

## NUCLEAR POWER: DIRTY FROM START TO FINISH

Nuclear power is a dirty technology that contaminates everything it contacts. Before a reactor goes on line, waste is created with the mining of uranium. Once uranium is mined, it is milled. In the milling process a ton of radioactive waste is produced for each four pounds of yellow cake. Yellow cake is converted into a gas for enrichment. Four times more waste is generated through enrichment, than useable U 235. Some of the waste generated is used for military hardware such as depleted uranium shells. Enriched uranium, as pellets, is shipped to nuclear power stations throughout the country. About 32,000 fuel rods make up the operating core of a typical medium sized nuclear reactor. (Haddam Neck)

### A DIRTY TECHNOLOGY

Once the reactor goes on line, nuclear corporations release radioactive waste to the adjacent environment or store waste on site for shipment to contaminate another community. People's concerns about the dangers of long term exposure to low level radiation are denigrated. The focus of concern is manipulated toward the potential for an accident and the industry's ability to create effective safeguards. Communities are led to believe that day to day operation of a nuclear station is a "clean: non-polluting process."

### ROUTINE RELEASES OF RADIOACTIVE WASTE COVER THE CT RIVER VALLEY

In fact, standard "safe" operation is a continuous unrelenting assault on surrounding communities. This radioactive pollution remains widely distributed throughout the biosphere and in the food chain. The community, as the defacto dump for reactor waste, sustains environmental degradation, long term health problems, and suffering. Communities chosen for nuclear defilement are poor, rural, and often people of color. The daily routine release of radioactive waste is dispersed into the air in the form of dust, mist, fumes, vapors, or gases and into the water in the form of diluted liquid effluent discharges. Tens of thousands of curies of tritium, a dangerous enviro-toxin, were released from the Rowe reactor into the Deerfield River regularly over

a thirty year period. Vermont Yankee in its first year of operation released over a 180,000 curies into the atmosphere; over its thirty eight year history, it released over 380,000 curies. Boiling water reactors like Vermont Yankee were forced to install off gas systems to filter and decrease the contaminated waste released. However Vermont Yankee on average released over 3,000 curies a year into the Connecticut River Valley. CT Yankee released over 120,000 curies of tritium into the Connecticut River. While decommissioning, Yankee Rowe released 9,530 curies into the Deerfield River.

### LIES AND DECEPTION:

"Nuclear power plants produce about 20% of US electricity—without causing air pollution".... In 1994 when the US Council of Energy Awareness (now renamed the Nuclear Energy Institute) made this statement, NRC reported routine airborne releases of radioactive waste from nuclear reactors had exceeded 37,510,000 curies, not including Three Mile Island's 1979 release of 9,970,000 curies during the accident. The reported waste stream for Vermont Yankee by that time (as documented from 1973-1992) was about 640,000 Curies—slightly more than half as solid waste and the rest as vented gas.

### FAR FROM BEING POLLUTION FREE, NUCLEAR REACTORS ROUTINELY VENT RADIOISOTOPES ONTO DOWNWIND COMMUNITIES THROUGHOUT THE U. S.

Citizens in reactor, dump and contamination pathway communities live in a fog of radiation. Vermont Yankee's airborne waste includes Strontium, Iodine, Cesium, and a wide variety of Xenon isotopes. These isotopes are constantly breaking down and releasing radiation. These isotopes and their decay by-products mimic non-toxic elements that are essential to all life forms. For example, Cesium mimics potassium. Potassium is a primary element in all cell fluid. Along with sodium, it is important to the electrical potential of the nervous system and is therefore essential for efficient functioning of the nerves and muscles. It is also required by plants for growth. One of the most common radionuclides released from Vermont Yankee's stack is Xenon 135 which decays into Cesium 135 with a half life of over 2,000,000 years.

