



Press Release

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Radionuclide Detection

After the 6th North Korea Nuclear Test

The Nuclear Safety and Security Commission (Chairman Kim Yonghwan, hereinafter referred to as the NSSC) installed the 24-hour Situation Room and conducted radioactive nuclide detection activities in cooperation with a team of Korea Institute of Nuclear Safety(KINS) immediately after the 6th North Korean nuclear test.

In particular, nuclides, such as radioactive xenon (Xe) and particulate radionuclide cesium (Cs), require timely detection as they play an important role in determining the presence and nature of nuclear tests.

For Xenon (Xe), two fixed equipments collected airborne samples 32 times with 12 hours interval on land, in the northeastern and western area of the country. A floating mobile equipment collected samples 11 times on the sea. And airborne sampling for radioactive nuclide such as cesium was performed 10 times in total.

* Refer to the Table below.

<Table 1. Xenon Detection by Floating Mobile Equipment>

sampling number	end of sampling	xenon radioactivity concentration (mBq/ m3)			
		^{133}Xe	$^{131\text{m}}\text{Xe}$	$^{133\text{m}}\text{Xe}$	^{135}Xe
8	Sep 8, 2017 12:00	0.29	not detected	not detected	not detected
9	Sep 8, 2017 24:00	0.20	not detected	not detected	not detected
10	Sep 9, 2017 12:00	0.30	not detected	not detected	not detected
11	Sep 9, 2017 24:00	0.33	not detected	not detected	not detected

<Table 2. Xenon Detection by Stationary Equipment in Northeastern Area>

sampling number	end of sampling	xenon radioactivity concentration (mBq/ m3)			
		^{133}Xe	$^{131\text{m}}\text{Xe}$	$^{133\text{m}}\text{Xe}$	^{135}Xe
8	Sep 7, 2017 18:12	0.43	not detected	not detected	not detected
9	Sep 8, 2017 06:12	0.32	not detected	not detected	not detected
10	Sep 8, 2017 18:12	0.35	not detected	not detected	not detected
11	Sep 9, 2017 06:12	0.47	not detected	not detected	not detected
12	Sep 9, 2017	0.57	not detected	not detected	not detected

	18:12				
13	Sep 10, 2017 06:12	1.14	not detected	not detected	not detected
14	Sep 10, 2017 18:12	0.92	not detected	not detected	not detected
15	Sep 11, 2017 06:12	0.58	not detected	not detected	not detected
16	Sep 11, 2017 18:12	0.16	not detected	not detected	not detected

Radioactive nuclides, on the other hand, were not detected despite several airborne sampling.

Considering the timing and location of sampling and air currents, the NSSC could conclude that the air currents from the North Punggye-ri area has been mixed to the sample and the Xenon-133 detected from this air sampling is relevant to the 6th nuclear test of DPRK.

However, the NSSC could not confirm the type of nuclear test, because other radioactive Xenon nuclei have not been detected beside Xenon-133.

After the 6th nuclear test, the NSSC has strengthened the analysis activities of radiation and radioactivities by switching 160 national environmental radiation monitoring systems into an emergency mode.

Until now, the national-wide environmental radiation is maintained at the normal level of 50 ~ 300 nano-Seivert (nSv/h). The NSSC drew conclusion that there is no change in the level of environmental radiation caused by the North Korea's nuclear test.