D-tect Systems • 11814 South Election Road • Suite 200 • Draper, UT 84020

Am I at risk of radiation exposure?

The ongoing uncertainty of the Japanese nuclear crisis has left people around the world questioning the danger of radiation contamination in their own communities. How much is the general public really at risk of radiation? Because D-tect Systems specializes in detecting threats from radioactive and chemical sources, we offer this article to provide some information on some of the current radiation risks in context and some general guidelines on radiation safety.

The first step in qualifying contamination risks is to separate fact from fiction. The way the public views radiation has mostly been shaped by a few incidents in modern history: Chernobyl and Hiroshima/Nagasaki. These extreme cases have influenced many to assume that radiation is an exotic and deadly phenomenon. In reality, our environment is steeped in radiation that our bodies absorb without any ill effect. The most important factor in understanding the impact of radiation is quantity – how high radiation levels are and how these levels translate to risk.

To give some idea of safe radiation levels, natural background radiation – the radiation that we are exposed to every day from cosmic rays and naturally-occurring radioactive materials – is about 3 mSv (300 mrem) per year. According to the FAA, A coast-to-coast airplane trip will expose you to about 5 μSv per hour (which comes out to 43.8 mSv/yr for continuous flight), and a year of watching four hours of television of day adds up to about 20 μSv total (2 mrem). These quantities are pretty small compared to a federal occupational limit of radiation exposure set by OSHA at 50 mSv (5000 mrem) per year. Now let's compare the situation in Japan to all this. Recent reports from the International Atomic Energy Agency stated that radiation levels at the perimeter of the Fukushima Daiichi nuclear complex have been measured at 1 – 3 mSv/hr. Although this is an elevated radiation level and prolonged exposure could be dangerous, the short-term radiation level set for Japanese workers working on the nuclear complex is 250 mSv, and would take considerable time to reach.

Although the risks of serious widespread radiation contamination in this case are low, the procedures outlined by government agencies should always be strictly adhered to. These procedures aim to limit the spread of radiation and minimize risk to exposed areas. Although the specific instructions given out for each incident vary, here are a few general guidelines that should always be followed.

First, in case of radiation contamination, get people (including yourself) out of harm's way as quickly as possible and notify authorities. Radiation spreads easily though blowing dust and smoke, so radiation-free secure zones must be established by sealing off areas from the outside environment by closing and weather-proofing doors and windows and placing food and water in well-insulated areas such as basements.

Second, since human skin generally acts a good barrier against low-level radiation, the biggest threat is breathing in radioactive materials or somehow ingesting them. Make sure to wear a face mask in areas that may be contaminated and wash hands regularly. If you suspect someone has been exposed to radioactive dust, the best solution is usually as simple as discarding contaminated clothing and washing with soap and water, as this will rid the body of radiation before it can cause damage. As an additional precaution against significant amounts of radiation, potassium iodide tablets are sometimes given to protect the thyroid gland.

Tel: 801-495-2310 • Fax: 801-495-2255 • Email: request@vpienginering.com • Web: www.dtectsystems.com

Third, preparation is vital when it comes to any kind of disaster, and we recommend everyone keep an emergency kit close at hand so that they can be personally prepared in case of any crisis. This kit should include such things as food and water for a few days, water filtration kit, emergency blanket, rain gear, batteries for radios and detectors, dust mask, extra clothing, flashlight, candles, waterproof matches, cooking utensils, necessary medications, and a first aid kit. Although we generally take these supplies for granted, shortages can occur quickly in crisis situations.

Preparation is vital when it comes to any kind of disaster, and we recommend all public safety personnel keep an emergency kit close at hand so that they can be personally prepared to serve the public. This kit should include such things as food and water for a few days, emergency blanket, rain gear, batteries for radios and detectors, dust mask, extra clothing, candles, waterproof matches, cooking utensils, necessary medications, and a first aid kit. Although we generally take these supplies for granted, shortages can occur quickly in crisis situations.

Although the current nuclear crisis continues to make headlines and is a great source of fear for many, it is important to know the real risks involved and how to cope with them. With a little knowledge of radiation safety, and material preparation for a crisis, we can minimize future risks and know better what we're up against.

D-tect Systems is supplier of advanced radiation and chemical detection equipment sold around the world. www.dtectsystems.com.