

A National Fallout Shelter Program for the 21st Century



Doctors for Disaster
Preparedness
July 12, 2008



The Threat

- Terrorist groups (Al Qaeda, Hamas, Hezbollah, et. al.) and nations (e.g., Iran, Syria and North Korea) aggressively fund and direct world-wide violence.
- Their tools include: Explosives; Chemical & Biological agents; Radiological/ Nuclear weapons and Hostage Taking/Murder.
- They often use multiple, simultaneous attacks:
 - Madrid bombings - 10 bombs on 4 trains, March 11, 2004
 - London bus/subway bombings of July 2005 - 4 bombings
 - Twin US Embassy bombings in Nairobi and Dar es Salaam, August 7, 1998
 - Twin Russian airliner attacks, August 2004
 - As many as 10 London-NYC airliner attacks thwarted, August 2006
 - WTC attacks in 1993 & on 9-11.

What if Osama bin Laden fulfills his promised “America’s Hiroshima?”
(nuke New York, Miami, Houston, Las Vegas, Los Angeles, Chicago & Washington, D.C.)

The Assessment

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THE INFORMED READER

Insights and Items of Interest From Other Sources

TERRORISM

U.S. Unprepared for an Urban Nuclear Attack

THE WASHINGTON QUARTERLY—AUTUMN

U.S. OFFICIALS talk all the time about the need to thwart terrorists, but the federal government has yet to adequately plan for a nuclear bomb exploding in a major city, say former Clinton administration officials Ashton Carter and William Perry and Stanford University's Michael May.

The risk of terrorists detonating a nuclear bomb have grown over the past decade as the technology has spread. That possibility demands that the government discuss response plans. To plan for "the day after," the government needs to be as forthright as it was about a possible attack during the 1950s, but rely on different plans from those tailored to a Cold-War-style onslaught of missiles. Assuming a terrorist group has only one or two bombs, the government has the chance to save the lives of thousands and increase the welfare of millions if it responds effectively.

According to the authors, the federal government has placed too much of the burden of



nuclear-attack response in local hands. But mayors and governors won't be able to deal with the legal, logistical and humanitarian challenges of a disaster of that scale. Instead, the federal government should be empowered to lead the response to any nuclear explosion, with city and state officials cooperating and providing local knowledge.

A major challenge will be ensuring that people from most areas of a stricken city stay put while those in places with the highest levels of radiation are evacuated as soon as possible. In most parts of a city, people's best chances of surviving would lie in staying underground for roughly three days, and then

leaving. For these purposes, the federal government should revive the Cold War fallout shelter program, identifying places where people could safely wait. Those just downwind of the explosion, however, would need to leave immediately. The government should plan how to quickly determine the different kinds of danger areas and the best routes to evacuate people and let emergency responders in.



Homeland
Security

National Planning Scenarios

- 1: *Nuclear Detonation – 10-Kiloton Improvised Nuclear Device*
- 2: Biological Attack – Aerosol Anthrax
- 3: Biological Disease Outbreak – Pandemic Influenza
- 4: Biological Attack – Plague
- 5: Chemical Attack – Blister Agent
- 6: Chemical Attack – Toxic Industrial Chemicals
- 7: Chemical Attack – Nerve Agent
- 8: Chemical Attack – Chlorine Tank Explosion
- 9: Natural Disaster – Major Earthquake
- 10: Natural Disaster – Major Hurricane
- 11: *Radiological Attack – Radiological Dispersal Devices*
- 12: Explosives Attack – Bombing Using Improvised Explosive Devices
- 13: Biological Attack – Food Contamination
- 14: Biological Attack – Foreign Animal Disease (Foot and Mouth Disease)
- 15: Cyber Attack

Current FEMA/DHS Guidance

<http://www.ready.gov/america/beinformed/nuclear.html>

http://www.fema.gov/hazard/terrorism/nuclear/nu_before.shtm

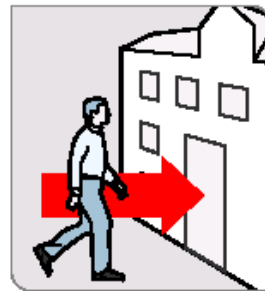
BE INFORMED NUCLEAR BLAST



1. Take cover immediately, below ground if possible, though any shield or shelter will help protect you from the immediate effects of the blast and the pressure wave.



2. Consider if you can get out of the area;



3. Or if it would be better to go inside a building and follow your plan to "shelter-in-place".



4. **Shielding:** If you have a thick shield between yourself and the radioactive materials more of the radiation will be absorbed, and you will be exposed to less.



5. **Distance:** The farther away from the blast and the fallout the lower your exposure.



6. **Time:** Minimize time spent exposed will also reduce your risk.



FEMA

Before a Nuclear Blast

To prepare for a nuclear blast, you should do the following:

- Find out from officials if any public buildings in your community have been designated as fallout shelters. If none have been designated, make your own list of potential shelters near your home, workplace, and school. These places would include basements or the windowless center area of middle floors in high-rise buildings, as well as subways and tunnels.
- If you live in an apartment building or high-rise, talk to the manager about the safest place in the building for sheltering and about providing for building occupants until it is safe to go out.
- During periods of increased threat increase your disaster supplies to be adequate for up to two weeks.

Taking shelter during a nuclear blast is absolutely necessary. There are two kinds of shelters - blast and fallout. The following describes the two kinds of shelters:

- **Blast shelters** are specifically constructed to offer some protection against blast pressure, initial radiation, heat, and fire. But even a blast shelter cannot withstand a direct hit from a nuclear explosion.
- **Fallout shelters** do not need to be specially constructed for protecting against fallout. They can be any protected space, provided that the walls and roof are thick and dense enough to absorb the radiation given off by fallout particles.

“Find out from officials if any public buildings in your community have been designated as fallout shelters. If none have been designated, make your own list . . .”

Homeland Security Grant Programs

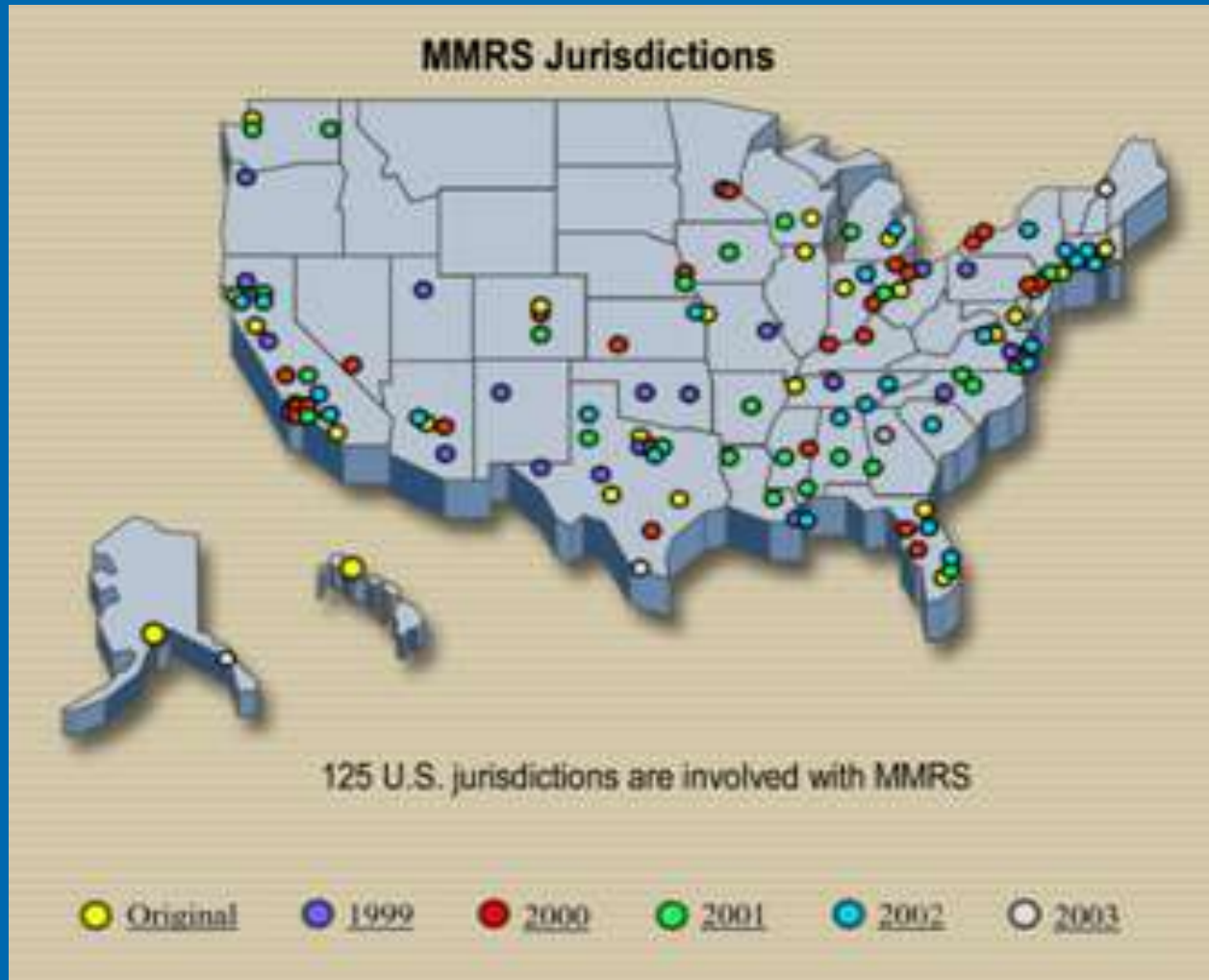
The DHS mission is to enhance the ability of State, local and tribal governments to prepare, prevent, respond to and recover from terrorist attacks and other disasters.

