

Environmental Radio-active Contamination caused by Nuclear Accident at Fukushima
Daiichi Nuclear Facility

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Extremely strong earthquake (M9.2) and subsequent Tsunami attacked east north part of Japan in March 11th 2011 and gave a serious damage to the people in the area. More than eighteen thousands of lives and estimated economical loss of 235 billion dollars. In addition to these, nuclear reactors located in the coast were another problem. Nuclear reaction was stopped by the insertion of neutron absorber but because of the stopped power supply of outside AC power made it difficult to control cooling system. Nuclear fuels which contain fresh fission products became high temperature leading to melt-down and zirconium alloy which covered the fuel reacted with water gas at high temperature to produce hydrogen leading to hydrogen explosion. Emission of radio-activity became apparent on 14th at many outside monitoring posts. Evacuation of the people near the Fukushima Daiichi facility was done.

Two radio-active elements attracted attention were Iodine 131 and Cesium 134+137. The half life of I-131 is relatively short (8days) and disappeared now and current issue is exposure to gamma-ray from radio-active Cesium deposited on land. The estimated deposition of Cesium 137 on land was estimated 2-2.9 peta Bq. Cesium is strongly bound to clay minerals and its chemistry and removal techniques will be introduced. Decontamination program has been continued to reduce human radiation risk.