

DOST-PNRI collects and analyzes soil samples for radioactivity

At least 1kg of soil is collected from the site. The soil is stored in a re-sealable plastic bag and properly labeled. The soil samples are brought to the laboratory, weighed, dried and ground to a fine grain using a mill. The soil is transferred to a polyethylene bottle, sealed and analyzed for anthropogenic and natural radionuclides using a High Purity Germanium Detector Gamma Spectrometer System.

Environmental Monitoring by DOST-PNRI following the Fukushima Nuclear Power Plant Accident

The DOST-PNRI is undertaking environmental radioactivity measurements following the Fukushima Nuclear Power Plant accident. This program aims to assess the environmental impact of the radioactive discharges of the accident and their possible effects on human health. The study sites are coastal areas along the Pacific Ocean assumed to be most vulnerable to radioactive contamination. Several environmental samples, both terrestrial and marine, are collected and analyzed for anthropogenic radionuclides Cesium-137, Cesium-134, and lodine-131, which are indicator radionuclides of the nuclear power plant accident. The data from CTBTO station in Tanay, Rizal is also used by the DOST-PNRI in monitoring the concentrations of these indicator nuclides in air particulates. For more information on Environmental Radioactivity Monitoring, please write or call:

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Environmental Radioactivity Monitoring



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Environmental Radioactivity Monitoring

The Department of Science and Technology-Philippine Nuclear Research Institute (DOST-PNRI) monitors radiation in the environment as a part of its radiological surveillance program for public protection and safety. This program is undertaken through the conduct of regular environmental monitoring in air, terrestrial and marine samples, such as soil, grass, seawater, sediment, and biota collected from various locations in the country. These samples are analyzed in the laboratory using nuclear techniques to measure both man-made and naturally-occurring radioactive isotopes.



Radionuclide Monitoring Station

The DOST-PNRI's radiological surveillance program also includes collection of air particulates in ambient air and counting for radioactivity in these samples at the Radionuclide Monitoring Station (PHP52) at the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) located in Tanay, Rizal.

The Philippines hosts one of the CTBTO's 80 radionuclide monitoring stations worldwide as a part of its commitment to take measures towards nuclear disarmament and prevent the proliferation of nuclear weapons in all its aspects.

Monitoring Activities

Ambient Gamma Radiation Measurements

DOST-PNRI Health Physics Research Specialists use a portable gamma spectrometer to monitor ambient gamma radiation in air. Radiation readings are taken 10 times in one location at six-second intervals. Average readings are reported in nanosieverts per hour.

* Sievert is the SI-derived unit to measure the effect of radiation on living tissue.

Seawater Analysis

One hundred fifty liters of surface seawater is collected at 2-5 km offshore in selected sampling sites for Cesium-137 analysis. Preprocessing of seawater on-shore involves addition of Cesium (Cs) carrier and ammonium phosphomolybdate (AMP) and stirring for about one hour before allowing the Cs-AMP to settle. The precipitate is collected and later brought to the PNRI laboratory for measurement of radioactivity concentration of Cs-137 in the water using a High Purity Germanium Detector Gamma Spectrometer System.



Sediment Analysis

Collection of marine bottom sediments is performed using a grab sampler. The sediments samples are stored in re-sealable plastic bags, labeled and brought to the PNRI laboratory for processing. The samples are analyzed for naturally occurring and anthropogenic radionuclides using a High Purity Germanium Detector Gamma Spectrometer System.

Soil Analysis

A four-by-four meter area is delineated in the sampling sites where topsoil samples are collected. Topsoil samples of up to 5cm depth are collected using a soil sampler from 10 points distributed uniformly throughout the four-by-four meter area. These sub-samples make up one composite soil sample.

DOST-PNRI monitors ambient gamma radiation in air regularly