



EYEWITNESS FUKUSHIMA: EMERGENCY RESPONDERS CONFERENCE

Enclosed is a very powerful video of the ***EYEWITNESS FUKUSHIMA: EMERGENCY RESPONDERS CONFERENCE*** held on March 5, 2012 at Manhattanville College at which area First Responders met with four eyewitnesses of the Fukushima-Daiichi nuclear disaster. Please share this information with others in your department or organization and in your community. An internet link to share this video widely will soon be posted on the Clearwater website at www.clearwater.org . For now please go to <https://vimeo.com/42215560> .

It's been more than a decade since 9-11 and now a year after the severe nuclear disaster at Fukushima, but little or nothing has been done to address the shortcomings of the evacuation plan, which would be used in the event of a serious incident or accident at Indian Point nuclear power plant, located less than 25 miles from New York City.

In 2002 Governor Pataki commissioned former FEMA director, James Lee Witt, to evaluate Indian Point's evacuation plan. The Witt Report noted many deficiencies and concluded that it was inadequate to protect public health and safety, but most of these concerns remain unaddressed almost a decade later.

Common sense dictates that a viable evacuation plan should be a prerequisite to relicensing aging reactors located a mile from the intersection of two earthquake faults for another twenty years. However, the Nuclear Regulatory Commission's regulations governing relicensing have ruled evacuation planning to be "out of scope" for consideration in the relicensing process. The U.S. Nuclear Regulatory Commission (NRC) advised American citizens in Japan to evacuate 50 miles away from Fukushima, however Indian Point's Evacuation Planning Zone still mainly focuses on a 10-mile radius around the plant.

The Fukushima disaster made it clear that it's not just the reactors that pose a danger, but also fuel pools filled with radioactive fuel rods. Currently 1,800 tons of highly radioactive spent fuel are stored in unfortified fuel pools and in dry cask storage silos on site. With no national repository, this high-level nuclear waste will be stored at Indian Point indefinitely – so whether or not Indian Point is relicensed for an additional 20 years, its evacuation plan needs to provide maximum protection for residents and businesses in the surrounding region.

TIME TO RECONSIDER INDIAN POINT'S EVACUATION PLAN:

NY State Assemblywoman Naomi Rivera from the Bronx is calling for joint hearings of the Emergency Preparedness Committees of the NY State Legislature to:

- 1) comprehensively review federal, state and local emergency planning and coordination in the event of a serious accident at Indian Point,
- 2) investigate the effectiveness of the current Indian Point evacuation plan, and
- 3) address any deficiencies the hearings identify.

Please ask your representative to support Assemblywoman Rivera's effort to safeguard public health and safety by assuring that we are as prepared as possible for any eventuality.

- Please also consider asking your organization or municipal government to pass the enclosed **RESOLUTION FOR PUBLIC HEALTH AND SAFETY REGARDING INDIAN POINT NUCLEAR PLANTS**. Addressing the deficiencies noted in the Witt Report, fortifying the fuel pools and expanding the evacuation zone to 50 miles are among the steps that are urgently necessary. As First Responder, you are the people who best understand what is needed.

Many thanks for the important services you provide to protect the people of your community.

Sincerely,

Manna Jo Greene, Environmental Director
Hudson River Sloop Clearwater, Inc.

mannajo@clearwater.org (845) 265-8080 x 7113

Assemblywoman Naomi Rivera, Statement to Media, April 3, 2012

Good morning.

I would like to thank everyone who has joined us today, especially the partners and experts who share my serious concern about our city's readiness to react to an emergency at Indian Point Energy Center. Here in the Bronx we are the closest borough in New York City to Indian Point. Our 1.4 million residents are within 24 miles of the Indian Point reactors in Buchanan and the radioactive waste that is stored there. Almost all of New York City is within a 50-mile radius of Indian Point. Yet, our city has no evacuation plan in place to respond to a natural or man-made emergency at Indian Point.

Riverkeeper, Hudson River Sloop Clearwater, the New York Public Interest Research Group, and the Union of Concerned Scientists are among the leading organizations who have been sounding the alarm on this issue. Another strong voice calling for action has been Dr. Irwin Redlener, a national expert on emergency preparedness based at Columbia University. And our own New York State Attorney General, Eric Schneiderman, called for an evacuation plan to be included by the operators of Indian Point as part of their application for license renewal. Shockingly, the Nuclear Regulatory Commission denied Attorney General Schneiderman's request. To me and to many experts, the Nuclear Regulatory Commission's decision is wrong, myopic, and extremely dangerous to the health and safety of Bronx residents, of 8 million New Yorkers, and the 20 million Americans who live in the tri-state area within a 50-mile radius of Indian Point.

