Emergency Preparedness (EP) Subcommittee Meeting Notes
Granada Hills North Neighborhood Council (GHNNC)
Tuesday, May 1, 2012

GHNNC office, 11139 Woodley Avenue, Granada Hills, CA 91344

Announcements and General Discussion

Next meeting: Tuesday, June 5, 2012, at 7:00 p.m., in the same location (GHNNC office).

We will be dark in July, so no meeting. Be safe and have a Happy 4th!

Free upcoming classes at SOS Survival Products.

- Preparedness Training on May 5, 11:00 a.m.
- Emergency Food Storage 101 class on May 19, 12:00 p.m. – 1:30 p.m.

Hams: Lake Balboa Sunday Morning EP simplex net, 9:00 a.m., on 145.570 mHz.

Attendees' attention was directed to the EP material on the table at the front of the room, including our standard colored flyers:

- Pink flyer: Suggested EP items to stock kits for car and pets.
- Yellow flyer: Suggested EP items for 72-hour kit and gift ideas to help friends and loved ones stock their EP kits.
- Salmon flyer: Organizing Vital Records and Home Security.

A new lavender flyer was distributed, Nuclear Safety Checklist, to coordinate with today's topic.

Attendees received a credit-card-sized laminated card detailing the color codes used for underground utilities.

Featured Talk: Nuclear Safety: How to protect yourself and family in the event of a "nuclear incident"

Speaker: David Bear. David trained with the US Navy Nuclear Submarine Service for seven years, and from 1975 through 1979 worked as Senior Health Physics Technician at nine commercial nuclear facilities throughout the US. In 1979, he was one of three radiation specialists called by Metropolitan Edison to Three Mile Island (TMI) to enter the plant and measure levels of contamination from the meltdown there. He co-hosted radio programs in the LA area in 1984 and 1985, is the author of several publications, and a co-founder of the Coalition for Independent Investigation (www.cfii.info).

In his seven-year tour on a Navy nuclear submarine, David learned the basic operation of a pressurized water reactor and support components. His specialty was radiation training, radiation monitoring and documentation, and nuclear chemistry. Later he worked in the commercial nuclear industry in nine different plants. He was a "rent-a-tech" to monitor the radiation. When the TMI incident occurred, he was sent out there as a technician. Emergency preparedness was nonexistent, stories conflicted, and the public did not know what to do. From that experience, David concluded that the public needs to know how to protect themselves and their homes. You don't really need to understand the technicalities and terminology to know that if there's a problem, you want to keep your home environment clean and safe.

After the Fukushima disaster, David and co-authors, Randall and Joy Thompson, wrote the book *Home Health Physics: How to Protect You and Your Family from Radioactive Contamination*, which is available in English or Japanese, and is free for the download on www.cfii.info (a printed version can also be purchased). "Health Physics" is the general term to describe radiation protection techniques.

In the case of a nuclear incident, how do you know if your environment is safe? You don't. In order to properly protect your home environment during a nuclear event, you need to pretend that your environment is contaminated. Err on the side of caution. Pretend that you can see the isotopes, the atoms themselves lying around on your kitchen countertop and on the top of the stove and on the surface of the plates and on the can opener and on the surface tops of the cans that you want to open. If you play that little game and rinse them off before you use them, you've done everything you can to protect yourself in your home. Radioactive contamination is not unlike dust. Really, really small dust. So, if you keep a clean kitchen, you're OK. Rinsing with water is OK. But, what water are you going to use? If using water that's coming from a source that's contaminated, then rinsing with contaminated water is not effective. But, if you rinse with *filtered* water, that's OK.

The following is a summary of the tips discussed. Further background follows after the tips.

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Recommendations for home and personal protection during a nuclear event.
Follow these guidelines for 2 to 4 weeks.

- **Food cans:** Always rinse your can opener and the can before opening each can.
- **Filtered water:** Always use filtered water. Recommended: a Brita® filter (or similar) because it's easy and cheap. You get about 400 gallons of water out of a Brita filter. The filter is going to trap about 99% of whatever contamination is poured through it. Properly dispose of the filter (instructions below). You can use bottled water, but since the supply of bottled water is limited to your supply on hand, David recommends a filter. Reverse osmosis filters are effective, but they are expensive and waste water. Machines in the grocery store that filter water are effective as well. *(EP supplies to have on hand: Brita® filter and a supply of replacement filters.)*
- **Pet food bowl:** Rinse pet bowls and give pets filtered water. Cover the pet food bowl when not in use.
- **Clean kitchen surfaces (countertops, stove top, around the edge of the refrigerator and freezer doors)—to be done once a day:** Use a new fresh sponge—brand new (paper towels could also be used). Wet the sponge with filtered water, with just a little inexpensive kitchen detergent, Simple Green®, or Dr. Bronner's® dilute solution, or bleach, if you prefer—anything like that at all. Make one pass with the sponge. And now there's contamination on the sponge. If you go back in the same direction, you're

spreading it back from where you just came. So, you start at one end, you make a single pass, turn, and make a single pass, turn, make a single pass. Take that sponge and assume it's contaminated and put it into your special trash can. Use it one time only. *(EP supplies: kitchen detergent and a supply of sponges.)*

