Journal of
Civil Defense

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Promoting sensible precautions for disasters since 1961

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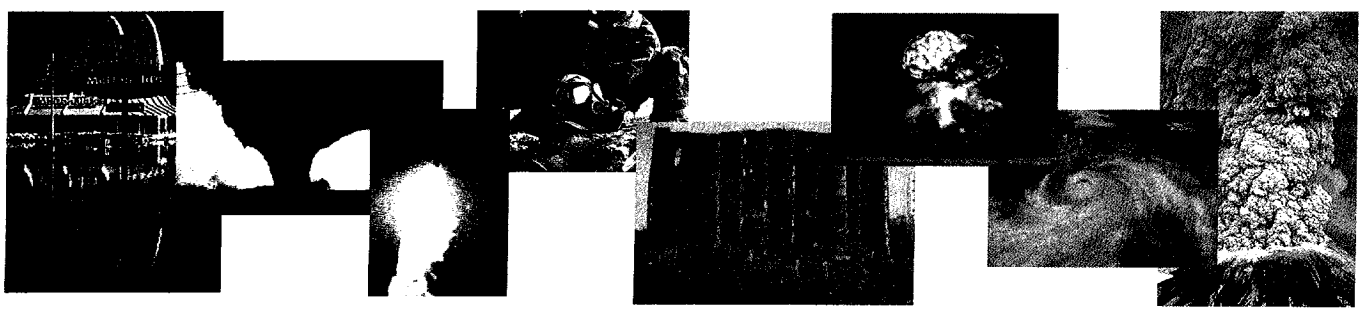
Special Issue Focus ...

Inside



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In the US, they've been used at the:

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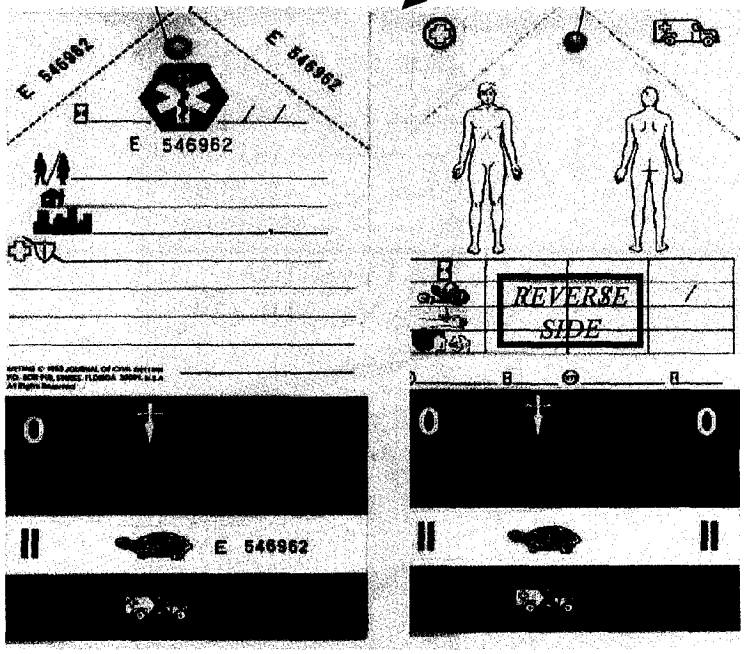

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Colorado's 1998 *Unified Disaster Tag and Triage System: A Guide to MCI* [Multiple/Mass Casualty Incidents] reprints now available for your use.

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When Lives Count, Count on METTAG!

To our readers ...

This issue of the *Journal of Civil Defense* focuses in depth on the issue of tornado preparedness. The lead article derived from a speech by **James Witt**, Director of FEMA, talks about valuable lessons learned from the **Oklahoma/Kansas tornadoes** of May 3rd, 1999. In addition, other useful information is provided on Safe Rooms and shelter building incentives provided by the state of Arkansas. **Hopefully, many states will adopt similar excellent programs**. Our hope is that everyone who reads this Journal will carefully consider whether they and their loved ones are both tornado aware and prepared.

As a reminder, videos of the last TACDA Conference are now available for $17 each. See page 24 of this Journal for more information. Topics include: *"**Preparedness in the Year 2000**"; "**Surviving Weapons of Mass Destruction**" – Sharon Packer; "**From MAD (Mutual Assured Destruction) to MASS (Mutual Assured Security & Survival)**" – Nancy Greene; "**Historical Swiss and Russian Civil Defenses**" – Ed York; "**The News Media, Crisis Management, and the War in Kosovo**" – Charles Wiley; "**US Infrastructure Issues**"– Bron Cikotas; "**A Physician's Response to Modern Threats**" – Dr. Jane Orient; "**US Earthquake Hazards and Mitigation**" – Waverly Person; "**EMP – Issues and Answers**"– Bron Cikotas (only available as a cassette tape for $5); "**Economic Aspects of Disasters**" – David Horton; "**Needed: A Radical Rebalancing of Our Defenses**" – Kevin Briggs. Please* call our office at 1-800-425-5397 to order.

Thanks for your support!

Kevin Briggs ***President, TACDA***

The *Journal of Civil Defense* is the official bimonthly publication of the American Civil Defense Association (TACDA). Kevin Briggs, President; Kathy Eiland, Executive Director. The TACDA Board also includes Ed York, Sharon Packer, Frank L. Williams, Bron Cikotas, Nancy D. Greene, and Regina Bass. Walter Murphey is the Editor Emeritus of the Journal.

Recommendations for Reducing Tornado Damage

Excerpts from a speech by James Lee Witt, Director, Federal Emergency Management Agency to the National Press Club on March 28th, 2000

On May 3, 1999 more than 70 violent tornadoes struck from Texas to the Northern Plains. They left death and destruction in their wake.

A single F5 tornado touched down outside of Oklahoma City at 6:55 in the evening and blasted through Bridge Creek, Moore, Del City and Midwest City, demolishing entire neighborhoods.

Forty-one people died in Oklahoma City and more than 2,750 homes and apartments were destroyed. Another 8,000 homes were damaged.

We have not seen a tornado outbreak like this in 20 years.

In all, 49 people died in Oklahoma and Kansas and nearly 4,000 homes in the two states were completely destroyed.

FEMA responded with all kinds of assistance -- - search and rescue, medical teams, mortuary teams, debris clearance and, of course, financial assistance.

We also took the opportunity to look at the kind of damage those tornadoes did to homes and business. We sent in a team of structural engineers, wind engineers and architects.

Their job was to examine the impact of these tornadoes on structures that were in the direct path of the tornadoes - buildings that were near the direct path and those that were on the edge. They were there to try to understand what these tornadoes did to these structures - how and why buildings failed - or did not fail.

We learned a great deal from their research and today we want to share with you what we believe is the most important information to come out of their work.

Unlike what many of us might believe, we do not have to be helpless victims in the face of even the most violent tornadoes.

We already know that safe rooms can save lives.

- Now, FEMA has found that significant, structural damage to homes, business and schools near the path of even the most violent tornadoes can be avoided or limited.
- We have found that much of the needless destruction - and the misery it brings - can be stopped.
- We cannot control the weather, but we can, in many cases control its effects on people.

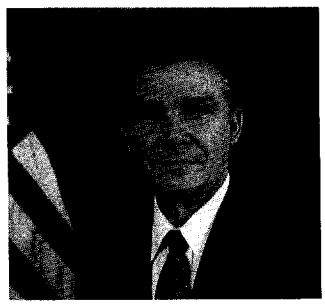
People who live in parts of the country that often see tornadoes can learn from people living in hurricane-prone regions.

Now I want to make it clear that just about everything in the path of a violent F5 tornado will be reduced to rubble - except well-constructed "safe rooms" and other engineered shelters. [See related article on page XX]

And that's what we saw in Oklahoma City.

But violent tornadoes - such as F4s and F5s - are rare.

And the total area within the direct path -- or the vortex -- of a tornado is



James Lee Witt

estimated to be only about one percent of the total area affected.

So, we know now that there is much we can do to build stronger structures that will stand up even if they are near the direct path of violent tornado - or even in the direct path of weaker tornadoes.

FEMA's Project Impact - our program to work at the local level to build disaster resistant communities - conducted a survey of people living in tornado-prone areas.

We found that half of the people we surveyed believed there was nothing they could do to save their homes in the face of a nearby tornado.

More importantly, among the half who thought they could do something, not many actually do.

Let me take this opportunity to review what our team found ... some of the conclusions that we have drawn ... and then I have some recommendations for communities, homeowners and businesses.

Residential Structures

The team saw significant damage to thousands of single-family homes, multi-family housing and manufactured homes.

They saw building failures that resulted from wind-borne debris and high winds that produced forces on buildings that they were not designed to withstand.

They saw building failures that resulted from improper construction techniques, poor selection of construction materials and ineffective detailing of connections of homes to foundations, floors to walls and walls to roofs.

Many of these homes were unable to stand up because of the tremendous internal pressure that resulted from breaches in the building envelope that allowed the wind to penetrate the interior of the structure.