A couple of weeks ago, on the one-year anniversary of the nuclear catastrophe at Fukushima, Japan, I sent a letter to four legislative committees of the NYS Assembly. In it, I asked for a comprehensive review of local, state and federal emergency plans in the event of a major nuclear disaster at Indian Point. I'm sharing that letter publicly today and renewing the call for hearings to discuss what our city's emergency plan is. A chief concern for me is how the agencies of local, state and federal governments would communicate and coordinate in the event of a nuclear emergency. I am not convinced that will happen smoothly. Bronxites and residents of the tri-state area need to know there is a plan in place for the unthinkable, for the "God forbid."

In March of 2011, the nuclear meltdowns of reactors in Japan following the tsunami demonstrated to the world how uncontrollable a breach to nuclear reactors can quickly become. The long-term impact of the disaster on this generation and the next are still unknown.

New Yorkers are not immune from a similar catastrophe. We must learn the lessons of Fukushima. Within five days of a tsunami triggering that nuclear catastrophe, radiation traveled 160 miles and hovered over Tokyo. U.S. military craft were ordered out of Tokyo ports, and military families were given potassium iodide pills to guard against radiation poisoning. Yet our government limits local emergency planning to only 10 miles. This is unacceptable, given what we now know about how events unfolded in Japan. That is why last year, shortly after the nuclear catastrophe in Fukushima, I introduced legislation that requires that the New York State Office of Homeland Security and Emergency Planning stockpile enough potassium iodide pills to distribute to residents within a 50-mile radius of Indian Point. Potassium iodide is an inexpensive drug and our first line of defense. In the short-term, having it on hand to quickly distribute to residents would help reduce panic, which would help to conduct orderly evacuations. In the long-term, potassium iodide protects the thyroid gland from radiation poisoning and can lead to better outcomes for a lot of potential victims.

Now I would like to introduce Dr. Irwin Redlener, a national disaster preparedness expert from Columbia University's Mailman School of Public Health. Also joining us today are Manna Jo Greene, Environmental Director from Hudson River Sloop Clearwater, Phillip Musegaas, Hudson River Program Director at Riverkeeper, and a representative from NYPIRG. Thank you all.

I also want to thank the parents and residents who are here today to express their concern for their safety and the safety of their children. And thank you also to Don Bluestone, Executive Director of the Mosholu Montefiore Community Center, for hosting us this morning. I'll take any questions.



EYEWITNESS FUKUSHIMA:

Regional Conference for Emergency Responders

*What Can We Learn from the Disaster
at Fukushima-Daiichi?*

Monday, March 5, 2012
Manhattanville College, Purchase, NY

How does what happened at Fukushima affect disaster planning in the United States, and how can the lessons learned there be applied to emergency response in the event of a severe accident or incident at Indian Point Nuclear Power plant?

AGENDA

Welcoming Remarks: **Andy Spano**, former Westchester County Executive who, in this capacity, served as head of Emergency Response for the county for 12 years.

Japanese Guests: Eyewitness Report

- **Dr. Yuki Tanaka** is a Research Professor of History at the Hiroshima Peace Institute, Hiroshima City University and author of many books on nuclear power and related topics.
- **Mr. Noriyuki Kitajima**, known as Saburo, is an organizer for the Precariat Union in Tokyo. He was involved in helping the victims of the earthquake and Tsunami after March 11, and currently works at Fukushima Daiichi and Daini nuclear power plants as a subcontract worker.
- **Mr. Kazuhiko Amano**, a researcher at Fukushima University Institute for Disaster Recovery, was working for the government in Fukushima Prefecture during the disaster at Fukushima Daiichi. Since the earthquake, Mr. Amano has been organizing community activities to mitigate stress among the refugees who have stayed in minimally equipped temporary housing for the past year.
- **Dr. Tetsunari Iida** has a Master's Degree in Nuclear Science Studies from Kyoto University, a PhD from Tokyo University, worked in Energy & Environmental Studies at the Japan Research Institute and spent many years in the nuclear industry. He is now Executive Director of the Institute for Sustainable Energy Policies in Japan, and serves on the Japanese Cabinet Secretariat Advisory Committee for Prevention of Nuclear Accidents.

