Cumberland County, North Carolina
Emergency Operations Plan

July 14, 2017

Prepared By

Excelliant Services, Inc.
1201 Lee Branch Lane
Birmingham, Al 35242

STATEMENT OF APPROVAL

The undersigned approves the Cumberland County Emergency Operations Plan and agrees to the responsibilities assigned to their organization.

_____	_____
Chairman, County Board of Commissioners	Date
_____	_____
County Manager, Cumberland County	Date
_____	_____
Sheriff, Cumberland County	Date
_____	_____
Assistant County Manager, Cumberland County	Date
_____	_____
Director, Emergency Services, Cumberland County	Date
_____	_____
Director, Emergency Medical Service of Cape Fear Valley Health Systems	Date
_____	_____
Director, Finance Department, Cumberland County	Date
_____	_____
Director, Health Department, Cumberland County	Date
_____	_____
Director, Information Services, Cumberland County	Date
_____	_____
Director, Parks and Recreation Department	Date
_____	_____
Director, Personnel, Cumberland County	Date
_____	_____
Director, Social Services, Cumberland County	Date
_____	_____
Director, Solid Waste, Cumberland County	Date
_____	_____
Director, Tax Administrator, Cumberland County	Date
_____	_____
Superintendent, Cumberland County Schools	Date
_____	_____
Mayor, City of Fayetteville	Date

_____	_____
Mayor, Town of Spring Lake	Date
_____	_____
Mayor, Town of Hope Mills	Date
_____	_____
Mayor, Town of Falcon	Date
_____	_____
Mayor, Town of Godwin	Date
_____	_____
Mayor, Town of Linden	Date
_____	_____
Mayor, Town of Stedman	Date
_____	_____
Mayor, Town of Wade	Date
_____	_____
Executive Director, Highlands Chapter American Red Cross	Date

FOREWORD

The Cumberland County Emergency Operations Plan has been developed to address multiple hazards, which threaten a jurisdiction. Through use of a functional format, the document encourages an Integrated Emergency Management System (IEMS) approach to disasters; and fosters prompt, efficient and coordinated response operations by elements of the emergency organization. IEMS requires a system wide integration of skills, people and resources as well as the utilization of a County Emergency Operation Center. This plan also recognizes Incident Command as an appropriate management system to be applied to all Cumberland County emergency / disaster situations, when required. This document presents a Basic Plan, which serves as a summary document to the support sections. These sections define who will do what and when in an emergency situation. Defining the roles of each response agency reduces the confusion, chaos and conflict during emergencies and significantly decreases vulnerability of the public and their property to hazardous threats.

Cumberland County has adopted the National Incident Management System (NIMS) approach as well, to incorporate the elements of NIMS essential to efficient management of emergencies and disasters that will involve local, state and federal response agencies. The federal government places criteria for all emergency plans. Homeland Security Presidential Directive #5 (HSPD-5). "*To prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the United States Government shall establish a single, comprehensive approach to domestic incident management. The objective of the United States Government is to ensure that all levels of government across the Nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management. In these efforts, with regard to domestic incidents, the United States Government treats crisis management and consequence management as a single, integrated function, rather than as two separate functions".*

Under NIMS criteria Cumberland County has:

- Adopted the Incident Command System (ICS 200)
- Provided training for the NIMS Awareness Course
- Determined which NIMS requirements already have been met.

Developed a strategy and timeframe for full NIMS implementation by FY 2007.

This plan does not attempt to define for each agency how to perform the tasks. The manner in which the tasks are to be performed is contained in the agency's Standard Operating Guidelines, which are contained in the Implementation Document that supports this plan.

An additional companion document entitled "IMPLEMENTATION DOCUMENT MUST BE CONSULTED WHEN IMPLEMENTING PORTIONS OF THIS PLAN. This document contains agency agreements, Standard Operation Guidelines, agreements between government and private organizations, memorandums of understandings, organizations charts, agency checklist, etc.

This plan meets the requirements of FEMA planning guidance, CPG 1-8, CPG 1-8A, NRT-1 and the legal responsibilities identified in North Carolina General Statutes, Chapter 166-A. It provides all the necessary elements to ensure local government can fulfill its legal responsibilities for emergency preparedness. The plan is a realistic reflection of the way emergency response will be carried out when an event occurs, and all agencies tasked under this plan contributed to its development.

This plan upon approval and adoption by the Cumberland County Board of Commissioners, supersedes Cumberland County Emergency Operations Plan for Multi-Hazards dated October 1989, all changes there to, and any other plan prior to this date. All previous plans are rescinded by this document.

RECORD OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	DATE ENTERED	TYPE OF CHANGE	CHANGE MADE BY (SIGNATURE)
1.	04-06-10	04-06-10		Greg Phillips
2.	09-12-12	09-12-12	Revision	Gene Booth
3.	11-13-13	11-14-13	Revision	Gene Booth
4.	07-11-17	07-14-17	Revision	Andrew Jacobs
5.	4-29-19	5-1-19	Review / Update	Jason Faragoi

INSTRUCTIONS FOR USE

It is intended that this plan, in conjunction with the implementing document, be used by the Cumberland County response organizations to obtain maximum use of existing resources, organizations and systems in their response to emergencies and disasters that could and/or have occurred in the County. The format utilized is:

BASIC PLAN: To be used by chief executives and policy officials.

SUPPORT SECTIONS: Addresses the specific functions for use by the operational managers.

IMPLEMENTION DOCUMENTS: Contains technical information, reference maps, details and methods (such as Standard Operating Guidelines and checklist) for use by emergency response personnel.

Each part of the plan contains a purpose statement for that section. All individuals with assigned responsibilities should be familiar with the entire plan; however, added emphasis must be given to those sections for which they are responsible. While all circumstances cannot be addressed, the content of this plan should be used as a guide for those things that do occur but are not specifically addressed herein.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

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INTRODUCTION TO THE EMERGENCY MANAGEMENT PROCESS

Background of Emergency Management Agencies

A formal program of civil defense began in the United States in 1916, when Congress established the Council of National Defense to direct state and local defense councils in war-related activities. At that time an enemy defined civil defense as a system that protects civilian populations and private and public property against attack. When World War I ended and the threat of attack with its civil defense activities were dissolved.

With the threat of a Second World War in 1940, President Roosevelt re-established the Council of National Defense. This Council was to coordinate the effort to re-arm the country. It also issued guidance on blackouts and shelters. In 1941, an executive order established the Office of Civil Defense (OCD). This office coordinated civil defense on a regional and local level. The OCD coordinated volunteers, personnel, equipment exchange agreements, evacuation plans, and the synchronization of blackouts and air raid drills. When World War II ended in 1945, the OCD was terminated.

Congress broadened the definition of civil defense in 1950. They also passed The Civil Defense Act that directed the newly formed Federal Civil Defense Administration to develop a system to protect life and property from disasters caused by an enemy attack. As passed in 1950, civil defense was mandated by Congress as primarily a state and political sub-division responsibility, with the role of the Federal government to provide information, guidance and assistance.

Over the next 25 years emergency programs for specific hazards were scattered around the national government in various Federal agencies. During this time, the realization was growing that:

- Managing an emergency successfully included mitigating and recovery aspects as well as preparation and response.

- Generic emergency management strategies could apply whether the emergency is a flood, earthquake, drought, fire, or a terrorist attack.

In 1958 the Civil Defense Act of 1950 was amended to make civil defense a joint Federal and State / local responsibility; it also authorized the provision of civil defense monies to State and local governments for civil defense staff personnel and administrative expenses on a matching basis not to exceed 50 percent. The purpose of the last modification was to provide financial incentives to State and local governments to hire emergency preparedness personnel and to build a nationwide cadre.

What is known as the EMA program (Emergency Management Assistance) developed from this concept? It is the largest program in the National Civil Defense Budget.

In 1972 the Office of Civil Defense (OCD) was abolished and the Defense Civil Preparedness Agency (DCPA) was created. This was a result of a National Security Decision Memorandum.

In 1979 under the Carter administration, Congress established the Federal Emergency Management Agency (FEMA). The primary purpose of FEMA was to combine several other programs into a central organization.

Amendments to the Civil Defense Act in 1980 mandated FEMA to work with the State and local governments to assist them in setting up emergency management programs. Amendments to the Civil Defense Act also provided for "Dual Use" of funds, meaning that Federal funding to the states may be used to prepare for and respond to natural and technological disaster to the extent that the use of funds is consistent.

NOTE: This history of Emergency Management and Civil Defense is an edited version of the material contained in: Emergency Management Institute Introduction To Emergency Management, 1990. Emmitsburg MD: National Emergency Training Center.