A significant cause of breaches in the building envelope appears to be the failure of double-wide garage doors.

Breaches of windows and entry doors also caused significant damage, but the breaches are not as dramatic as those associated with garage doors, which are larger.

Most garage doors were not rated or tested for wind pressures calculated from design wind loads in building codes for one- and two-family homes currently in use throughout the Midwest.

If the garage doors had been designed for the wind speed indicated in the code, damage in inflow areas of weak and strong tornadoes might have been significantly reduced.

Masonry chimneys that fell on roofs caused considerable damage to homes that otherwise had very minor wind damages. This placed the people inside at significant risk of death or injury from falling masonry debris.

The team concluded that the wind speeds that caused these chimney failures were as low as 75 to 85 mph.

We have concluded that there would have been considerably less damage to residential structures if newer building codes and engineering standards had been adopted, followed and enforced.

Constructing homes to the wind provisions of the *most recent versions of the codes and standards* would have reduced damage in areas near the direct path of a violent tornado - even an F4 or an F5.

Building or upgrading homes to the most recent versions of the codes and standards would have *reduced significant damage* to homes in the direct path of less violent tornadoes.

Many building failures could have been avoided with better construction techniques, better building materials and the effective use of structural connections.

Non-residential Structures

The team also looked at non-residential structures ... and found that they were vulnerable to the same types of damages as conventionally built residential construction ... including failure of connections ... roofs lifting up ... walls collapsing.

However, compared to residential buildings, the damage typically was not as complete or devastating.

The team believes that this difference is a result of the special construction methods and degree of engineering that is required by model building codes for non-residential buildings.

Building to national wind standards would have reduced or minimized damage in areas affected by inflow winds of all tornadoes.

And it would have reduced damage to non-residential construction.

Better attention to design and selection of materials for connections throughout the structural system would have reduced building failures.

This is true for buildings on the edge of the path of violent tornadoes. And it's true for buildings in direct path of the less violent tornadoes such as F1, F2s or F3s.

Paying close attention to how perimeter wood nails, copings and metal edge flashings are attached - this will help roofs come through such storms better. And it could help reduce air-borne debris.

Another critical point of failure for non-residential buildings is rollup or overhead doors, which can initiate or contribute to major failures of primary structural systems.

Overhead doors that fail near building corners may significantly contribute to the catastrophic failure of exterior walls and roof systems -- especially for pre-engineered metal, light-steel frame buildings.

Just as for residential structures, the breach of the building envelope resulted in extensive collateral damage.

The team found that garage doors and large windows were real problems. All garage and roll-up doors should meet national wind standards.

Manufactured Housing

Manufactured housing did not do as well as conventional site-built detached single-family dwellings. They did not do as well in resisting the inflow winds of violent and strong tornadoes - that is in the areas near the direct path. Nor did they do as well when they were in the direct path of the tornadoes - not even the weaker ones.

This primarily was because they could not resist uplift and overturning - the problem was the anchorage and tie-downs used in the foundations.

On the bright side -- the team found that the newer manufactured homes performed better than the older ones -- especially the double-wide models installed on permanent foundations.

Although permanent foundations performed better in resisting lateral winds, the connections of chassis and perimeter joists to the permanent foundations were not strong enough.

They could not resist even moderate wind uplift and overturning forces at the edge of most tornado tracks the team investigated.

Many ground anchors pulled out of the soil because they were not deep enough. Many steel anchor shafts weren't strong enough to withstand lateral wind forces, leading to failures of the superstructure.

Ground anchors did not appear to comply with the requirements of Federal Manufactured Home Construction and Safety Standards, as revised in 1994.

Connections of strapping to chassis beams often came loose and were on the ground; there were no positive bolted or welded connections.

Galvanized steel strapping in several instances failed from uplift and overturning wind forces - or they became loose when the home moved laterally from wind forces.

Many of these kinds of damages - to homes, to businesses and even manufactured homes - are preventable.

Recommendations

Today, I am urging local officials in tornado areas to help their communities come through a tornado event by adopting, following and rigorously enforcing the latest model building codes and national consensus wind engineering standards.

I am urging local officials in tornado areas to take steps to ensure that manufactured homes are installed and secured properly.

I am urging insurance companies to offer lower rates to people who reduce their risks by securely anchoring their manufactured homes - or even better, put them on a permanent foundation.

Today, I am urging homeowners in tornado states to find out whether or not their homes meet the most recent model building codes and standards. And if not - I urge you, if it's at all possible, to upgrade your home to meet the newest standards. And if you can - go beyond the high wind requirements of the current model building codes.

It could save your home, and your life.

Have an inspector look at your garage door - especially if it is a double-wide door. Bring it up to or exceed the code.

If you have a masonry chimney that is higher than six feet above your roof -- retrofit with continuous vertical reinforcing steel in the corners to help resist high winds.

Make sure your door-frames are anchored strongly to the house. Double doors can be very dangerous in high winds if they are not securely fastened.

Make sure that the architectural features of you home are designed, manufactured and installed to limit the creation of wind-borne debris.

Today, I urge businesses in tornado areas to use construction techniques that have been perfected in coastal regions to limit hurricane damage.

Make sure your buildings meet or exceed current model building code requirements.

Make sure your garage doors comply with the latest national wind loads standards. Retrofit your existing garage doors to improve their resistance against high winds -- especially double-wide garage doors.

Before I conclude I want to touch on one other area.

Everything we discussed here today was about saving property.

If you are in the direct path of a violent tornado, the most important thing at that moment is to be in a well-built safe room or shelter.

When President Clinton and I toured the Oklahoma City area after those devastating tornadoes he and I discussed the need for "safe rooms" in each home.

In fact, the President said publicly that he believed the best investment people who live in Tornado Alley could make was to incorporate a safe room in the building or rebuilding of their home or business.

Business, homes, schools, hospitals and manufactured home communities must all have safe rooms or shelters.

You can save your life, your home, your business and your community.

FHA Financing for Windstorm Shelters

Washington, January 14, 2000 -- The U.S. Department of Housing and Urban Development will provide mortgage insurance to enable homebuyers to borrow up to $5,000 to create windstorm shelters in their homes, Secretary Andrew Cuomo announced today.

"These storm shelters will save lives and prevent injuries when tornadoes and hurricanes strike," Cuomo said. "HUD is making it possible for more families to place these shelters in their homes." The mortgage insurance will be provided by the Federal Housing Administration, which is part of HUD. Rather than making mortgage loans directly, FHA insures loans made by private lenders to homebuyers.

FHA insurance guarantees a lender timely payment of principal and interest, in the event a homebuyer defaults on a loan. As a result, HUD's new initiative will enable a lender to loan a homebuyer up to $5,000 more than the amount needed to buy a home, with the extra money used to pay for the cost of installing a windstorm shelter.

Home windstorm shelters -- also known as safe rooms -- can provide protection against winds of up to 250 miles per hour and against projectiles traveling at 100 miles per hour.

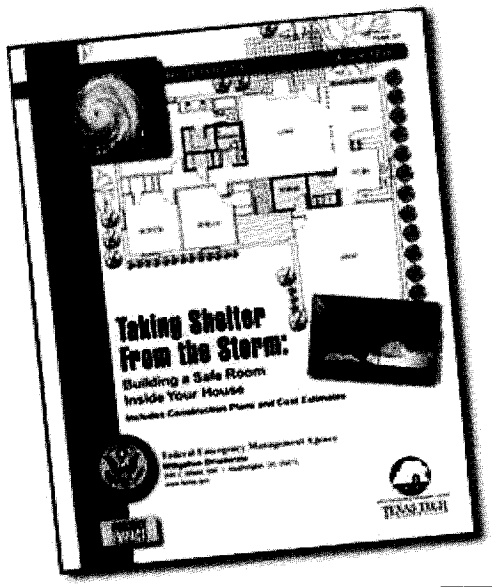
FHA insured nearly 1.3 million home mortgages in 1999 at a value of $124 billion. Homebuyers pay for the insurance with fees, so no taxpayer dollars are used to provide the insurance.

HUD Assistant Secretary for Housing/Federal Housing Commissioner William Apgar today described the requirements for safe room construction at the National Association of Home Builders International Builders Show in Dallas, Texas. The safe room is part of a building and technology product exhibit at the APA, the Wood Engineered Association. The exhibit is called Behind the Walls House.

Designs for the windstorm shelters financed with FHA-insured first mortgages must follow guidelines developed by the Federal Emergency Management Agency, with the cooperation of the Wind Research Center of Texas Tech University. FHA-financed safe rooms must also be consistent with the National Performance Criteria for Tornado Shelters.

Apgar said the Partnership for Advancing Technology in Housing -- a joint federal and private sector initiative administered by HUD -- is working with FEMA to develop and deploy advanced home technology, such as the safe room design.

The safe room project is part of an ongoing FEMA initiative called Project Impact: Building Disaster Resistant Communities. The project is designed to encourage people and communities to take measures to protect themselves and their property before disasters occur.



