

## US FORUM CONNECTION #86, FEBRUARY 2011

This publication is intended for your information about issues important to education, women and children. How you choose to use the information included here is up to each individual.

This free newsletter is sponsored by the United States Forum of The Delta Kappa Gamma Society International. The Delta Kappa Gamma Society International is an organization of leading women educators with over 100,000 members. Delta Kappa Gamma members wishing to subscribe to this FREE newsletter should send a request to [Angela.Bedenbaugh@usm.edu](mailto:Angela.Bedenbaugh@usm.edu). We urge you to share this newsletter with other interested individuals who are not members of Delta Kappa Gamma or members who do not subscribe to this publication.

### THE NUCLEAR THREAT -- Basic Information

Before discussing several aspects of this problem it is necessary to understand how radioactive materials differ from nonradioactive materials. When an explosion due to traditional explosives such as TNT or nitroglycerine occurs, there is a blast and damage, but there is no threat of further damage from these materials after the blast occurs. When a nuclear device is damaged and leaks radioactive material, the danger is not over. In fact, there are further problems to be dealt with due to the unique property of radioactive materials. The crux of this difference is nuclear half life.

To understand what half life is, take 16 identical objects. Remove half the objects (8 objects remain). This would be an example of what is still radioactive after one half life. Remove half of the remaining objects (4 objects remain). This would be an example of what is still radioactive after two half lives. Remove half of the remaining objects (2 objects remain). This would be an example of what is still radioactive after three half lives. A common misconception about radioactivity half life is that after two half lives all the radioactive material is gone. That is not true as you can see from the illustration. For small amounts of radioactive material, it is assumed that there is no significant amount of radioactive material remaining after ten half lives. The main point to be considered is that each radioactive element has a different half life. Using examples recently in the news from the Japanese earthquake.

There are three radioactive elements which commonly occur after a nuclear explosion or nuclear accident. These are radioactive iodine, radioactive strontium and radioactive uranium. Most iodine is not radioactive; however, one form of iodine is radioactive and has a half life of about 8 days. Presumably it would not be a major problem after 80-90 days or three months. ( $8 \times 10 = 80$  or ten half lives).

On the other hand radioactive strontium has a half life of 28.1 years. Obviously it would be a long time (about 280 years) before it would be safe to live in an area where a significant amount of radioactive strontium was released.

The specific radioactive uranium which is most commonly used in fission nuclear reactors such as those in Japan has a half life of 710,000,000 years. You can see that if significant amounts of uranium-235 are released it will be a long time before people could safely live in the area. That is why decades after the Chernobyl accident a large area of land around the reactor site is unoccupied waste land.

You may ask why we are not all dead of radiation poisoning from these naturally occurring radioactive elements, the answer is that all are present in extremely trace amounts in nature. It is only when humans concentrate a radioactive material by expensive technological means that substantial amounts of any of these radioactive materials can be collected.

To my knowledge there have only been two releases of radioactive material substantial enough to affect major population areas. Those are Windscale, England in 1957 and Chernobyl in 1986. In these areas the main cancer problem has been an increase of thyroid cancers. Thyroid cancer is 95% curable, but removal of the thyroid

gland requires the affected person to take thyroid pills for the rest of their lives. There are some increases in other forms of cancer which result from these events for which statistics are not presently available.

## **CONTACT ADDRESSES FOR GOVERNMENT INFORMATION**

**U.S. GOVERNMENT CONTACT INFORMATION** can be obtained through Congressional Switchboard [1-866-327-8670](tel:1-866-327-8670) (this is a toll free number). You can contact your Congressman and Senator through this number without paying long distance charges.

<http://www.house.gov/> for members of the House of Representatives <http://www.senate.gov/> for members of the U.S. Senate

White House [1-202-456-1111](tel:1-202-456-1111)

**STATE GOVERNMENT CONTACT INFORMATION** can be obtained through

<http://www.emailyourgovernor.com/> Information available at this site allows contact with governors, members of the state legislature, state supreme court, congressional delegation and state agencies such as the Education Department, Attorney General, Motor Vehicles Department and Voter Registration.

**PLEASE NOTE THAT SOME OF THIS INFORMATION MAY BE OUT OF DATE**

**INFORMATION ON HOW YOUR CONGRESSMAN VOTED ON KEY BILLS**

<http://projects.washingtonpost.com/congress/111/bills/>

**FIVE CONSTITUENT CONTACTS WILL CAUSE A LEGISLATOR TO PAY SERIOUS ATTENTION TO A GIVEN ISSUE.**

Archival copies of the U.S. Forum Connection can be found at

<http://ocean.otr.usm.edu/~w305514/HomePage.htm>

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