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Nuclear *safety*

AN 18-PAGE IMPROVISED NUCLEAR DEVICE (IND) PROTECTIVE ACTION GUIDE:
HOW TO STAY SAFE AND HELP OTHERS IN THE EVENT OF A NUCLEAR EXPLOSION



GET **INSIDE.** STAY **INSIDE.** STAY **TUNED.**

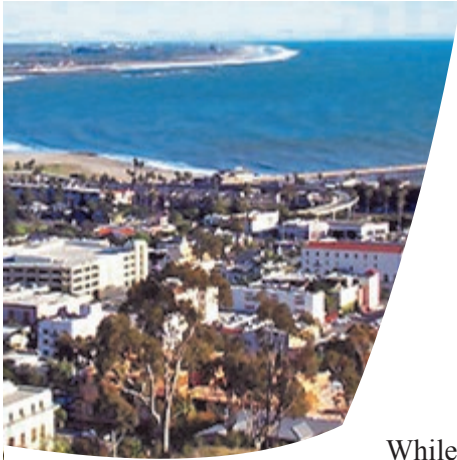
An Emergency Preparedness Educational Guide for Residents and Visitors of Ventura County, California.



introduction

GET **INSIDE.** STAY **INSIDE.** STAY **TUNED.**

Introduction



Why did Ventura County create an educational guide on Nuclear Safety?

Our goal: Save lives and minimize injuries

As part of Ventura County's ongoing public health and emergency preparedness initiatives, this 18-page educational guide was created through grant funding provided by the Center for Disease Control. This guide was created in conjunction with an 18-month educational initiative to teach residents and visitors how to act smartly and safely in the event of a nuclear explosion.

While there is absolutely no known or immediate threat upon Ventura County, or any other county nationwide, Ventura County seeks to proactively integrate nuclear preparedness into its ongoing emergency preparedness initiatives. Preparing to survive an IND explosion is one of fifteen national planning scenarios, and Ventura County seeks to integrate nuclear safety into its preparedness efforts.

From flu shots, to wildfire safety, to earthquake safety and more, nuclear safety is one of the many preparedness topics the County will teach its residents.

For more information about nuclear safety and further background on why Ventura County is leading this public education, please visit us on the web at ReadyVenturaCounty.org.

SURVIVAL GUIDE:

What you will learn in this guide



This survival guide will:

1. **Define** a nuclear explosion and articulate why it's important to know how to survive one.
2. **Explain** why "sheltering in place" is the safest action you can take, no matter where you are.
3. **Equip** you to take easy preparatory steps to survive such an explosion.
4. **Introduce** you to "Get Inside. Stay Inside. Stay Tuned." slogan and recommended public health survival strategy for such an incident.
5. **Demystify** the damaging effects of radioactive fallout and other confusing terms and scenarios.
6. **Educate** you on how you can best take care of yourself, your kids, pets, and farm animals.

GET INSIDE. STAY INSIDE. STAY TUNED.



"Get Inside. Stay Inside. Stay Tuned." is the tagline for the smartest and safest survival strategy in the event of a nuclear explosion. Just as you learned "Stop. Drop. And Roll." to keep your family safe in the case of a fire, this educational guide is designed to teach what it means to "Get Inside. Stay Inside. Stay Tuned." and outline why it is so critical to do so as quickly as possible in the event of a nuclear explosion.

Introduction

WHAT IS A NUCLEAR EXPLOSION? WHAT DOES IT LOOK LIKE?
WHY DO I NEED TO KNOW HOW TO SURVIVE ONE?
WHY IS IT RELEVANT TODAY?