Panel of U.S. Experts: Moderated by Rick Ufford-Chase, Executive Director, Stony Point Conference and Retreat Center. Former County Executive, Andy Spano will be invited to join this panel for Q & A.

- **Public Health and Evacuation Challenges:** **Irwin Redlener, M.D.**, Director of the National Center for Disaster Preparedness and Professor at Columbia University Mailman School of Public Health, is a national expert in emergency response and the public health ramifications of terrorism and large-scale catastrophic events.
- **Emergency Medical Services:** **Erik Larsen, M.D.**, Associate Director of White Plains Hospital Emergency Department, is a national expert in Disaster Medicine, and serves with the National Disaster Medical System (NDMS)/Disaster Medical Assistance Teams (DMAT) and the NYC MEDICS Disaster Team. He has been trained to respond to nuclear accidents and has treated a patient who was injured and contaminated in the 'hot zone' at Indian Point.
- **Earthquake Hazard:** **John Armbruster**, Seismologist from Columbia University Lamont-Doherty Earth Observatory, will report on the 2008 study regarding potential earthquake faults in the area near Indian Point.

Cosponsors: Connie Hogarth Center for Social Action, District Council 37 (DC-37) of the American Federation of State, County and Municipal Employees (AFSCME); Hudson River Sloop Clearwater, Inc.; New York Committee for Occupational Health and Safety (NYCOSH); Physicians for Social Responsibility, National and NY City Chapter.

For further information, please contact: mannajo@clearwater.org or call 845-265-8080 x 7113.

From Japan, Bearing Witness in Debate Over Indian Point

ABOUT NEW YORK By **JIM DWYER**; Published: March 6, 2012



Angel Franco / The New York Times

Noriyuki "Saburo" Kitajima works at the Fukushima nuclear plant in Japan.

One quick little cigarette," Mr. Kitajima, 45, said. The smokes, he reckoned, are an occupational hazard.

Last March, unemployed and sitting in a Tokyo cafe with his girlfriend, Mr. Kitajima felt the shudders of an **8.9-magnitude earthquake**. Before long, he found himself working nearly 200 miles away at the Fukushima nuclear plant, which was destroyed.

"I would say about 90 percent of the workers at the plant smoke," Mr. Kitajima said. "Stress."

His job is to read radiation meters worn by the 3,000 people trying to clean up its lethally contaminated remnants. The most dangerous work is done at night, he said, after the main shifts are gone. A crew of 20 men is sent to pick up the irradiated rubble. Practically none of the men have families, much education or regular employment. They have no experience working in nuclear power plants. He compared them to **day laborers** in America. Within a few months, they accumulate what is regarded as the maximum safe dosage of radiation for four years, Mr. Kitajima said.

"Then they bring in new ones," he said. "Everybody kinds of admits to themselves that these are expendable people."

Sunday will be the first anniversary of the earthquake and tsunami that struck hardest in Japan, and Mr. Kitajima is among those who have brought to New York's commemorations their direct witness of the unexpected, the statistically improbable, the totally far-fetched. "I came to convey the reality," Kazuhiko Amano, a relief worker in Fukushima, said Monday night in a panel discussion at Manhattanville College that was organized by **Clearwater**, the Hudson River advocacy organization. The group is opposed to the renewal of the license for the **Indian Point** nuclear power plant, about 30 miles north of New York City, and is invoking the Japanese catastrophe.

Mr. Amano, who worked for the Fukushima prefecture, said rigorous annual emergency drills in Fukushima proved to be meaningless. "They had no connection to reality," he said. Phones, whether land lines, mobile or satellite, were knocked out, he said. The Internet was down. Radio stations could not broadcast. Rumors ran wild. Traffic crawled. Drivers believed they would die. Pets and farm animals were abandoned. In refugee centers, 2,500 people were separated by cardboard walls.

The operators of the Indian Point complex, who argue that it supplies power at relatively low cost and without using carbon, have said that flooding from the tsunami did the most damage in Japan, and that its plant was built to withstand a 6.0-magnitude earthquake, higher than any known to have occurred in this part of the continent.

The adequacy of that standard was questioned on Monday night by John Armbruster, a seismologist from the Columbia University Lamont-Doherty Earth Observatory, who said that seismic building codes had been tightened since Indian Point's construction, in the late 1960s.