History of Cumberland County Emergency Management Agency

On May 22, 1954 a joint meeting took place between the Cumberland County Board of Commissioners and Fayetteville City Council. During this meeting it was motioned and adopted that the County of Cumberland and the City of Fayetteville establish a Civil Defense Agency. This agency would be known as the Fayetteville - Cumberland County Civil Defense Agency (formerly the City of Fayetteville Civilian Defense Office). The first director was "Colonel" Hans Larsen, and the assistant director was "Colonel" Stewart Wood. The original office was located on Gillespie Street, and moved to Arsenal Avenue in 1971. The Emergency Operations Center (EOC) was originally located in the basement of the Old City Hall and remained there until it moved to the Law Enforcement Center Building on Dick Street.

In 1973, the North Carolina Legislature changed the name of Civil Defense to that of Civil Preparedness. It also changed the title of Director to Coordinator. The Fayetteville-Cumberland County Civil Defense Agency became the Fayetteville-Cumberland County Civil Preparedness Agency. Colonel Larsen retired as the director in 1973 and Colonel Wood was appointed as the coordinator and served in that capacity until he retired in 1975. Mr. William C. Finch succeeded Colonel Wood as coordinator.

In 1975 the agency relocated from Arsenal Avenue to its present location in the Law Enforcement Center Building on Dick Street. Mr. Finch served as coordinator until 1982 when Mr. John McInnis was appointed as coordinator. Mr. McInnis retired in 1995 and Ms. Cheryl Grabowski was named Director.

In 1984 the Fayetteville-Cumberland County Civil Preparedness Agency was designated as the Cumberland Emergency Management Agency. The Staff currently consists of a Director, Deputy Director and Administrative Assistant.

In 1995 Cherry Grabowski was name the Director of the Fayetteville-Cumberland County Emergency Management Agency and served until 1999.

In 2000 Harold Beverage assumed the position of Director of the Fayetteville-Cumberland County Emergency Management Agency and served until 2001.

In 2001 Ronald “Doc” Nunnery assumed the position of Emergency Services Director and the Fayetteville-Cumberland County Emergency Management functions under Emergency Services.

In 2008 Kenneth Currie assumed the position of Emergency Services Director.

In 2012 Randy Beeman assumed the position of Emergency Services Director. Mr. Beeman left this position in July of 2018.

In 2019, Woodson “Gene” Booth assumed the position as Director of Emergency Services.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

BASIC PLAN

I. PURPOSE

This plan predetermines actions that are to be taken by the governmental agencies and private organizations of Cumberland County to reduce the vulnerabilities of people and property to disaster and establish capabilities to respond effectively to the actual occurrence of a disaster. It also identifies the critical/vital facilities that must be managed during a disaster.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Cumberland County is located in the southeast section of North Carolina. It is bound on the east by Sampson County, on the south by Bladen and Robeson Counties, on the west by Hoke County and on the north by Harnett County. Fort Bragg Military Reservation and Pope Air Force Base are adjacent to Cumberland County. The economy is based on manufacturing, agriculture, tourism and the military.

2. The area of Cumberland County encompasses 661 square miles. There are nine municipalities within the county. Fort Bragg and Pope Army Air Field military installations are adjacent to the county. The population of Cumberland County is approximately 326,328.

Municipality	Form of Government	Population
Fayetteville	Mayor / Council	204,759
Hope Mills	Mayor / Council	16,227
Spring Lake	Mayor / Council	11,967
Eastover	Mayor / Council	3,713
Stedman	Mayor / Council	1063
Wade	Mayor / Council	567
Falcon	Mayor / Council	273
Godwin	Mayor / Council	145
Linden	Mayor / Council	134
Unincorporated	County Manager	84,613

3. Other Characteristics in the County:
County Park - off Highway 87 South (Gray's Creek Area)
Cape Fear River - traverses throughout the county entering from Harnett, traveling southeast through the county to Bladen County.
Fort Bragg Military Reservation borders the county to the northwest.

4. State roads are the major traffic routes for commercial and tourist traffic through the county. Hurricane evacuees and persons seeking shelter from coastal counties could possibly use highway routes into and through Cumberland County.

The major traffic arteries are:

Road	Direction
Interstate 95	Southern County Line (mile marker 39) to Northern County Line (mile marker 69).
US 13	Traverses the county from the Eastover area at US 301 east to Sampson County.
US 301	Runs parallel to Interstate 95 in a north / south direction.
US 401	From the south in Hoke County to the middle of the county, turning north to Harnett County
NC 24	Enters the county from Harnett County, through Fort Bragg and Fayetteville east to Sampson County.
NC 53	Intersects with Highways 24 and 210 just east of the Cape Fear River, 53 and 210 runs southeast together, splitting in the Cedar Creek area of the county.
NC 87	Enters the county in the northwest quadrant from Harnett County, running with NC 24 to a split just north of Spring Lake; splitting at Fort Bragg becoming Highway 87 (Murchison Road) to downtown; runs with NC 24 and 210 through Fayetteville turning south going to Bladen County line (Gray's Creek area).
NC 210	Enters the county from the northwest quadrant to Spring Lake, joins with Highway 87 (Murchison Road) going through Fayetteville, splits with Highway 87, crosses the Cape Fear River joining Highway 53 and splitting in the Cedar Creek area continuing to county line near Beaver Dam area.
NC 59	Begins at US 401 in Fayetteville running south through Hope Mills to US 301 / I-95 Business. At US 301 / I-95 Business the name changes to Chicken Foot Road and goes to the county line.
I-295	Currently begins at I-95 and HWY 13 and runs west to Ramsey St. Future Extensions currently under construction will run to All American Freeway.

5. Airport

The Fayetteville Regional Airport provides commercial air service to the County and back-up service to the military air fields at Pope Air Force Base and Simmons Army Airfield. The airport is located on Airport Road off of US 301 South in Fayetteville. The cargo terminals are located on Doc Bennett Road.

Airport Runway	Runway	Length
Fayetteville	04 / 22 10 / 28	7200 ft x 150 ft 4800 ft x 150 ft
Grays Creek	17 / 35	3500 ft x 30 ft
Pope AAF	05 / 23	7500 ft x 150 ft
Simmons AAF	09 / 27	4600 ft x 100 ft

6. Public roadways within Cumberland County are almost exclusively owned and maintained by the NC Department of Transportation. The NC Department of Transportation has identified a number of key bridges that are crucial for the safe movement of traffic through the county. Similarly, these bridges are critical for intra-county movement. Blockage of these roads could temporarily isolate areas of the county. These are:

Bridge #	Location	Route
85	Cape Fear River US 301/I-95	US 301 N/S
219	Cape Fear River Person Street	Eastern County/ Western County
111	Cape Fear River I-95 South	North/South
109	Cape Fear River I-95 North	North/South
	Cape Fear River I-295 East	East/West
	Cape Fear River I-295 West	East/West

7. There are four major rail systems that operate in Cumberland County. These are Aberdeen & Rockfish, Amtrak, Cape Fear and CSX.

Railroads	Location	Length of Track
Aberdeen & Rockfish	East/West	14 miles
Amtrak Runs North/South	30 miles (main line) On the CSX lines	
Cape Fear	North / South Fort Bragg only Inactive	 16 miles 9 miles

CSX	North/South	30 miles (main line)

8. Southern areas of the county that lie within the 100-year floodplain are identified on the National Flood Insurance Program (NFIP) maps located in the County Engineers Office and the Cumberland Emergency Services Office. Low lying areas along the Cape Fear River are subject to flooding during heavy rains. For additional information on flooding and the NFIP, contact the County Engineers Office.

9. Hazards

   The county is exposed to many hazards, all of which have the potential to disrupt the community, cause damage, and create casualties. Potential hazards (natural, technological, and national security) for the county are:

   a. Hurricanes
   b. Drought / Floods
   c. Severe thunderstorms
   d. Tornadoes
   e. Severe cold weather/winter storms
   f. Extreme heat
   g. Hazardous materials
      - Transportation incidents
      - Fixed facility incidents
      - Unidentified spills or dumping activity
   h. Large structure fire, firestorm
   i. Forest or wild land fire
   j. Landfill fire
   k. Severe bridge damage
   l. Dam Failure
   m. Natural Gas Pipeline ruptures (12 inch main)
   n. Aircraft crashes (civilian / military)
   o. Mass casualty incidents
   p. Civil disorder / Riot / Vandalism
   q. Sabotage / Terrorism
   r. National security emergency
   s. Power Failure
   t. Animal Protection

B. Assumptions

1. The occurrence of any one or more of the emergency / disaster events previously listed could impact Cumberland County severely, and include several of the following possibilities:

   a. Loss of electric service.
   b. Loss of water distribution and storage system.
   c. Loss of part or all of waste and treatment system.
   d. Severance of road/highway network.
   e. Necessity for mass care and feeding operations.
   g. Need for auxiliary power.
   h. Need for debris clearance.
   i. Multiple injuries / fatalities.
   j. Drastic increase in media attention.

k. Damage to the communications network.
l. Damage to the telephone network.
m. Severe economic impact.
n. Increased number of vectors (insects).
o. Need for official public information and rumor control.
p. Need for State or Federal assistance
q. Re-entry of the public into damaged / evacuated areas.
r. Damage to vital records.
s. Need for damage assessment.
t. Solicited / Unsolicited goods.
u. Contamination of private wells.
v. Exhaustion of local resources.
w. Lack of depth of staffing.
x. Loss of facilities vital to maintaining essential services.
y. Environmental impact / wildlife, natural resources destruction.
z. Need for management of reconstruction.
aa. Need for coordination of staged resources.
bb. Damage to historical sites.
cc. Isolation of populations.
dd. A Presidential Disaster Declaration, etc.
ee. Coordination of donated goods/volunteer coordinator.