To order a copy of this booklet and the accompanying construction plans and specifications, call 1-888-565-3896 and request a copy of publication FEMA 320 and 320A.

Safe Room/Shelter Grant Program for Arkansas

[A great idea for all of the states!]

This program helped to fund approximately 1,000 new shelters for residents of the state of Arkansas last year. This year's application cycle begins July 2000. Below is some additional information on this program. **Hopefully, programs like this will be started in all of the states.**

ADMINISTRATIVE INSTRUCTIONS

PURPOSE:

Provide reimbursement for cost associated with safe rooms or in-ground shelter installation in the amount of $1,000 or 50% whichever is less.

a. Eligibility: Only the first 1000 applications that were received and verified were funded last year. To ensure your eligibility this year, you must apply as soon as possible after June 2000.

b. Requirements: Safe rooms must meet requirements established in FEMA publication #320 or meet the National Performance Criteria for Tornado shelters.

c. **In-ground shelters** have no state regulations however this office will require that it be constructed of a waterproof material and be properly ventilated. Must meet city/county codes if there are any.

d. Documentation:

1) Homeowner will fill out the top portion of the Arkansas Department of Emergency Management Form (ADEM) Form 320 and turn in to the local official with a picture and cost documentation (invoices or canceled checks).

2) Local official (County Judge, Mayor, and ES Coordinator, Building Inspector) will certify on the bottom portion of ADEM Form 320 that the installation meets requirements stated in (b.) and (c.) above and mail to Department of Emergency Management, PO Box 758, Conway, AR 72033.

3) Allow at least 6 weeks for payment. Call 501-730-9750 or 9751 for information.

Frequently Asked Questions

Q. What is a Safe Room?

A. It is concrete and steel reinforced room built in a new or existing above ground structure that can provide great protection during storms. The FEMA Publication 320 contains recommended construction plans. To get this booklet call 1-888-565-3896 or visit the FEMA web sites (www.fema.gov/mit/tsfs01.htm).

Q. Are underground shelters eligible for the rebate?

A. Yes.

Q. Can I build a shelter for my apartment complex. Do I get the rebate for each apartment?

A. No, for the purpose of this initiative, only individual homeowners are eligible.

Q. I own two or more homes. One home I live in, the other home I rent. Can I get a rebate for each home I own?

A. No, this initiative is only available for primary residences and you can get no more that one rebate.

Q. What are the in-ground shelter specifications?

A. There is no state code or regulations, however you should check with your city or county officials for their requirements.

Q. If I receive a grant will it be taxable?

A. It may very well be taxable. You should check with your tax person

Tornadoes...Nature's Most Violent Storms

Excerpts from "A PREPAREDNESS GUIDE Including Safety Information for Schools"
U.S. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration (NOAA)
National Weather Service (NWS)

Tornado!

Although tornadoes occur in many parts of the world, these destructive forces of nature are found most frequently in the United States east of the Rocky Mountains during the spring and summer months. In an average year, 800 tornadoes are reported nationwide, resulting in 80 deaths and over 1,500 injuries. A tornado is defined as a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of one mile wide and 50 miles long. Once a tornado in Broken Bow, Oklahoma, carried a motel sign 30 miles and dropped it in Arkansas!

What causes tornadoes?

Thunderstorms develop in warm, moist air in advance of eastward-moving cold fronts. These thunderstorms often produce large hail, strong winds, and tornadoes. Tornadoes in the winter and early spring are often associated with strong, frontal systems that form in the Central States and move east. Occasionally, large outbreaks of tornadoes occur with this type of weather pattern. Several states may be affected by numerous severe thunderstorms and tornadoes. During the spring in the Central Plains, thunderstorms frequently develop along a "dryline," which separates very warm, moist air to the east from hot, dry air to the west. Tornado-producing thunderstorms may form as the dryline moves east during the afternoon hours.

Along the front range of the Rocky Mountains, in the Texas panhandle, and in the southern High Plains, thunderstorms frequently form as air near the ground flows "upslope" toward higher terrain. If other favorable conditions exist, these thunderstorms can produce tornadoes.

Tornadoes occasionally accompany tropical storms and hurricanes that move over land. Tornadoes are most common to the right and ahead of the path of the storm center as it comes onshore.

Tornadoes Take Many *Shapes* and Sizes

Weak Tornadoes	Strong Tornadoes	Violent Tornadoes
• 69% of all tornadoes • Less than 5% of tornado deaths • Lifetime 1-10+ minutes • Winds less than 110 mph	• 29% of all tornadoes • Nearly 30% of all tornado deaths • May last 20 minutes or longer • Winds 110-205 mph	• Only 2% of all tornadoes • 70% of all tornado deaths • Lifetime can exceed 1 hour • Winds greater than 205 mph

Tornado Myths:

MYTH: Areas near rivers, lakes, and mountains are safe from tornadoes.
FACT: No place is safe from tornadoes. In the late 1980's, a tornado swept through Yellowstone National Park leaving a path of destruction up and down a 10,000 ft. mountain.

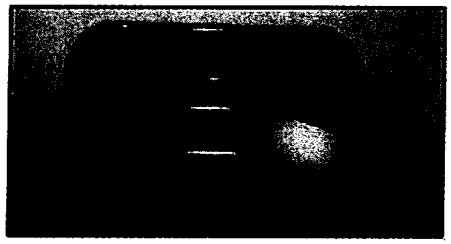
MYTH: The low pressure with a tornado causes buildings to "explode" as the tornado passes overhead.
FACT: Violent winds and debris slamming into buildings cause most structural damage.

MYTH: Windows should be opened before a tornado approaches to equalize pressure and minimize damage.
FACT: Opening windows allows damaging winds to enter the structure. Leave the windows alone; instead, immediately go to a safe place.

Frequency of Tornadoes

- Tornadoes can occur at any time of the year.
- In the southern states, peak tornado occurrence is in March through May, while peak months in the northern states are during the summer.
- Note, in some states, a secondary tornado maximum occurs in the fall.
  Tornadoes are most likely to occur between 3 and 9 p.m. but have been known to occur at all hours of the day or night.
- The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. The average forward speed is 30 mph but may vary from nearly stationary to 70 mph.
- The total number of tornadoes is probably higher than indicated in the western states. Sparse population reduces the number reported.

STAY INFORMED ABOUT THE STORM ...



by listening to NOAA Weather Radio, commercial radio, and television for the latest tornado WATCHES and WARNINGS.

When conditions are favorable for severe weather to develop, a severe thunderstorm or tornado **WATCH** is issued.

Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado **WARNINGS** for areas where severe weather is imminent.

Severe thunderstorm warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities.

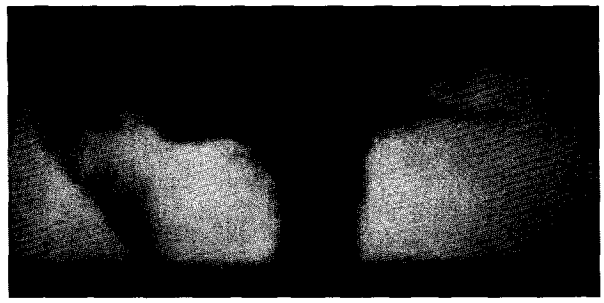
NOAA WEATHER RADIO IS THE BEST MEANS TO RECEIVE WARNINGS FROM THE NATIONAL WEATHER SERVICE

The National Weather Service continuously broadcasts updated weather warnings and forecasts that can be received by **NOAA** Weather Radios sold in many stores. The average range is 40 miles, depending on topography. Your National Weather Service recommends purchasing a radio that has both a battery backup and a tone-alert feature which automatically alerts you when a watch or warning is issued.

What To Listen For...

TORNADO WATCH: Tornadoes are possible in your area. Remain alert for approaching storms.
TORNADO WARNING: A tornado has been sighted or indicated by weather radar. If a tornado warning is issued for your area and the sky becomes threatening, move to your pre-designated place of safety.
SEVERE THUNDERSTORM WATCH: Severe thunderstorms are possible in your area.
SEVERE THUNDERSTORM WARNING: Severe thunderstorms are occurring.

Remember, tornadoes occasionally develop in areas in which a severe thunderstorm watch or warning is in effect. Remain alert to signs of an approaching tornado and seek shelter if threatening conditions exist.



Environmental Clues

Look out for:

- Dark, often greenish sky
- Wall cloud
- Large hail
- Loud roar; similar to a freight train

Caution:

Some tornadoes appear as a visible funnel extending only partially to the ground. Look for signs of debris below the visible funnel.	Some tornadoes are clearly visible while others are obscured by rain or nearby low-hanging clouds.

Tornado Safety -- What *YOU* Can Do

Before the Storm:

- Develop a plan for you and your family for home, work, school and when outdoors.
- Have frequent drills.
- Know the county/parish in which you live, and keep a highway map nearby to follow storm movement from weather bulletins.

