

ROUTINE RELEASES --- tritium AND noble gases. -- Jan. 2009

Some notes from Kay Drey, a board member of Beyond Nuclear, Takoma Park MD.

To quote from the pamphlet: "Routine Radioactive Releases from Nuclear Power Plants in the United States --- What are the Dangers?" [Beyond Nuclear – 2009, and NIRS – 2005]

"Radioactive releases from a nuclear power reactor's **routine operation** often are not fully detected or reported. Accidental releases may not be completely verified or documented. Accurate, economically-feasible **filtering and monitoring** technologies do not exist for some of the major reactor by-products, such as radioactive hydrogen (tritium) and noble gases, such as krypton and xenon. . . . Government regulations allow radioactive water [and gases] containing 'permissible' levels of contamination to be released to the environment. **Permissible does not mean safe.** . . . The Nuclear Regulatory Commission relies upon self-reporting and computer modeling from reactor operators to track radioactive releases and their projected dispersion. A significant portion of the environmental monitoring data is extrapolated -- **it's virtual, not real.**"

It's important, I think, for the public to know that radioactive waste products not only can leak from nuclear reactors, but they are also contained in planned and unplanned releases to the atmosphere and (dissolved) to the reactor's cooling water source --- the river, lake or ocean.

Since there is no economically feasible technology to filter out tritium and noble gases from a nuclear reactor's liquid and gaseous releases, the U.S. Nuclear Regulatory Commission does not require that they be filtered. For example:

Noble gases: Krypton-89 and -90 that become rubidium, and then strontium-89 and -90 --- and Xenon-137 that becomes cesium-137. Xenon-135 becomes cesium-135.

Strontium-90 and cesium-137 were two of the three most-often-discussed, most radiotoxic isotopes in atmospheric atom bomb test fallout. (The third was iodine-131, also a reactor fission product.) Cesium-135 has a 2.3-million-year half-life.

Nuclear power plants cannot operate without regular, deliberate releases of radioactive water and gases. The releases from the reactor building are needed to control the pressure, temperature and humidity and to keep radioactivity from exceeding government limits for workers.

Think of water boiling in a kettle. The escape of steam relieves pressure inside. A nuclear power plant operates in much the same way: hot, radioactive gases inside the reactor building must be purged or vented* into the atmosphere. This is done through the vents that are built into the building. The vents have filters that stop some of the radioactive gases and particulates from being released.

Purged is when a fan is used to push the atmosphere from a Reactor Building.

Vented is when a valve is opened to allow internal pressure to push out the atmosphere from within the Reactor Building. Most people do not know that a pressurized water reactor Containment Building comes complete with a vent in its roof.

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