The Homeland Security Grant Program (HSGP) is a primary funding mechanism for building and sustaining national preparedness capabilities under four separate grant programs:

- State Homeland Security Program (SHSP) - builds capabilities at the State and local levels through planning organization, equipment, training and exercises.
- Urban Areas Security Initiative (UASI) - funds high-risk urban areas based on risk and effectiveness
- Metropolitan Medical Response System (MMRS) - supports local preparedness efforts to respond to all-hazards mass casualty incidents, including epidemic disease outbreaks, natural disasters, large-scale hazardous materials incidents and chemical, biological, radiological, nuclear or explosive attacks.
- Citizen Corps Program (CCP) - brings together community & government leaders to coordinate community involvement in emergency preparedness, planning, mitigation, response & recovery

Metropolitan Medical Response System (MMRS)

The 125 MMRS cities contain 70% of the US population.



Fallout Shelters in the 21st Century

We must adapt to the growing threat of global terrorism and the spread of nuclear weapons, not refight the “Cold War”.

DHS requires the 125 MMRS cities to respond to an attack with a small-yield (10 KT) weapon and/or a Radiological Dispersion Device. Huntsville, AL must prepare for:

- 7,500 immediate deaths
- 25,000 contaminated victims (10,000 acute & 15,000 moderate)
- 100,000 displaced persons

Having and using Fallout Shelters would minimize casualties.

Revitalizing A Fallout Shelter Program

Components of an effective (but barebones) shelter system

- Identify existing Fallout Shelters in your county/jurisdiction
- Revalidate the federal license for use in the 21st Century;
- Recruit, create and train effective Shelter Management Teams able operate shelters with a high degree of confidence they will be survivors, not victims.
- Public education and training
- Radiological Monitoring.

Honorable Not Mentioned – water, food, sanitation/hygiene & first aid

Protective Options

Evacuation

- Feasible if completed before fallout/contamination arrives.
- Area would have to be small and time adequate.
- Detonation effects (blast/thermal/EMP) may impede evacuation.
- Evacuees may be exposed and/or contaminated.

Shelter In Place

- *Critical facilities that can not evacuate must continue to operate.*
- Necessary if fallout/contamination will arrive before evacuation complete
- Fallout Shelters needed to protect against high level radiation/detonation.
- Shelter-in-place (not necessarily Fallout Shelter) near RDD/very low level.
- Shelter stay would range from a few days to 2 weeks.
- Authorities outside affected area can organize rescue/evacuation effort.
- Shelterees may be exposed and/or contaminated – medical care needed.

Protection Afforded

Fallout Shelters protect occupants from high levels of radiation so even in worst case most people receive non-lethal exposures.

To meet Federal standards, a public Fallout Shelter must:

- ***Reduce radiation by a minimum 90%*** (Protection Factor, PF, of 10 or more)
- Allow 10 sq ft/person floor space.
- Provide 3 cfm/person air flow (500 cf/person if unventilated)
- Not exceed 82° Effective Temperature (ET; heat + humidity + air flow)
- Have a capacity of 50 persons or more.

Fallout Shelters are not Blast Shelters!

Identified Fallout Shelter Space



A Fallout Shelter protects two ways:

Distance. The farther you are from a source, the less dose you receive.

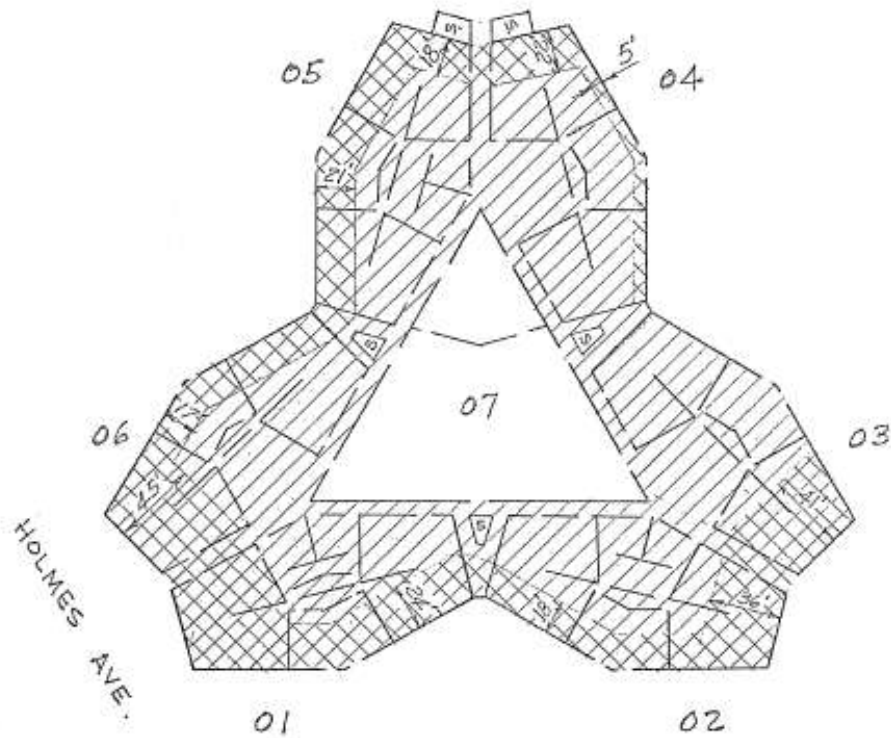
Shielding. Dense (heavy, massive) materials absorb more radiation. Greater thickness of any given material absorbs more radiation.

- Also-

Time. Fallout radiation intensity decays rapidly; *90% in just the first 7 hours.* Distance and shielding protect occupants as radiation levels decay.