2. The occurrence of one or more of the previously listed emergency / disaster events could result in a catastrophic situation, which could overwhelm local and state resources.

3. It is necessary for the county and municipalities to plan for and have the capability to carry out coordinated disaster response and short-term recovery operations utilizing local resources. However, it is likely that outside assistance would be necessary in most major disaster situations, which could affect the county.

4. There is a high probability that emergency and disaster occurrences could result in disruption of government functions. This necessitates that all levels of local government and departments develop and maintain SOGs to ensure continuity of government should a disaster occur. These guidelines will address depth of staffing, line of succession, and mode of operation.

5. Most natural disasters have the potential to leave at least some part of the county affected and on its own for a period of time. All individuals should be encouraged to be self-sufficient for a period of three (3) days by properly training and preparing for these events.

6. Officials of the county and municipalities are aware of the threat of a major emergency or disaster and will fulfill identified responsibilities as needed to the extent possible.

7. Identification of vital facilities will make it possible to predict the consequences of disaster, and to expedite the response of necessary resources from outside the area of impact.

8. Knowledge of vital facilities will reduce the dependence on unwritten and assumed information.

9. Knowledge of vital facilities will expedite damage assessment and loss estimation.

10. The identification of vital facilities allows for the prioritization of post-disaster areas and restoration.

III. CONCEPT OF OPERATIONS

A. Preparedness

1. As required by General Statutes 166A-2, it is the responsibility of County government to organize and plan for the protection of life and property from the effects of hazardous events or disasters.

2. Planning and training are necessary and integral parts of emergency and disaster preparation and must be a prerequisite to effective emergency operations.

3. Facilities vital to the operation of county and local government have been identified. These facilities will receive priority for restoration of service. The Vital Facilities Listing is maintained in the Cumberland Emergency Management.

4. Coordination and Mutual-Aid Agreements with adjoining jurisdictions are essential when events occur that impact beyond county or jurisdictional borders.

5. Vital facilities may serve as the basis for establishing mutual aid and statements of understanding with other governmental or non-governmental agencies.

6. It is the responsibility of the elected officials to ensure that all legal and sensitive documents of both a public and private nature recorded by designated officials be protected and preserved in accordance with existing laws, statutes, and ordinances.

B. Response

1. In declared emergencies / disasters, direction and control will be managed by the Policy / Administration Group.

2. The County Emergency Operations Center (EOC) will be staffed and operated as the situation dictates. When activated, ranking representatives from a number of local governments, municipalities, private sector and volunteer organizations to provide information, data, and recommendations to the Policy / support operations Administration Group. The City of Fayetteville Operations Center is designated as an alternate EOC for the county.

3. When an emergency situation develops, the senior elected official or the designee of the jurisdiction (as defined in GS 14-288.1) may declare a State of Emergency to exist within the jurisdiction (or a part thereof) and begin implementing emergency procedures. (See IV, Authorities and References).

4. The County Manager and County Emergency Services Director will coordinate county resources. The Mayor or his designee will coordinate and control the resources of each of the municipalities.

5. The Public Information Officer will utilize all available media outlets for the dissemination of emergency information to the public.

6. Should local government resources prove to be inadequate during emergency operations; requests for assistance will be made to other jurisdictions, higher levels of government, and / or other agencies in accordance with existing mutual-aid agreements and understandings. Requests for State or Federal resources must be made through the Cumberland County Emergency Services to the Eastern Branch Office of the NC Division of Emergency Management and forwarded to the State Division of Emergency Management.

C. Recovery

1. Termination of a State of Emergency shall be declared by the authority by which it was proclaimed. (See IV, Authorities and References).

2. The Assistant Finance Director will be the Disaster Recovery Manager and serve as the liaison to the State and Federal Government on Public Assistance and Damage Survey Reports.

3. The Operations Officer will manage the individual assistance programs and donations program by providing information to the public on where to go for assistance.

4. Damage Assessment Teams will be sent out to collect damage information on areas impacted by the disaster. The information will be evaluated and forwarded to the State.

D. Mitigation

Following any major emergency / disaster event, a critique will be held to evaluate the jurisdiction's response to the event. A critique will include the following issues related specifically to recovery:

1. Mitigation of potential problems through use of Hazard Mitigation Grants.

2. Knowledge of vital facilities allows for the implementation of planned mitigation approaches / projects in an attempt to reduce vulnerabilities.

3. Plan revision based on lessons learned.

4. Unmet needs status.

5. Management of Donated Goods.

6. Interagency Cooperation.

7. Damage Survey Report process and documentation.

8. Training needed.

IV. AUTHORITIES AND REFERENCES

A. General

1. Actions taken during emergency / disaster events require that legal guidelines are followed to assure protection of the general public and to maintain law and order in the County / Municipalities.
2. Verbal and written mutual aid agreements exist between some agencies within Cumberland County and its municipalities.

3. Agencies tasked with responsibilities in the Emergency Operations Plan are responsible for the development of SOGs to implement their particular function.

B. Selected References

The Emergency Operations Plan is based on the references listed below:

1. Federal Laws

   a. Civil Defense Act of 1950, Public Law 81-920, as amended
   b. Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended by Public Law 100-707 (The Stafford Act)
   c. OSHA 1910.120
   d. Emergency Planning and Community Right-to-Know Act (EPCRA)
   e. Superfund Amendments Reauthorization Act (SARA Title, III)
   f. FAA Authority (FAR) to close airspace over disaster areas

2. State Laws

   a. N.C. General Statute 166-A, Emergency Management Act
   b. N.C. Governor's Executive Order 73
   c. N.C. Oil Spill Act
   d. N.C. Community Right-to-Know

3. Local Ordinances

   a. Cumberland County Emergency Management Ordinance
   b. Proclamation of a State of Emergency
   c. Local Emergency Planning Committee Bylaws and Roster
   d. Mutual Aid Agreements for Fire
   e. Mutual Aid Agreements for Emergency Medical Services and Rescue
   f. Mutual Aid Agreements with Municipalities
   g. Agreements with American Red Cross
   h. Agreements with County School System
   i. City of Fayetteville Emergency Management Ordinance

V. PLAN DEVELOPMENT AND MAINTENANCE

A. Each agency of local government is responsible for the development of SOGs in the support of this plan. A copy will be provided to the Cumberland Emergency Services for file and as a supporting implementation document.

B. The County / City Managers mandate the development and regular review of this plan by all officials involved and will coordinate necessary revision efforts through the

Emergency Services. This shall include a critique of the actions taken in support of the plan following any event requiring implementation of the plan.

C. This plan shall be exercised annually in lieu of actual responses to real emergency events.

VI. CONTINUITY OF GOVERNMENT

A. The line of Succession for the County Board of Commissioners proceeds from the Chairman to the members of the Board in accordance with the Board policy.

B. Each department / agency is responsible for the preservation of essential documents / records to ensure the continued operational readiness of their agencies and to comply with existing laws.

C. Vital Facilities

1. Several categories of vital facilities have been identified during the planning process. The following categories of facilities have been identified as being critical to remain in service during times of disasters:

    a. Communication facilities/networks
    b. Water distribution
    c. Electrical distribution components
    d. Waste water components
    e. Shelters
    f. Medical facilities, congregate care facilities, day-care facilities
    g. Transportation network
    h. Correctional facilities
    i. Landfill and debris collection sites
    j. Government buildings
    k. Helicopter landing sites

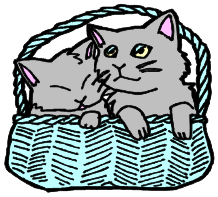
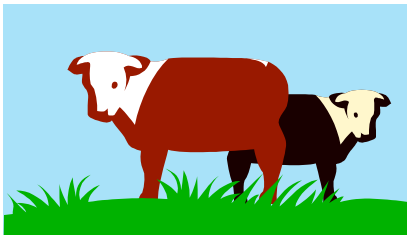
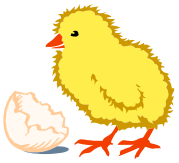
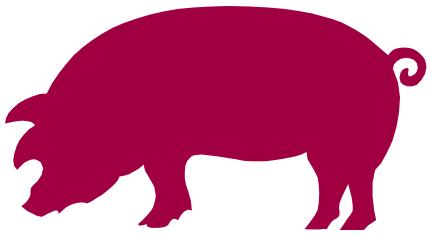
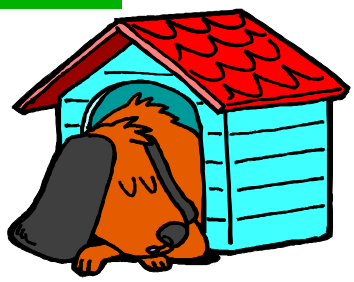
2. Cumberland County Emergency Services maintains a list of public and private sector resources that could be utilized during an emergency/disaster response.