## RISK ANALYSIS

What this means is that communities in the pathway of radioactive wastes and discharges suffer an increased risk of disease and death. This increase in individual risk and community sickness is, in fact, acknowledged in NRC documents. NRC estimates that annual exposure to 100 millirems of radioactivity—WHICH IS WITHIN ACCEPTABLE, LEGAL LIMITS—results in approximately **one extra additional death per each 286 people exposed**. In other words, NRC regulations (pointed to by both the nuclear industry and the government as tough enough to ensure that nuclear power can be safely used), is actually designed to justify the taking of lives by nuclear corporations. This legalizes the murder of human beings, as long as the total number of premature deaths is acceptable to the government and the nuclear industry. We as ordinary citizens are supposed to accept the taking of any life as long as that life was taken in compliance with NRC regulations. This risk and these deaths are not acceptable. We do not live in a community of hypothetical people and potential risk, but in a valley filled with real contamination, actual illness and suspiciously large increases in miscarriages, cancers and premature death. If the reactors can't be run without killing their neighbors they need to be shut.

### LOW LEVEL RADIATION EXPOSURE: THE TRUTH

**EACH RADIOACTIVE DISINTEGRATION THAT HITS A LIVING CREATURE CAUSES THE DEVELOPMENT OF AT LEAST ONE CELLULAR LESION IN THE BODY. THE BODY THEN HAS BETWEEN 6-12 HOURS TO REPAIR THE DAMAGE. THERE ARE SCIENTISTS WHO BELIEVE THAT THERE IS A THRESHOLD BELOW WHICH THE BODY DOES NOT RECOGNIZE THE ASSAULT AND DOES NOT MOBILIZE AN IMMUNE RESPONSE. IF THE LESION IS NOT REPAIRED, THE CELL CAN EVENTUALLY DIVIDE AND BE CARCINOGENIC. THEREFORE THE BODY CAN ACCUMULATE LARGE AMOUNTS OF RADIATION OVER TIME WITHOUT RESPONDING.**

Even “well run” reactors expose their neighbors to large amounts of radiation. Yankee Rowe reactor, routinely released radioactive waste into the Deerfield River. The Deerfield is a recreational focus; Over 500,000 people a year use the river. Because the NRC classified the Deerfield as a “dead river”, the releases were not required to meet the EPA drinking water standards. Children swam

in that river. Agricultural land is adjacent to it. In drought, farmers pumped water from the river to irrigate their crops. The river is used for white-water rafting. Spit and spume from the rapids are dispersed into the air. Air inversions blanket the river valley over 34% of the time, trapping the airborne contamination in the valley.

Due to faulty fuel rods, 20,000 curies of tritium, a dangerous enviro-toxin, were released during the 1960's and 1970's. Before 1965, there was no requirement to quantify the amount of tritium released and therefore large, early releases are unrecorded. All releases are within NRC acceptable limits. There were also a series of leaks from Yankee's ion exchange pit and fuel pool that contaminated ground water creating plumes of tritium that migrated to the Deerfield River. There is an epidemic of disease that includes a 10-fold increase in children with Down syndrome, statistical significance in breast cancer, non-Hodgkin's lymphoma and serious increases in other diseases.

### DECOMMISSIONING: THE FLOODGATES OF WASTE

When reactors shut down and decommission, all the waste generated on site during standard operation, including the highly irradiated reactor components, (excluding irradiated fuel rods), are removed for the site to qualify for unrestricted use by NRC. To clean a site up, corporations choose to strip and ship their waste to other communities (disproportionately poor, rural, people of color communities). So Yankee Atomic “cleaned up Yankee Rowe” by shipping its waste 1,000 miles to dump it in Barnwell, SC-46% African-American. Yankee Rowe, a small commercial reactor, generated over 200,000 curies in “low-level” waste and over 40,000,000 in “high-level”. It stripped and shipped the 200,000 curies. If the utility had waited 30 years, the amount of radioactive waste requiring transport would decrease by one order of magnitude to 20,000 curies because the major radionuclides involved in decommissioning are cobalt 60 (half life 5 \_ years), tritium(12 .5 yrs), and cesium 137 (30 yrs). This would minimize exposure to the workers, the public, and the waste and transport communities.

**ABOUT CAN:** is a grassroots, volunteer regional group committed to replacing aging reactors with sustainable energy solutions. If you have any questions, want to make contributions or donations, or **JOIN US**, contact:

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