Sketches IDs Fallout Shelter Spaces

A High School as a
Public Fallout Shelter



A

Good, 90%
reduction

Better, 95-97%

Best, 97.5% or more

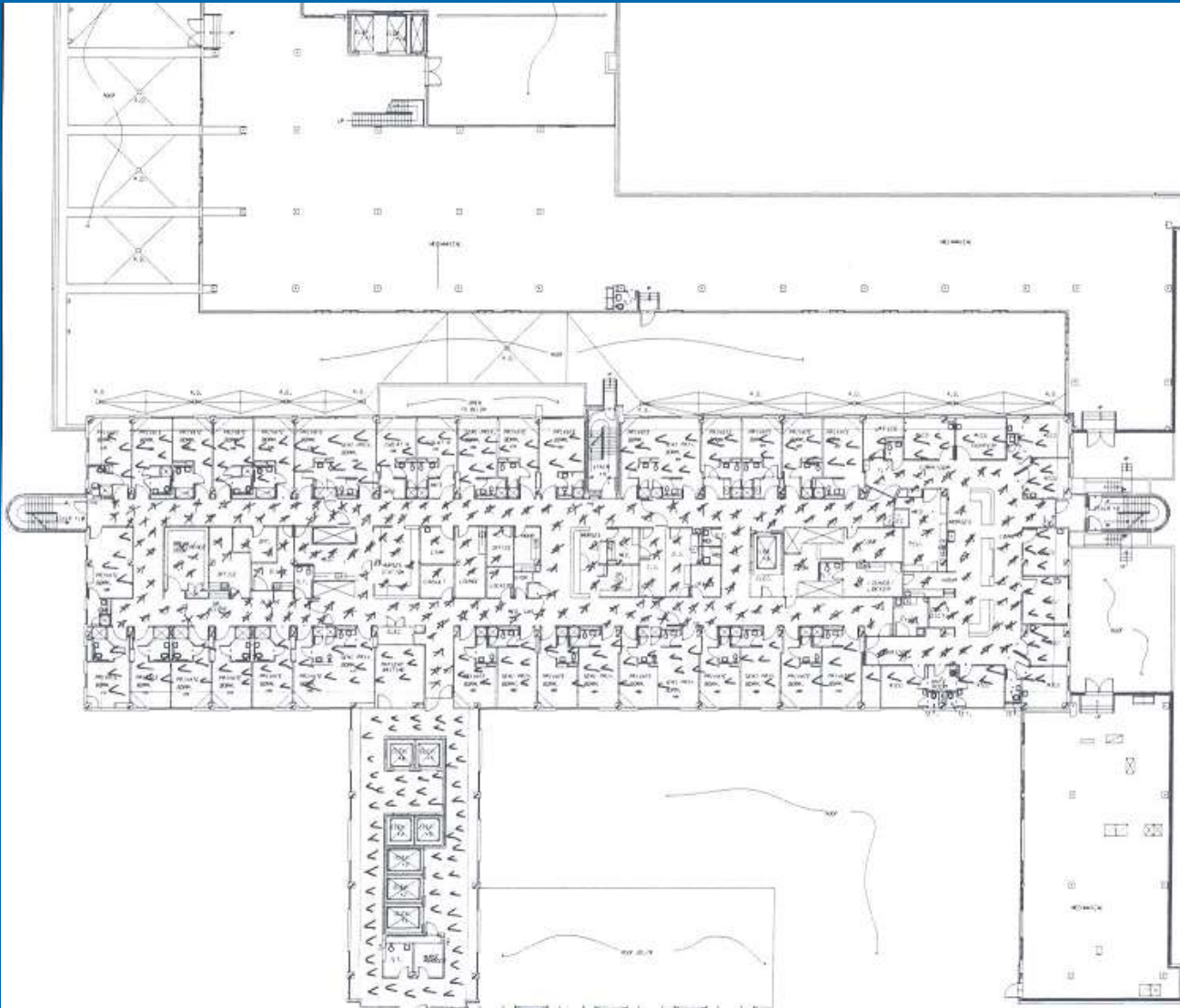
KEY PLAN

PLAN-FLOOR 01 PART(S) NO(S) 01 thru 07

Name of Facility	S. R. BUTLER HIGH SCHOOL	EXIST. CAPACITY	FALLOUT SHELTER AREA IDENTIFICATION SKETCH Date: <u>OCT. 1971</u> Sheet <u>2</u> of <u>2</u>
Address	HOLMES AVE. HUNTSVILLE, ALA.	20 Spaces PF Cat. 2-B	
Standard Location Code	31410005	2950 Spaces PF Cat. 1	
Facility No. Shown on Map	11	1880 Spaces PF. Cat. 0	
Facility No. Shown on SAF	09341		

Hospital Fallout Shelter Spaces

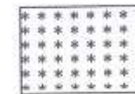
Fallout Shelter space on 4th (of eight floors) in a Hospital



Both areas "Best" category,
98% to 99.5% reduction.



HSV Hospital /4N
Spaces: 1036
PF: 77
Category: 3



HSV Hospital /4N
Spaces: 762
PF: 175
Category: 5

Firewall LoopOut	REV:
SHOCK	DATE: 11.04.05
1 HOUR	PROTECTED BY THE SHOCK
1 HOUR SHOCK	
2 HOUR	
2 HOUR SHOCK	
4 HOUR	
4 HOUR SHOCK	

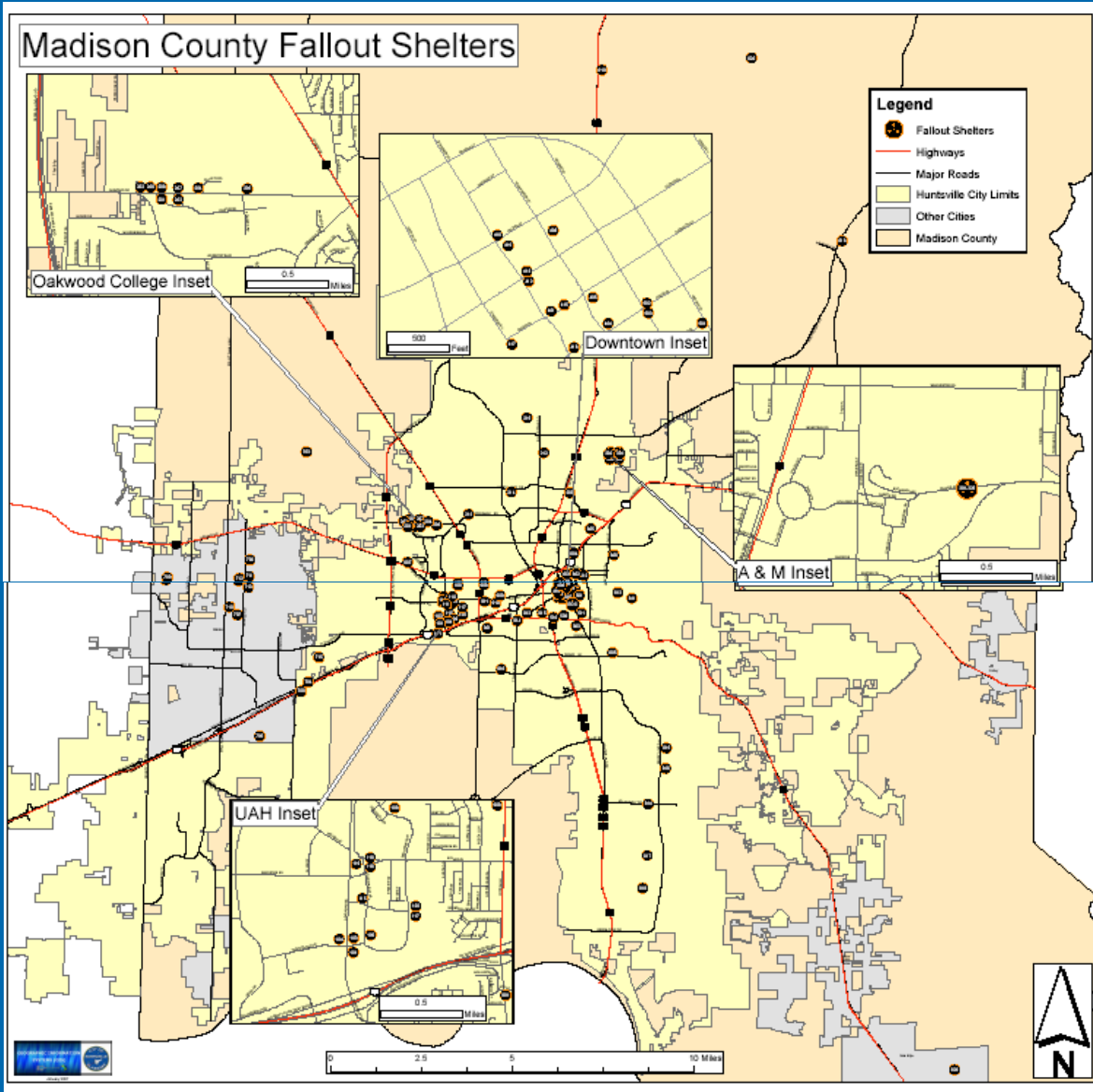
3" 6" 12" 24"
SHEET:
H-4N-4N

HUNTSVILLE
HOSPITAL

Madison Co., AL, Fallout Shelter Profile

- Goal is 140 federally surveyed & approved Public Fallout Shelters with a total capacity of ~300,000 persons.
- 107 shelters with aggregate capacity of 210,000+ now active.
 - Owners, prior to 2006, not contacted since the 1980s.
Most not aware their building was a shelter.
 - Work began in 2005 to revitalize shelter program
- MMRS facilities – surveyed in 2005-6 - reserved for medical operations and sheltering of staff, patients and families, not the public.
- A few Fallout Shelters for Direction and Control operations.
- 100's of privately owned Tornado/Fallout shelters exist.
- Redstone Arsenal & Marshall Space Flight Center have ~80 usable Fallout Shelters for their use with an aggregate capacity of 90,000+ persons.
These spaces not counted in the Madison Co. total.

Shelters in Madison County, AL



Who was asked? Who accepted?

Category (as of January, 2007)	Accepted	Declined	No reply	
State and local gov't buildings	75			
Private schools	10			
Shopping Malls	1		1	
Churches & YMCA	14	2	18	
Industry	2	1		
Business/professionals	1	1	3	
Bank/Credit Union	2	1		
Residence/Apartments	1		3	
Caves	<u>1</u>	<u>—</u>	<u>—</u>	
	107	5	25	Total: 137

Aggregate capacity: 210,000+ persons

30+ other shelters, covered by earlier agreements, to be contacted: capacity 75,000+.

Steps to Build Your System

- Identify & select shelters
 - Search for existing shelter records
 - Secure Permission from owners
 - Determine Capacity & Protection Factor (FEMA calculated; in NFSS)
- Organize Shelter Managers into a System
 - Recruit & train Shelter Managers
 - Organize Shelters & Managers into self-support “Shelter Complex System”
 - Recruit & train Radiological Monitors
 - Produce a Shelter Guide which Shelter Managers can use to staff a shelter.
 - When would shelters be activated? Opened to public?
- Educate & inform the public – and public officials.
- Survival supplies needed:
 - Water
 - Sanitation
 - Hygiene
 - Food
 - First Aid
 - Radiation Monitoring instruments (KFM, NukAlert or Civil Defense kit)

Types of Shelter Records to Seek

- Federal License
 - Grants permission
 - “Heirs and Assigns” Clause commits all future owners – unless revoked.
- National Fallout Shelter Survey printout
 - Prepared for each County/Parish in a state
 - Lists each federally approved shelter with a unique identifier number
 - Lists shelter capacities qualitatively in “Protection Factor” Categories
 - Lists capacities of basements
- Building layout drawings
 - Shows all approved space, floor by floor or area by area.
 - “Protection Factor” (protective quality) shown on Good-Better-Best basis
 - Capacities shown may be inaccurate (criteria changed after surveys done)
- Sign Posting Sketch
 - Shows where signs were posted
 - Building layout may be incomplete – e.g., ground floor only

Sources of Shelter Records

- US Corps of Engineers District Offices
 - Phase 2 reports
 - NFSS Facility Booklets
 - Building layout drawings
 - Sign Posting Sketch
- FEMA Regional Offices and/or State EMAs
 - National Fallout Shelter Survey printout – last published 31 Dec 1992
- Local EMAs
 - Federal License
 - USCOE records
 - FEMA NFSS printout
 - Receipts for shelter supplies placed (and removed) from building.
- State archives, libraries, universities who sub-contracted work, etc.