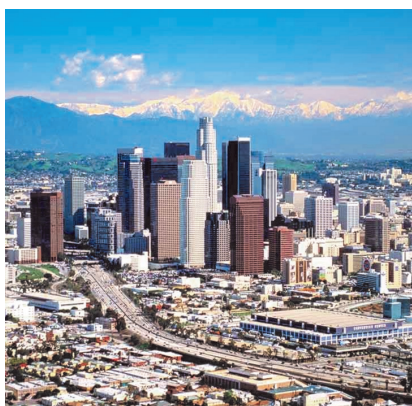
The Definition

A nuclear explosion is a dangerous and life-threatening blast with severe consequences for anything in its path.

Colloquially known as a “suitcase bomb” or a “backpack bomb” — a nuclear explosion is characterized by intense light, heat, and damaging pressure waves that can obliterate any man-made or natural materials.

A nuclear explosion is comprised of two elements—each with severe implications:

1. **The blast**—the initial impact that destroys the immediately affected area. The “mushroom cloud” rises up from this explosion.
2. **The fallout**—the dangerous particles that drift through the sky and down onto neighboring areas.



Ventura County neighbors Los Angeles County, a region recognized alongside many other major U.S. and international cities as a possible terror target.

Why Ventura County? Why Now?

There is no known immediate threat to Ventura County or any other county in the U.S. However, nuclear safety is one of fifteen national emergency preparedness planning scenarios, and it is important that we as a community are prepared for how to survive one. Due to the sheer magnitude of such an event and the potential for a nuclear explosion’s violent blast and deadly radioactive fallout to send any community into chaos, Ventura County is including nuclear safety in its ongoing emergency preparedness initiatives. Whether one were to occur in our immediate community, or even in a neighboring community, it’s important that we are informed and prepared to survive.

But isn’t the Cold War over?

Many Baby Boomers and older adults tend to think of nuclear explosions in the context of World War II or the Cold War; for Generation Y, Generation X, and Millennials, nuclear explosions are sensational events seen on television shows such as *24* and in films such as *Independence Day*. The fact of the matter is, we don’t spend much time thinking about nuclear explosions. However, from a public health and emergency preparedness perspective, it is critical that we as a community be prepared for the worst.

Simply Stated:

We are living in a post 9/11 world. And, we are living on the edge of Los Angeles County, home to one of the biggest cities in the world, and one that has been identified by Congress as a possible terrorist target. Due to Ventura County’s proximity to Los Angeles, we could experience the direct or indirect effects of a nuclear explosion and radioactive fallout. Thus, it is important we have a plan in place to protect ourselves, our families, friends, colleagues, pets and farm animals.

get inside



Get Inside

WHAT IS SHELTERING IN PLACE? WHY IS IT THE BEST SURVIVAL STRATEGY?
WHY ARE SOME METHODS NOT AS SAFE?

Finding Shelter



Sheltering in place is the *survival strategy* endorsed by doctors, firefighters, and policemen that increases your likelihood of surviving a nuclear explosion.

It is the safest and smartest way to survive.

Many people's gut instinct would be to *flee* a nuclear explosion by foot or by car. That would be bad. Even deadly. Why? Because the safest action is in fact *not to run* — because running may put you into direct contact with radioactive fallout.

Fallout is dangerous. It can kill you. Therefore, wherever you are, you need to get inside. The deeper inside a building you get, the safer you will be.

In the event of a nuclear explosion, in order to limit and minimize your exposure to the dangerous radioactive fallout outside, you want to *get inside*, and *stay inside*, until you are told by public health and rescue workers that it is safe to come out. *Stay tuned* to your radio, television or internet (via computer or Smartphone) to receive word that it is safe to come out.

Why is “Get Inside” safer than “Duck and Cover?”

From the 1950s to the 1980s, many people learned the message: “**Duck and Cover.**” However, “Duck and Cover” is not the safest way to survive a nuclear explosion. Crouching on the ground and protecting your head with your hands is not enough. You need to get inside a building—as deep inside as possible. The center of the building or basement of the building is safest. And when inside, stay away from the windows and any building exteriors, including the roof, as radioactive fallout can settle on the roof and cause harm if you are too close to it.



Why is a car a bad place to shelter?