He noted that the earth around Indian Point was more active than was recognized at the time the plant was designed. In 2008, Lamont-Doherty reported an "alignment" of earthquakes between Peekskill, N.Y., and Stamford, Conn., that were discerned only after the installation of seismographs in 1973.

"Fukushima was prepared for every earthquake known in the last 1,000 years, but it was struck by the earthquake that happened 1,140 years ago," Mr. Armbruster said.

In hundreds of schoolyards, the Japanese government removed the surface soil, but it has piled up, along with tons and tons of irradiated rubble from the plant, said Yuki Tanaka, a research professor at Hiroshima Peace Institute.

"The Japanese government is asking each prefectural government to accept a certain amount of the rubble," he said. Most have refused.

About 15 years ago, a worker at Indian Point was hurt by a machine that pierced his boot. At a hospital, a decontamination pathway was established, and admissions were halted, Dr. Erik Larsen, an emergency doctor, recalled. "This is a relatively minor traumatized patient," he said, "that took four hours, and we needed 60 people."

Mr. Kitajima, who had left the cafe for work at the plant, said he was once part of a political movement that opposed construction of nuclear plants, but had dropped out. "The risk of working there is what I've done to atone for my lack of involvement," he said. "We are trying to scoop the ocean with a cup."

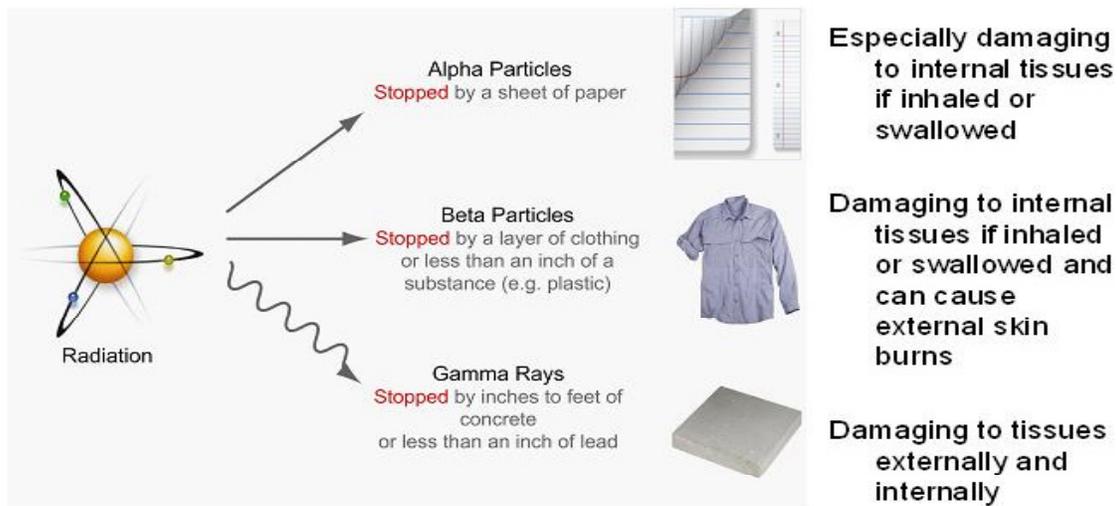
A Radiation Primer

By Erik Larsen, M.D.

Radiation and radioactive material... what are they?

Radiation is the process by which an object emits energy into the environment, and in the case of *ionizing radiation*, the energy is strong enough to alter the atoms with which it comes into contact; **radioactive material**, on the other hand, is the object composed of *unstable atoms* that emit energy, most often in the form of alpha particles, beta particles or gamma rays.

Penetration Abilities



Exposure and contamination... are they the same?

Exposure to radiation other than background is usually of short duration and occurs after entering an area in which there is a radiation source. While in the area, radiation exposure occurs. After leaving the area, the exposure ceases. Any biologic changes resulting from the radiation are determined by the amount of exposure received. The patient does not become radioactive. Receiving a chest X-ray is an example of exposure.¹

Contamination, however, results when a radioactive material is either on the surface (*external contamination*) of a patient, or has entered into the patient's body (*internal contamination*); the radioactive material will continue to emit energy until it is removed.¹

Radiation Units:

- U.S.: **rem**, rad, Roentgen (R)
- International: **Sievert (Sv)** and Gray (Gy)
- Most common unit (U.S.) for health effect: **rem**

1 Sv = 100 rem
1 mrem = 10 μ Sv
1 mSv = 100 mrem
1 μ Sv = 100 μ rem

The most common units, **rem** and **Sievert**, are used to measure what is called the *equivalent absorbed dose of radiation*, or *equivalent dose*, for short. Unlike the *absorbed dose of radiation*, which represents the amount of energy absorbed from radiation per unit mass of tissue (for example, 1 rad = 100 ergs of energy absorbed per gram of tissue), the *equivalent dose* takes into account the different potential for biological damage of different types of ionizing radiation, such as alpha and beta particles and gamma rays.