Two Key Provision of Federal Fallout Shelter License

Recognition of protection from fallout radiation

FORM 1 INT OF DEFENSE
OFFICE OF CIVIL DEFENSE
FALLOUT SHELTER LICENSE OR PRIVILEGE

WHEREAS, The President of the United States has undertaken for the Nation an accelerated and strengthened civil defense program, including a fallout shelter program; and

WHEREAS, a fallout shelter survey has indicated that certain areas of the hereinafter described premises will afford persons protection from the hazard of fallout in the event of enemy attack;

NOW, THEREFORE, the undersigned, being the owner of the hereinafter described premises, or the person otherwise authorized to grant such license or privilege, does hereby voluntarily and without compensation, in consideration of the mutual promises expressed herein and in cooperation with the Federal, State, and local civil defense programs for measures to protect persons against the threat of fallout radiation from enemy attack, grant to the Federal Government, the State of Alabama and the political subdivision of Huntsville and to the general public for use in accordance with civil defense shelter plan, the following license or privilege:

I. A. Use of the basements, corridors, and other common areas of the building or structure situated at _____ and known as S. R. Butler High School as well as any other common use parts of the said building or structure which the Federal Government and the political subdivision or shall determine appropriate, including without limitation the right to the public ingress to and egress from the premises, for the sole purpose of temporarily sheltering persons during and after any and every actual or impending attack.

B. Further, the right to designate the said building or structure as a civil defense shelter, not to be disturbed, such civil defense shelter and other rights as are determined appropriate, as long as there is no interference with the usual use of the premises for the carrying on of business therein.

II. The Federal Government, shall have and shall political subdivision and the Federal Government, their authorized officers, agents, or representatives, shall have the right to (1) enter the premises, (2) use the shelter capacity, and it is expressly understood that the shelter shall have no responsibility or liability for the care, protection, or maintenance of the shelter structure, and (3) damage or loss shall be maintained by said political subdivision or as expense to the Grantor.

III. The Grantor agrees that, during such reasonable periods as the premises are used for business, the political subdivision and the Federal Government, their authorized officers, agents, or representatives, shall have the right to (1) enter the premises, including any equipment and supplies stored therein, as long as this license or privilege is in effect.

This license or privilege is granted on the express condition that it shall be valid and binding upon the heirs, assigns, or successors in interest of any tenant who enters this license or privilege may be revoked by ninety (90) days' written notice to the political subdivision and the Federal Government, sent by registered mail.

No storage space available

Signed, sealed, and delivered this 12 day of April, 1968

WITNESSES:
Shirley M. Lyphers
Thomas J. Mitchell
GRANTOR

The acceptance and approval of the above license or privilege is authorized by the political subdivision of _____

Standard Location Code 3141 0005

Facility Number 09341

Director
Huntsville-Madison County
OFFICE OF CIVIL DEFENSE

DEPAK INT OF DEFENSE
OFFICE OF CIVIL DEFENSE
FALLOUT SHELTER LICENSE OR PRIVILEGE

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WHEREAS, a fallout shelter survey has indicated that certain areas of the hereinafter described premises will afford persons protection from the hazard of fallout in the event of enemy attack;

NOW, THEREFORE, the undersigned, being the owner of the hereinafter described premises, or the person otherwise authorized to grant such license or privilege, does hereby voluntarily and without compensation, in consideration of the mutual promises expressed herein and in cooperation with the Federal, State, and local civil defense programs for measures to protect persons against the threat of fallout radiation from enemy attack, grant to the Federal Government, the State of Alabama and the political subdivision of Huntsville and to the general public for use in accordance with civil defense shelter plan, the following license or privilege:

II.

This license or privilege is granted on the express condition that it shall be valid and binding upon the heirs, assigns, or successors in interest of any tenant who enters this license or privilege may be revoked by ninety (90) days' written notice to the political subdivision and the Federal Government, sent by registered mail.

No termination date!

long as this license or privilege is in effect.

This license or privilege is granted on the express condition that it shall be valid and binding upon the heirs, assigns, or successors in interest of any nature whatsoever, this license or privilege may be revoked by ninety (90) days' written notice to the political subdivision and the Federal Government, sent by registered mail.

FEMA Nat. Fallout Shelter All Facility List

NFS ALL FACIL / LISTING AS OF DEC 31, 1992

MADISON
ALABAMA

1980 POP 196966

PAGE 198

ST-CD -MCD-PLACE-RS4C
01 089 025 0935 4141

FALLOUT SHELTER SPACES

R&P
SPACES

RAC
SPACES

DESCRIP
CODE

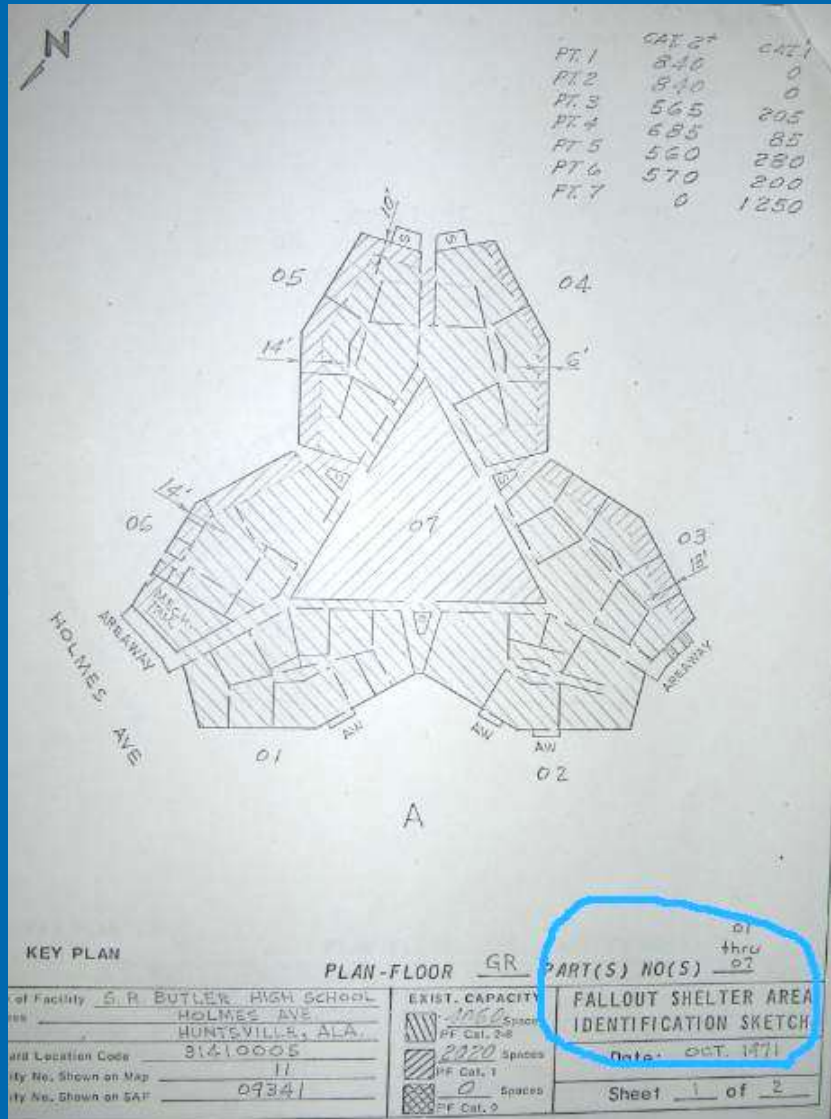
FAC NO.	BUILDING NAME	BLDG NUMBER	D I R	STREET NAME	CITY	SLA NUM	PF	PF	PF	PF	TOTAL BSMT	C	TOTAL BSMT	CONG CARE	DESCRIP CODE	F J C U R S W S E F N E	UPDT DATE
							DAT 0	CAT 1	CAT 2-3	CAT 4+		D					

