

# LOW LEVEL WASTE



## “LOW LEVEL” RADIOACTIVE WASTE IS NOT LOW RISK

So-called “low-level” radioactive waste can be very high risk. The vast majority of it comes from nuclear power and the many industrial steps to make nuclear power and weapons. The filters and resins that remove radioactive materials from nuclear power cooling water can get so loaded with radioactivity that they can kill a person exposed for just 20 minutes, **yet are still considered “low level”**. Metal that gets **activated** in a nuclear power reactor core can be more radioactive than some nuclear weapons high level waste.

So-called “low-level” nuclear waste includes the same radioactive particles as high level waste. The same Plutonium atom is “high level” if it is in a fuel rod but becomes so-called “low level” waste when it leaks out and gets trapped on filters or resins that clean reactor water. If the same Plutonium atom makes it past the filters it becomes a “routine release” to the river, lake or ocean.

The legal (**not safe**) allowable release levels are set by how much the nuclear industry needs to discharge, not to protect humans or other species. The radioactive particles get into water, air, soil, grass, food chains, then into our bodies, irradiating us from within. When radioactivity gets into the body, it can lodge in the DNA, bones or organs, continually giving off radiation to the surrounding cells. This is more intense and longer lasting than an external exposure that stops when the external source is gone. More women and kids get cancer from radiation than do men.

## THE DIRTY SIDE OF NUCLEAR POWER

The whole contaminated nuclear reactor, except the fuel rods, becomes “low-level” radioactive waste. Krypton and Xenon gasses form when uranium splits. Some seep into the tons of concrete in the base mat and containment dome then decay into Strontium-90 and Cesium-135 respectively, both biologically hazardous, causing cancers and other health problems.

Strontium-90 takes 280-560 years to decay; Cesium-135 takes 23 - 46 **million** years.

When Uranium-235 atoms split, they give off their binding energy (to heat water, generate steam, turn turbines, make electricity) and break into smaller radioactive particles that can cause cancer, birth defects, heart disease, reduced immunity or other ailments. Some are Cesium-137 (concentrates in muscle, hazardous for 300 to 600 years), Strontium-90 (concentrates in bone and teeth where calcium normally goes, 280-560 years hazardous), Iodine-129 (concentrates in the thyroid, 160-320 **million** years hazardous) and neutrons.

## NUCLEAR POWER HIDES BEHIND THE WHITE COATS OF MEDICINE

Medical, educational and industrial waste are lumped into the same category as waste from reactors. The truth is that medical treatment and diagnosis waste make up only a very small fraction of the waste stream, are much less concentrated and short lasting. X-rays make no waste. Iodine-123 for thyroid imaging is hazardous ~30-260 **hours** whereas Iodine-129 from nuclear power stays dangerous for 160-320 **million years**. Medical waste can be manageable if it is stored safely. Nuclear promoters that are pushing for new dumps and weaker regulations for all “low-level” waste, use medical as their example.

Nuclear promoters like to characterize “low-level” waste as booties and gloves, not mentioning they could be contaminated with plutonium. Of the various items in the waste stream including “contaminated protective shoe covers and clothing, wiping rags, mops, filters, reactor water treatment residues, equipment and tools, luminous dials, medical tubes, swabs, injection needles, syringes, and laboratory animal carcasses and tissues,” the resins from treating reactor water and the activated metal components are the real problems since they are intensely radioactive and remain dangerous for millions of years. Disposal sites are only required to have institutional controls for 100 years.

## FIRST DUMP IN THE US IN 30 YEARS

A billion dollars or more were spent searching for new “low-level” nuclear waste sites in 18 states from 1980 until 2012. No community wants unlined trenches designed with an “acceptable leak rate” filled with waste that will be dangerous thousands of years longer than the site must be monitored. In April 2012, despite unresolved technical and legal problems, the Waste Control Specialists (WCS) site opened in Andrews County, Texas. The staff at the Texas Council on Environmental Quality, (who reviewed the WCS application) were unanimously against the proposal (three quit because of it); yet the governor’s appointed commissioners approved an incomplete application. The Lone Star Chapter of the Sierra Club won a court challenge in 2012 defending their right to a hearing on the license, but waste is being buried while the dump operator and the state are appealing. The site, bordering New Mexico, is in an earthquake risk zone and could endanger nearby aquifers including the Ogallala, which extends through the nation’s breadbasket all the way to the Dakotas. The dump site has limited capacity and was originally intended for TX and VT generators only. However, the governors’ Compact Commissioners are currently allowing waste from across the country to be dumped there, at the behest of WCS. In addition, no provisions have been made to comply with nuclear transport requirements.



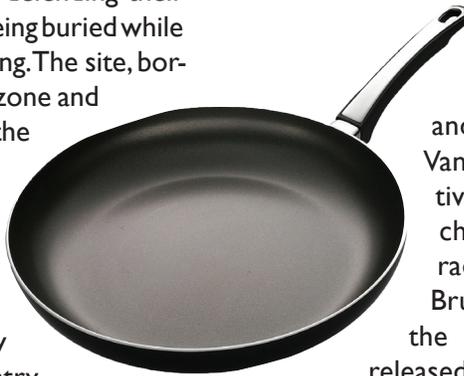
*“Kick and roll” burial technique – The industry kicked and rolled radioactive waste into a ditches, then covered them with dirt. Cardbord boxes are no longer permitted and barrels are stacked but, the long-lasting waste buried decades ago is still dangerous and could be leaking today.*

## PROPOSED DUMP IN CANADA THREATENS GREAT LAKES

Other countries don’t know how to isolate nuclear waste for the time needed, either. Canada is pushing to bury its nuclear power waste on the Bruce Peninsula in the middle of Lake Huron. US and Canadian activists and communities are challenging this and other foolish schemes.

## WHY NOT MELT IT DOWN FOR POTS AND PANS?

**International radioactive metal** is getting into the metal supply. In January 2012 consumers were shocked to find radioactive decorative tissue boxes at Bed, Bath & Beyond. A shipment of pots and pans from India is being held up in Vancouver, BC because they are radioactive. Organizations in US and Canada are challenging the proposed shipment of radioactive steam generators from the Bruce nuclear reactors in Canada through the Great Lakes to Sweden, to be melted, released into the worldwide metal market and made into daily-use items. In 2000, the DOE banned metal from radiation areas from commercial recycling (to make everyday household and personal items); but in 2012-13 the DOE, despite protests from activists, is reversing the ban.



Government efforts to let nuclear waste into municipal garbage dumps and to poison recycling streams have been stopped over and over in the US. Join us to stop radioactive contamination and achieve a safe energy future.

Most ‘low level’ waste comes from nuclear power. Join the Sierra Club Nuclear Free Campaign to replace nuclear power with energy efficiency and clean, renewable power.

**You can join our campaign at: [sc.org/no\\_nukes](http://sc.org/no_nukes)**

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