Of all the shelters you can choose to get inside and stay inside, a **car** is one of the least effective. While a car *does* offer the tiniest bit of protection by preventing direct contact with fallout, deadly particles can land on the roof, doors, hood, trunk and can even settle underneath the car. In fact, radioactive fallout can easily penetrate the thin layer of protection a car provides.

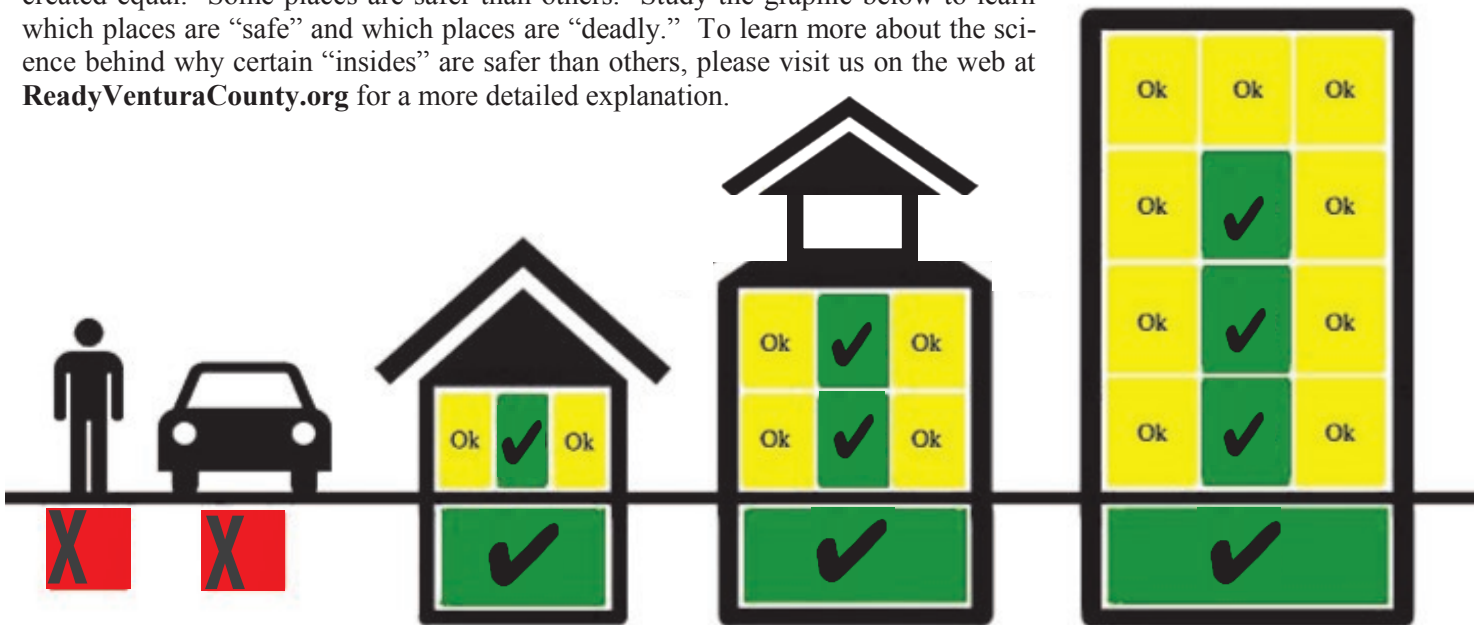
Even if the sky is clear and you don't see any fallout coming your way, get inside a building. It's safer.

“Duck and Cover” is no longer an encouraged survival strategy. We now have a deeper understanding of the deadly effects of radioactive fallout and how to best avoid it. Today, we encourage all residents and visitors to immediately “Get Inside, Stay Inside, Stay Tuned.”

Get Inside

Get Inside: Where is “safe” and where is “deadly?”

