

## Measurements of Cs-134 and Cs-137 released by Fukushima Dai-ichi Nuclear Power Plant in stream water and spring water

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Fukushima Dai-ichi nuclear power plant accident occurred on 11th march, 2011. After the accident, large amount of radionuclides was released into the atmosphere. With the rainfall event, the radionuclides fall into the ground. Through the hydrological cycle, it is probable to move into the soil surface through the process of infiltration and then reaches to the deep groundwater through percolation and then it discharges to the ocean through the spring and stream water.

The study examined the concentration of radionuclides <sup>134</sup>Cs and <sup>137</sup>Cs in small watershed covered by grassland, farmland and cultivated land. The study area is in Yamakiya district, Kawamata Town, Fukushima prefecture, located inside the voluntary evacuation nuclear zone. The sample was taken from groundwater, spring water and stream water from 6th June to 31st August 2011. The taken water samples were filtered by a 0.45 micrometer membrane and measured the concentration of <sup>134</sup>Cs and <sup>137</sup>Cs.

The concentration of <sup>134</sup>Cs and <sup>137</sup>Cs were found in stream water less than 0.42 Bq/kg and 0.57 Bq/kg respectively. The concentration of <sup>137</sup>Cs in spring water ranges from 0.13 Bq/kg to 0.36 Bq/kg and less than 0.32 Bq/kg of <sup>134</sup>Cs. The concentration of <sup>134</sup>Cs and <sup>137</sup>Cs in spring and stream water showed the low value. However, the water sample after the rainfall event in high volume of stream water, the concentration of <sup>134</sup>Cs and <sup>137</sup>Cs found to be 0.82 Bq/kg and 1.18 Bq/kg respectively. The high concentration of Cs in stream water after the rainfall could be due to the Cs transfer from suspended sediment.

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