----- MCD 025 HUNTSVILLE PLACE 0935 HUNTSVILLE

00085	TERRY HUTCHENS BLDG	102	W	CLINTON AV	HUNTSVILLE	0001	800	0	150	0	150	C	270	0	F	0	4	51	1173
00086	ATTORNEY'S OFFICES	117	N	JEFFERSON ST	HUNTSVILLE	0001	80	0	0	0	80	C	210	0	E	0	4	51	1289
00090	LOMBARDO-BUILDING	315	N	JEFFERSON ST	HUNTSVILLE	0001	150	0	0	0	40	C	40	0	D	0	4	54	1289
00092	CH OF THE VISITATION	222	N	JEFFERSON ST	HUNTSVILLE	0001	50	0	0	0	50	C	115	0	E	0	5	31	1289
00096	COCKERHAM-BLDG	301	SE	RANDOLPH AV	HUNTSVILLE	0001	95	0	0	0	0	X	0	0	C	0	4	51	0383
00098	FIRST METH SS BLDG	219		RANDOLPH AV	HUNTSVILLE	0001	310	0	0	0	310	C	310	0	F	0	5	39	1173
00100	JONES-&-HERRIN-ART	104	S	JEFFERSON ST	HUNTSVILLE	0001	125	0	0	0	0	X	0	0	E	0	4	53	1289
00101	JOYCE PROUT & WATKINS	104	S	SIDE SQUARE	HUNTSVILLE	0001	25	0	0	0	25	C	55	0	D	0	4	99	0392
00102	SMITH-GAINES-GAINES	108	S	SIDE SQUARE	HUNTSVILLE	0001	60	0	0	0	60	C	120	0	D	0	4	51	0383
00103	LEGAL BLDG	315		FRANKLIN ST	HUNTSVILLE	0001	100	0	0	0	0	X	0	0	E	0	4	51	1173
00104	G W JONES	307		FRANKLIN ST	HUNTSVILLE	0001	180	0	85	0	85	C	125	0	E	0	4	51	1173
00106	GUMMINGS GAZAWAY	401	NE	HOLMES AV	HUNTSVILLE	0001	75	0	0	0	75	C	75	0	E	0	4	21	1192
00108	ENVIRONMENTAL MGT. BLD	305		CHURCH ST	HUNTSVILLE	0001	105	0	0	0	105	X	195	0	C	0	3	45	0990
00109	TERRY HUTCHENS COMPLEX	109	N	JEFFERSON ST	HUNTSVILLE	0001	90	0	0	0	0	X	0	0	D	0	4	51	1192
00113	QUICK BUILDING	117	SE	GREENE ST	HUNTSVILLE	0001	200	0	260	0	260	C	405	0	C	0	4	51	0392
00114	FIRST AL BANK COMP CTR	508		MADISON ST	HUNTSVILLE	0001	180	0	200	0	200	C	200	0	C	0	4	55	1288
00115	PUBLIC SERVICES BLDG	301		FOUNTAIN CR SW	HUNTSVILLE	0001	390	0	210	0	210	C	775	0	D	0	3	48	0990
00116	ADMINISTRATION BLDG.	308		FOUNTAIN CR SW	HUNTSVILLE	0001	975	0	235	0	0	X	0	0	B	0	3	45	0990
00117	PUBLIC SAFETY BLDG	308		FOUNTAIN CR SW	HUNTSVILLE	0001	895	0	0	115	0	X	0	0	B	0	3	45	1173
00118	CENTRAL BANK/VACANT	200	W	SIDE SQUARE	HUNTSVILLE	0001	10600	0	5010	0	170	E	170	0	C	0	4	51	1192
00119	COUNTY COURTHOUSE	101	S	SIDE SQ	HUNTSVILLE	0001	17600	0	1490	0	1490	E	2225	0	B	0	3	45	1173
00120	ADMIN BLDG TUNNEL	308		FOUNTAIN CR SW	HUNTSVILLE	0001	0	0	55	0	55	A	55	0	A	3	49	0990	
00121	TODD TOWERS	204		GREEN STREET	HUNTSVILLE	0001	3240	0	0	0	0	X	0	0	B	0	4	11	0392
00122	MUNICIPAL PARKING GARA	300		MADISON ST	HUNTSVILLE	0001	8860	0	0	0	0	X	0	0	C	0	3	99	1173
00124	HOLMES METHODIST CHURC	421		HOLMES AV	HUNTSVILLE	0001	300	0	75	0	375	C	560	0	C	0	5	31	1173
00127	SNO-WHITE-HAMBURGER	121	N	SIDE SQUARE	HUNTSVILLE	0001	120	0	0	0	50	C	135	0	C	0	4	59	0383
00128	ATTORNEY'S OFFICES	122	S	SIDE SQUARE	HUNTSVILLE	0001	55	0	0	0	55	C	110	0	E	0	4	51	1289
00129	HENRY & ALM. CPA	120	S	SIDE SQUARE	HUNTSVILLE	0001	25	0	0	0	25	C	50	0	D	0	4	53	1192
00130	SCHRIMSHER-BLDG	123	N	JEFFERSON ST	HUNTSVILLE	0001	155	0	0	0	155	C	175	0	E	0	4	52	1289
00131	SOUTH CENTRAL BELL BLD	308	W	CLINTON AV	HUNTSVILLE	0001	1508	0	0	0	0	X	0	0	A	0	4	44	1192
06612	MCCORMICK-HOUSE	2005		KILDARE ST	HUNTSVILLE	0002	515	0	125	0	360	C	395	0	E	0	4	51	0383
06701	LAKWOOD BAPTIST CHURC	2101		MASTIN LAKE RD	HUNTSVILLE	0003	1930	0	390	0	355	C	725	0	C	0	5	31	1173
06708	CHURCH OF CHRIST	3703	NW	MEMORIAL PARKWA	HUNTSVILLE	0003	570	0	20	0	20	C	20	0	C	0	5	31	0392
06712	LAKWOOD UNITED METH C	2614		MASTIN LAKE RD	HUNTSVILLE	0003	0	0	75	0	75	C	390	0	B	0	5	31	1173
06716	SOUTH CENTRAL BELL BLD	2804		MASTIN LAKE RD	HUNTSVILLE	0003	145	0	20	0	20	C	40	0	A	0	4	44	1173
06717	NORTHWEST BRANCH YMCA	4600		BLUE SPRING RD	HUNTSVILLE	0003	130	0	20	0	150	C	310	0	A	0	4	72	1173
06719	CHURCH OF NAZARENE	3412		MASTIN LAKE RD	HUNTSVILLE	0003	175	0	0	0	175	C	175	0	D	0	5	31	0274
06720	MALL OFFICE + AUDITORU	1001	N	MEMORIAL PKWY	HUNTSVILLE	0003	350	0	0	0	0	X	0	0	C	0	4	71	0990
06721	NORTH STORE, THE MALL	1001	N	MEMORIAL PKWY	HUNTSVILLE	0003	1980	0	0	0	0	X	0	0	D	0	4	53	0930
06722	TOYS-R-US, THE MALL	1001	N	MEMORIAL PKWY	HUNTSVILLE	0003	3430	0	0	0	0	X	0	0	D	0	4	53	0990
06725	PRESBYTERIAN APTS	2211		COUNTRY CLUB AV	HUNTSVILLE	0003	5200	0	0	0	0	X	0	0	B	0	4	11	0984
09293	SHELTA-CAVE			LINK ST	HUNTSVILLE	0003	0	0	0	4300	4300	A	4300	0	A	2	4	99	0984
04001	HIGHLANDS-BAPT-CHURCH	2525		ASPEN AV	HUNTSVILLE	0004	220	0	0	0	220	C	220	0	C	0	5	31	0984
04003	BUTCHER BLOCK	4210	NW	OAKWOOD AV	HUNTSVILLE	0004	300	0	0	0	300	C	375	0	C	0	4	56	0392
04005	EDWARD WHITE JR HIGH	4800		SPARKMAN DR	HUNTSVILLE	0004	0	0	0	0	0	X	220	0	A	0	3	22	1173
04006	EDWARD WHITE JR HI GYM	4800		SPARKMAN DR	HUNTSVILLE	0004	295	0	0	0	0	X	0	0	A	0	3	29	1173