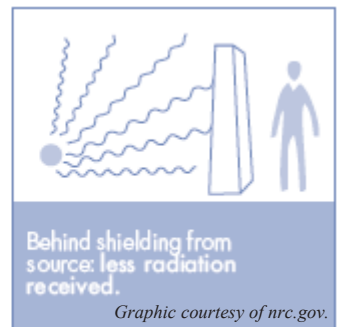
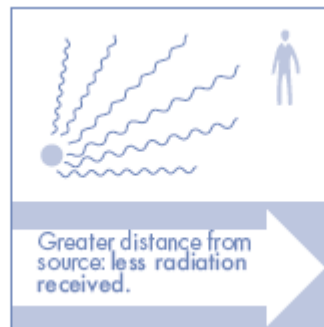
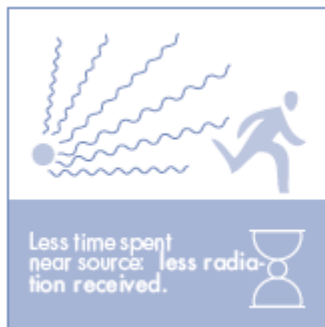
In the event of a nuclear explosion, Ventura County residents and people in the way of deadly radioactive fallout should get inside immediately. But, not all insides are created equal. Some places are safer than others. Study the graphic below to learn which places are “safe” and which places are “deadly.” To learn more about the science behind why certain “insides” are safer than others, please visit us on the web at ReadyVenturaCounty.org for a more detailed explanation.



When inside: What *else* can I do to protect myself?

Three things can decrease the strength of deadly radiation found in nuclear fallout: **time, distance and shielding.**

The more time that passes after a nuclear explosion, the less powerful the effects of radioactive fallout. Within a matter of hours, the radioactivity of fallout significantly decreases. Therefore, it's critical to get inside immediately after a nuclear explosion when radiation levels are highest. The further away someone is from the fallout, the less radiation reaches them. How far you are (yards, miles, etc.) from the center of the blast will significantly affect their exposure to radiation. Additionally, the greater number of barriers (walls, clothes, etc.) that stand between you and the radioactive fallout will increase your level of protection.



Graphic courtesy of nrc.gov.

stay inside



Stay Inside

WHY SHOULD I STAY INSIDE? WHAT IS IT THAT I'M SPECIFICALLY TRYING TO ESCAPE?
IS ALL RADIATION BAD?

Why is it critical to Stay Inside?

After you get inside, it is critical to stay inside. Staying inside will save your life.

Radioactive fallout is deadliest in the first minutes and hours after a nuclear explosion. With each passing hour, the fallout becomes less radioactive, and your surroundings become safer and safer.

Because radiation decays rapidly, it is much safer to go outside twelve hours after a nuclear explosion than it was initially. However, do not go outside until you are told it is okay by first responders and public health officials.

Depending on your proximity to the center of the explosion, and the amount of traffic on nearby roads, you may have to stay inside for hours or days.

You need to *get inside* to get away from radioactive fallout because the radiation can be deadly. Even if the explosion occurred dozens or hundreds of miles away, the safest action is to get inside. The momentum of the cloud and radioactive fallout that explodes outward from the blast is subject to the wind patterns and geography of Southern California. Fallout can be carried by the wind for miles. No matter where you are, the safest place to be is inside.



IS ALL RADIATION BAD?

While excess exposure to radiation is not healthy nor advised, we encounter radiation everyday. It is naturally present in our environment. The sun in the sky and the bricks in our homes all give off some level of radiation. Frequently, most Americans will get half of their annual intake of radiation through medical procedures especially through x-rays at the doctor's or dentists' office. Whether it's using a microwave, listening to the radio, or walking through a body scanner at the airport, we encounter limited doses of radiation. The U.S. government has set an annual radiation dose limit to protect people from being exposed to dangerously high levels of radiation.

Even in low doses, radiation can increase your risk for cancer or the likelihood of birth defects in offspring. In high doses, radiation from radioactive fallout can injure your bone marrow and intestines. In extremely high doses, radiation can rapidly harm your heart and brain and ultimately kill you.