3. Cumberland County vital facility information is updated on a regular basis.

Cumberland County

Animal Protection Plan

A procedure to protect wild and domestic animal resources in the event of a large-scale emergency in Cumberland County

Developed By:

Cumberland County Emergency Management

North Carolina Cooperative Extension, Cumberland County

And

Cumberland County Animal Control

May 2000

Cumberland County
Animal Protection Plan

Acknowledgements

Cumberland County Emergency Management wishes to acknowledge the contributions of the following organizations and individuals in development of this plan.

Cumberland County Animal Control

North Carolina Cooperative Extension, Cumberland County

Wake County Emergency Management

1.0 Introduction

1.1 Purpose Statement:

To protect wild and domesticated animal resources, the public health, the public food supply, the environment, and to ensure the humane care and treatment of animals in case of a large-scale emergency, including hurricanes, tornadoes, floods, wind driven water, drought, fire, explosion, building collapse, commercial transportation accidents, chemical spills, nuclear power plant accidents, or other situations that cause animal sufferings.

1.2 Scope:

This Plan is intended for use by local government to take immediate action in providing a means of care and control to minimize animal suffering in the event of a large-scale emergency. This action will be aimed at all animals that may need help whether such animals are owned, stray, domestic, or wild.

The Director of Emergency Management or authorized representative(s) may place into effect established plans and procedures and direct both the emergency and recovery aspects of the incident. He may deviate from these procedures when, in his judgment, immediate and direct action is necessary to protect the public safety.

2.0 Affected Agencies / Responsibilities

2.1 Primary Agencies:

A. Cumberland County Animal Control

1. Provide and coordinate personnel, equipment, and shelter as required to protect domestic and non-domestic animals.

B. Cumberland County Emergency Management

1. Coordinate support agencies to manage animal protection in large-scale emergencies.

2. Activate the Emergency Operations Center, if necessary. Responsible for overall direction and control of the emergency incident.

C. North Carolina Cooperative Extension, Cumberland County

1. Coordinate support agencies primarily focused on managing protection of non-domestic animals

2.2 Support Agencies:

A. **Cumberland County Sheriff's Office**

Provide trained personnel and resources to assist in search and recovery efforts of animals in the impacted area.

B. **Cumberland County Department of Environmental Services:**

Coordinate the disposal of deceased animals that may impact the public health. Provide services to control injuries / bites / diseases related to the protection of animals.

C. **Cumberland County Veterinarian Association:**

Provide a list of available volunteers to aid in the protection of animals. When possible, provide personnel, equipment, and shelter as required to shelter and care for pets of evacuated citizens and in cases when established shelters are filled or destroyed.

D. **American Red Cross:**

Provide volunteers to assist in the protection of animals during an emergency shelter situation. Work with Environmental Services personnel in the coordination of animal shelters in Cumberland County.

E. **Municipal Animal Control:**

Provide personnel and equipment as required within the respective corporate limits to protect domestic and non-domestic animals.

F. **N.C. Department of Agriculture:**

The N.C. Department of Agriculture (NCDA) will be responsible for the enforcement of state regulations concerning livestock health and the movements of animals affected by those regulations. NCDA will also assist in providing information and direction whenever possible with regard to the general health of livestock in these areas.

G. **NCSU College of Veterinary Medicine:**

Provide a list of available volunteers to aid in the protection of animals. When possible, provide personnel, equipment, and shelter as required to shelter and care for livestock, wild animals, and injured domestic and non-domestic animals.

H. **SPCA of Cumberland County:**

Coordinate personnel, equipment, and shelter as required to shelter and care for domestic pets.

2.3 **Additional Resources:**

A. **North Carolina Veterinary Medical Association:**

Provide personnel to aid in the medical treatment of animals. Activate regional Veterinary Medical Assistance Teams (VMAT).

B. **Humane Society of the United States:**

Provide personnel and equipment as required to rescue and care for domestic and non-domestic animals.

C. **American Humane Association:**

Provide personnel and equipment as required to rescue and care for domestic and non-domestic animals.

D. **N.C. Wildlife Resource Commission:**

Provide personnel and equipment as required to protect wildlife.

E. **Private Boarding Kennels, Stables, Dog Clubs, and Horse Clubs:**

Provide personnel, equipment, and shelter as required to shelter and care for pets from evacuated citizens and in cases when established animal shelters are filled or destroyed.

F. **Private Farms:**

Provide shelter and supplies to care for displaced livestock.

G. **Pinehurst Harness Track / Moore County Equine Emergency Response Unit:**

Provide shelter, supplies and a Horse Rescue Ambulance to care for and rescue displaced livestock.

3.0 Assumptions

A. The owners of pets or livestock, when notified of an upcoming emergency, will take reasonable steps to shelter and provide for animals under their care and / or control.

B. Natural, technological, or manmade disaster could affect the well-being of domesticated or non-domesticated animals.

C. The County plans for emergency situations and to carry out response and recovery operations utilizing local resources. Outside animal care and rescue assistance would likely be available in most large-scale emergencies affecting the county.

D. Animal protection planning should ensure the proper care and recovery of animals impacted during an emergency. These plans may include measures to identify housing and shelter for animals, communicate information on the public, and proper animal release.

E. Public information statements will be issued through the various media outlets. This will include locations where domestic and non-domestic animals (including livestock and wild animals) may be accepted during emergency situations.

F. A large-scale emergency in Cumberland County may warrant immediate response from State and Local personnel, agencies, and organizations. However, emergency situations may become compounded due to the nature of the emergency and also require activation of additional specialized agencies through mutual aid.

G. Through practical animal protection planning and organization, disaster relief efforts will be more effective.

H. Shelters that have been established for disaster victims will not accept domestic animals. However, if an evacuee comes to the shelter with their pet(s), efforts will be made to assist in locating the domestic animal(s) away from the general populace and given proper care. If pet carriers or other similar containment equipment can be obtained in sufficient quantities and within a reasonable period of time, the Cumberland County Animal Control Department may locate such containment equipment in close proximity to a shelter so that pet owners may care for their animals themselves. Companion animals and wildlife must however; remain outside of the shelter for human evacuees or disaster victims.

4.0 Concept of Operations

4.1 General:

A. The primary and support agencies identified in this Standard Operating Procedure will manage and coordinate local animal protection activities. These agencies will use established animal protection and support organizations, processes, and procedures. Responsibility for situation assessment and determination of resource needs in the event of a large-scale emergency lies primarily with the Cumberland County Animal Control, Cumberland County Emergency Management and local incident coordinators.

B. Requests for animal protection assistance and resources such as food, medicine, shelter material, specialized personnel, and additional veterinary medical professionals will be transmitted from the local Emergency Management Office to the State Emergency Management Office. Should the need for Federal or State resources exist, the state Emergency Operations Center will coordinate the request for assistance.

C. Animal protection operations will be managed under an Incident Command System (ICS). Public Health concerns will be managed in accordance with appropriate Cumberland County plans and procedures.

D. Animals Included Under the Plan:

1. The sheltering and protection of domestic and non-domestic animals (including livestock) are the responsibility of their owners.

2. Domestic and non-domestic animals that are lost, strayed, incapable of being cared for by their owners, and / or in danger to themselves or the public will be the responsibility of municipal or Cumberland County Animal Control officials, the SPCA of Cumberland County, or other identified agencies. These animals will be sheltered, fed, and, when possible, returned to their owners. Animals that cannot be returned to their owners will be disposed of in accordance with established animal control procedures.

3. Wild animals should be left to their own survival instincts. Wild animals out of their natural habitats that are in danger either to themselves or the public will be the responsibility of the N.C. Wildlife Resource Commission personnel, in cooperation with local animal control officials, and returned to their natural habitat when practical.

4.2 Notification:

This plan and implementing procedures will be activated in the event of a large-scale emergency causing a significant need for animal protection. The Cumberland County Animal Control Director in cooperation with the Cumberland County Emergency Management will determine when these procedures will be implemented and notify the appropriate primary, support, and mutual aid agencies. A call down notification system will be maintained by the Cumberland County Animal Control Director.

4.3 Communications:

Communications between primary and support agencies will occur primarily through radio, telephone, facsimile and cellular telephone transmission. Amateur radio may be used as a backup system when other communications fail due to the nature of the emergency situation.

4.4 **Public Information (PI):**

The Cumberland County Public Information Officer or designated representative will be responsible for the coordination of all media activities and press releases associated with the protection of animals.

Public Information responsibilities may include:

1. Notifying the public of appropriate animal shelters that are receiving lost / stray animals, animals that cannot be cared for, or animals that need immediate medical assistance.