¹ Source: <http://www.meddean.luc.edu/lumen/MedEd/radiation/Radaccident/expvscon.html>

Typical Doses:	(rem)	(Sievert)
Airport screening	10 μ rem	0.1 μ Sv
NY to London by air	5 mrem	50 μ Sv
Chest X-Ray	10 mrem	100 μ Sv
Annual natural background	300 mrem	3 mSv
CT Scan -Abdomen	1 rem	10 mSv
Annual occupational limit	5 rem	50 mSv
50% survival (whole body)	400 rem	4 Sv
Radiotherapy (tumor)	8,000 rem	80 Sv

Note: The very large doses delivered in radiotherapy represent the dose to the tumor, not to the whole body. The objective is to kill all tumor cells while leaving the surrounding healthy tissue with little or no radiation dose.

[Another unit of measurement is the **curie (Ci)**, named after Marie and Pierre Curie, in which a radioactive nuclide decays at the rate of 3.7×10^{10} disintegrations per second. Curies may also be used to express a quantity of radioactive material rather than a decay rate. Currently radioactivity is measured in **becquerels (Bq)**, which equates to one decay per second. $1 \text{ Ci} = 3.7 \times 10^{10} \text{ Bq} = 37 \text{ GBq}$ and $1 \text{ Bq} = 2.703 \times 10^{-11} \text{ Ci}$.]

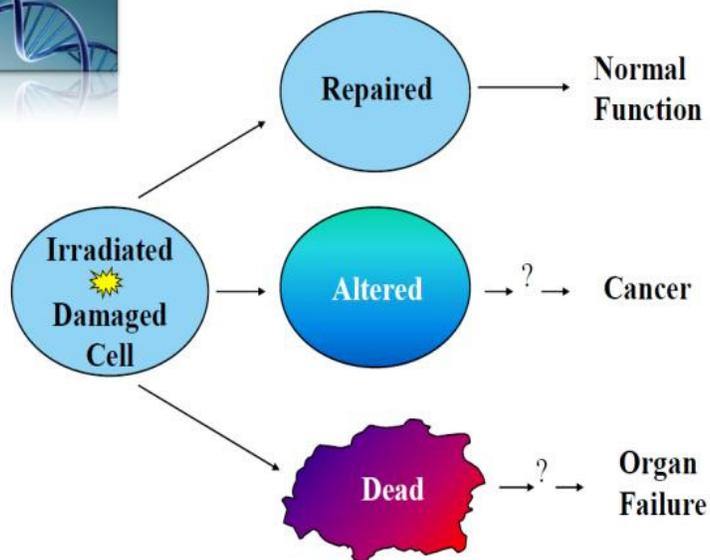
Human Health Effects:

Depend on radiation dose, dose rate, and other parameters (e.g. age):

- Acute effects (acute radiation syndrome)
- Late effects (cancer)
- No observable effects

Three measures of radiation protection:

Time, Distance and Shielding



Summary:

Source: A. Ansari, Radiation Threats and Your Safety, 2010.

- Radiation types: alpha, beta, gamma
- Radiation and radioactivity are part of our natural environment
- Radioactive contamination is not immediately life threatening.
- Decontamination is relatively simple.
- Radiation can be readily detected.
- Dose Units: rem (U.S.) and Sieverts (International)
- Radiation *can* kill in short term or cause cancer in long term.
- It is all about the dose!

