Written by **Rebecca Terrell** on April 3, 2014

The Good News About Fukushima

The only place east of the Rocky Mountains where government officials ever tested atomic weapons in the United States was at a site called the Tatum Salt Dome in Lamar County, Mississippi. On October 22, 1964, the blast from a 5.3 kiloton nuclear bomb named Salmon, detonated 2,700 feet below the Earth's surface, ripped through the landscape in ocean-like waves, running wells dry, and turning area creeks black with silt. The editor of the *Hattiesburg American* said his office building, located almost 30 miles from the test site, shook for three minutes in the quake. The next day his newspaper ran stories about homes "ramsacked" [sic] by the explosion and citizens concerned about medically harmful fallout. One of them was a Baxterville woman who built a makeshift seismograph by arranging some pecans in a pyramid on her porch steps while wielding an ash-laden cigarette.

The irony of her cancer stick is heartrending. She was more concerned with a fabricated fear of radiation than with the real threat she was holding in her hand! In the 1960s the public knew little about long-term health effects of smoking. Today it's common knowledge that smoking causes a plethora of problems such as cancer, heart disease, chronic respiratory illness, and stroke. Yet since the 1960s, public understanding of radiation safety, far from improving, has deteriorated. The average layman looking at this picture today may wince at the cigarette but recoils in horror from the idea of underground nuclear testing.

Fast-forward 50 years since Salmon exploded, and the public is still running scared from outlandish stories of nuclear holocaust. Case in point: Fukushima Daiichi, the Japanese nuclear power plant damaged in 2011 by a record-breaking earthquake and tsunami (shown). A story published as a hoax at the self-styled "news site" TopInfoPost.com, is circulating the Internet as a legitimate news story about Fukushima, claiming reactor contents are melting into the Earth and causing underground nuclear explosions. The article includes a map that plots a "Fukushima melt-through point" in the Atlantic Ocean off the southeastern coast of Brazil. It implies that fuel and fallout from the supposed explosions is melting all the way through the Earth. In response to this absurdity, *The New American* contributor Ed Hiserodt asks:

> Can you imagine the contents of a reactor "melting through" the Earth's crust, then the 1,800 miles of mantle, the 1,400 miles of outer core that is on the order of 10,000 degrees Fahrenheit, then 750 miles of inner core that is approximately the same temperature as the surface of the sun? Then you've got to melt your way (against gravity) back up to the Atlantic Ocean. Come now.

But this "China Syndrome" scenario is only one ludicrous point of the story. Equally irrational is the belief that nuclear explosions could take place at the crippled Japanese facility, no matter how bad conditions there may be. It is physically impossible for a nuclear power plant to produce an atomic bomb-like explosion.

In his 1976 book *The Health Hazards of Not Going Nuclear*, Dr. Petr Beckmann explains the science behind this fact. Unlike nuclear reactors, atomic bombs require fuel that is made up almost completely of fissile isotopes. (Isotopes are atoms of the same element with different numbers of neutrons in the nucleus. Fission occurs when a neutron from the nucleus of one atom shoots into another atom's nucleus, causing it to fall apart. Energy that was used in binding the nucleus together is thus released.)

In a bomb, the fuel is purified, or "enriched," in a painstaking and costly procedure, to more than 90-percent fissile material. A power plant is just the opposite. The fuel used contains less than five-percent fissile isotopes, making it "utterly impossible for it to undergo an explosive nuclear chain reaction." Moreover, the enriched fuel of a nuclear weapon can generate an explosion only if it is arranged in a sphere that can hold "together long enough for the chain reaction to take place, rather than blow itself out by tearing the sphere apart" after it has started.

And even if the nuclear plant fuel were placed in this spherical arrangement, there could still be no atomic explosion. The fission rate in non-enriched fuel is simply too low. Beckmann explains that in a functioning nuclear plant, the time elapsing between one fission (i.e., generation) and the next resulting generation "is about 100,000 times longer than in a nuclear explosion. That is a difference greater than that between a murderous flood and a drizzle." (Keep in mind this applies to a functioning nuclear plant. The reactions at Fukushima Daiichi stopped when the tsunami hit.)

Hiserodt again puts things in perspective, saying, "If nuclear explosions were that easy to create, we would not have needed a Manhattan Project," which was undertaken by the U.S. government to develop the first atomic bomb during World War II. According to research published by the Brookings Institute, the Manhattan Project cost an estimated $1.89 billion in 1945, most of which paid for manufacturing the fissile materials necessary to produce an atomic blast. That equates to slightly less than $26 billion in 2014 dollars. By way of contrast, the Nuclear Energy Institute relates that it costs around $40 million every 18 months to refuel a typical 1,000-megawatt reactor in the United States. This cost comparison should serve as further proof that there is no comparison between nuclear power plants and atomic weapons.

There is also no mystery about what happens when nuclear bombs explode underground. Between 1945 and 1992 (when President Bush instituted a unilateral moratorium on nuclear weapons testing, the precursor to President Clinton's 1996 signing of the UN's Comprehensive Nuclear Test Ban Treaty), the government detonated 836 nuclear bombs in underground tests, at various depths and yields. One thing we know from them is that absolutely none of their fallout has ever erupted in the Southern or Indian Oceans, which are directly opposite North America on the globe. Even the largest underground test in U.S. history, the five-megaton Cannikin bomb detonated in Alaska in 1971, confined its havoc to the immediate vicinity. So it's a pretty sure bet that Brazil is safe from Fukushima fallout.