Radiation from an explosion cannot be restricted or predicted. It can be limited.

Stay Inside

How do I avoid contact with radioactive fallout?

And why is it important to stay away from doors, windows and ceilings?

While radiation is invisible, radioactive fallout can be seen. Fallout will appear as tiny dust-like particles.

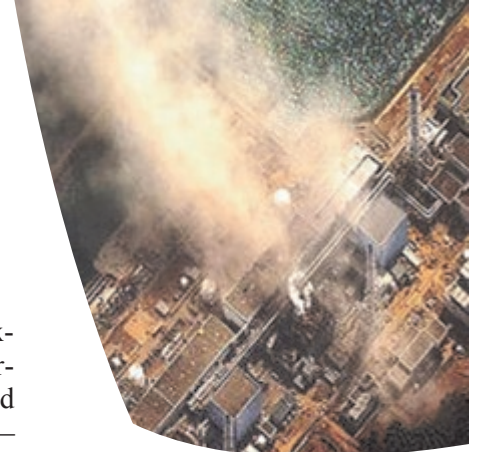
If you get inside immediately you will minimize your contact with radioactive fallout. These dust-like particles, just like any other dust in the air, can pass through cracks between walls, doors and windows. This is why it's important to go to the deepest place *within* or *beneath* the building.

Too much radiation can be bad for you and can hurt you by causing **illness or even death**. In a nuclear explosion,

radiation from radioactive fallout **cannot be limited** in quantity in the same way that radiation can be in a medical setting.

In the first minutes and hours after an explosion, the radiation doses are dangerously high. The best way to safeguard yourself against it is simply to escape it—by getting inside, staying inside, and staying tuned.

Minimizing the amount of radiation that reaches you by minimizing your exposure to radioactive fallout in a nuclear explosion helps you prevent such effects.



While you may quickly get inside to safety, you may discover friends, neighbors, and loved ones have been exposed to dangerous radioactive fallout. Fear not, there are easy steps you can take to decontaminate those individuals who have been exposed.

Is it easy for me to help friends and loved ones who've been exposed to fallout?

CLEANING UP:

How to easily decontaminate yourself and others if you are exposed to dangerous radioactive fallout



1. If you have radioactive fallout on your clothing, hair, face, or hands, you can easily rid yourself of 90% of the radioactive contamination by simply taking off your outer clothing. And yes, there is a time issue. The sooner you do it, the quicker you stop the radiation exposure.
2. If possible, you should bathe or shower—to remove up to 98-100% of the radioactive material.
3. Discard your contaminated clothes in a double-bagged plastic garbage bag and leave the bag outside your building.
4. After you clean yourself, help family members, friends, colleagues, and neighbors who are sheltering in the same place with you to remove their outer layers and take the same precautions.

stay tuned



Stay Tuned

HOW WILL I KNOW WHAT TO DO NEXT? HOW WILL I KNOW IT IS SAFE TO COME OUT?
WHAT KIND OF GUIDANCE WILL I RECEIVE? SHOULD I REALLY BUY A WIND-UP RADIO?

When is it safe to come out?

It is critical to stay tuned to the news as soon as you get safely situated inside. You will only know when it is safe to come out after public health officials and emergency responders tell you. There will be a series of phased evacuations—led by first responders who will guide you to safety when it is finally safe for you to come out.



To follow the latest news and learn when it is safe to come outside, there are four primary channels through which you can expect to receive information:

- 1. Your TV**
 - News channels
 - Emergency Broadcast Alerts
- 2. Your Internet**
 - News websites
 - Social media sites and feeds
 - Facebook, Twitter, etc.
- 3. Your Wind-up or Battery-powered Radio**
 - AM news
 - Emergency Broadcasts Alerts
- 4. Your Cell/Smart Phone**
 - News websites



Only if you or a person nearby is in grave, immediate danger should you call 9-1-1. Phone lines will likely be flooded by anxious or frightened people. Don't be scared. If you've read this guide, there is no reason to be. As long as you get inside, stay inside and stay tuned, you will be taking the smartest and safest action.

