



Japanese Nuclear Emergency: Radiation Monitoring Frequently Asked Questions

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This page provides answers to questions EPA has received about the current nuclear power plant situation in Japan.

Has EPA detected elevated radiation levels in the U.S.?

Air monitoring data for all RadNet monitoring sites is available on the page [EPA's RadNet Monitoring Data](#)

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General RadNet Information

What is the difference between the data gathered by the fixed and deployable monitors?

- The data gathered by the fixed monitors and the deployable monitors are different.
 - The fixed monitors send beta gross count rate and gamma gross count rate ranges.
 - The beta gross count rate measures the radiation from all radionuclides that emit [beta particles](#), which is indicated by the term *gross* or *total*. The term *count rate* tells us how quickly beta particles are being detected, which indicates how much radioactivity the monitor is seeing.
 - The gamma data measures radiation from all radionuclides that emit [gamma rays](#) and splits them into ranges of energy. The word *gross*, or *total*, indicates that the measurement is from all gamma emitting radionuclides. Not all gamma rays have the same amount of energy. Breaking the data into discrete energy ranges helps scientists to determine which radionuclides may be present.
 - The deployable monitors show external exposure rate.
 - The graph shows the external exposure rate data, which is the dose, or amount of radiation, you would receive on the outside of your body if you were standing in that particular location. Background, or normal, radiation levels depend on factors including altitude and the amount of naturally occurring radioactive elements in the soil. Background external exposure rates typically range between 0.005 and 0.020 millirem per hour (mR/hr).
- Both sets of data provide us with information on the type and amount of radioactive material in the air, and both serve the same purpose: to notify scientists, in near real time, of elevated levels of radiation so they can determine whether protective action is required.
- At this time, all of our near real time data is showing background radiation levels.

What are EPA's radiation air monitoring capabilities?

- EPA's nationwide radiation monitoring system, RadNet, continuously monitors the nation's air and regularly monitors drinking water, milk and precipitation for environmental radiation.

- The network contains over 100 air monitors across the United States and 40 deployable air monitors that can be sent to take readings anywhere in the country.
- The near-real-time air monitoring data is continually reviewed by computer, and if the results show a significant increase in radiation levels, EPA laboratory staff is alerted immediately and further reviews the data to ensure accuracy.
- The system has been used to track radioactive material associated with foreign atmospheric nuclear weapons testing as well as for monitoring foreign nuclear accidents such as Chernobyl.
- EPA maintains additional monitoring capabilities that can be deployed to any location in the United States or its territories.

Is this monitoring able to cover the whole U.S.?

- During the last five years, EPA has been upgrading the nationwide RadNet system by installing new near-real-time radiation air monitors across the country. Currently the RadNet system contains over 100 real-time radiation air monitors in 48 states. EPA also has 40 deployable monitors that can be sent to supplement the system.

What are the deployable monitors? What do they measure?

- EPA has 40 deployable radiation air monitors that can be sent anywhere in the United States to gather data.
- The RadNet deployable monitors have built in weather stations and measure gamma radiation.
- Like all RadNet radiation air monitors, the RadNet deployable monitors send both weather and gamma radiation readings to EPA's National Air and Radiation Environmental Laboratory, hourly.

When will this data be available to the public?

- The near-real-time air monitoring data are continually reviewed by computer and are usually posted to EPA's Central Data Exchange website within 2 hours of arriving at the laboratory.
- If the results show an abnormality in radiation levels, EPA laboratory staff is alerted immediately and reviews the data to ensure accuracy before posting.

How will EPA share this data?

- EPA's RadNet data is publicly shared at www.epa.gov/japan2011.
- Daily summaries of RadNet data can be found at: <http://www.epa.gov/japan2011/data-updates.html>
- For scientists and technical experts, detailed information on the data sets is still available at <http://www.epa.gov/cdx/>.

I read about the RadNet system, are these additional units linked into that system or are they different units?

- The deployable monitors are part of the larger RadNet system.
- Like the fixed radiation air monitors, the RadNet deployable monitors send radiation air monitoring data to EPA's National Air and Radiation Environmental Laboratory hourly.

Why do I have to log-in to the CDX site to get this information?

- You do not need to log-in to CDX. In an effort to make EPA's RadNet data more easily accessible and understandable, we have created a webpage with graphs of the monitoring data from across the country. You can access that information at <http://epa.gov/japan2011/rert/radnet-data-map.html>. Data designed for scientists and technical experts, but available to all, is available through CDX at <http://www.epa.gov/cdx>

Where has EPA has deployed additional radiation air monitors?

- EPA maintains additional deployable radiation air monitors that can be sent to any location in the United States or its territories.
- EPA made the decision to deploy additional monitors to aide us in gathering data from a position closer to Japan.
 - EPA has sent two radiation air monitors to Guam.
 - In an effort to cover the widest possible area, one of those monitors from Guam will be transferred to the Northern Mariana Islands in Saipan.
 - EPA has sent two additional monitors to Hawaii.
 - EPA has sent three additional air radiation monitors to Alaska.
 - The additional monitors will be set up in Dutch Harbor, Nome, and Juneau.

How does the EPA monitor radiation if the monitor in my area is temporarily unavailable?

- EPA's RadNet monitors are highly sophisticated technical devices which occasionally require maintenance and repair. That is why we placed over a hundred monitors across the country - so we would have an abundance of monitors to provide overlapping coverage. If a monitor in one area is being repaired, EPA's network will still be able to detect any fluctuation in background levels. The RadNet air monitors across the U.S. show typical fluctuations in background radiation levels. The levels detected are far below levels of concern. As the Nuclear Regulatory Commission has said, we do not expect to see radiation at harmful levels reaching the U.S. from damaged Japanese nuclear power plants.