As to local effects, the Salmon experience is telling. After the test, the federal government paid claims filed by more than 400 Mississippi residents for property damage such as burst water pipes, crumbled chimneys, and cracked ceilings resulting from the subsequent earthquake, but not one was filed for radiation-related property or health damages. Of course the blast generated plenty of radioactive fallout, most of which was contained within the 110-foot-diameter cavity that the bomb

created. Officials shipped all contaminated materials to the Nevada National Security Site for disposal. The Department of Energy (DOE), the U.S. Nuclear Regulatory Commission, the Environmental Protection Agency (EPA), and the State of Mississippi have monitored the area annually ever since. They have identified some blast-related radioactive particles in the environment but nevertheless have consistently confirmed safe conditions.

This is particularly impressive considering that in 1966, the government detonated another, smaller atomic bomb, Sterling, and set off two other conventional weapons in 1969 and 1970 respectively, in the cavity Salmon created. Despite the extra damage and radionuclide release, the area is continually deemed safe by regulatory agencies known for their anti-nuclear bias. In fact, the site continues so benign that it was used from 1972 to 1992 as a private timber plantation, and now the state of Mississippi operates it as a wildlife refuge and working demonstration forest.

Despite the lack of danger, the Mississippi Historical Society relates, "Some Lamar County residents complained of lingering health effects in the decades after the blast. Some argued that the number of cancer deaths in the Tatum Salt Dome area is higher than national averages."

No reports offer a shred of evidence to support such claims; decades of negative propaganda and unbridled fear of the unknown spur these nuclear chimeras. As recently as 2000, the DOE helped the county install public water lines to all residents, a move the State Historical Society admits was made "in hopes of calming residents' fears about their drinking water." The benefit to the DOE was that it relieved the agency of the burden of collecting and testing private well samples. In three decades of such testing, no wells came close to stringent regulatory limits for radionuclides.

However, the DOE followed up on residents' complaints about increased cancer in the vicinity of the salt dome. Results of the extensive study, published in the 1998 *Archives of Environmental Health*, found, "Observed cancer rates for the area of Mississippi were no different than those expected for the state as a whole. Investigators found no association between cancer mortality and distance from the center of detonation."

This doesn't mean nuclear bombs aren't dangerous; of course, they're deadly. But radiation is not always dangerous, and ignorance usually is. An ignorant public allows the U.S. government to base wasteful and costly regulations on the "linear no-threshold model" (LNT), an antiquated policy adopted by regulators in the 1950s. LNT is based on the mistaken belief that all radiation is unsafe. Common sense proves this hypothesis false; background sources of radiation include soil, the sun, color television, building materials, and bananas. In fact, low-dose radiation is either harmless or healthy depending on the amount, and too little radiation can be just as deadly as too much.

A prime example of LNT propaganda at work is the Radiation Exposure Compensation Act of 1990, which as of March 31, 2014 has paid more than $1.9 billion in claims to supposed victims of radioactive fallout from 1950s weapons testing in Nevada. It began with a highly publicized 1997 report by the National Cancer Institute (NCI). Researchers investigated the link between thyroid cancer and iodine-131 (^{131}I) fallout from Nevada tests. They concluded fallout had delivered doses large enough to produce 10,000 to 75,000 additional cases of thyroid cancer, based on the LNT model. The careful reader notices the report gave estimates of how many excess cancers could result from the fallout. It says nothing of actual cancer cases.

But LNT did not hold up to scrutiny, as actual cancers have not skyrocketed. Results of a follow-up NCI study published a year later reveal no excess thyroid cancer risk to anyone over one year of age and

only “suggested associations” for those under one at the time of exposure. Regardless, researchers endorsed the 1997 findings because LNT dictates that excess cancers result from exposure to radiation.

A 1999 review by the Institute of Medicine and the National Research Council also ignored actual cancer rates and defended the 1997 study, even though its authors concluded there has been “little evidence of widespread increases in thyroid cancer risk related to the pattern of exposure to ^{131}I described in the NCI report.” Amazingly, researchers nevertheless recommended that “it is prudent for DHHS to plan its responses as if excess cases of thyroid cancer have occurred.” In other words, LNT trumps reality.

Most media blindly follow suit and bow to the LNT gospel. Japan’s decision to allow residents to return to their homes in the 20-kilometer exclusion zone around the Fukushima plant has journalists crying foul. They ignore the fact that deaths related to the forced evacuation (1,656) now outnumber Fukushima Prefecture’s 2011 earthquake/tsunami death toll (1,607), as reported by *The Japan Times*.

Furthermore, not one of these deaths was caused by radiation. According to research from the World Health Organization (WHO), the highest levels of radiation in the prefecture during the first year after the tsunami were 12 to 25 milliSieverts (mSv). That is not enough to even cause skin burns, let alone birth defects or cancer. In comparison, residents of Ramsar, a city in northern Iran, soak up as much as 260 mSv per year from naturally occurring background sources, with no adverse health effects. Concerning Japan’s decision to lift the evacuation order, CNN writes that officials have declared areas of Fukushima “suitable for habitation if residents are exposed to a maximum of 20 mSv of radiation per year.” This is in the high-end range of WHO’s 2011-2012 estimate. So why were residents evacuated in the first place? LNT strikes again.

However, the people of Fukushima, just like their Mississippi and Nevada counterparts, face little danger from radiation or nuclear explosions. That’s the good news. The bad news is that few of them know it.