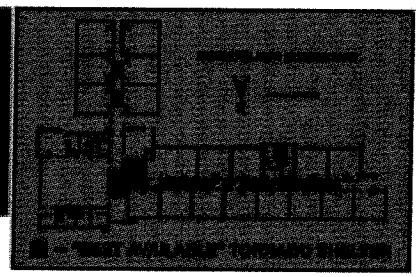
- Have a NOAA Weather Radio with a warning alarm tone and battery back-up to receive warnings.
- Listen to radio and television for information.
- If planning a trip outdoors, listen to the latest forecasts and take necessary action if threatening weather is possible.

If a Warning is issued or if threatening weather approaches:

- In a home or building, move to a pre-designated shelter, such as a basement.
- If an underground shelter is not available, move to an interior room or hallway on the lowest floor and get under a sturdy piece of furniture.
- Stay away from windows.
- Get out of automobiles.
- Do not try to outrun a tornado in your car; instead, leave it immediately.
- Mobile homes, even if tied down, offer little protection from tornadoes and should be abandoned.
- Occasionally, tornadoes develop so rapidly that advance warning is not possible. Remain alert for signs of an approaching tornado. Flying debris from tornadoes causes most deaths and injuries.

Tornado Safety in Schools

EVERY School Should Have A Plan!



- Develop a severe weather action plan and have frequent drills,
- Each school should be inspected and tornado shelter areas designated by a registered engineer or architect. Basements offer the best protection. Schools without basements should use interior rooms and hallways on the lowest floor and away from windows.
- Those responsible for activating the plan should monitor weather information from NOAA Weather Radio and local radio/television.
- If the school's alarm system relies on electricity, have a compressed air horn or megaphone to activate the alarm in case of power failure.
- Make special provisions for disabled students and those in portable classrooms.
- Make sure someone knows how to turn off electricity and gas in the event the school is damaged.

- Keep children at school beyond regular hours if threatening weather is expected. Children are safer at school than in a bus or car. Students should not be sent home early if severe weather is approaching.
- Lunches or assemblies in large rooms should be delayed if severe weather is anticipated. Gymnasiums, cafeterias, and auditoriums offer no protection from tornado-strength winds.
- Move students quickly into interior rooms or hallways on the lowest floor. Have them assume the tornado protection position (shown above right).

Hospitals, nursing homes, and other institutions should develop a similar plan

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FAMILY DISASTER PLAN

Families should be prepared for all hazards that affect their area. NOAA's National Weather Service, the Federal Emergency Management Agency, and the American Red Cross urge each family to develop a family disaster plan.

Where will your family be when disaster strikes? They could be anywhere - at work, at school, or in the car. How will you find each other? Will you know if your children are safe? Disasters may force you to evacuate your neighborhood or confine you to your home. What would you do if basic services - water, gas, electricity or telephones - were cut off?

Follow these basic steps to develop a family disaster plan...

I. Gather information about hazards. Contact your local National Weather Service office, emergency management or civil defense office, and American Red Cross chapter. Find out what type of disasters could occur and how you should respond. Learn your community's warning signals and evacuation plans.

II. Meet with your family to create a plan. Discuss the information you have gathered. Pick two places to meet: a spot outside your home for an emergency, such as fire, and a place away from your neighborhood in case you can't return home. Choose an out-of-state friend as your "family check-in contact" for everyone to call if the family gets separated. Discuss what you would do if advised to evacuate.

III. Implement your plan.

(1) Post emergency telephone numbers by phones;
(2) Install safety features in your house, such as smoke detectors and fire extinguishers;
(3) Inspect your home for potential hazards (such as items that can move, fall, break, or catch fire) and correct them;
(4) Have your family learn basic safety measures, such as CPR and first aid; how to use a fire extinguisher; and how and when to turn off water, gas, and electricity in your home;
(5) Teach children how and when to call 911 or your local Emergency Medical Services number;
(6) Keep enough supplies in your home to meet your needs for at least three days. Assemble a disaster supplies kit with items you may need in case of an evacuation. Store these supplies in sturdy, easy-to-carry containers, such as backpacks or duffle

bags. Keep important family documents in a waterproof container. Keep a smaller disaster supplies kit in the trunk of your car.

A DISASTER SUPPLIES KIT SHOULD INCLUDE:

- A 3-day supply of water (one gallon per person per day) and food that won't spoil
- one change of clothing and footwear per person
- one blanket or sleeping bag per person
- a first-aid kit, including prescription medicines
- emergency tools, including a battery-powered NOAA Weather Radio and a portable radio, flashlight, and plenty of extra batteries
- an extra set of car keys and a credit card or cash
- special items for infant, elderly, or disabled family members.

IV. Practice and maintain your plan. Ask questions to make sure your family remembers meeting places, phone numbers, and safety rules. Conduct drills. Test your smoke detectors monthly and change the batteries at least once a year. Test and recharge your fire extinguisher(s) according to manufacturer's instructions. Replace stored water and food every six months.

Ω JCD

NEW TR6S Tornado Shelter - $7,800

TR6S Tornado Shelter - The TR6S Twister Resister short-term (S) was designed as a tornado shelter to withstand a Force 5 tornado traveling directly over the shelter. It can resist flying debris from up to 350+mph winds and can be installed in a location where the water table reaches the ground surface. It is designed to resist 5 psi of overpressure and more than an 8.5 Richter Scale earthquake. The paraboloid bell shape is extremely strong and the 8.5-foot diameter floor allows a person to stand near the wall. It also has enough floor space and headroom to allow families to stay in the shelter during tornado Watch/Warning times before the tornado strikes.

Design - The TR6S is the third-generation shelter designed and developed by Walton W. McCarthy, M.E. author of PRINCIPLES OF PROTECTION, U.S. Handbook of NBC Weapon Fundamentals and Shelter Engineering Standards, Fifth Edition, 2000 which is the United States bible on shelter engineering. The book is available through The American Civil Defense Association (TACDA). Walton McCarthy is the principle engineer of Radius Defense Inc. and Radius Engineering Inc. with over 21 years experience with many different types of disaster shelters. Unlike a cylinder or rectangular structure, the TR6S failure mode is non-catastrophic. The TR6S has NO flat surfaces to bend and deflect. It is a compound-curved paraboloid bell shape making it a true pressure vessel.

For more information contact:

Radius Defense, Inc.
222 Blakes Hill Road, Northwood NH 03261
Tel. 603.942.5040
Fax. 603.942.5070 or radius@worldpath.net

Survey Finds that Most Residents in Tornado-prone States Have Taken No Action to Safeguard Their Homes, Families

- from the FEMA website at www.fema.gov

Washington, D.C. -- While it's proven that anchoring devices, reinforced garage doors and other prevention measures can save lives and reduce damage from tornadoes, more than half of those recently surveyed have done nothing to safeguard themselves and their homes. In fact, 44 percent of those questioned - all residing in tornado-prone states - didn't know that actions taken before a disaster could prevent tornado damage.

The survey was conducted by Project Impact: Building Disaster Resistant Communities, the Federal Emergency Management Agency's (FEMA) disaster prevention initiative, and polled 282 adults living in Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Mississippi, Missouri, Nebraska, Oklahoma, South Dakota and Texas. Of those responding, 56 percent had taken no prevention measures against tornadoes.

"This survey points out how far we still have to go to spread the message about disaster prevention and that is what FEMA is doing through Project Impact," said FEMA Director James Lee Witt. "There are many measures that can prevent terrible tornado damage and save lives. Americans need to find out from their local emergency managers what prevention measures they should be taking - and then take them."

Disaster prevention is the message of FEMA's national initiative Project Impact: Building Disaster Resistant Communities. With this initiative, FEMA is teaming with nearly 200 communities nationwide to identify risks and motivate residents and businesses to take prevention action.

"With Project Impact, we've seen that prevention works. We've found that we save two dollars in recovery costs for every dollar spent on prevention," said Witt. "And that doesn't even take into account the savings in terms of human tragedy. This study shows that a lack of awareness exists, and that lack of awareness directly translates into disaster damage in this nation."

Opinion Research Corporation International collected responses to the survey from March 2 to 5, 2000. The questions were part of a telephone study of 1,016 adults. Awareness about tornado prevention steps was highest among African Americans (61 percent) and Hispanics (59 percent) and among those with annual incomes of more than $50,000 a year (61 percent).

"On the positive side, the survey found that 17 percent of respondents had installed clips or straps to secure doors and roofs and 14 percent had built a tornado safe room in their home or business," said Witt. "These numbers show us that some people are getting the message that there are important things that can be done to prevent loss of life and property."

For homes and businesses located in tornado-prone areas, FEMA recommends:

- Building a tornado-safe room that can withstand extreme winds and flying objects and keep people safe during extreme tornadoes;
- Ensuring that homes meet building code requirements for high-wind areas;
- Installing anchoring devices such as clips and straps to secure doors and roofs;
- Properly bracing the end wall of gabled roofs to reduce lift;
- Reinforcing garage doors.

Since its inception in 1997, Project Impact has been embraced by nearly 200 communities and more than 1,100 business partners. Instead of waiting for disasters to occur, Project Impact communities take action to reduce potentially devastating disasters. For more information about Project Impact or preventing tornadoes, call (202) 646-4117 or visit www.fema.gov/impact.