Evacuation Planning: The Achilles Heel of Disaster Readiness

By Irwin Redlener, MD
Director, National Center for Disaster Preparedness
Columbia University Mailman School of Public Health

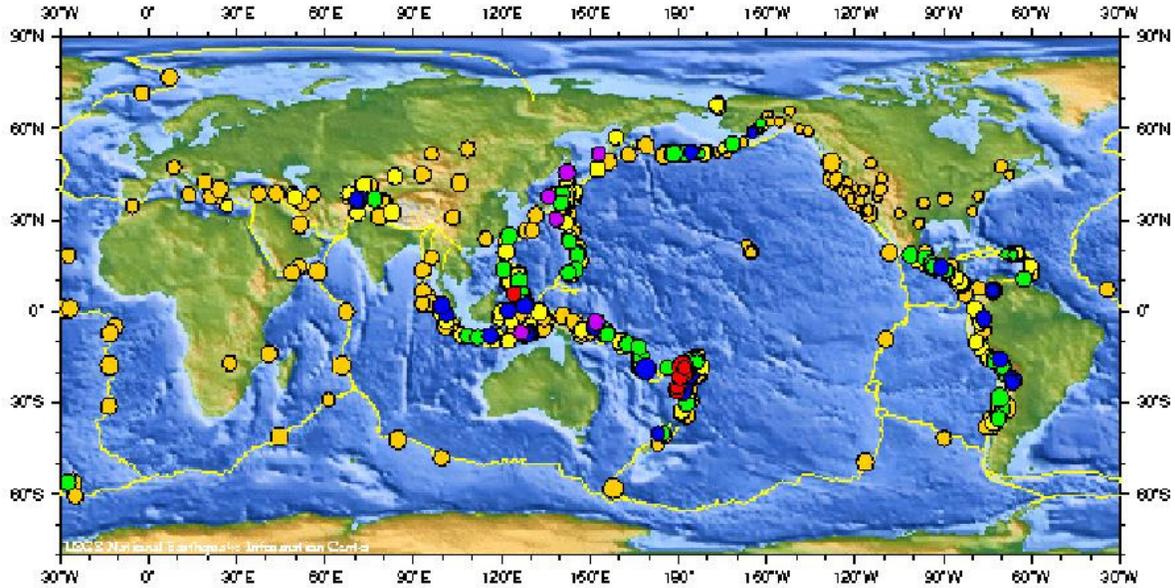
Five Key Points:

1. **Will Expectation be Orchestrated or Spontaneous Evacuation?**
 - Evacuation should not be conceptualized only as the government bringing in buses and taking people to shelters.
 - Rather, the vast majority of people evacuate on their own, in their own vehicles.
 - Where do they go?
 - What are the implications for the host communities?
2. **Every evacuation is a public health challenge/crisis**
 - Evacuees: Health/ Public Health Perspective
 1. Separation from loved ones, dependents
 2. Extreme “return uncertainty”
 3. End of “normalcy”
 4. Loss of possessions
 5. Loss of pets
 6. Injuries: blunt trauma, radiation, burns, shock...
 7. Hunger, thirst
 8. Acute evacuation trauma: Motor Vehicle Accidents (MVA)
 9. Acute illness: MI, CVA, Acute respiratory problems
 10. Complications of chronic disease: DKA, severe hypertension
 11. Loss of medication (and critical device) access
 12. Disoriented, terrified
3. **Pre-disaster vulnerabilities represent critical variables**
 - How many people (in U.S.A)?
 - Children: 75 million
 - > 65 years old: 40 million
 - Significant chronic illness: > 120 million
 - People with disabilities, age 21 – 64: 22 million
 - Living in poverty: 44 million
 - Undocumented: >11 million
 - Prison population: > 2 million
 - Nursing homes: 1.5 million
 - *...Vulnerable Individuals/ Population > 50% of U.S.A.*
4. **Host Community Needs Must be Accounted for (and Resourced)**
 - To-do list for host communities
 - Shelter
 - Sanitation
 - Reliable supply chains: food, water, medicines, diapers, cribs
 - Communications & messaging
 - Public Safety
 - Re-unification
 - Medical-care: acute, chronic, mental health support, in-patient care
 - Educational continuity & day care
 - Permanent housing
 - Language and cultural accommodations
 - Special populations: prisoners, nursing home residents
5. **Competency of Evacuation Planning Cannot be “Out of Scope” in Evaluating Relicensing of Nuclear Power Plants**
 - “Right now, what I just told you – every word of it – cannot be used to not certify a new plant or recertify an old plant.”