2. Delivering instructions to the public on how to prepare their pets for an impending emergency (See attached Annex A) and / or instructions for minor “at home” medical responses for pets injured in an emergency situation (Annex to be developed).

3. Initiating a system to direct inquires on lost pets to the appropriate animal shelters.

4. Other information as appropriate to the situation.

4.5 **Response:**

The owners of pets and / or livestock, when notified of an emergency, will take all reasonable steps to shelter and provide for animals under their control.

A. **Search and Rescue**

1. **Domestic Pets:**

Domestic pets loose or in need of assistance due to the emergency or to the death or evacuation of their owners will be the responsibility of municipal and County Animals Control officials.

2. **Livestock:**

Livestock loose or in need of assistance due to the emergency or to the death or evacuation of their owners will be the responsibility of municipal and County Animal Control officials.

3. **Wild Animals:**

Wild animals out of their natural habitat that are endangering either themselves or the human population will be the responsibility of N.C. Wildlife Resource Commission personnel in cooperation with municipal and County Animal Control officials.

4. **Stranded Animals:**

In the event that animals cannot be rescued due to the emergency situation, food and medical assistance may be delivered to the animals by the appropriate agency when possible.

5. **Additional Aid:**

In the event that municipal and County animal control resources are unable to meet the need for search and rescue personnel, a representative from County Emergency Management will request search and rescue assistance from the American Humane Association and / or the Humane Society of the United States and / or other available

rescue groups.

B. **Shelters**

1. **Evacuated Domestic Pets:**

a. **Private Resources:**

Domestic pets from evacuated citizens will be sheltered at private boarding kennels and veterinarian hospitals as close to the evacuation shelter as possible.

Upon the activation of evacuation shelters for citizens, a representative from the Cumberland County Veterinarian's Association will be contacted by the shelter manager and requested to initiate the opening of prearranged private boarding kennels and veterinarian hospitals as boarding facilities.

Each of the citizens' evacuation shelters will have an available veterinarian volunteer on the premises to evaluate the pets of evacuated citizens. Pets with significant injuries or illnesses will be transported to an animal hospital designated for the medical treatment of animals.

A representative of Cumberland County Animal Control will be responsible for ensuring the transportation of evacuated pets to either the shelter facility or hospital and in ensuring that a tracking system is in place to reunite sheltered pets with their rightful owners.

b. **Animal Evacuation Shelter:**

If the need arises, the county may open an evacuated pet shelter. Pets of evacuated citizens will be transported to this shelter as citizens arrive with their pets at the citizen's evacuation shelters.

c. **Evacuated Citizens with Special Needs:**

Citizens with special needs (individuals with mental or physical handicaps who require evacuation assistance) may require assistance in evacuating their pets.

If special needs individuals are unwilling or unable to make special arrangements for the sheltering of their pets, then the individuals and their pets will be transported to the evacuation shelter. Upon arrival at the shelter, pets not trained specifically to assist the individual (e.g. seeing eye dogs) will be transported to a private boarding facility or other appropriate facility. In the event that the individual and the pet cannot be separated due to the individual's infirmity, the pet will be sheltered in the same facility in a separate room or area.

2. **Stray / Lost Domestic Pets:**

All stray / lost domestic pets recovered by Animal Control will be sheltered at the Cumberland County Animal Shelter or the SPCA of Cumberland County shelter. Any pets whose owners cannot care for their pets or domestic pets found by citizens will also be sheltered at these locations. Private boarding kennels and veterinarian shelters will serve as overflow shelters and will be requested to open through the Cumberland County Association representative as necessary. Unclaimed animals will be disposed of according to county procedures.

3. **Evacuated and Stray/Lost Livestock:**

Due to the size of most livestock and the inability to transport large numbers of farm animals, owners are expected to develop shelter and / or evacuation plans for their animals.

When possible, livestock may be sheltered at the veterinary hospital at the NCSU College of Veterinary Medicine, private stables, the Hunt Horse Complex and the Pinehurst Harness Track.

Private farms located throughout the county may be used as shelter facilities for livestock. In the event of an emergency situation, Cumberland County Cooperative Extension will contact prearranged farms and request their assistance in sheltering operations.

4. **Wild Animals:**

When possible, wild animals outside of their natural habitat endangering the public will be transported back to their natural habitat. If the responsible agencies are unable to transport the animal back to its natural habitat due to the nature of the emergency or to injuries the animal sustained, the animals will either be transported to the County Animal Control Shelter or the NCS College of Veterinary Medicine for shelter or medical treatment or disposal in accordance with established animal control procedures.

5. **Incapacitation of Shelters:**

In the event that established shelters are destroyed or incapable of functioning due to the nature of the emergency situation, private boarding kennels, stables, veterinarian hospitals, and the Pinehurst Harness Track may be requested to open as boarding and / or medical facilities. In rare cases, during large-scale emergencies, animals may be moved outside Cumberland County for care and protection.

6. **Staff / supplies:**

a. **Staff:**

Private boarding kennels and veterinarian hospitals are responsible for the staffing of their own boarding facilities and will be compensated by the citizens who use the animal shelter according to the established policies of the animal shelter unless other arrangements have been made.

Remaining animal shelters and hospitals will be staffed with available personnel from Cumberland County Animal Control / SPCA of Cumberland County and with volunteer veterinarians and veterinarian assistants. These shelters, in cooperation with the Cumberland County Veterinarian Association and the NSCU College of Veterinary Medicine, will develop and routinely update lists of available veterinarian and veterinarian assistant volunteers.

Each individual animal shelter will be responsible for developing the work schedules for employees and volunteers.

b. **Supplies:**

Each animal shelter will identify resources for potable water, food, medical cleaning and shelter supplies in advance of an emergency situation.

Prearranged domestic and non-domestic animal food companies, medical suppliers, water suppliers and cleaning product suppliers will be contacted and requested to begin the shipment of supplies to an established delivery point. The delivery point will serve as a storage center and a distribution center for shelters and hospitals.

If the need arises, resource agencies (e.g. kennel clubs) may be requested to donate cages and other various shelter supplies.

C. **Medical:**

1. **Hospitals:**
The Cumberland County Animal control will coordinate the resources for a medical facility for domestic animals which cannot be accommodated by the various shelters due to the animal's injuries. The veterinary hospital at the NCSU College of Veterinary Medicine and private medical shelters may provide facilities as space permits.

2. **Staff:**

Volunteers from the NCSU College of Veterinary Medicine and from the Cumberland County Veterinarian Association and others will assist in providing staff to identified shelters.

Depending on the extent of the emergency situation, volunteers or Veterinary Medical Assistance Teams from the American Veterinary Medical Association may be requested to assist in the medical treatment of domestic and non-domestic animals.

D. **Bites / Disease Control:**

The Cumberland County Department of Environment Services will make no-cost vaccinations available to rescue and shelter personnel and will insure that treatment of bites and injuries is available to affected persons.

Outbreaks of rabies are a serious threat during an emergency situation. Appropriate steps to control that threat will be implemented by the Cumberland County Department of Environmental Services.

4.6 **Recovery:**

A. **Release / Destruction:**

1. **Domestic Pets / livestock:**

Cumberland County Animal Control will support efforts to identify owners of stray/lost animals. If owners cannot be found, Animal Control and SPCA of Cumberland County representatives will attempt to adopt or sell the animals according to established procedures.

Animals for which no owners can be found, and which cannot be placed in adoptive care or sold will be disposed of in accordance with established animal control procedures.

2. **Wild Animals:**

Cumberland County Animal Control in cooperation with the N.C. Wildlife Commission will support efforts to reintroduce wild animals back to their natural habitats.

B. **Disposal of Animal carcasses:**

Disposal of deceased animals will be the responsibility of the Cumberland County Department of Environmental Services. They will arrange for disposal of:

1. Euthanized animals

2. Animals killed in the emergency situation

5.0 Review and Update

This procedure will be reviewed and updated as appropriate by Cumberland County Emergency Management, Cumberland County Animal Control, and other affected agencies.

This procedure will be periodically tested by an appropriate exercise method or in the event of an actual emergency disaster affecting Cumberland County.

Effective Date: May 2000

6.0 Approval

6.1 Primary Agencies:

_____ _____

Cumberland County Animal Control

Director, Cumberland County Emergency Management

_____

Cumberland County Cooperative Extension

6.2 Support Agencies

_____ _____

Cumberland County Veterinary Assoc.

