simulate the near-field deposition pattern of radionuclides released in a small-scale vent from an underground nuclear explosion. High-purity lanthanum oxide powder was activated in the Washington State University research reactor to produce short-lived 140La. The particulate source material was injected into the atmosphere using a CO2 gerb (”air cannon”) in the Yucca Flats area of the Nevada National Security Site. The experiment successfully produced a narrow ground plume extending ~1.5 km downwind from the release point, with sufficient activity to compare and contrast several techniques of gamma radiation survey, and environmental sampling followed by gamma assay in a field laboratory. The techniques studied are relevant to methods planned for use by an on-site inspection (OSI) team under the verification regime of the Comprehensive Nuclear-Test-Ban Treaty. This work will present details and final results of the experiment, including the source production, transport, release, sampling, and survey, and will present lessons-learned that are relevant to the conduct of an OSI.

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Track Classification: 2. Events and their characterization