



Radioactive and Other Effects of Nuclear Explosion

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As a result of long lasting efforts of international community to definitely ban all test nuclear explosions, the Comprehensive Nuclear-Test-Ban Treaty (CTBT) was opened for signature in New York on 24 September 1996, when it was signed by 71 states, including Croatia. The State Office for Nuclear Safety (SONS) which, as an independent state regulatory authority has a responsibility for activities relating to nuclear safety, including the national authority over this Treaty, is actively engaged in CTBTO activities.

The nuclear explosion causes a lot of effects (blast, thermal, radioactive, electromagnetic) which differs a lot in its nature, reach, lasting and other. The longest lasting aftermath is from the radioactive effects that cause a radioactive fallout and a lot of radioactive elements in the environment, created by the influence of a primary beam of radiation.

Fission and fusion are the main source of radionuclide created by the nuclear explosion, and the longest lasting aftermaths are by the fission products, namely their offspring in natural disintegration chains. This can make contaminated areas inappropriate for life for very long periods. Even in the case of underground nuclear explosion (when underground cavity is formed with no effects on the surface), a leakage of radioactive gases through cracks is possible. A number of radionuclide is created by the neutron activation of elements naturally present in an environment, because a very strong neutron radiation appears in the moment of nuclear explosion. The abundance of particular radionuclide is a very much dependent of a place of performing nuclear explosion and a composition of soil or water in the vicinity.

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Session 10

LIABILITY AND INSURANCE FOR NUCLEAR DAMAGE

- S10-37 Zuzana Repova
LIABILITY AND INSURANCE FOR RADIOACTIVE INSTALLATIONS, RADIOISOTOPES AND OTHER SUBSTANCES IN THEIR USE IN MEDICINE, INDUSTRY ETC.
- S10-69 Julia Schwartz
THE NEW INTERNATIONAL NUCLEAR LIABILITY CONVENTIONS: STATUS OF THEIR IMPLEMENTATION INTO NATIONAL LEGISLATION
- S10-80 Nathalie LJT Horbach
THE OPERATION OF THE JOINT PROTOCOL: THEORETICAL AND PRACTICAL IMPLICATIONS REVISITED
- S10-81 Omer F. Brown, II, Partner
A U.S. PERSPECTIVE ON NUCLEAR LIABILITY: A CONTINUING IMPEDIMENT TO INTERNATIONAL TRADE AND PUBLIC PROTECTION
- S10-82 Mark Tetley
THE NUCLEAR INSURANCE POOLS: OPERATIONS AND COVERS
- S10-83 Sebastiaan M.S. Reitsma
INSURANCE COVER FOR REVISED NUCLEAR LIABILITY
- S10-84 Petr Zaruba
CLAIMS HANDLING CO-OPERATION BETWEEN NUCLEAR INSURANCE POOLS IN A CASE OF TRANSBOUNDARY DAMAGE – MULTILATERAL AND BILATERAL AGREEMENTS IN PROGRESS
- S10-85 Julian Gomez del Campo
NUCLEAR LEGISLATION AND INSURANCE OF RADIOACTIVE INSTALLATIONS
- S10-86 Alain Stanislas
INSURANCE OF RADIOISOTOPES AND IONIZING RADIATION SOURCES IN FRANCE