SPCA of Cumberland County

_____

American Red Cross

Annex A

Cumberland County Disaster Planning For Pets, Livestock, and Wildlife

Domestic Pets

- If you evacuate your home, DO NOT LEAVE YOUR PETS BEHIND. Pets most likely cannot survive on their own, and if by chance they do, you may not be able to find them when you return.
- For public health reasons, many emergency shelters cannot accept pets. Find out which motels and hotels in your area allow pets. Include your local animal shelter's number in your list of emergency numbers - they will be able to provide information concerning pets during a disaster.
- Make sure identification tags are up to date and securely fastened to your pet's collar. If possible, attach the address and / or phone number of your evacuation site. Make sure you have a current photo of your pet for identification purposes.
- Make sure you have a secure pet carrier, leash or harness for your pet so that if the animal panics, it cannot escape.
- Take pet food, bottle water, medications, veterinary records, cat litter / pan, can opener food dishes, first aid kit and other supplies with you in case they are not available later.
- Make sure you have a copy of your pet's medical records. If you are unable to return to your home right away, you may need to board your pet. Most boarding kennels, animal shelters, and veterinarians require that your pet's vaccinations are current.
- If it is impossible to take your pet with you to temporary shelter, contact friends, family, veterinarians, or boarding kennels to arrange for care. Make sure medical and feeding information, food, medicine and other supplies accompany your pet to its foster home.

Livestock

- Evacuate livestock whenever possible. The evacuation sites should have or be able to readily obtain food, water, veterinary care, handling equipment and facilities.
- If evacuation is not possible, a decision must be made whether to move large animals to available shelter or turn them outside. This decision should be determined based on the type of disaster and the soundness and location of the shelter.
- All animals should have some form of identification that will help facilitate their return.

Wildlife

- Wild animals often seek higher ground which, during floods, eventually become submerged (i.e., island) and the animals become stranded. If the island is large enough to provide suitable shelter, you can leave food appropriate to the species. Animals have a flight response and will flee from anyone approaching too closely. If the animal threatens to rush into the water, back away from the island.
- Wildlife often seeks refuse from flood water on upper levels of a home and many remain even after the water recedes. If you meet a rat or snake face to face, be careful but don't panic. Open

a window or other escape route and the animal will probably leave on its own. Never attempt to capture a wild animal unless you have the training. Protective clothing, restraint equipment and caging necessary to perform the job.

- Beware of an increased number of snakes and other predators who will try to feed on the carcasses of reptiles, amphibians and small mammals that have been drowned or crushed in their burrows and under rocks.

- Often, during natural disasters, mosquitoes and dead animal carcasses may present disease problems. Outbreaks of anthrax, encephalitis and other diseases may occur.
  Contact your local emergency management office for help.

Further Assistance

- If you see any injured or stranded animal in need of assistance, or if you have any other questions or concerns about animal protection during an emergency situation, contact the Cumberland County Animal Control at (910) 483-9284.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

ASSIGNMENT OF RESPONSIBILITIES

Primary Agency: County Manager

Supporting Agencies: County Board of Commissioners
Municipal Mayor and Council
Municipal Departments

I. PURPOSE

The Assignment of Responsibilities Section provides for the coordination of all county resources to ensure the safety of the citizens of the county during emergency or disaster situations. This section tasks departments within local government with emergency functions in addition to their normal duties. Each department is responsible for developing and maintaining their own emergency SOGs.

II. SITUATION AND ASSUMPTIONS

A. Situation

The safety of the citizens, protection of property and the restoration of services are the priority of the County of Cumberland during emergency situations. Additionally, the county will coordinate clean up and recovery efforts with county and municipal government agencies and the private sector.

B. Assumptions

During times of disaster or emergency conditions, personnel and resources of every department may provide additional support. Personnel may be utilized in EOC staff positions, field support positions, liaison, damage assessment surveys, logistics positions and other positions as needed.

III. CONCEPT OF OPERATIONS (ALL DEPARTMENTS)

A. Each County department will support other county departments by providing facilities, equipment and vehicles as directed by the Department Head. This will be coordinated through the EOC.

B. Department personnel shall report to an individual or location as directed by the County Manager, his designee or as detailed in the departmental plan.

IV. ORGANIZATION

A. Policy / Administration Group

1. The Cumberland County Emergency Policy/Administration Group consists of the following:

Chairman, Cumberland County Board of Commissioner's
County Manager
Sheriff
Public Information Officer
County Emergency Services Director
County Emergency Management Coordinator
Fire Marshal
Finance Officer
County Attorney
Department of Social Services
Department of Public Health
Mental Health
Associate Superintendent of Schools
Red Cross
Designees as necessary

2. The Municipalities Emergency Policy/Administration Group may consist of the:

Mayor
Council Members
City Manager
Police Chief
City Emergency Management Coordinator or County Emergency Services Director
Fire Chief
Parks and Recreation
Designees as necessary

B. Support Groups

1. The Support Groups consist of representatives from predetermined governmental and volunteer agencies.

2. These groups are tasked with the implementation of Policy / Administration Group decisions.

V. RESPONSIBILITIES

A. General Departmental / Department Head Responsibilities

1. Identify the Department's roles and responsibilities during emergencies or disasters.

2. Develop and maintain SOGs for department activities during emergency and disaster operations.

3. Prepare inventories of all applicable equipment and personnel resources of the Department.

4. Issue directives, instructions and provide training for Department personnel outlining their duties during disaster / emergency operations.

5. Alert EOC staff and other emergency support services to the dangers associated with operations concerning the Department or which may affect county services during disasters / emergency operations.

6. Support emergency operations in the EOC or field operations as necessary.

7. Assist in warning and notifying the affected population of an existing or impending emergency, as needed.

8. Provide support personnel to assist in emergency / disaster operations and damage assessment operations.

9. Assist in maintaining maps, status boards, personnel rosters and records of operation, as directed.

10. Assist overall operations during disaster/emergency situations by assisting the Public Information Officer in rumor control and dissemination of information, as directed.

11. Handle citizen inquiries, provide information and assist general public as necessary.

12. Maintain personnel rosters and number of hours spent by Department personnel during emergency operations.

13. At all times, keep staff of the Department informed of the incident (call back of personnel, duties to be performed, length of time needed, etc.) and how it would interact with this department's personnel.

14. Each department is responsible for the preservation of essential records to ensure continued operational capabilities.

B. Assignment of Individual Responsibilities

1. Chairman, Cumberland County Board of Commissioners or Designee
   a. Carry out appropriate provisions of the North Carolina General Statutes, in addition to local ordinances relating to emergencies.
   b. Declare a State of Emergency for Cumberland County.
   c. Execute the Cumberland County Emergency Operations Plan.
   d. Implement other measures as necessary to provide for the protection of life and property.
   e. Coordinate emergency response actions with the Elected Officials from adjoining jurisdictions.
   f. Authorize the release of emergency public information statements.
   g. Appoint members for the Cumberland Emergency Planning Committee and submit them to the Chairman of the State Emergency Response Commission.

2. Board of County Commissioners (Duties)

   a. Adopt laws and ordinances, which will prevent or lessen the impact of disasters.
   b. In the event of a disaster, officially declare a disaster according to local, state and federal laws.
   c. Request assistance from local, state and federal agencies.
   d. Become knowledgeable of the Cumberland County Emergency Operations Plan and the Boards' responsibilities and authorities according to local, state and federal law.

e. It is the responsibility of the elected officials to ensure that all legal documents of both a public and private nature recorded by designated officials be protected and preserved in accordance with existing laws, statutes and ordinances.

3. County Manager

a. Act on behalf of the Chairman and the Board of County Commissioners in the control of disaster operations.
b. Implement the County Emergency Plan by the authority of the County Board Chairman.
c. Direct county agencies to develop and continually update emergency plans and SOGs to respond to emergencies.
d. Support the Emergency Services in the development of periodic exercises and test of the emergency systems.
e. Assures that a qualified trained Public Information Officer is in place.
f. Coordinate emergency response actions with County Managers from adjoining jurisdictions.
g. Implement direction, control, coordination, and policy-making functions as necessary to provide for optimum protection of public health and safety within the jurisdiction.
h. Appoint designee for Air Operations conducted during emergency / disaster situations.
i. Authorize the releases of emergency public information.
j. Request resources through the Emergency Services Director.
k. Utilize and commit county resources in support of emergency / disaster response operations.

4. Mayors

a. Mayors may designate the Town / City Manager to carry out the functions listed below.
b. Utilize and commit municipal personnel, facilities and equipment resources in support of Cumberland County emergency / disaster response operations, not to conflict with the municipalities needs.
c. Assess needs of the municipalities and request resources through the Emergency Services Director.
d. Carry out appropriate provisions of the North Carolina General Statutes, in addition to local ordinances relating to emergencies.
e. Mayor or his designee will declare a State of Emergency for the Municipality.
f. Execute applicable section of the Cumberland County Emergency Operations Plan.
g. Implement other measures as necessary to provide for the protection of life and property.