The Legacy Federal Survey – The Treasure Trove

Examples: Building layout drawings & Sign Marking Sketch



Past FEMA Shelter Survey Guidance

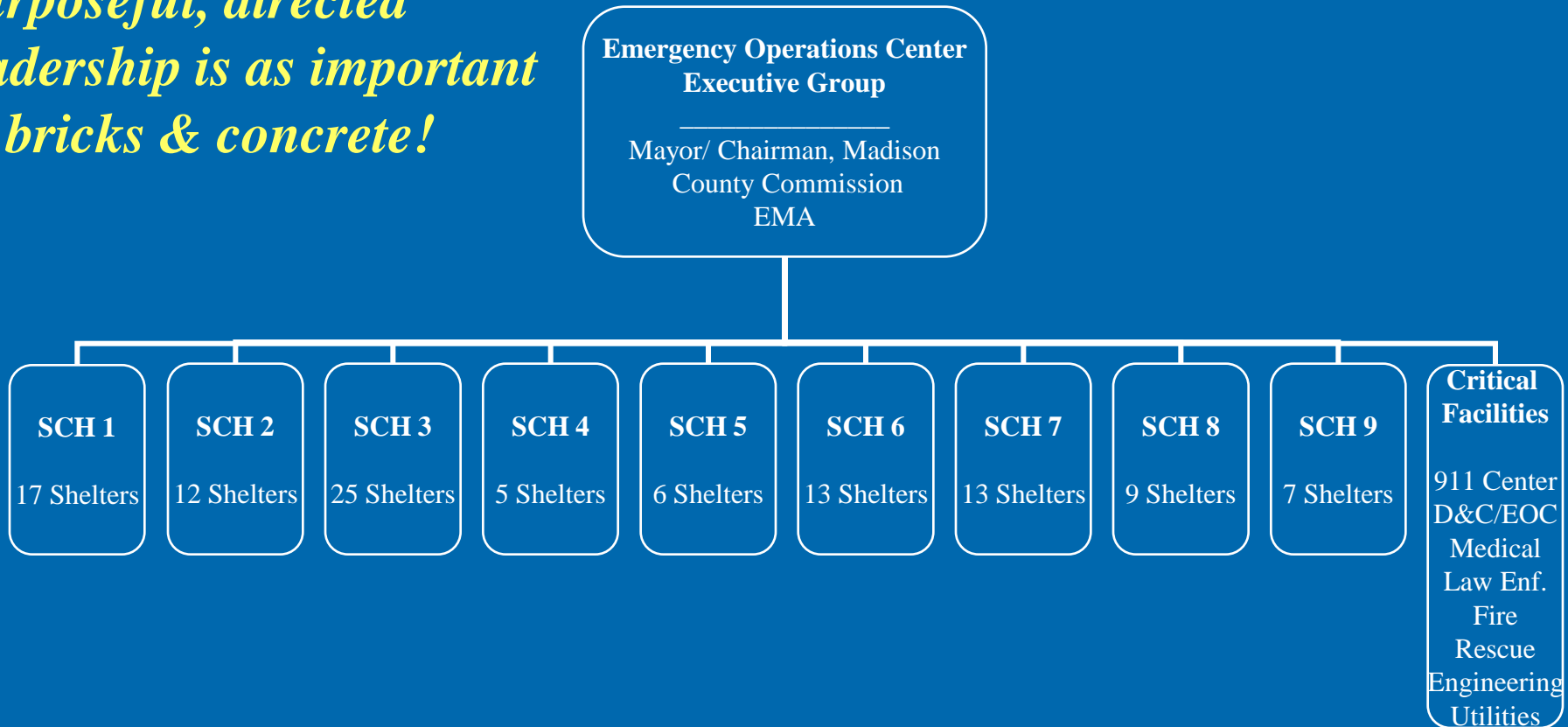


Fallout Shelter Management Course

- Trains key staff on how to Shelter In Place:
 1. Threats posed by high level radiation.
 2. What a Fallout Shelter is and how it protects people.
 3. How Fallout Shelters are organized/operate in County Fallout Shelter System.
 4. Organizing shelter occupants into specialized teams capable of group survival.
 5. How to provide and manage critical survival resources.
 6. Continuing the mission - shelter operations for Critical Facilities.
- Course intended for “Just In Time” use.
 - Just in Time version can be delivered in 6 hours.
 - In 2006/2007 Course delivered in 8 hrs but included Table Top Exercise
- Course could be adapted for CERT use – short sessions over 3 weeks.

Control & Support of Fallout Shelters

Purposeful, directed leadership is as important as bricks & concrete!



SCH = Shelter Complex Headquarters
Number of shelters grouped in each SCH

Shelter Guide & Monitoring Instrument

FALLOUT SHELTER MANAGER'S GUIDE

Information about this shelter:

Shelter Name: RESOURCE CTR Shelter number: 316
 Address: N+M University Capacity: 3,980 persons
 Shelter Manager: _____ Alternate: _____
 Telephone: home _____ home _____
 P/C/work _____ P/C/work _____

Shelter Complex Headquarters:

Address WALKERWOOD HALL Telephone _____

Name, address and phone number of the 3 nearest shelters:

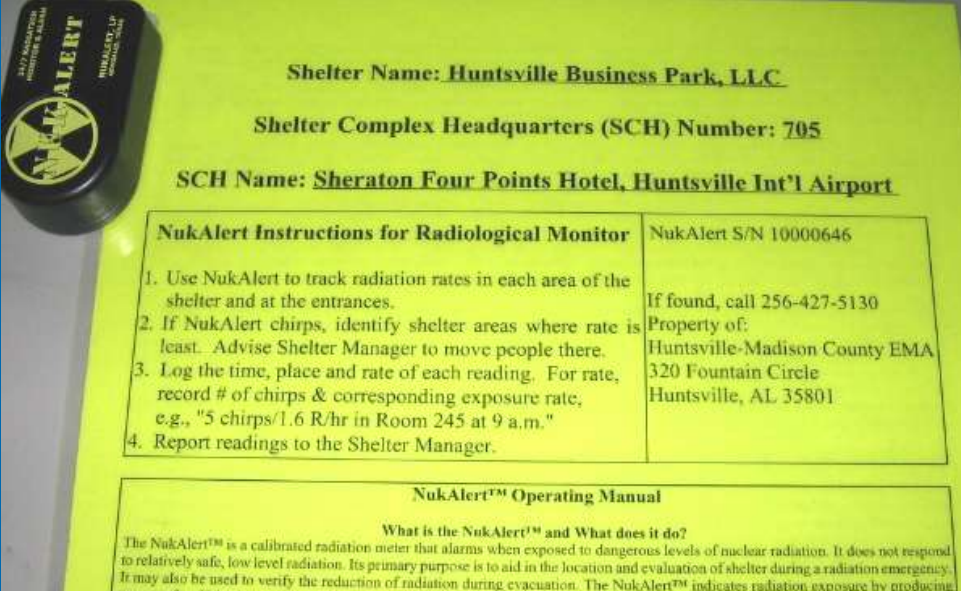
PATTON HALL

Chambers Science Hall

CARTER Science Hall

If you need assistance and you are unable to contact the SCH or the 3 nearest shelters, contact the Shelter Officer at the Huntsville-Madison County Emergency Operations Center at 427-5130. The EOC is in the basement of the Public Services Building, 320 Fountain Circle.

Notes:



Shelter Name: Huntsville Business Park, LLC
Shelter Complex Headquarters (SCH) Number: 705
SCH Name: Sheraton Four Points Hotel, Huntsville Int'l Airport

NukAlert Instructions for Radiological Monitor NukAlert S/N 10000646

1. Use NukAlert to track radiation rates in each area of the shelter and at the entrances.
2. If NukAlert chirps, identify shelter areas where rate is least. Advise Shelter Manager to move people there.
3. Log the time, place and rate of each reading. For rate, record # of chirps & corresponding exposure rate, e.g., "5 chirps/1.6 R/hr in Room 245 at 9 a.m."
4. Report readings to the Shelter Manager.

If found, call 256-427-5130
 Property of:
 Huntsville-Madison County EMA
 320 Fountain Circle
 Huntsville, AL 35801

NukAlert™ Operating Manual

What is the NukAlert™ and what does it do?
 The NukAlert™ is a calibrated radiation meter that alarms when exposed to dangerous levels of nuclear radiation. It does not respond to relatively safe, low level radiation. Its primary purpose is to aid in the location and evaluation of shelter during a radiation emergency. It may also be used to verify the reduction of radiation during evacuation. The NukAlert™ indicates radiation exposure by producing groups of audible alarm chirps about every 30 seconds. The number of chirps is proportional to the radiation rate.



# OF CHIRPS	R/hr*	TIME TO 100 R EXP*
1	0.1	41.6 d
2	0.2	20.8 d
3	0.4	10.4 d
4	0.8	5.2 d
5	1.6	2.5 d
6	3.2	1.3 d
7	6.4	15.6 h
8	12.8	7.8 h
9	25.6	3.9 h
10+	50+	<2.0 h