What safety information will I hear from public health officials and first responders?

You will receive ongoing information from public health and first responders via news channels in the aftermath of a nuclear explosion. This information will evolve as the minutes and hours go by. Radiation levels and wind patterns will dictate exactly when it is safe for you to evacuate, so it is critical to be attentive. Also, if for any reason you are separated from family members who may be sheltering in place in a different location (work, school, home, etc.), you will learn of their safety.



In the aftermath of a nuclear explosion, it is very likely that even with the best education and preparation, some people will not know what to do. Phone lines may be flooded if call centers are overwhelmed. Even worse, a TV station might be inoperative and internet lines could be down. If for any reason our most relied upon communication mediums are inaccessible, you can always stay tuned to the news through a battery-powered or wind-up radio.



Stay tuned to the news for safety updates and specific next actions (i.e., phased evacuations).

Be Prepared

What can I do today to be prepared?

And what if I have kids, or pets or farm animals?

Q: Should my family and I buy and store food and water to ensure our survival?

A: Yes, it is smart to store up to two weeks of water and non-perishable food items to survive a nuclear explosion. In fact, having extra food and water on hand is helpful for almost any emergency scenario. For a full list of recommended food, water, and tools please visit us on the web at ReadyVenturaCounty.gov.



Q: What if I have kids?

A: If your children are with you at the moment of a nuclear explosion, you should help them follow “Get Inside, Stay Inside, Stay Tuned.” If they are not with you, and are at a place like school, trust that school teachers and faculty will take care of your children and guide them to shelter in the safest part of the facility. Schools in Ventura County have clear cut guidelines on how to respond to a nuclear explosion.

Some panicked parents may try to drive and pry their kids out of school, but it is not advised to do so. You could put your children in greater danger if you expose them to dangerous doses of radiation outside. A school is, in fact, one of the safest structures in a community to shelter in place. Don’t “be a hero” and try to “rescue” your child. Such an attempt could kill not only yourself, but your child as well.



Q: What if I have pets?

A: Bring your pets with you as you follow “Get Inside, Stay Inside, Stay Tuned.” Once you reach shelter and remove any outer clothing that may be contaminated with radioactive dust particles, wash yourself. Then, dust off your pet while wearing a dust mask in order to avoid inhaling radioactive fallout. You can also wash off your pet. To prevent your pets from re-exposing themselves to radiation, enclose them or keep them on leashes. Ensure they have ample food and water.



Q: What if I have farm animals?

A: If you have an enclosed barn, shed, or storage area, guide your animals inside before fallout arrives. Use stored feed and covered water to feed them.



Be Prepared

HOW CAN I PREPARE FOR A NUCLEAR EXPLOSION? WHAT IF I HAVE KIDS AND PETS?
WHAT IS AN EMERGENCY PREPAREDNESS PLAN? WHERE CAN I LEARN MORE?

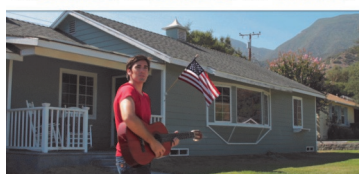
Taking Safe Measures

There are three things you can do today to prepare for a nuclear explosion:

1. Ensure you and your family will be well-equipped in the event of a nuclear explosion by learning how to “Get Inside, Stay Inside, Stay Tuned.”
2. Put together an **emergency preparedness plan** for your family, neighbors, and colleagues to survive a nuclear explosion.
3. Put together an **emergency preparedness kit**.



GET **INSIDE**. STAY **INSIDE**. STAY **TUNED**.



What additional resources will I find online?