5. Emergency Services Director

a. Develop and maintain SOGs for emergency management operations during emergency and disaster situations.
b. Perform assigned duties according to state statutes and local ordinances.
c. Develop plans in accordance with State and Federal guidelines.
d. Coordinate emergency operations within the county's jurisdiction.
e. Develop and maintain a current notification list of emergency operation personnel, county departments.

f. Provide for delivery of programs to properly train the emergency management organization.
g. Maintain a current list of available resources
h. Coordinate the procurement of resources requested from municipalities within the county and direct aid to areas where needed.
i. Coordinate with private industry for use of privately-owned resources.
j. Request additional resources through the NC Division of Emergency Management Eastern Branch Office in cases where county resources cannot meet resource or recovery requirements.
k. Coordinate exercises and tests of emergency systems within the jurisdiction.
l. Alert and activate, as necessary, the County Emergency Operations Center when informed of an emergency within the county.
m. Submit necessary emergency information and reports to the proper agencies during the emergency and disaster events.
n. Assume the role of the Operations Officer during emergency operations and when the EOC is activated.
o. Serve as principle liaison and advisor for emergency operations during emergency / disaster.
p. Maintain contact with the NC Division of Emergency Management Eastern Branch Office during emergency situations
q. Serve as the Community Emergency Coordinator as defined by SARA Title III and the Cumberland Emergency Planning Committee.
r. Coordinate emergency response actions with the Emergency Management Coordinators in adjoining jurisdictions.
s. Maintain operational readiness of the County EOC.
t. Perform a hazard analysis to determine potential evacuation routes.
u. Identify, designate and arrange suitable shelter locations.
v. Maintain current inventories of public information materials to include weather preparedness, family preparedness etc.
w. Identify critical / vital facilities and maintain current database.
x. Develop and maintain SOGs for transportation operations during emergencies.
y. Develop and maintain SOGs guidelines for Fire Marshal's operations during emergency and disaster operations.
z. Provide a representative to serve in the EOC to coordinate fire-fighting resources during a large-scale incident or emergency.
aa. Identify equipment and manpower limitations and develop mutual aid agreements for the procurement of needed resources during emergency situations.
bb. Designate staging areas for mutual aid units.
cc. Conduct fire prevention inspections during recovery.
dd. Assist the Emergency Services Director in the collection, review and update of hazardous material facility information available for emergency response.
ee. Establish and maintain the communications network for two-way communications between the EOC and the field emergency response resources.
ff. Provide for the dissemination of warning information to emergency response personnel.
gg. Coordinate, in conjunction with Emergency Services Office and the Public Information Office, the Warning and Notification process for the affected population of any existing or impending emergency / disaster.
hh. Develop and maintain SOGs for communications center operations during emergency events.

ii. Identify radio repair capabilities and maintenance operations for emergency repairs.

6. Sheriff

a. Develop and maintain SOGs for law enforcement operations during emergency disaster situations.
b. Provide direction and control for law enforcement operations.
c. Anticipate resources required to support law enforcement activities during emergencies, and plan for timely resource requests.
d. Coordinate security for the damaged areas, vital facilities, equipment, staging areas and shelter operations.
e. Assist Communications with the Warning and Notification process for the affected population.
f. Coordinate traffic control during operations.
g. Function as or designate the official Public Information Officer for law enforcement operations.
h. Provide security for EOC and alternate EOC (if activated) as needed.

7. Municipal Law Enforcement

a. Develop SOGs for disaster operations in support of the City Emergency Operations Plan and County Operations Plan.
b. Provide direction and control for law enforcement operations within their jurisdiction.
c. Coordinate security for the damaged areas, vital facilities, equipment, staging areas and shelter operation as needed.
d. Coordinate traffic control within the municipalities during operations.
e. Identify local emergency evacuation routes from high hazard areas.
f. Identify equipment and manpower limitations and develop mutual aid agreements for the procurement of needed resources during emergency and disaster events.
g. Anticipate resources needed to support local law enforcement activity during emergencies, and plan for timely resource requests.
h. Assist communications with the warning and notification process for the affected population as needed.
i. Provide security and protection for the damaged area; to include private residential areas, critical facilities and businesses.
j. Assist with initial impact assessment.
k. Limit access to the evacuation area during response and recovery operations.
l. Coordinate additional law enforcement support with State Highway Patrol and other law enforcement agencies during response activities as necessary.
m. Assist with reentry of evacuees into damaged areas.

8. Public Information Officer

a. Develop and maintain SOGs for public information operations during emergency and disaster operations.
b. Coordinate all media releases with appropriate agencies or jurisdictions during an emergency situation.
c. Provide for rumor control and emergency instructions and direct information for the public at the time of the disaster or emergency.

d. Develop media advisories for the public.
e. Function as the official spokesperson during emergencies. Coordinate media responses with other Public Information Officers within the county as necessary.
f. Serve in the EOC during time of emergency activation.
g. Clear information with the Chief Executive or Incident Commander before releasing any information to the media.
h. Ensure that all sources of information being received are authenticated and verified for accuracy.
i. Coordinate, in conjunction with the Emergency Services Office and with the Emergency Communications Center, the warning and notification process for the affected population of any existing or impending emergency / disaster.

9. Fire Departments County / Municipal

a. Plan for effective use and coordination of fire-fighting resources during disaster situations.
b. Identify equipment and manpower limitations and develop mutual aid agreements for the procurement of needed resources during emergency and disaster events.
c. Designate staging areas for mutual aid units.
d. Provide a representative in the EOC during time of emergency activation.
e. Assist law enforcement with Warning and Notifying the affected population of an existing or impending emergency.
f. Plan for coordination of firefighting activities during disasters.
g. Support rescue operations.
h. Provide support personnel to assist in traffic control.
i. Provide direction and control during hazardous materials incidents.
j. Assist in Search and Rescue operations during emergency / disaster situations.
k. Assist with debris removal as necessary.
l. Conduct fire prevention inspections during recovery.

10. Emergency Medical Service Director

a. Develop and maintain SOGs for emergency medical service activities during emergency and disaster situations.
b. Plan for coordination of ambulance / rescue activities throughout the county during disasters.
c. Identify equipment and manpower limitations and develop mutual aid agreements for the procurement of needed resources during emergency and disaster events.
d. Coordinate with area hospitals concerning receipt of mass casualties during emergency and disaster events.
e. Coordinate with the County Health Director and Social Services Director to determine emergency transportation needs for special needs populations.

11. Social Services Director

a. Develop and maintain SOGs for Social Service operations during emergency / disaster situations.
b. The operation of shelters for special needs populations is the responsibility of the Department of Social Services.
c. Department of Social Services will provide support personnel to the local Red Cross chapter in the operation of mass shelters in the event the local Red Cross chapter Volunteer resources are not sufficient to operate the shelters.
d. Respond to opening of special needs shelters upon notification of Emergency Services and / or respond to request for resource personnel for mass shelters.
e. Ensure that adult care homes have written fire and disaster plans.
f. Coordinate with the Health Director concerning needs for special needs populations.
g. Arrange training with shelter managers through the local Red Cross chapter.
h. Provide shelter managers for special needs shelters.
i. Coordinate with Health and Mental Health departments and personnel in relation to tasks required in the operation of the special needs shelter.

12. Health Director

a. Develop and maintain SOGs for emergency public health operations during emergency / disaster situations.
b. Coordinate health care for emergency shelters, including mass care and special need facilities.
c. Coordinate with State water supply authorities to expedite emergency public water supply.
d. Provide continuous health inspections and immunizations when appropriate to evaluate, detect, prevent and control communicable disease.
e. Coordinate environmental health activities for waste disposal, refuse, food, water control and vector / vermin control and sanitation.
f. Coordinate with the Social Services Director in the identification of special needs populations.
g. Provide for inspections of mass care and special needs facilities to assure proper sanitation practices are followed.
h. Coordinate with the proper authorities to establish a temporary morgue if necessary, following an emergency / disaster.
i. Provide a public health nurse at all mass care and special needs shelters.
j. Develop and maintain SOGs for mental health operations during emergency situations.
k. Coordinate with the Director of Social Services and Health Department to provide crisis counseling when necessary during emergency situations.
l. Provide crisis counseling to professionals and support staff working with the emergency response and recovery.
m. Provide crisis counselors for emergency shelters operated following a Presidential Declaration of Disaster.
n. Maintain and provide information pertaining to mental health resources that may be utilized during emergency / disaster situations.

o. Identify group homes under supervision of Mental Health that may require sheltering.

14. Finance Officer

a. Develop and maintain SOGs for county emergency financial record keeping during emergency situations.
b. Plan for and identify available financial resources for emergency purposes.
c. Assist the Tax Officer with documentation of disaster damage to county-owned facilities.
d. Provide county budget information in support of the Governor's request for a Presidential Declaration of Disaster.
e. Develop financial accounting procedures to assist local agencies in recording and reporting their emergency expenses.
f. Provide a means of emergency purchasing procedures and necessary documents to enable responders to accomplish response and recovery operations without undue delay.
g. Develop and maintain contracts, memorandums of understanding, and / or open purchase orders with vendors to provide materials and supplies at fixed prices during emergency situations.
h. Serve as a member of the Disaster Recovery Team.

15. Damage Assessment Officer/Tax Officer

a. Develop and maintain SOGs for county tax operations and records protection during disaster situations.
b. Coordinate damage assessment teams conducting field surveys, and assure teams are properly trained and equipped.
c. Collect data, prepare damage assessment reports and forward reports to the Emergency Services Director.
d. Provide property tax information assistance for applicants at Disaster Recovery Centers (when applicable).
e. Assist the Emergency Services Director and other county or municipal agency representatives who are conducting recovery operations in prioritizing repairs and restoration of affected facilities.

