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Estimation of environmental effect due to radioactive material released from the Hadron Experimental Facility of J-PARC

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Due to a malfunction of magnets for slow beam extraction of the 50 GeV synchrotron of the Japan Proton Accelerator Research Complex (J-PARC), intense proton beam beyond a designed value was instantaneously delivered to a gold target in the Hadron experimental hall (HD hall). Part of the gold target was melted and evaporated, and the radioactive material dispersed from the gold target, leaked into the environment outside of the radiation controlled area of the HD hall. In order to estimate environmental effect, the total amount of radioactive materials released from the HD hall was calculated, by combining a simulation with measured data on the airborne sample collected in the HD hall and data of area monitors in the HD hall. The radiation dose of the site boundary at the location closest to the HD hall was also estimated.

Summary

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