

## **Tritium concentration in river and ground water collected in Rokkasho, Aomori, Japan**

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A large-scale commercial spent nuclear fuel reprocessing plant is located in Rokkasho, and final test operation using actual fuels was begun in March 2006. Regular operation is planned to start in October 2010. Tritium is one of artificial radionuclide released from the reprocessing plant, and excess <sup>3</sup>H is expected to be found in environmental water around the plant. To study the influence of <sup>3</sup>H released from the plant to <sup>3</sup>H level in environmental water, <sup>3</sup>H concentrations of 26 water samples collected in July and October 2006 throughout Rokkasho (17 river water from 7 rivers and 9 well water from 9 wells ; 7 wells drilled over 100 m ) were measured and are reported here.

Mean <sup>3</sup>H concentration in river water samples was  $0.48 \pm 0.06$  Bq L<sup>-1</sup> (0.37-0.61 Bq L<sup>-1</sup>) and  $0.48 \pm 0.08$  Bq L<sup>-1</sup> (0.37-0.69 Bq L<sup>-1</sup>) in July and October 2006, respectively. Variation in the concentrations at each sampling point was small, showing that influence of <sup>3</sup>H released from the plant was not clear. On the other hands, mean <sup>3</sup>H concentration of well water samples was  $0.60 \pm 0.29$  Bq L<sup>-1</sup> (0.24-1.01 Bq L<sup>-1</sup>) in July and  $0.58 \pm 0.31$  Bq L<sup>-1</sup> (0.11-1.04 Bq L<sup>-1</sup>) in October. The concentrations were distributed in wider range than that in the river water samples. Since movement of subsurface water is generally slow, it is not plausible that the higher <sup>3</sup>H concentrations in well water samples were caused from <sup>3</sup>H released from the reprocessing plant in short time after the test operation. The <sup>3</sup>H in the well water sample was considered as global fallout <sup>3</sup>H, and the variation in <sup>3</sup>H concentration would be attributed to the mixing of ground water with various residence time.

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