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Fact Sheet

COMMISSIONER'S OFFICE

Radiation from nuclear event in Japan

How much radioactivity do you expect to come to Alaska from Japan's reactors?

Although trace levels of radioactive isotopes from the damaged Fukushima power plant have been detected in Alaska, we don't expect harmful levels of radioactivity to reach our state, Hawaii or the West Coast, and there's no health risk at this time. Japan is thousands of miles from our state, and if radioactivity from the reactors is released it would be expected to be thinned-out by the winds before it could reach us. We could see a very small increase in radiation levels — well below levels that would be a health concern. We're working with federal, state, and local agencies in a coordinated effort to monitor radiation levels in Alaska.

Would increased radiation levels cause health effects in Alaskans?

There is no indication at this time that enough radioactive material would cross the ocean to cause any health effects to Alaska residents.

Is there any indication that radiation could impact our food supply in Alaska?

No, there is no immediate or anticipated indication of harmful radiation reaching Alaska or its waters, therefore all seafood and other food items produced in Alaska are safe to consume.

Should radioactive material reach the U.S., the appropriate federal and local agencies will let people know about any contaminated sources of food.

What action should I be taking now?

The best action for the citizens of Alaska to take at this time is to be prepared for the event of an earthquake or tsunami event. Update and refresh your home preparedness kit and family preparedness plan. To learn more about being prepared go to:
<http://www.hss.state.ak.us/prepared/kit.htm>.

Radiation monitoring

- Scientists working in the state of Alaska Public Health Laboratory (ASPHL) in Anchorage continue to monitor levels of radiation via the Environmental Protection Agency's monitors in Anchorage, Juneau, Fairbanks, Nome and Dutch Harbor. **To date, there have been no levels above the normal background range of radiation.**
- Current data indicate total radiation levels in Alaska have not exceeded historical background level. Historic background levels for *beta* radiation range from 5 to 50 gross *beta* counts per minute, while levels for *gamma* radiation range from 1.2×10^{12} to 1.4×10^{12} gross *gamma* counts per minute.
- Based on current scientific consensus, levels of concern would be when the gross *beta* count per minute exceeds 2,000 and the gross *gamma* count per minute exceeds 56×10^{12} .
- The EPA also performs a more detailed analysis on air filter samples submitted from the six monitors in Alaska. The results of these tests are available through a national network of radioactivity monitoring stations called RadNet. Updated analysis is available on EPA website at <http://www.epa.gov/japan2011/>.

Ionizing radiation

What is ionizing radiation?

- When certain atoms disintegrate, either naturally or in manmade situations, they release a type of energy called ionizing radiation.
- The atoms that emit radiation are called radionuclides.
- The time required for the energy released by a radionuclide to decrease by half (i.e., the "half-life") range from tiny fractions of a second to millions of years depending on the type of atoms.

Are people normally exposed to ionizing radiation?

- Human beings are exposed to natural radiation on a daily basis. The radiation comes from space (cosmic rays) as well as natural radioactive materials found in the soil, water and air. Radon gas is a naturally formed gas that is the main natural source of radiation.
- People can also be exposed to radiation from human-made sources. Today, the most common manmade sources of ionizing radiation are certain medical devices, such as X-ray machines.

How are people exposed to ionizing radiation?

- Ionizing radiation may result from sources outside or inside of the body (i.e. external irradiation or internal contamination).
- Internal contamination may result from breathing in or swallowing radioactive material or through contamination of wounds.
- External contamination is produced when a person is exposed to external sources such as X-rays or when radioactive material (e.g. dust, liquid, aerosols) becomes attached to skin or clothes. This type of contamination can often be washed off the body.

What type of radiation exposure could occur in a nuclear power plant accident?

- If a nuclear power plant does not function properly, radioactivity may be released into the surrounding area by a mixture of products generated inside the reactor. The main radionuclides representing health risk are radioactive caesium and radioactive iodine. Members of the public may be exposed directly to such radionuclides in the suspended air or if food and drink are contaminated by such materials.