Fast Facts About Tornadoes

- from the NOAA website

1998/99 Tornado Outbreaks

Some Significant Tornadoes
Major Cities Recently Struck by Tornadoes:
Oklahoma City, OK, May 3, 1999: On Monday evening, May 3, a long track F5, violent tornado traveled from near Chickasha, Oklahoma, to just east of Oklahoma City, Oklahoma. Along its path this tornado produced areas of F5 damage to both rural sections of central Oklahoma as well as densely populated areas of Oklahoma City and its suburbs. In the wake of this single tornado, there were 42 people left dead, several hundred injured and over 1 billion dollars in damage.

Wichita, KS, May 3, 1999 – Another violent tornado, rated F4 intensity, plowed through Haysville in suburban Wichita, Kansas, shortly after the Oklahoma City tornado. This tornado was responsible for 6 deaths, 150 injuries and over 140 million dollars in damage. While these two tornadoes received the greatest attention, they were just two of a rare and significant outbreak of violent tornadoes. Almost 70 tornadoes, many of them rated F3 or stronger, were spawned by a dozen supercell thunderstorms across Oklahoma and southern Kansas.

Little Rock, AR, Jan 21, 1999 – F3, 3 fatalities. There were 63 tornadoes statewide that day in Arkansas, which is three times the average tornadoes per year.

Nashville, TN, April 16, 1998 – F3, 1 fatality, 60 injuries, 100 million dollars in damage. This tornado struck downtown Nashville.

Birmingham, AL, April 8, 1998 – F5, 33 fatalities, over 258 injuries, 202 million dollars in damage. This tornado struck about two miles away from downtown.

Miami, FL, May 12, 1997 – F1, no fatalities, 12 injuries, 525 thousand dollars in damage. A very dramatic tornado which struck very near downtown Miami and lasted for about 15 minutes.

Deadliest — The Tri-State Tornado Outbreak of March 18, 1925 killed 689 people in Missouri, Illinois and Indiana. Murphrysboro, Ill., had 234 of those deaths, and West Frankfort, Ill., had 127.

Other deadly tornadoes include the May 6, 1840 tornado which killed 317 people in Natchez, Mississippi; the May 27, 1896, tornado which killed 255 in St. Louis, Missouri. Tornadoes on successive days in 1936 killed 216 people in Tupelo, Mississippi, on April 5; and 203 people in Gainesville, Georgia, on April 6.

Biggest, Costliest Outbreaks

The April 3-4, 1974 Super Outbreak was the largest known outbreak, with 148 tornadoes in 11 states, killing 315 people, injuring more than 5,300 and causing $600 million in damages. Alabama, Kentucky and Ohio were the states hardest hit. Perhaps the most notable tornado of the outbreak was one which touched down southwest of Xenia, Ohio. The violent tornado destroyed half the town, killing 34 and causing property damages of more than $100 million.

The second most devastating outbreak of tornadoes of modern record was the 1965 Palm Sunday outbreak. Severe thunderstorms in the Upper Midwest spawned a total of 51 tornadoes within twelve hours. Indiana, Ohio and Michigan were hardest hit. The tornadoes killed 256 people and caused more than $200 million in damages. Two powerful tornadoes, about 30 minutes apart in time, traveled nearly identical paths across Branch, Hilsdale, Lenawee and Monroe counties in extreme south central and southeastern Lower Michigan. The tornadoes killed 44, and caused more than $32 million in damages

to those areas. In Lenawee County, the damage path was up to four miles in width.

For lists of other deadly and destructive U.S. tornadoes, refer to the following Internet site:
http://www.nssl.noaa.gov/~spc/products/svrstats.html

Tornado Season

Tornadoes can occur at any time of the year. In the southern states, peak tornado occurrence is in March through May, while peak months in the northern states are during the summer. Tornadoes are most likely to occur between 3 and 9 p.m. but have been known to occur at all hours of the day or night.

Watches versus Warnings

Many people confuse the meaning of a tornado "watch" and tornado "warning" issued by the National Weather Service. Here's the difference:

Watch: tornadoes are possible in your area; remain alert for approaching storms.

Warning: A tornado has been sighted or indicated by weather radar. If a tornado warning is issued for your area and the sky becomes threatening, move to your pre-designated place of safety.

Fujita Tornado Intensity Scale

Category F0: Gale tornado (40-72 mph); light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.

Category F1: Moderate tornado (73-112 mph); moderate damage. The lower limit is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads.

Category F2: Significant tornado (113-157 mph); considerable damage. roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.

Category F3: Severe tornado (158-206 mph); Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.

Category F4: Devastating tornado (207-260 mph); Devastating damage. Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.

Category F5: Incredible tornado (261-318 mph); Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur.

Safety and Preparedness

It is important to remain alert to signs of an approaching tornado and seek shelter if threatening conditions exist. Look for environmental clues including a dark sky, large hail or a loud roar.

If a warning is issued, move to a pre-designated shelter such as a basement; stay away from windows; get out of automobiles and lie flat in a ditch or depression; do not try to outrun a tornado in your car.

More information on tornadoes and severe weather is available on the Internet:

NOAA's Storm Prediction Center:
http://www.nssl.noaa.gov/~spc/

Vortex: Unraveling the Secrets:
http://www.nssl.noaa.gov/noaastory/

The Tornado Project Online:
www.tornadoproject.com/ **[note: this site has great information on shelters, tornado myths, etc.]**

Biological Defenses On the Horizon

By Linda D. Kozaryn
American Forces Press Service

WASHINGTON -- What if your red blood cells could be armed to fight off disease? What if one vaccine could protect you from a host of biological agents? What if you could purify a canteen of water in minutes?

Michael J. Goldblatt says there are no limits to what one can imagine. He should know. As deputy director of the Defense Sciences Office at the Defense Advanced Research Projects Agency, it's his job to encourage people to go beyond what is, to discover what could be.

According to Goldblatt, the Defense Department is leading the field in developing defenses against biological agents. DARPA, specifically, is on the forefront of technological advances that may ultimately save countless lives.

"This is the Defense Department at its best," he said during a recent interview with American Forces Press Service. "We are opening up whole new opportunities that didn't exist before. This is not developing a single vaccine. This is creating new opportunities in biology upon which to develop completely new therapies."

DARPA launched the Biological Warfare Defense Program in 1996. Its goal is to develop technologies to thwart the use of biological warfare agents, including bacterial, viral, bioengineered organisms and toxins, by military opponents and terrorists.

A tremendous mismatch exists between the magnitude of the threat and our ability to defend against biological warfare, according to DARPA officials. Advances in biotechnology now make it possible for adversaries to engineer "super-pathogens" -- disease-causing bacterium, virus or other micro-organisms -- designed to be more deadly and more resistant to antibiotics.

DARPA's efforts are focused on developing broad-spectrum approaches that can be used to defend against current and future threats. "Ultimately," Goldblatt said, "this program is designed to develop a range of protections which are so easy to use and so efficient as to deter anybody from thinking that there's anything to be gained by using these kinds of agents on the battlefield.

"We're making rapid progress, but there's a long way to go from taking some of this stuff from the laboratory to human use," he continued. "The standards required for human use are very rigorous and the FDA and DoD have a lot of provisions to make sure that anything which goes into the body is absolutely safe and efficacious."

Under the DARPA program, DoD provides funds for universities and other organizations to do research and develop new products. "DARPA is a vehicle to select the most imaginative proposals for research from the academic and industrial communities," Goldblatt said. "We will take the high-risk opportunities because they have such big potential payoffs if successful.

"We try to nurture the long-term vision of 'what-ifs,' he stressed. "Who would have imagined you could develop an airplane that could evade radar? Who would have imagined that you'd have an Internet? Both those things came out of imagining what is possible in the future instead of saying, 'how can I improve what exists today?'"

DARPA provides the financial backing for projects that have the opportunity to revolutionize the technical environment, he

said. Those projects, he said, capable of causing "the big paradigm shifts where people used to believe one thing and now they've discovered something else is possible."

The DARPA program aims to find better ways to detect and identify biological agents, protect against them and destroy them before they enter the body. In the area of personal protection, DARPA is working to develop gas mask filters that are easier to breathe through than existing filters. "We're trying to develop new technologies to capture both chemical agents and biological agents and yet have an almost unrestricted breathing pattern," Goldblatt said.

The Marine Corps is now field-testing a device that creates safe drinking water from any water source they pick up in the field. The device is about the size of a large fountain pen or mini flashlight and works with just a lithium battery, a common salt tablet and a teaspoon of water. Through some high-tech magic, the water becomes an agent that can purify a canteen full of water.

"This is good for about 140 uses, and then all you have to do is change the tiny battery and put in a new salt tablet," Goldblatt said. "What is most interesting about this is that it not only kills all the normal things chlorine tablets can, but also things that are chlorine resistant."