* SEE CHART DETAILS AT WWW.NUKALERT.COM OR IN MANUAL

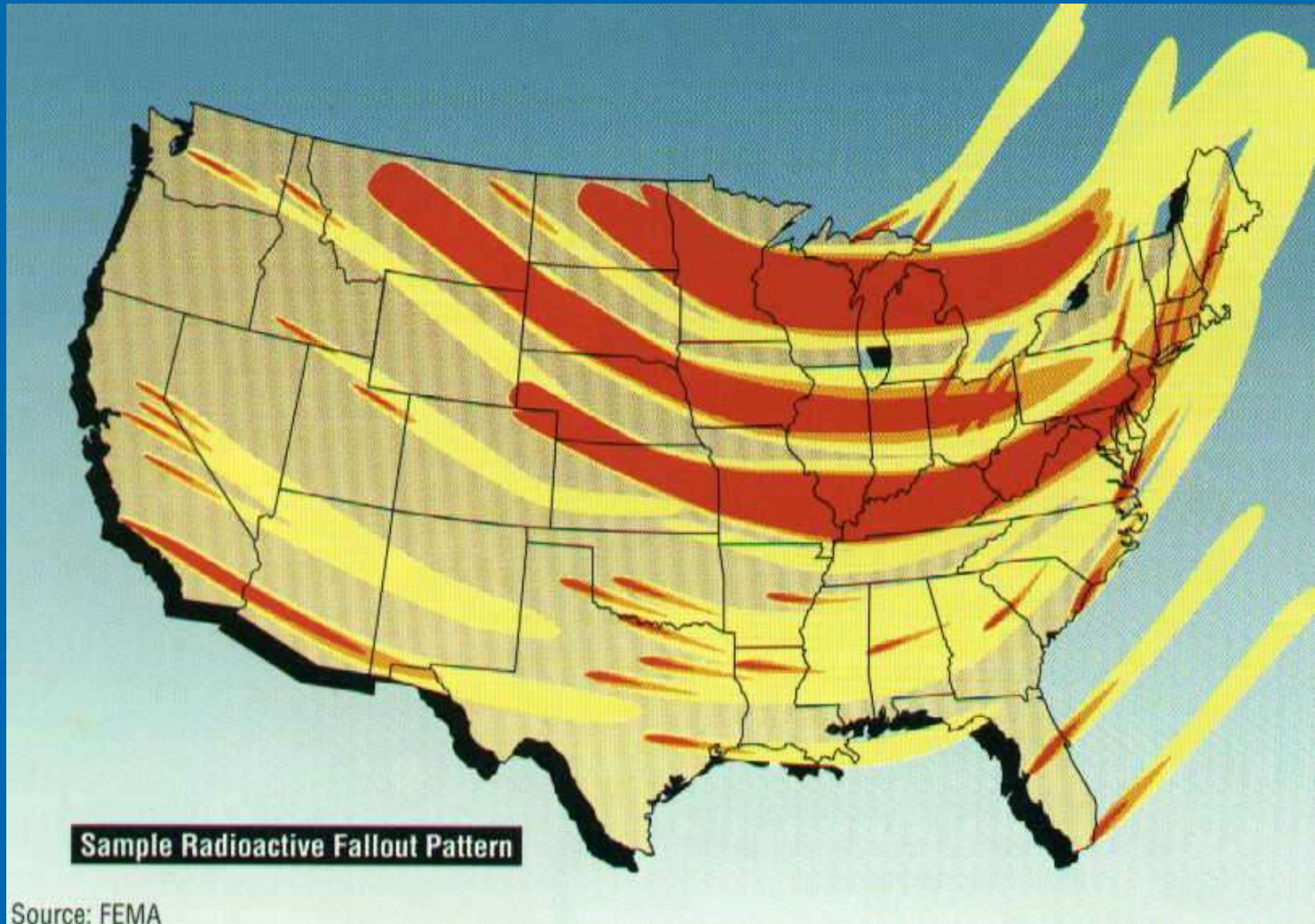
Training & Informing the Public



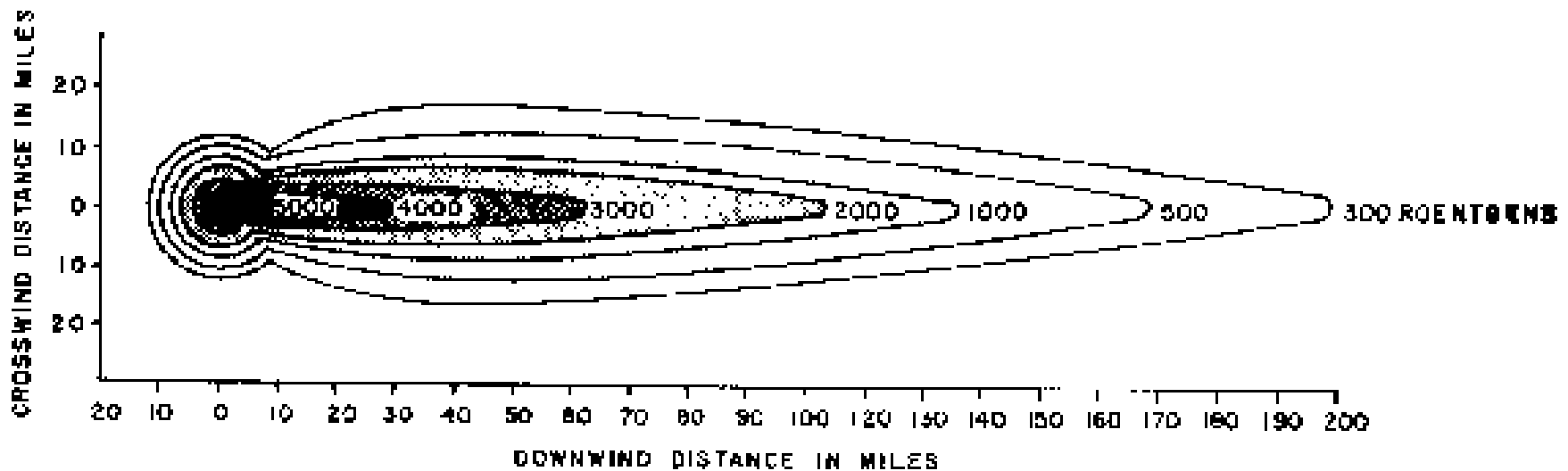
- The Community Emergency Response Team (CERT) Program prepares people to help themselves, their families & neighbors in the event of disaster.
- CERT instructs citizens about disaster preparedness and trains them in basic disaster response skills:
 - Fire safety
 - Utilities shut off
 - Light search and rescue
 - Disaster medical operations.
 - Interface with the Incident Commander
- CERT volunteers provide immediate assistance to victims before responders arrive.
- CERT volunteers participate in community preparedness outreach activities and distribute disaster preparedness materials.

Citizens Corps/CERT could be the vehicle for attack preparedness education & training.

Fallout Pattern - Time/Wind effects

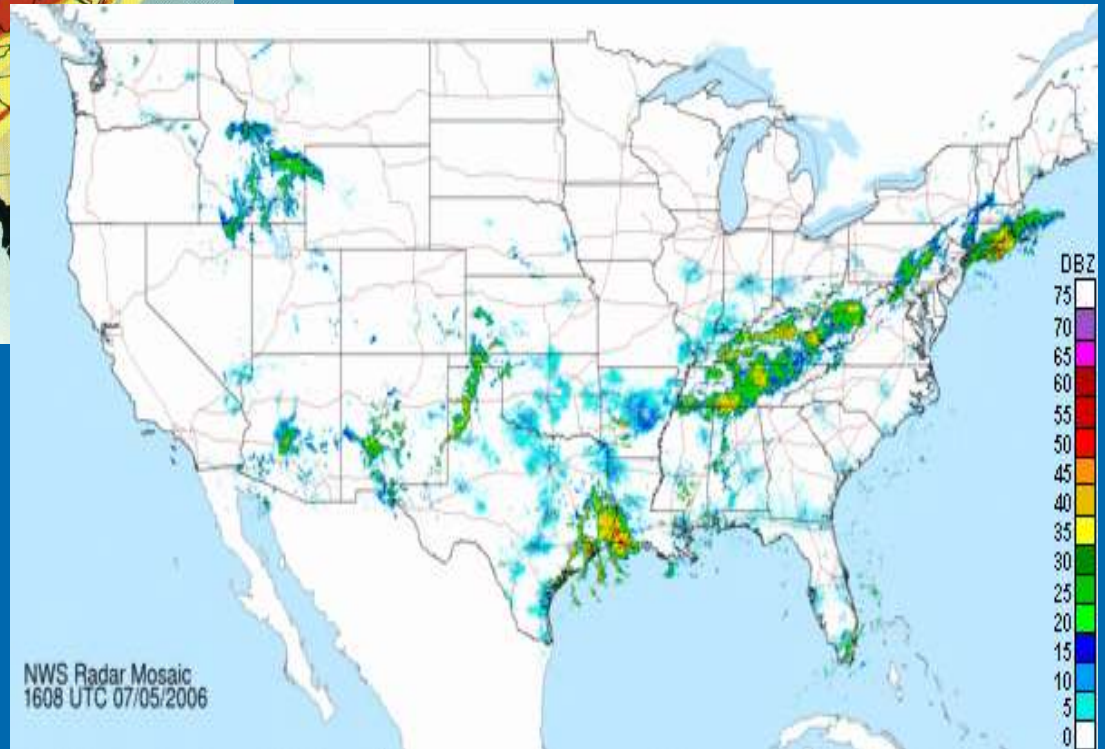
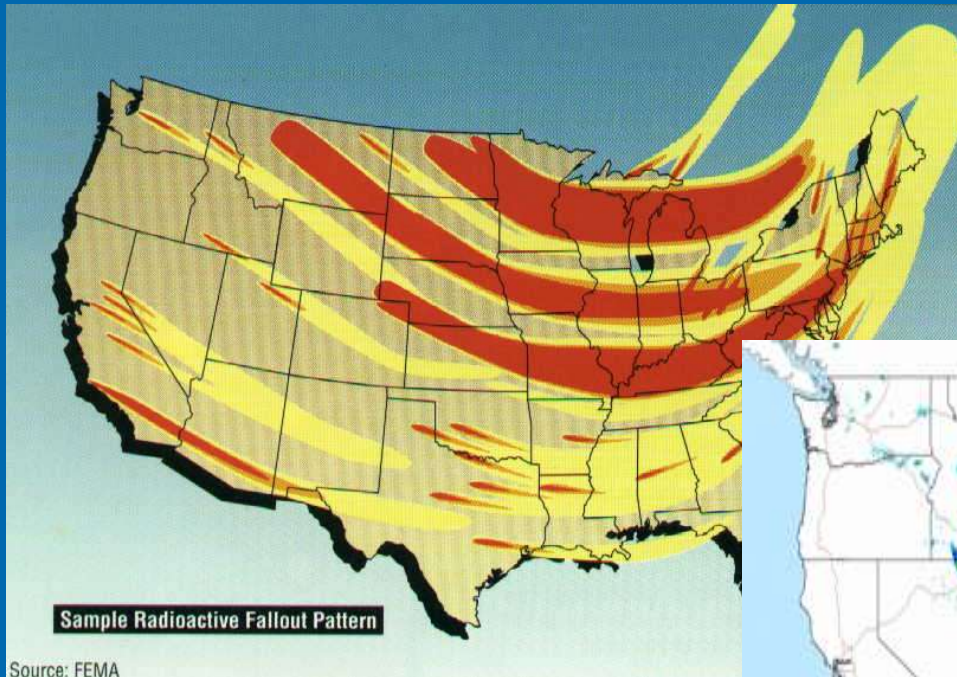


Fallout Pattern – Idealized Wind Dispersion



Uniform deposition just does not happen in nature!