What are some everyday sources of radioactivity?

- Coleman lantern mantles
 - Fiesta ware and other ceramic products
 - Luminous wrist watches
 - Welding rods
 - Wood glue
 - Marble counter tops
 - Certain fruits and nuts - bananas, almonds
 - Fertilizers (high phosphate)
 - Instrument dials (aircraft, shift quadrant on sports vehicle)
 - Jewelry
 - Clay figures from South America
 - Radon gas from the ground
 - Television sets
 - Airport scanners and baggage systems
 - Tobacco products
 - Eyeglasses
 - False teeth
 - Aircraft counterbalance weights
 - Cathode ray tubes used in science class, oscilloscopes
 - Old clocks
 - Static eliminators
 - Smoke detectors
 - ID cards
 - Building materials
 - Highway and road construction materials
 - Coal combustion (burning coal releases radioactive ash)
 - Natural gas combustion
 - Loran communications generators
 - Pocket compasses
 - Toggle switches
- ...and, each human contains a mixture of several kinds of radioactive materials so that if you sit or sleep next to another person their body is irradiating yours, and vice versa.
- Many foods purchased in stores now are irradiated and safe to eat.
- And finally, an ordinary chest x-ray properly exposed is at least a thousand times greater than background radiation in Anchorage. The chest x-ray is one of the lowest exposure medical procedures you can have using radiation.

Health effects

What are the acute health effects of radiation exposure?

- If the dose of radiation exceeds a certain threshold level, then it can produce acute effects, such as skin redness, hair loss, radiation burns, and acute radiation syndrome.
- In a nuclear power plant accident, the general population is not likely to be exposed to doses high enough to cause such effects.

What long-term effects can be expected from radiation exposure?

- Exposure to radiation can increase the risk of cancer. Among the Japanese atomic bomb survivors, the risk of leukemia increased a few years after radiation exposure, whereas the risks of other cancers increased more than 10 years after the exposure.
- Radioactive iodine can be released during nuclear emergencies. If breathed in or swallowed, it will concentrate in the thyroid gland and increase the risk of thyroid cancer. Among persons exposed to radioactive iodine, the risk of thyroid cancer can be lowered by taking potassium iodide pills (KI), which helps prevent the uptake of the radioactive iodine.
- The risk of thyroid cancer following radiation exposure is higher in children and young adults.

Public health actions

Which public health actions are most important to take?

If the levels of radiation begin to rise substantially above the background level, government officials will inform the public of what protective actions to take, depending on the situation.

If a radiation emergency involves the release of large amounts of radioactive materials, the public might be advised to either “shelter in place,” which means to stay in their home or office, or evacuate to another location. If people are advised to shelter in place, they should do the following:

- close and lock all doors and windows;
- turn off fans, air conditioners, and forced-air heating units that bring in fresh air from the outside;
- only use ventilating units to recirculate indoor air;
- close fireplace dampers;
- move to an inner room or basement; and
- keep a radio tuned to the emergency response network or local news to find out further instructions.

If people are advised to evacuate, they should leave the area as quickly and orderly as possible. In addition, they should take a flashlight, portable radio, batteries, first-aid kit, supply of sealed food and water, hand-operated can opener, essential medicines, and cash and credit cards.

Does the State stockpile Potassium Iodide (KI)?

The events in Japan do not indicate a need for anyone in Alaska to take protective action like using KI. The state does not stockpile KI; there are federal stockpiles of medical supplies including KI for distribution to all states if an emergency made that necessary. There are no conditions at the nuclear plants in Japan that would require people in the U.S. to take KI.

How can I buy KI on my own?

KI is available over the counter; some pharmacies carry it in stock or will order it. The state doesn't monitor or track private inventories of such products. Again, there's no indication of any need to use KI based on the nuclear events in Japan. KI is not an “anti-radiation pill;” it's only helpful in very

specific conditions, and protects only against radioactive iodine. More information on KI is available online from the Centers for Disease Control and Prevention.