Researchers are also working on a reverse-osmosis device that makes seawater potable. Water is a big problem everywhere, Goldblatt noted, because disease and nonbattle injuries often incapacitate more people than ballistic injuries.

Since many agents cause nonspecific, flu-like symptoms, DARPA officials are seeking ways to ensure early diagnosis and effective treatment. Officials are working to identify people exposed to a biological agent before they become sick.

"You don't normally get sick instantly," Goldblatt said. "Some people get sick much quicker than others. Still others might not get sick for a long period of time."

Determining who was sufficiently exposed to become sick is another concern. The terrorist Sarin gas attack in Tokyo's subway is a good example of this problem, he said. Some people died. Some were ill. About 20,000 people reported to hospitals because they feared they'd been exposed.

"Yet, very few of those were ever actually seriously exposed or exposed at all, but people have an understandable desire for preventive treatment, which is appropriate. The question in any case of mass exposure is who has been exposed and who has not," he said.
People are sick long before clinical symptoms crop up – a fever, muscle cramps, whatever, he noted. "So," he asked, "can you build detectors sensitive enough to determine who is coming down with an illness before they actually get sick?"

DARPA officials are looking at a nitric oxide detector similar to Breathalyzer devices that measure alcohol levels in a person's breath. "People who are infected have much higher levels of nitric oxide than people who are not, and that's true long before they show any other symptoms," Goldblatt said.

The next step is the real challenge, he said, and the one DARPA thinks is a very real opportunity: to diagnose and inhibit an illness early enough to prevent its physical symptoms from developing.

DARPA officials are working to develop additional medical countermeasures. An effort is under way, for example, to enhance the body's natural defenses. Researchers are just now beginning to discover how to manipulate and accelerate the body's natural immune system, Goldblatt said.

"We can make vaccines much more efficient by getting the body to respond in ways it hasn't been able to before," he explained. "For instance, specific kinds of cells in the body take up a vaccine and convert it into an immune response. We're learning how to get these cells to come to the point of injection. Therefore, you

could create a more potent vaccine with just a fraction of the dose you previously used."

In another area, officials are seeking ways to combat a plethora of agents rather than tackling each individually.

"The body basically has only a couple ways it can respond. We're trying to see what common mechanisms all these agents induce," Goldblatt said. "By finding the common mechanisms of those responses, we feel we can achieve broad success.

One of the reasons the program has become so popular in the biotechnology and the pharmaceutical communities, Goldblatt said, is that by elucidating these common responses, DARPA also sheds light on a wide range of more common problems -- everything from toxic shock syndrome to food poisoning.

"All these illnesses ultimately cause the same kind of physiological reaction. If you can identify a common factor, then you can identify common solutions," he said.

Already, Goldblatt noted, the program has paid dividends. "The last time a new class of antibiotics was actually discovered was in 1976," he said. "This program has identified some real opportunities for whole new families of antibiotics."

Biological organisms' resistance to antibiotics is becoming a problem worldwide, he said. Tuberculosis, for example, is resurging globally because the germs are becoming resistant to traditional antibiotics.

"There is less risk for most pharmaceutical companies in trying to find variations of existing drugs than in trying to identify a fundamental biological mechanism that would allow the creation of a whole new class of antibiotics," he said.

"The problem is too daunting. Frankly, it's very difficult for large organizations to take on those kinds of challenges," he said. "Small entrepreneurial groups, people with a passion, a tolerance for high-risk, and a commitment to solve a problem, can be much more effective and much more efficient than whole cascades of large organizations."

DoD is investing in "a tremendous amount of novel opportunities to develop new drugs to combat specific threats," Goldblatt said. "It's very hard sometimes to get the commercial sector to invest the tens of millions, sometimes hundreds of millions of dollars, necessary to take a product through approval process and years of research when the target market may be small," Goldblatt said.

Civilian society will benefit from the military-sponsored efforts as well. "As more and more people in the medical community find out about the program, they're just absolutely dumbfounded," he said. "This is very exciting stuff. It opens up possibilities that didn't exist five years ago."

Pharmaceutical companies are starting to take notice, he said. "People are seeing the potential for this program to have much wider application, and therefore, are vying to have the opportunity to extend this for a whole host of other kinds of normal, everyday, civilian applications."

Overall, Goldblatt concluded, DARPA is interested in new ideas. "We use the research communities' imagination to dream up solutions to help individual war fighters," he said. "We also spend a lot of time talking to service members about their needs. They're our customers."

Goldblatt said he'd be happy to receive service members' suggestions via e-mail mgoldblatt@darpa.mil.

For more information on DARPA programs please visit their Internet web site at http://www.darpa.mil.

THE EMERGENCY ALERT SYSTEM (EAS)

- Federal Communications Commission (FCC)

"This is a test of the Emergency Alert System – this is only a test...."

This is the new test script that you will occasionally hear on your favorite broadcast station or your local cable system. We say that the test script may only be heard occasionally because the new EAS weekly test does not require a test script. Instead the new weekly test consists of an eight-second digital data signal. The signal contains the information necessary to test the EAS. There is also a monthly test that has a test script. The monthly test script is developed locally and usually contains information that is relevant to the local area.

Since **January 1, 1997**, all AM, FM and TV broadcast stations have been using the above test procedures. Also, since **December 31, 1998**, cable systems that have 10,000 or more subscribers are part of the EAS. They are doing the above tests and have the capability to transmit emergency messages on all of their video channels.

There are other important changes as well. The EAS uses digital technology to distribute messages. This allows for a lot of improvements in providing emergency information to the public. The new system provides state and local officials with a new method to quickly send out important local emergency information targeted to a specific area. The information can be sent out through a broadcast station and cable system even if those facilities are unattended. Also, the EAS digital signal is the same signal that the National Weather Service (NWS) uses on NOAA Weather Radio (NWR). This allows NWR signals to be decoded by the EAS equipment at broadcast stations and cable systems. Broadcasters and cable operators can then retransmit NWS weather warning messages almost immediately to their audiences.

Also, specially equipped consumer products, such as televisions, radios, pagers and other devices, can decode EAS messages. The consumer can program these products to "turn themselves on" for the messages they want to receive.

WHY HAVE AN EMERGENCY ALERT SYSTEM?

The EAS is designed to provide the President with a means to address the American people in the event of a national emergency. Through the EAS, the President would have access to thousands of broadcast stations, cable systems and participating satellite programmers to transmit a message to the public. The EAS and its predecessors, CONELRAD and the Emergency Broadcast System (EBS), have never been activated for this purpose. But beginning in 1963, the President permitted state and local level emergency information to be transmitted using the EBS.

WHAT DOES THE NEW EMERGENCY ALERT SYSTEM MEAN FOR YOU?

- **Automatic Operation.** The EAS digital system architecture allows broadcast stations, cable systems, participating satellite companies, and other services to send and receive emergency information quickly and automatically even if those facilities are unattended.

- **Redundancy.** The EAS requires monitoring of at least two independent sources for emergency information. This insures that emergency information is received and delivered to viewers and listeners.
- **Less Intrusive.** EAS tests are shorter and less obtrusive to viewers and listeners. Therefore, when people do hear or see the EAS messages, they will take them more seriously.
- **Second Language.** Do you or someone you know watch Spanish-language programming? EAS digital messages can be automatically converted into any language used by the broadcast station or cable system.

WHO MAKES THE EMERGENCY ALERT SYSTEM WORK?

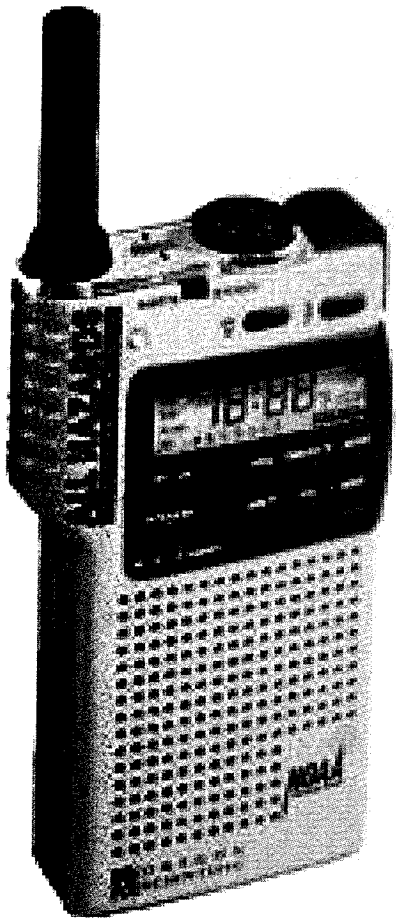
The FCC designed the new EAS, working in a cooperative arrangement with the broadcast, cable, emergency management, alerting equipment industry, the National Weather Service and the Federal Emergency Management Administration.

WHAT IS THE ROLE OF EACH OF THESE AGENCIES?

FCC. The FCC provides information to broadcasters, cable system operators, and other participants in the EAS regarding the requirements of this emergency system. Additionally, the FCC will ensure that EAS state and local plans developed by industry conform to the FCC EAS rules and regulations and enhance the national level EAS structure.