- **Vacuum the living room with a shop vac four hours a day (can break up into two sessions of two hours each):** Use filtered water and pour the water down the drain. The water will trap the majority of the dust in the air. *(EP supplies: wet/dry shop vac, available at any hardware store—Lowe's, Home Depot, Sears, OSH.)*
- **Change the filter in your air conditioning unit:** Use a HEPA filter and change it weekly, or use inexpensive filters and replace them daily. Fold the used filter and put it in your contaminated waste barrel.
- **Keep your air conditioning unit on recirculate:** Recirculate the air in your house, don't draw potentially contaminated air from the outside.
- **Seal all your windows:** With duct tape, masking tape, or blue painter's tape, seal all your windows. Scotch tape will also work—anything that will make a barrier so that air doesn't flow in. Seal as many sources of air coming into the home as possible. Put up a barrier of some kind. Don't open those windows. Should you tape your doors? You could tape around all doors except the front door and only use the front door; that will minimize introduction of potential contamination inside the home. *(EP supplies: a supply of tape and cardboard, plastic sheeting, or paper.)*
- **Examination gloves:** Wear examination gloves. Use the gloves once and when done, invert them as you take them off and dispose of them in your contaminated waste barrel. Gloves should be large enough so that they are easy to get on and won't rip; can put some talc on your hands first so the gloves will slide on and off easily. *(EP supplies: a generous supply of examination gloves. Best to use latex-free ones.)*
- **Clothing:** If you go outside, wear galoshes or overshoes (preferably rubber). When you come back inside, take them off before you step through the doorway, and leave the boots outside, covered. As you step outside, you step into your outside shoes. Consider only wearing a bathing suit in the home and when you step outside, you step into clothes, and as you come into the home, you take those clothes off and leave them outside on a coat rack or on some nails on the door on the outside. *(EP supplies: galoshes.)*
- **Disposal of waste**: Double bag potentially contaminated waste in plastic. In the case of the water filters, for example, put it in a Ziplock bag or wrap it in Saran Wrap® and put it in a separate trash can, which is plastic lined. When it's full, wrap it, seal it tightly, close it off with tape, double-bag it, and label it. Have a couple of bags with your waste: one outside your back door and one just inside your front door because as you step back in, you might realize, for example, that your shirt is contaminated. You wouldn't want to wash the shirt in your washing machine because that would contaminate the inside of your washing machine. Instead, dispose of it in the can right inside the door. *(EP supplies: a couple of boxes of 200-count plastic trash bags; a couple of security trash containers—13-gallon size is sufficient; tape to seal the bag.)*

See the Nuclear Safety Checklist handout (on lavender paper) for suggested items to have on hand *before* a nuclear disaster.

What do you do with the waste in your trash bags? Good question. Bury it? That works until the bag biodegrades. Dump it in the ocean? Burn it? That makes radioactive dust, which allows it get around in the air. Really, there's no good way to dispose of it. Do keep it out of your home; keep it out of your children's food supply; keep it out of your pet's food; protect your home and your home environment. Perhaps the City will make a special trash pickup day for radiation-contaminated trash.

Additional tips:

- **As a general rule, don't sleep on the floor.** Instead, sleep about two feet above the floor.
- **Iodine:** (For information only—consult your physician before hand if this regimen would be appropriate for you.) You can protect your thyroid during a nuclear incident by saturating it with nonradioactive sources of iodine, such as seaweed, iodine table salt, iodine tablets. Puritan's Pride, www.puritan.com, has inexpensive seaweed kelp tablets that have nonradioactive iodine. *(EP supplies: A bottle of potassium iodide or kelp tablets and start taking them when you hear that there's an actual release going on; keep taking them for 60 or 70 days.)*
- **Mops:** Don't use a mop; use a product like Swiffer® . Instead of a Swiffer® refill, you can use paper towel. (*EP supplies: a Swiffer®.)*
- **Groceries:** When you go to buy groceries, wear your outside clothes, including the galoshes, and then upon returning, leave the bags that you have the groceries in outside, and bring the contents inside. (Food stored at home minimizes the need to go to the grocery store.)
- **Stay in the house:** If you can, stay in the house for a couple of weeks.

If you decide to invest in a hand-held radiation detector, make sure you learn what the readings mean. Consult a library or online resources (*some sources listed on the handout*).

When you hear on the news that the radiation released wasn't so bad and that you get more radiation on a flight across the country, what they don't say is that you're going to be exposed to that dose in the environment *per hour*, 24/7, and not just one time for the flight. When you get a chest x-ray, there's risk vs. benefit.