Fallout Follows the Wind



Fallout Patterns – Wind & Weather Effects

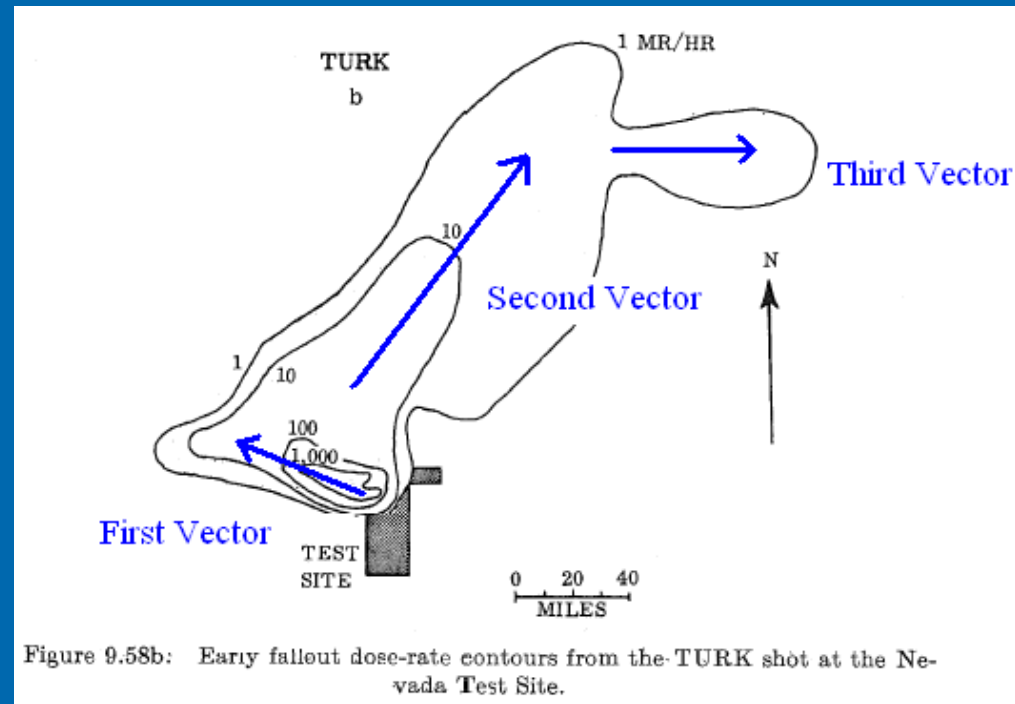
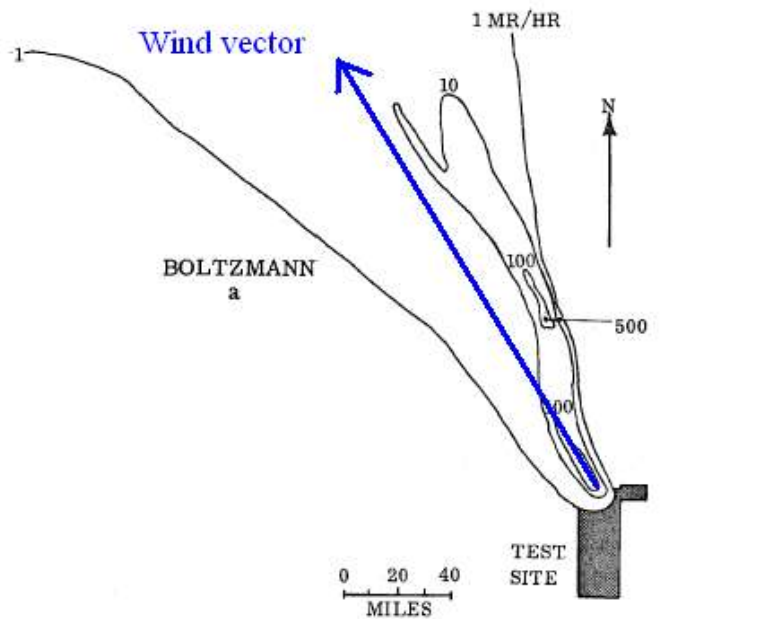


Figure 9.58a. Early fallout dose-rate contours from the BOLTZMANN shot at the Nevada Test Site.

Figure 9.58b: Early fallout dose-rate contours from the TURK shot at the Nevada Test Site.

Plumbbob Boltzman shot, 12 KT,
500' low airburst (tower), Feb 5 1957

Teapot Turk shot, 43 KT,
500' low airburst (tower), Jul 3 1955

Cloud tops: 33,000' Dose rate at H+12 hours

Cloud tops: 44,000' Dose rate at H+12 hours

NOAA Fallout Winds Daily Forecast

000
FDUS01 KWNO 031554
FOFUS

UPPER WIND FALLOUT FORECAST
NWS NCEP CENTRAL OPERATIONS CAMP SPRINGS MD
1554 UTC TUE JUL 12 2008

DATA BASED ON 121200Z

NERN US

JFK 1111 0912 0913	BOS 1013 0913 0813	AUG 1016 0915 0814
CAR 0916 0917 0817	PLB 1016 0914 0912	ALB 1014 0913 0912
BUF 0914 0913 1013	IPT 1013 0914 1014	PIT 1014 1015 1014
BAL 1011 1013 1014	CRW 1115 1015 0913	LOU 1014 0914 0914

SERN US

RIC 1111 1112 1012	HAT 1408 1308 1307	RDU 1211 1210 1110
TRI 1213 1012 1012	BNA 0910 0912 0913	JAN 1006 0907 0908
BHM 1107 1007 1008	ATL 1207 1107 1007	CAE 1309 1207 1107
ILM 1310 1209 1109	JAX 1605 1604 1503	TLH 1705 1503 1503
TPA 1804 1803 1902	MIA 1905 2004 2103	MOB 1404 1303 1204
MSY 1403 1202 1103		

S CNTRL US

N CNTRL US

NWRN US

SWRN US

CANADA

<http://www.srh.noaa.gov/data/WNO/FOFUS>

Needed: Digitized forecast map similar to NOAA weather forecast maps.

Monitoring Capabilities

NukAlerts for shelters



Kearny Fallout Meter



Aerial Monitoring



Civil Defense Instruments



Radiological Preparedness Briefing to Members of Congress, September 11, 2007

- Rep. Charles Dent plus his Chief of Staff/Counsel/HS Advisor.
- Senator Arlen Specter plus his Chief of Staff & HS staffer.
- HS staffer of Rep. Dave Reichert from Washington.
- HS staffer of Rep. Rob Bishop from Utah.
- HS staffer of Senator Richard Shelby from Alabama.
- HS staffer for Senator Jeff Sessions from Alabama.

Briefing team:

Bob Kilbanks

Kimberly Kushel

Steve Jones

John “Rusty” Russell

Kirk Paradise



Current Initiatives - #1



The IOM Committee on Medical Preparedness for a Terrorist Nuclear Attack is holding three workshops (April, June and Aug 7-8). Results to be published by Dec 2008.

Theme: Assessing Medical Preparedness for a Nuclear Event.

Aimed at 6 cities: New York City/Northern New Jersey; National Capital Region, Los Angeles/Long Beach, California Bay Area, Houston and Chicago.

Study areas:

1. Overall emergency response activities and available healthcare capacity (including shelter, evacuation, decontamination and medical infrastructure interdependencies) to treat the affected population;
2. Capacity and gaps of Federal, State and local authorities to deliver available medical countermeasures in a timely way;
3. Available treatments for radiation illnesses including the efficacy of medical countermeasures;
4. Appraise the expected benefit of medical countermeasures, including those currently under development. www.iom.edu/nuclearpreparedness

Current Initiatives - #2



FEMA



Nuclear Event Communications Strategy Workshop, July 9 - 10, 2008.

Theme: Identify a strategy for response and preparedness across all levels of government and formulate what type of information the public needs to in the event of a nuclear detonation or RDD.

Project Background: The project is directed by the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Act, (P.L. 110-28). Conferees expressed concern that cities have little guidance available to them to better prepare their populations to react in the critical moments shortly after a nuclear terrorism event such as an RDD or IND.

The DHS Office of Health Affairs (OHA) and FEMA tasked to assess public health plans for a nuclear terrorism event as well as identify a strategy for response and preparedness across all levels of government. May-June 2008, PIOs, first responders, and other officials interviewed in four cities to gather data on what type of information needs to be included in messages to the public. Workshop was to gather all data together; flesh out any gaps and formalize message templates for use in event of a nuclear detonation.

Follow up meeting will be July 16-17.

Attainable Priorities

1. Identify & secure use of existing Fallout Shelters. Survey new ones.
2. Educate public & leaders to orient them toward survival & recovery.
3. Ability for local & state governments to organize & operate a system of public Fallout Shelters to protect against radiation.
4. Ability to evacuate people, before fallout arrival, from projected fallout areas.
5. Rescue of people in areas covered by fallout when radiation rates drop to low levels.
6. Recovery after the attack.

Questions?



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