Our Local Earthquakes

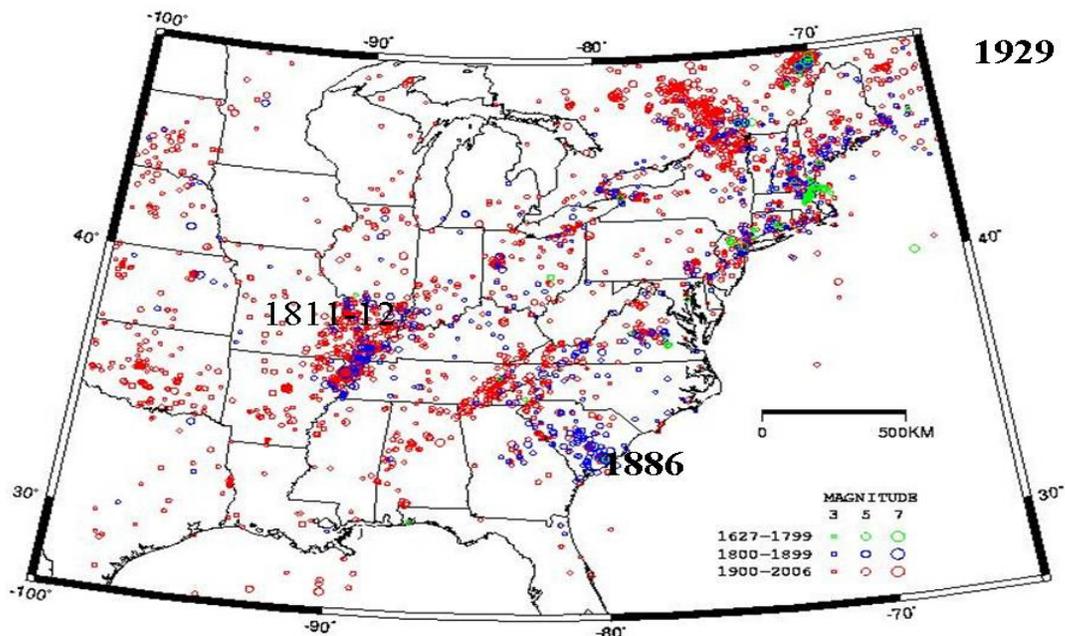
By John G. Armbruster, Seismologist, Lamont-Doherty Earth Observatory, Columbia University

30 days of Earthquakes



Most earthquakes occur along the Pacific Rim; however, some also occur in the eastern United States.

L-DEO Catalog 1800-2006



A history of earthquakes in the eastern United States (note concentration in lower New York).

A Lesson from the Fukushima Nuclear Accident

At 3:36 pm on March 12, 2011, the day after the mega earthquake and tsunami hit northeast Honshu, Japan's main island, the No.1 reactor building of the Fukushima No.1 Power Plant exploded. Soon after, an order for 77,000 residents from 28,000 households within 20 km of the power plant was issued, instructing people to evacuate to areas outside a 20km zone around the plant. However, this official command was never received, as the earthquake had cut off the electricity and all communication lines, including telephone and internet. Nevertheless, rumor spread quickly that the radiation emitted by the explosion was so deadly that it would kill everyone in the vicinity unless they escaped immediately.

Many people from within the 20 km zone, as well as vast numbers of residents from outside the area, began to flee. Mothers with babies and small children were the first to leave. No one had anticipated a nuclear accident of this magnitude and no one was prepared for the ensuing crisis. People did not have enough drinking water, baby food, nappies, medicine and other essentials. They did not have enough petrol to travel long distances. Yet they grabbed what they could and tried to flee by car. Traffic jams soon created further chaos and in parts cars moved only 50 meters in an hour. Many cars queued to purchase petrol, further delaying the escape of those inside and increasing their exposure to the radiation.

Much later, elderly people, hospital patients and physically and mentally handicapped people were evacuated. A lack of suitable accommodation for these unfortunate souls meant that they were transferred from one place to another, sometimes spending long hours in cars. Some were moved to large cities hundreds of kilometers away. By March 15, 50 elderly people had died. On that day, the No 2 and No 3 reactor buildings also exploded, causing anxiety among people in other regions of Fukushima prefecture, as well as neighboring prefectures and even Tokyo. In addition, 1,800 people were missing as a result of the tsunami, but high levels of radiation prevented search and rescue work. The bodies of these people have never been retrieved. Many children were left orphaned by the disaster.

This Fukushima experience demonstrates that no evacuation plan could prepare a community for a major nuclear power accident like this or the one that occurred at Chernobyl. Evacuation drills will never ensure order when a nuclear accident causes mass panic, brought about in part because we cannot see, smell or touch radiation. Fear leads to confusion, disorientation and inevitably irrational behavior.