Precipitation, Drinking Water and Milk Sampling

Precipitation

Are the levels were seeing in precipitation likely to lead to harmful levels in milk and/or drinking water?

- While short-term events such as these do not raise public health concerns, the U.S. EPA has taken steps to increase the level of monitoring of precipitation, drinking water, and other potential exposure routes.

Do the levels found in rainwater exceed EPA drinking water MCLs? If so, why shouldn't people be concerned?

- While the levels in the rainwater exceed the applicable MCL of 3pCi/L for drinking water, it is important to note that the corresponding MCL for iodine-131 was calculated based on long-term chronic exposures over the course of a lifetime 70 years. The levels seen in rainwater are expected to be relatively short in duration.

Why are we beginning to see radioactive material in precipitation on the east coast as well as on the west coast? Will we see these results across the entire country?

- EPA is beginning to receive verbal reports of elevated but trace levels of radioactive iodine in precipitation samples analyzed by State laboratories. EPA is analyzing our own RadNet samples at this time to confirm these reports. In the coming days, EPA will also issue guidance to communities on this. We continue to expect similar reports from state agencies and others across the nation given the nature and duration of the Japanese nuclear incident.

EPA, and many international environmental agencies, routinely engage in studies or analysis of trans-boundary air pollution. Intercontinental transport is a well documented process, and EPA would expect the conditions that allow for long-range air pollution transport to also support the transport of radioactive particles from Asia to North America and across the northern hemisphere. EPA expects the measured levels to be extremely low as this air mass disperses across our planet.

How often does EPA sample precipitation?

- EPA scientists routinely tests precipitation samples from more than 30 sites in the U.S. The stations submit precipitation samples to the EPA lab as rainfall, snow or sleet occurs. Under routine circumstances, samples are analyzed by EPA scientists monthly.

Since the Japanese nuclear incident, EPA has accelerated routine precipitation sampling efforts. EPA received samples from 18 stations (as of March 21, 2011) and will perform gamma analysis on each sample, followed by the routine analyses. Routine analysis of precipitation for gamma emissions takes about two days from the time the lab receives the sample. This is to ensure the proper analysis and quality assurance (QA) takes place before the results are released. The tests for specific radioactive material may take longer.

EPA's RadNet radiation air monitors across the U.S. show typical fluctuations in background radiation levels. The levels detected are far below levels of concern.

Why is EPA sampling precipitation?

- Sampling precipitation for radioactive contaminants during an emergency is one way to help public health officials ensure that food and water supplies are safe for the public.

In the event of a serious nuclear power plant accident, radioactive material may be released into the environment. Some of this radioactive material attaches itself to dust particles in the air and can be carried long distances in the wind. When these particles are caught in precipitation, e.g., rain or snow, they are deposited directly onto the ground. After landing on the ground, they may potentially contaminate drinking water sources and growing food supplies.

Drinking Water

How often does EPA do drinking water monitoring for radiation?

- EPA's RadNet Drinking Water Program obtains quarterly drinking water samples from more than 50 sites across the country. Due to the Japanese nuclear incident, our sampling stations nationwide will collect the samples immediately and send them to our laboratory for analysis.

From the time the samples get to the laboratory, it takes approximately three days to complete the analysis.

How do I know if my water is impacted by Japanese radiation if there is no RadNet water sampling in my town?

- The RadNet radiation monitoring system provides a national network for tracking radiation levels across the country. The system utilizes over 50 drinking water monitoring sites in the United States, and, because radioactive material from Japan will be widely dispersed, reporting from multiple locations throughout the country will show impacts to the nation as a whole. EPA recently announced that we are accelerating our sampling for precipitation, drinking water and milk supplies.

Elevated levels of radioactive material in rainwater have been expected as a result of the nuclear incident after the events in Japan since radiation is known to travel in the atmosphere. Short-term elevations such as these do not raise public health concerns and the levels seen in rainwater are expected to be relatively short in duration.

It's important to remember that radioactive material from Japan will have to travel thousands of miles through the air before reaching the U.S. The material will be widely dispersed and diluted by wind and weather.

Milk

Does EPA test milk for radiation contamination?

- As part of our efforts to ensure that there is no public health concern in the U.S. related to radiation exposure, EPA routinely samples cow milk at more than 30 stations every three months.

We are accelerating the regularly scheduled sampling for milk throughout the country to provide additional data more quickly in light of the Japan nuclear incident.

Why is milk sampling important?

- Sampling milk for radioactive iodine helps ensure that the milk supply is safe for the public by identifying potentially contaminated milk.

Why has EPA increased their milk sampling?

<http://epa.gov/japan2011/japan-faqs.html#precip-dw-milk>

- EPA's existing milk sampling routine would have RadNet operators collect milk samples during the first week in April. Instead, our sampling stations across the nation will collect the samples immediately.

This action is precautionary, to make sure that we are gathering as much data as possible in order to inform our scientists and the public.

What is the estimated time for obtaining milk testing results?

- From the time the sample analysis begins, we can have preliminary results within four hours, but a complete analysis can take up to three days.

Is Japan testing for contaminated milk and, if so, what have they found?

- Yes, Japan is testing milk. FDA is coordinating with the Japanese government to ensure products from the affected prefectures do not pose a health risk to U.S. consumers. Please see the FDA website for more information; <http://www.fda.gov/>.

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