NWS. NWS provides emergency weather information used to alert the public of dangerous conditions. Over seventy percent of all EAS and EBS activations were a result of natural disasters and were weather related. Linking NOAA Weather Radio digital signaling with the EAS digital signaling will help NWS save lives by reaching more people with timely, site-specific weather warnings.

FEMA. FEMA provides direction for state and local emergency planning officials to plan and implement their roles in the EAS.



WHERE CAN YOU GET MORE INFORMATION?

Consumers, broadcasters, organizations, or other service providers who want to understand the new EAS can contact:

FCC. The FCC provides a toll-free number that provides information on a wide variety of subjects, including the EAS. The number is 1-888-CALL FCC [1-888-225-5322]. The toll-free TTY number is 1-888-TELL FCC [1-888-835-5322].

NWS. Contact Ron Berger (301) 713-0090 extension 117.

FEMA. Contact Kyle Blackman (202) 646-4676.

The facts on WMD Civil Support Teams

by Charles L. Cragin
Principal Deputy Assistant Secretary of Defense for Reserve Affairs

WASHINGTON (AFPN) -- In a commencement address at the U.S. Naval Academy in May 1998, President Bill Clinton announced that our nation would do more to protect its citizens against the growing threat of chemical and biological terrorism. As part of this effort, he said, the Department of Defense would form 10 teams to support state and local authorities in the event of an incident involving weapons of mass destruction (WMD).

At the direction of Congress, the Department of Defense recently expanded this program to embrace a total of 27 teams, now known as WMD Civil Support Teams. Despite the considerable media attention the program has received in recent months, misconceptions about the nature and purpose of the teams abound. This article attempts to clarify those errors and to separate fact from fiction.

The most widespread misconceptions surrounding WMD Civil Support Teams focus on what they are intended to do, under whose authority they will operate, and how and where they will normally function.

The WMD Civil Support Teams were established to deploy rapidly to assist a local incident commander in determining the nature and extent of an attack or incident; provide expert technical advice on WMD response operations; and help identify and support the arrival of follow-on state and federal military response assets. Each team consists of 22 highly skilled, full-time members of the Army and Air National Guard.

The first 10 teams have completed their individual and unit collective training and are in the process of receiving highly sophisticated equipment. Each team has two large pieces of equipment: a mobile analytical laboratory for field analysis of chemical or biological agents and a unified command suite that has the ability to provide communications interoperability among the various responders who may be on scene. The first 10 teams will be certified as fully mission-capable later this spring, with the remaining 17 expected to come on line in early 2001.

The first 10 teams are based in Colorado, Georgia, Illinois, California, Massachusetts, Missouri, New York, Pennsylvania, Texas and Washington. The remaining 17 teams, announced in January, will be based in Alaska, Arizona, Arkansas, California, Florida, Hawaii, Idaho, Iowa, Kentucky, Louisiana, Maine, Minnesota, New Mexico, Ohio, Oklahoma, South Carolina and Virginia.

These states were selected after a very careful and objective analysis that places the teams closest to the greatest number of people, minimizes response time within a geographical area, and reduces the overlap with other teams' areas of responsibility. The resulting distribution of the teams provides optimum response coverage for the entire population of the United States.

Astute readers will notice that California appears on the list twice. Because the stationing plan for the teams was based on population, not state jurisdictional boundaries, and because California has 10 percent of the population of the nation, a second team was recommended for Northern California.

The WMD Civil Support Teams are unique because of their federal-state relationship. They are federally resourced, federally trained and federally evaluated, and they operate under federal doctrine. But they will perform their mission primarily under the command and control of the governors of the states in which they are located. They will be, first and

foremost, state assets. Operationally, they fall under the command and control of the adjutant generals of those states. As a result, they will be available to respond to an incident as part of a state response, well before federal response assets would be called upon to provide assistance.

If the situation were to evolve into an event that overwhelmed state and local response assets, the governor could request the president to issue a declaration of national disaster and to provide federal assistance. At that point, the team would continue to support local officials in their state status, but would also assist in channeling additional military and other federal assets in support of the local commander.

It is essential to note that these teams are in no way connected with counterterrorism activities. Numerous press reports in recent months have erroneously suggested that the teams have a mission in this arena. They do not have any counterterrorism capability or mandate. They are involved exclusively in consequence management activities. The civil support teams will link with the consequence managers in their jurisdictions.

If federalized, the civil support teams would fall under the operational command and control of the recently established Joint Task Force-Civil Support, based in Norfolk, Va., and led by a National Guard brigadier general. Although it has no standing forces, the task force will respond to requests for assistance from the Federal Emergency Management Agency for the purposes of domestic WMD consequence management support. It will have robust planning and command and control capabilities and the ability to mobilize a military task force quickly in support of FEMA requests. It will also have rapid access to military forces and quick reach-back capability to subject matter experts, labs and medical support.

Critics of this program have frequently complained about duplication of efforts, asserting that the teams are unnecessary because the U.S. military already has several rapid response units that can perform a civil support mission for consequence management. Such critics regularly cite the Army's Technical Escort Units and the Marine Corps Chemical and Biological Incident Response Force as evidence that the current program represents an unnecessary and additional bureaucratic overlay that ignores the real needs of first responders. But these arguments miss the point by overlooking the unique state-based nature of the WMD Civil Support Teams.

The other teams within the Department of Defense are *military* response teams developed to support force protection requirements associated with overseas warfighting missions. When considering their use domestically -- albeit in support of civil authorities -- the department must carefully weigh such use in light of potential threats against U.S. interests abroad. Furthermore, even if available for domestic use, these other response units would be available only as part of the *federal* response effort initiated by the president after state and local resources become overwhelmed.

If terrorists release bacteria, chemicals or viruses to harm Americans, we must have the ability to identify the pathogens or substances with speed and certainty. The technology to accomplish that is still evolving, and current technology is very expensive, technically challenging to maintain, and largely unaffordable to most states and localities. In this regard, our goal is to support America's fire, police and emergency medical personnel as rapidly as possible with capabilities and tools that complement and enhance their response, not duplicate it. We established state-controlled WMD Civil Support Teams, which leverage the best military technology and expertise available, to achieve that goal. (Courtesy of American Forces Press Service)

TACDA Conference (November 1999) Tapes Available

[Disclaimer note. These videos contain only limited editing from the actual presentations given at the conference and are not broadcast quality (however, they are an excellent information resource for concerned citizens). TACDA provides them as a public service. All information in these tapes is for general understanding. Before taking any specific personal actions, professional advice should be sought.]

Title – Speaker – Description – Time **Available for purchase: $17** ↓ **Call 1-800-425-5397 to order!**	
"Preparedness in the Year 2000" Kevin Briggs (TACDA President) Covers the threats of key natural and manmade disasters throughout the U.S., to include terrorism and war, and provides insights into issues and mitigation strategies [60 minutes]	Yes
"Surviving Weapons of Mass Destruction" – Sharon Packer (President of Civil Defense Volunteers of Utah, MS in Nuclear Engineering) Covers nuclear, chemical, and biological threats and hazard mitigation strategies as well as a brief explanation of EMP [32 minutes]	Yes
"From MAD (Mutual Assured Destruction) to MASS (Mutual Assured Security & Survival)" – Nancy Greene (V. President of TACDA, former Editor of HUMINT Magazine and a well-known international relations expert) Covers the history of the MAD policy, why the DoD has historically neglected active and passive U.S. population defenses, and recommends a mutual Russian & U.S. missile defense strategy. [36 min.]	Yes
"Historical Swiss and Russian Civil Defenses" – Ed York (international civil defense expert, worked on the Manhattan Project and many civil defense trade-off studies). Covers his first-hand experiences with the Swiss Civil Defenses and his extensive research into Russian Civil Defense based on debriefings of Russian immigrants. [30 minutes]	Yes
"The News Media, Crisis Management, and the War in Kosovo" – Charles Wiley (Accuracy in Media spokesperson, Veteran War Correspondent (jailed by communists on several occasions), International Civil Defense Reporter) Exposes how dangerous this war was and how the media was often manipulated to produce one-sided reporting.	Yes
"US Infrastructure Issues"– Bron Cikotas (former head of the Defense Nuclear Agency's EMP Division; consultant on U.S. infrastructure) -- Available only in audio cassette for $5.00	Yes, audio only
"A Physician's Response to Modern Threats Dr. Jane Orient (President of Doctors for Disaster Preparedness)	Yes
"US Earthquake Hazards and Mitigation" – Waverly Person, US Geological Survey	Yes
"EMP – Issues and Answers"– Bron Cikotas (former head of the Defense Nuclear Agency's EMP Division; consultant on U.S. infrastructure) – Audiotape only.	Yes
"Economic Aspects of Disasters" – David Horton (Constitutional lawyer and economics historian)	Yes
"Needed: A Radical Rebalancing of Our Defenses" – Kevin Briggs (President) Covers the historical development of Civil Defense in the U.S. and explains why we need both active and passive defense for both manmade and natural disasters. Explains why the current National Missile Defense (NMD) program will not be effective against many threats and discusses how a more effective NMD could be fielded.	Yes