Between March 1 and December 31 last year, 21,000 people died in Fukushima Prefecture. This was 9,000 more than in the previous year. Official reports put the number of deaths due to the earthquake and tsunami at 3,400. The remaining 6,600 deaths resulted from the devastating effects of the aftermath of the earthquake and the nuclear power accident. Many people committed suicide, like the 64-year-old farmer, who had produced organic cabbages for more than 30 years in Sugagawa, 70 km away. He took his life on March 24.

Prior to the disaster, Fukushima Prefecture had 150,000 hectares of rice and vegetable fields and 80,000 farming households. As the seventh largest agricultural prefecture in Japan, 40 per cent of its production was rice, with fruits such as peaches, pears and cherries making up the remainder. The area was also known for good quality fish, like bonito and saury, as well as dairy farms and mushroom forests in the mountains. The nuclear explosion subjected the entire region, as well as areas far beyond, to radiation levels equivalent to 20 times that inflicted on Hiroshima by the atomic bomb. Radiation continues to permeate the surrounds. The damage to the agricultural and fishery industries is beyond speculation. In addition to the initial destruction, "hot spots" - places contaminated with high levels of radiation, such as the village of Iidate - outside the 20km zone continue to cause great concern. It is most unlikely that those who lived within the 20km zone or in these hot-spot areas will ever be able to return to their homes and resume their interrupted lives.

Among the “voluntary evacuees” from outside the 20km zone, only those whose homes were in hot spot areas were entitled to receive government assistance. All the others had to find their own temporary accommodation. Many drove long distances to cities like Saitama and Tokyo to seek refuge in the homes of relatives and friends. Some moved from one place to another before eventually returning home, when they felt they could no longer impose on other people.

For those who have relocated, there are often family problems, particularly for young couples with small children. In many cases the husband has remained in Fukushima because of his job, while the mother and children have moved away, for fear of the effects of radiation upon the children. This arrangement often necessitates the additional burden of paying for rent on the new accommodation. If the children attend new schools, they must be registered as residents and local council taxes must be paid. Weekend visits by the husband to see the family inevitably involve expensive fares among other things. The financial burden of this stressful arrangement, together with the psychological trauma, is causing friction between couples, and it appears that divorce rates are increasing. Scores of evacuees who moved into small, prefabricated houses provided by the government suffer isolation and depression, due to a completely changed life style and lack of communication among the new residents. In addition, many suffer the deep sorrow of losing kin and close friends in the earthquake and tsunami.

The nuclear power accident is thus destroying many traditional farming and fishing communities as well as families. Large numbers of people, particularly children, are suffering deep psychological trauma resulting from the fear of radiation and separation from fathers and friends. Parents worry constantly about whether or not the food they feed their children is safe, how long they should allow the children to play outside, how often they should take them for medical checks and so on. For years to come, they will live with the fear that they or their children may develop leukemia, cancer or other illnesses suffered by many atomic bomb survivors of Hiroshima and Nagasaki. Thus, for the foreseeable future, psychological depression, associated with radiation problems will continue to be a serious problem for many victims of the Fukushima nuclear power accident.

People in Fukushima are also facing “social discrimination,” in the same way that atomic bombing survivors in Hiroshima and Nagasaki have done for decades. In Japan it is widely believed that children born to victims of the atomic bombings carry genetic defects, caused by their parents’ exposure to high levels of radiation. As yet there is no clear medical or scientific evidence to prove such claims. However, many people still try to avoid marrying the descendants of atomic bomb survivors. Sadly, this same myth is now emerging with regard to Fukushima. Such discrimination is also happening in schools, where their classmates, who think radiation is contaminating, are bullying children from Fukushima.

Today, radiation released from the Fukushima nuclear reactor accident is at the heart of a myriad of problems – physical, psychological, social and inter-personal - that would never have been contemplated before. There is no effective and immediate solution to the difficulties caused by this invisible, frightening and deadly substance. One thing seems certain. We must endeavor to avoid such a catastrophe in the future and spare our loved ones the immeasurable agony that has been caused. We must stop using nuclear power, either in the form of energy or weapons. The people of Australia and Canada must consider seriously the irreversible damage that has been caused by exporting uranium to many countries including Japan.

Yuki Tanaka
Research Professor
Hiroshima Peace Institute