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Further background details:

There are some fundamental differences between radiation and radioactivity. Every atom is a "lazy bum"; it likes to be at its lowest energy level that it can possibly be at. If you do anything to disturb it (poke it, shove a neutron into it), it gets activated; it becomes energized, and the first thing you can say about an atom that's been thus energized is that it is now a radioactive atom (a term coined by Madame Curie). The number 1 thing this radioactive atom wants to do is to get rid of that energy and go back to its "lazy bum" state. The way it does it is to throw off the energy randomly. It *radiates* this energy in all directions. The energy that is being radiated out of this radioactive atom is called “radiation.” Where does radiation come from? From radioactive atoms. “Is there radiation in the air?” Not often. If there is, it’s a separate problem because something big enough is giving off enough energy to put radiation passing on through. But, is there radioactivity in the air? Yes. It’s not so bad as long as you don’t get any on you. But, if a child licks something in the environment, now there’s radioactive atoms on the kid’s tongue, and now it goes into the biological processing of the body, and now that’s called “internal contamination of radioactivity.” What’s happening with those radioactive atoms in the body? They’re giving off their radiation, just like they do whether they are in your body or not. That’s the real problem: Don’t get any *on* you and don’t get any *in* you.

There are two kinds of radiation: The kind of radiation that can harm you, even if it isn’t in your body. That’s called external radiation—it comes from outside your body, passes on through, and it punches out other atoms along the way, which happen to be part of your biomass. When that happens, your biomass becomes damaged. If you damage enough biomass, the first thing that happens is you get basically acute Acquired Immune Deficiency Syndrome—AIDS. Radiation exposure causes AIDS. But, your body can recover from that. It’s like getting a dip in your white blood cell count and then it goes back up in a couple of weeks.

What about irradiated food? It’s safe to eat because it only had gamma rays passed on through. But, there’s an ongoing debate about irradiated food. Is it harmful? David doesn’t think so. Does it contain any nutritional value—not as much as it would if it were not irradiated.

There are four kinds of radiation that are of biological concern. Two of them are gamma rays and neutrons. Gamma rays and neutrons penetrate just about anything. You could be walking along and the gamma ray would come on by and zap through your body and knock off a few cells—*ionize*, which means rip the orbital electrons off of an atom. Neutrons do the same thing, only they act more like bowling balls knocking into the atom and scattering things around. So, you don’t have to eat something or ingest an isotope in order to have a gamma ray or a neutron pass through you. Those two kinds of radiation are called **external radiation hazards**.

Then there are **internal radiation hazards**. These are alpha particles and beta particles. An alpha particle cannot penetrate a piece of paper, and a beta particle would have a difficult time getting through a folded piece of paper. They don’t have the energy. But, if you ingest an isotope that emits alpha or beta particles, now these alphas and betas have access to the cells wherever they land. Unfortunately, the alpha emitters tend to be bone seekers, meaning plutonium, uranium, heavy metals. If you eat some, it will work its way through your body and end up in your bones and in your muscle.

There is not much we can do about the external radiation sources—duck and cover, perhaps, if someone detonates a device or something.

Most “lazy bum” atoms have the potential of becoming activated—bombarded by neutrons mostly; sometimes gamma rays—thus becoming radioactive atoms. When they do, the make-up of the number of protons in the nucleus and orbital electrons in the shell and, generally, its characteristics of how it is as an atom will determine whether it emits beta particles or alphas or gammas or some combination. Similar to the periodic chart of the elements that everyone remembers from school, there’s also a periodic chart of the isotopes. It looks very similar. It says if this atom becomes radioactive, it gives off this kind of radiation—it gives off beta and the energy level of the beta and how long it will last, what its half-life is. For example, 2 grams of something radioactive and it has a half-life of 8 days, just like iodine. Eight days later, the amount of radioactivity is half because it's given off its gammas. Another 8 days, and it's half of that; another 8 days, it's half of that. In the case of iodine, after about 80 days, it's gone because it has given off its energy; it's gone back to being the "lazy bum" atom that that it was when it started. Each individual isotope has its own characteristics of the energy level of each radiation it gives off; how long it will last. You can look it all up through Wikipedia—they actually do a fairly good job of describing it. If you take the half-life of cesium-137, which is in the news, it's a fission product—one of the things you get when you when you split the uranium atom—has a half-life of 30 years. If you eat something that has cesium isotopes on it—a couple of grams—it will be in your body and will be giving off radiation, and 30 years later, half of it will be gone. But your body says not so fast—there's also a thing called biological half-life—how long will it take for that peanut butter and jelly sandwich to pass through you and end up back with the Sanitation Department. 18 hours? 22 hours? 27 hours? It depends. When you take a look at the biological half-life of something in your body and blend it with the radiological half-life of the isotopes on it, you get an effective half-life. Well, you know, it's not so bad because it's not going to be in your body that long. Yes, except for those isotopes that stick where they stay.

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In the audience: Libbe HaLevy, who hosts a free weekly podcast called Nuclear Hotseat and a website (www.nuclearhotseat.com) with numerous resources and an e-book on the subject that will be released soon.