Notice: The 18th Annual Meeting for the Doctors for Disaster Preparedness (DDP)

Theme: Crisis and Opportunity for a New Century
Time: July 1-2, 2000
Place: San Francisco Airport Marriott ($99/night)
1800 Old Bayshore Highway
Burlingame, CA 94010
Hotel reservations: (800) 228-9290 Cut off date: June 8th

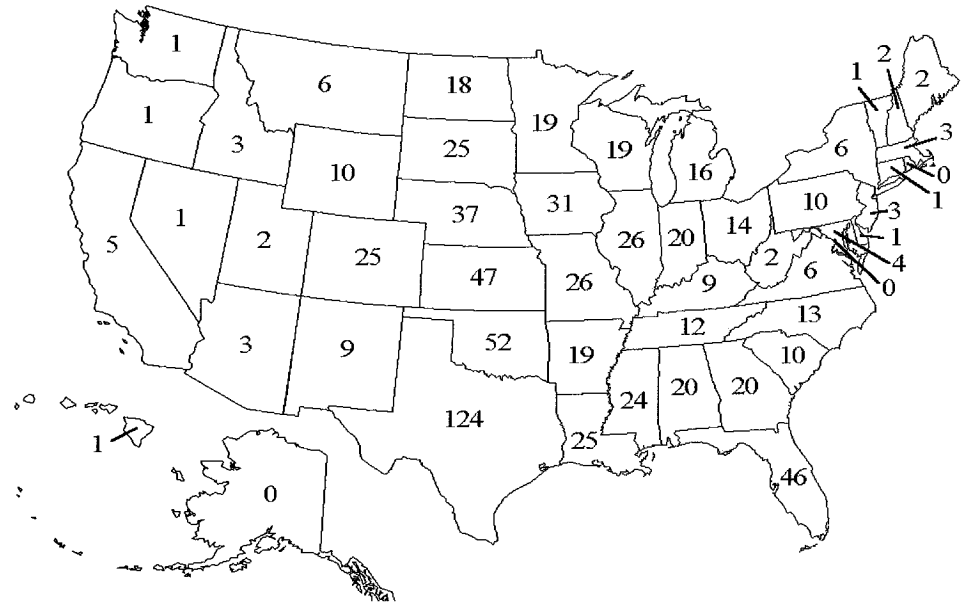
Call DDP (Dr. Jane Orient) at 520-325-2680 for more information or to register for this important conference.

What's Your Risk?

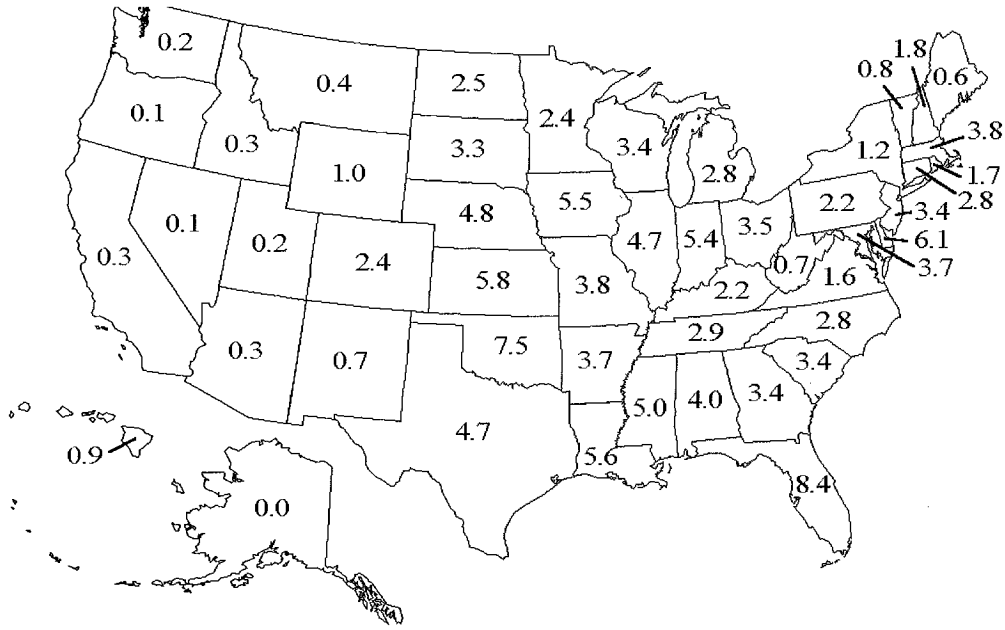
Maps of the Annual Number of Tornadoes for Each State

- National Severe Storms Laboratory, *NOAA*

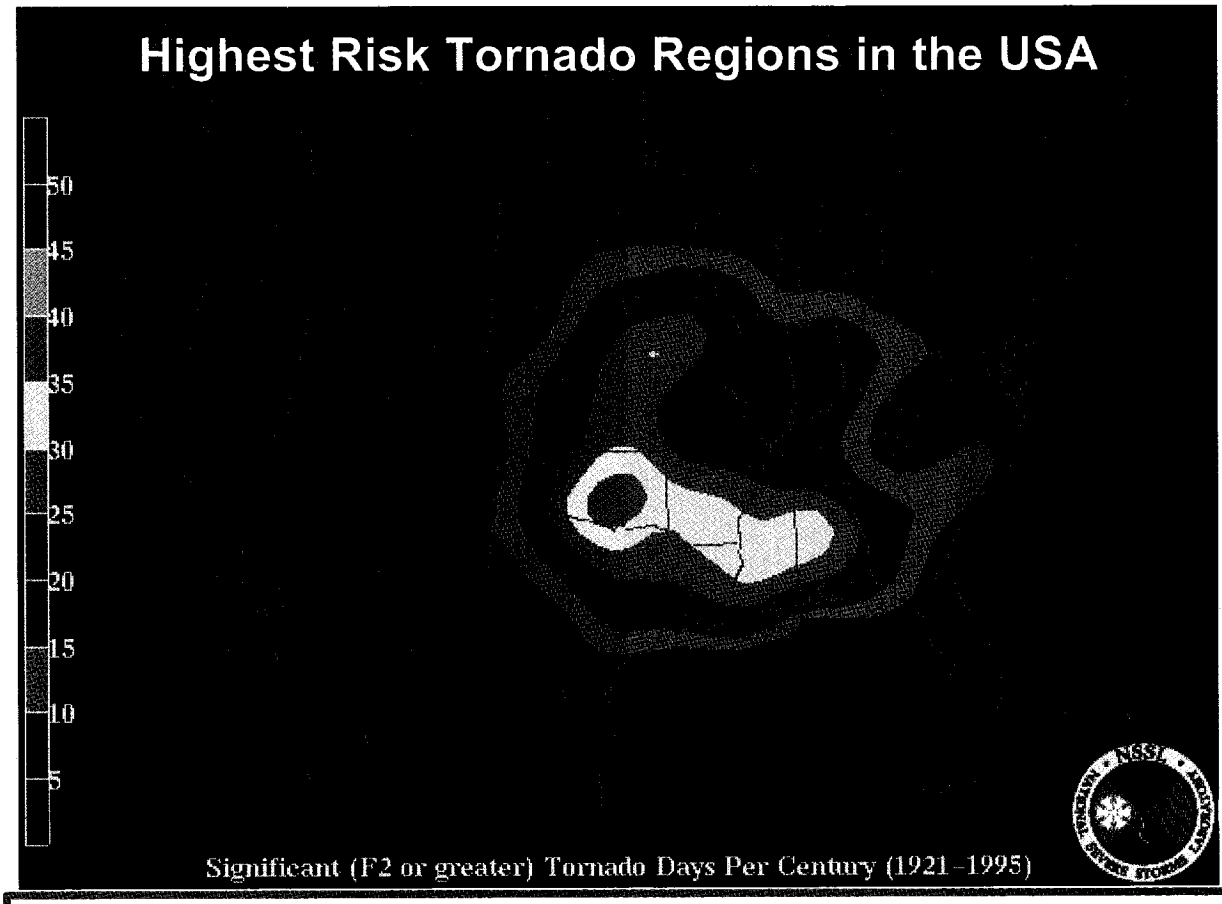
Annual Average Number of Tornadoes



Annual Average Number of Tornadoes per 10,000 Square Miles by State



Please also check out the back cover of this Journal for more tornado hazard map information.



Are You Ready? If Unsure -- **Check this box.**

Join the American Civil Defense Association (TACDA)...and help **promote sensible precautions to disasters**. An annual membership includes a year's subscription to the *Journal of Civil Defense* plus discounts on purchases at the TACDA Store.

Annual single family rate: $ 25; Annual organization rate: $100

If you prefer, you can just receive the Journal for $25 and not be entered on our membership list ... note however, that TACDA will not give our membership list to any other organization. Non-US rates are higher due to postage.

Sign up by contacting:

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