Ready.gov features information on how to make a ready kit — and detailed general guidance on how to prepare for any emergency. If you want to learn more information about nuclear safety beyond what is contained within this educational guide, we highly recommend you visit us online at ReadyVenturaCounty.org.

ReadyVenturaCounty.org is also a prime source of information about nuclear safety. At the site, you will be able to watch Public Safety Announcement (PSA) videos about nuclear safety and read further, detailed information on the science behind “Get Inside. Stay Inside. Stay Tuned.”

Additionally, you can visit the websites for Federal Emergency Management Agency, www.fema.gov, the Center for Disease Control, www.cdc.gov, and the Ventura County Healthcare Agency, www.vchca.org.



ReadyVenturaCounty.org is a valuable resource to reference when making an emergency plan and kit for you and your family.

TV PSAs + Video Content available online

Visit us on the web to view a series of TV PSAs created to educate Ventura County residents and visitors about nuclear safety. Some of the PSAs are serious in tone. Other PSAs are light and humorous. Why might we use humor to begin a dialogue about nuclear safety? Because the only unfunny thing is to not have the dialogue at all. As adults, it is our responsibility to have the tough dialogues in life. It is our responsibility to protect ourselves and those around us.



Resident Checklist

Emergency supply kit

Basic items that can be assembled into a kit for any disaster. You should keep one at home, in the car, and at work.

- Water, one gallon of water per person per day for two weeks, if possible, for drinking and sanitation.
- Food, at least a two week supply of non-perishable food.
- Battery-powered or hand-cranked radio and a NOAA Weather Radio with tone alert and extra batteries for both.
- Flashlight and extra batteries.
- First aid kit.
- Whistle to signal for help.
- Dust mask, to help filter contaminated air, and plastic sheeting and duct tape to shelter-in-place.
- Moist towelettes, garbage bags, and plastic ties for personal sanitation.
- Wrench or pliers to turn off utilities.
- Can opener for food (if necessary).
- Local maps.
- Cell phones with chargers, inverter, or solar charger.

Additional Items to Add to an Emergency Supply Kit:

- Prescription medications and glasses.
- Infant formula and diapers.
- Pet food and extra water for your pet.
- Important family documents such as copies of insurance policies, identification and bank account records in a water-proof, portable container.
- Cash or traveler's checks and change.
- Emergency reference material such as a first aid book or information from www.ready.gov.
- Sleeping bag or warm blanket for each person. Consider additional bedding if you live in a cold-weather climate.
- Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes. Consider additional clothing if you live in a cold-weather climate.
- Household chlorine bleach, measuring cups and medicine dropper – When diluted nine parts water to one part bleach, bleach can be used as a disinfectant. Or in an emergency, you can use it to treat water by using 16 drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners.
- Fire extinguisher.
- Matches in a waterproof container.
- Feminine supplies and personal hygiene items.
- Mess kits, paper cups, plates, plastic utensils, paper towels.
- Paper and pencil.
- Books, games, puzzles or other activities for children.

For More Information

Visit us on the web at ReadyVenturaCounty.org to learn further background and detailed information on how you can survive a nuclear explosion.

GET **INSIDE**. STAY **INSIDE**. STAY **TUNED**.



Hi, I'm Dr. Robert Levin, Ventura County Public Health Officer. Please contact my office directly if you have any questions and want to learn more about nuclear safety.

Nuclear safety mission statement by dr. Levin:

In serving as Ventura County Public Health Officer for the past 13 years and as a doctor for the past 35 years, my goal in leading this campaign is simple: Keep Ventura County residents and visitors safe and healthy so they can live their best lives.

Email me at: nuclearsafety@ventura.org



Thanks!

THIS 18-PAGE IND PROTECTIVE ACTION GUIDE IS BROUGHT TO YOU BY VENTURA COUNTY, THE CDC AND FEMA.



GET INSIDE. STAY INSIDE. STAY TUNED.

An Emergency Preparedness Educational Guide for Residents and Visitors of Ventura County, California.