

Nuclear Powered Cancer Clusters

Posted: 07 Apr 2010 04:36 PM PDT

By Roger Witherspoon

For the past 20 years, the Nuclear Regulatory Commission has used an epidemiologically invalid study to reassure the public that the continuous release of radioactive material from power plants into the surrounding regions did not contribute to increases in cancer.

To correct that unsubstantiated claim, the NRC has contracted with the National Academy of Sciences to conduct a two year study of both cancer incidence and mortality around former, current, and proposed nuclear reactor sites. The \$5 million study, which is expected to take a year to design and two more years to complete, would be the first, comprehensive, government study of the health implications of the continuous release of radioactive into the air and water around nuclear facilities.

It would replace the 1990 study conducted for the NRC by the National Institutes of Health – National Cancer Institute titled “Cancer in Populations Living Near Nuclear Facilities.” That study concluded that the continuous release of radioactive gas, liquids, and particles – both intentionally and accidentally – did not contribute to the cancer mortality rates in the counties surrounding the 62 reactor sites housing 107 reactors. From an epidemiological standpoint, that study was flawed in its conception and implementation, and hampered by a dearth of data.

According to an NRC statement, the NIH-NCI study involved a review of more than 900,000 cancer deaths from 1950 – 1984 using mortality records from the counties surrounding nuclear sites. The study looked at just 16 types of cancers, evaluating changes on a county-wide basis. The problem with that methodology is that cancers triggered by long term exposure to radioactive particles takes years to develop – and the nation’s nuclear plants being studied came online in the late 1970s to 1982.

In addition, the study only looked at death rates – though death from cancer, even in those days, took years to progress from detection through treatment, remission and death. A study which only looks at deaths to 1984 misses virtually all cancer impacts which may have been triggered by releases from the plants.

Furthermore, county-wide studies tend to average out any impacts and mask possible cancer

clusters – particularly if wind direction and other meteorological and geographical factors are not incorporated.

NRC spokesman David McIntyre said that “with the new study, we can look below just the county levels, to zip codes and neighborhoods. We can look at neighborhoods, meteorological conditions around the plant to see what the prevailing winds are and what the pathways for emissions are.

Aside from accidents, commercial nuclear power plants are designed to release a steady flow of radioactive gas and liquid into the surrounding environment. David Lochbaum, nuclear safety director at the Union of Concerned Scientists, explained that reactor operators have to monitor the composition of the liquid from the reactor and the “secondary loop” of pressurized water and steam which turns the turbine that generates electricity. The presence of tritium or heavy elements such as plutonium in the secondary loop indicates that one or more of the steam tubes has ruptured and is leaking reactor fluid into the power generating steam.

To accomplish this, said Lochbaum, about 60 gallons of pressurized water is released each minute. “The pressurized liquid on the secondary side has radioactive gas in it,” explained Lochbaum, who has trained reactor operators and inspectors for the NRC. “It is under high pressure, and siphoning it off is like when you open the lid on a bottle of soda pop that’s been shaken. The radioactive gasses pop out of it.”

The gas passes through filters which analyze the composition of the gas, and then it is stored in tanks. “The waste gas collector tanks are periodically vented into the atmosphere,” said Lochbaum, “since there is no real way to reuse, reprocess, or recycle that gas. It’s just collected for awhile, and then sent away.”

There are federal regulations governing the release of radioactive gas, to keep the discharges within “safe” limits. If the radioactivity in a collector tank is too high, half the gas is pumped into a second tank, thus diluting it to the safe level. That procedure, however, ignores the fact that releasing the gas and steam in two batches, instead of one, still sends the same amount of radioactive particulates into the surrounding area.

“The best argument against the insanity of that approach,” said Lochbaum, “is the fact that all federal limits of ‘safe levels’ are based on a 200-pound, six-foot-tall man. So the decision on that the human body can ingest and not have an unacceptable risk of bad consequences is based on a non-representative sample of the population. There are other segments of the population – pregnant women and children for example – who are far more susceptible.

“If you had a room containing 10 women and 10 men the mathematical averages would say the 20 people each have one testicle and one ovary – which describes equally none of the people in the room. The math is right, but the reality is something else. Math is a great thing unless you rely on it blindly.”

Commercial nuclear power plants markedly differ from U.S. Navy nuclear vessels in the way they handle radioactive emissions. If Navy vessels simply pumped their radioactive gasses into the air, in time the accumulations in the ship would be so great that it would be a multi billion dollar, radioactive, uninhabitable relic of a warship. The Navy stores their waste until it can be properly disposed of. But that is a cost commercial operations avoid.

The new NRC health impact study will look for cancers in age groupings of 0-5, 0 – 10, 10 – 19, 20 – 39, 40 – 59, and 60 – older years. It will study both the incidence and mortality from Leukemia and A-Leukemia; Hodgkin’s and non-Hodgkin’s Lymphomas; multiple myeloma; the digestive organs including stomach, colon, rectum and liver; the trachea, bronchus and lungs; the prostate, uterus and ovaries; breast, thyroid, bone and joints; bladder; brain and central nervous system; and both benign and in-situ neoplasms.