16. Superintendent of Schools

a. Develop and maintain SOGs for the safety and protection of students, faculty, and other personnel during emergency situations.
b. Coordinate evacuation and transportation operations for students during emergency situations.
c. Provide support personnel, equipment and facilities as necessary (schools, lunch room personnel, etc.) for emergency situations, i.e. shelters.

17. Air Operations Manager (City / County Manager's Disaster Designee)

a. Develop and maintain SOGs for air operations during emergency situations.
b. Coordinate aircraft operations during and following disaster events.
c. Provide for the priority clearance of runways at the Fayetteville Regional Airport and the Gray's Creek Airport.
d. Determine capabilities and limitations of the Airport / Airstrip facility to support aviation operations during emergencies.

e. Coordinate with the FAA regarding the need to restrict air space over the disaster area.
f. Provide liaison with the National Transportation Safety Board and the FAA in the event of a mass casualty aircraft accident.
g. Coordinate with military liaison in support of disaster-related military flight operations at the airport.

18. Information Services

a. Develop and maintain SOGs for the management of county data processing during emergency / disaster situations.
b. Provide support personnel for technical assistance with computer equipment and Information Systems during emergency / disaster activations.
c. Provide for the protection of computerized vital records during emergency / disaster events.

19. Solid Waste Department

a. Develop and maintain SOGs for operations during emergency / disaster situations
b. Coordinate debris clearance operations with the Operations Officer.
c. Provide containers and / or vehicles for removal of debris.
d. Serve as member of Disaster Recovery Team.
e. Identify temporary landfills and collection sites.

20. Personnel Department

a. Develop and maintain SOGs for operations during emergency / disaster situations
b. Serve as staff support to EOC staff.
c. Prepare records and reports as necessary for disaster operations.

21. Risk Management Department

a. Develop and maintain SOGs for operations during emergency / disaster situations
b. Conduct Danger / Hazard Assessments in county owned facilities.
c. Provide for county personnel safety considerations.
d. Provide documentation of work-related injuries to county employees.

22. Fleet Maintenance Superintendent

a. Develop and maintain SOGs for operations during emergency / disaster situations
b. Prioritize vehicle maintenance to enable emergency responders to accomplish response and recovery operations.
c. Provide for emergency fueling operations of county vehicles as needed.

23. American Red Cross

Highlands Chapter of the American Red Cross will provide personnel and services as outlined in their Memorandum of Understanding with Cumberland Emergency Services Agency.

24. Amateur Radio Operator

    a. Provide a liaison to the EOC during emergency / disaster activations.
    b. Transmit and receive emergency traffic as necessary during emergency / disaster events.
    c. Maintain a message log for all radio emergency traffic.
    d. Report communications transmissions to the Operations Officer.
    e. Provide emergency communications at shelter sites as needed.
    f. Coordinate with other amateur radio operators to establish and support post-disaster emergency communications.
    g. Disassemble and relocate radio equipment to alternate EOC if necessary.
    h. Develop and maintain a list of resources that may be used during emergencies / disasters.

25. Transportation Officer (Municipal)

    a. Coordinate request for vehicles and drivers needed for an evacuation.
    b. Coordinate staging areas with emergency management and other agencies.
    c. Obtain additional resources as needed from adjacent jurisdictions.

    d. Coordinate transportation services for evacuees, emergency personnel, government officials and other personnel in emergency / disaster situations, as directed.

26. Local Emergency Planning Committee (LEPC)

    a. Ensure compliance with the provisions of Title III, Superfund Amendments and Reauthorization Act (SARA) of 1986.
    b. Ensure an ongoing program for plan implementation, maintenance, training and exercising.

27. Public Utilities (Municipal and Private Companies)

    a. Coordinate with county and municipal agencies for restoration of public water systems and electricity.
    b. Advise Policy / Administration group regarding debris clearance and burning, waiver of permits, etc.
    c. Provide a liaison to the County EOC to support emergency response and recovery operations.

28. Medical Examiner

    a. By law, Medical Examiners are responsible for cadavers.
    b. In the event of a Mass Fatalities Incident, operations will be coordinated by the Medical Examiner working in cooperation with the Emergency Services Director.
    c. The local funeral directors will assist the medical examiner, by supplying equipment, vehicles and personnel, as available.

29. North Carolina Highway Patrol

    a. Support local law enforcement by coordinating and establishing evacuation routes and traffic control points.

b. Advise the Emergency Services Director of roadway conditions and support removal of disabled vehicles or other stumbling blocks to evacuation.
c. Obtain additional resources, as needed from adjacent jurisdictions, the state and private resources.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

CIVIL DISORDER / ACTS OF TERRORISM

(See Emergency Checklists for: Civil Disorder; Terrorism)

Roles and Responsibilities	Response Guidelines	Bioterrorism / Chemical Threats
Checklists available for:	Purpose	Purpose
Chairman - County Commissioners	Scope	Situation and Assumptions
Emergency Management Coordinator	Definition	Objectives
Sheriff	Concept of Operations	On Scene General Assessment
Public Information Officer	Command and Control	AWARE
Fire Marshal	Implementing Guidelines:	Types of Agents
Hazardous Materials Team	Threat Level 1	Response Strategy
Emergency Medical Services	Threat Level 2	
Health Department	Threat Level 3	Chemical Threat
Hospitals	New Entry Protocols:	Objectives
Public Works	All Agencies	On Scene General Assessment
Social Services	Law Enforcement	AWARE
American Red Cross	Fire Service	Hazard Assessment
County Schools and Transit Authority	Emergency Medical Service	Response Strategy
	Chain of Evidence	
	Mass Decontamination	Health Interface
	Public Information	Biological Threat Agent Incidents
	Demobilization /Deactivation	Chemical Threat Agent Incidents

I. PURPOSE

This appendix describes the operational policies to be implemented for the purpose of minimizing the impact of civil disturbances and acts of terrorism upon the citizens and the property of Cumberland County.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. There is a need for control to maintain law and order during times of gathering of citizen protest groups or other type groups.

2. Cumberland County has union and non-union business and industry.

3. There are nine (9) municipalities in Cumberland County all subject to civil disorder.

4. There has been a national increase in acts of terrorism by either individual or groups using various acts and threats to disrupt and spread unrest in society.

B. Assumptions

1. It is assumed that all municipal police departments and the Cumberland County Sheriff's Department have written procedures in place to deal with civil disorders.

2. Mutual aid agreements between the municipalities and the Sheriff's Department will enhance the availability of law enforcement support, when needed.

3. Assistance of the State Highway Patrol and the N.C. National Guard can be obtained through the N.C. Division of Emergency Management as support to the Sheriff's Department.

III. CONCEPT OF OPERATIONS

A. Normally, when groups with conflicting viewpoints from, law enforcement will gather intelligence by both overt and covert means.

B. By monitoring the intelligence, the responsible officials may predict when such gatherings are likely to precipitate a commotion or acts or threats of terrorism may be likely.

C. By pre-planning and utilizing mutual aid agreements, responsible officials can have reasonable assurance that adequate support is available to counter a civil disturbance and maintain or restore order.

E. By law enforcement briefings to support agencies when information or intelligence reveals an increase or likelihood that the threat, civil disorder or terrorist threat or act could likely occur.

IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. General

1. During periods of actual or imminent threat of a civil disturbance or terrorist threat, emergency plans and procedures will be activated to provide for increased response readiness. Agencies should utilize attached guidelines.

2. Unless noted otherwise, organization and responsibilities applicable to county, municipal and local agencies are specified in the Direction and Control annex.

B. Mitigation

1. Each law enforcement agency in Cumberland County is encouraged to have fully developed procedures on hand, designed to effectively deal with civil disorders.

2. Periodic training (table top, field exercise) must be conducted to ensure that all responsible parties are familiar with their assigned duties.

C. Preparedness

Where requested, the Office of Emergency Management will:

1. Within available assets, verify that the following is in a readiness condition:

   a. Cumberland County EOC
   b. Communications System
   c. Medical Support for Operations
   d. Hazardous Materials Support for Operations

2. Request, if deemed appropriate, the North Carolina Division of Emergency Management will alert the State Highway Patrol and the North Carolina National Guard to the possibility of a support mission to law enforcement and other resource needs for law enforcement.

D. Response

1. Cumberland County Office of Emergency Management is responsible for activating the County EOC and coordinating with law enforcement to support human service needs.

2. Upon activation, the EOC shall serve as the primary point for the direction and control of operational efforts during both response and recovery phases. EM functions as a support agency to law enforcement.

3. If activated, the Cumberland County EOC will be the primary point of contact for state and / or federal resources.

E. Recovery

1. Cumberland County government shall coordinate and support recovery operations. In this endeavor, if needed, damage assessments will be performed by county agencies in accordance with the Damage Assessment / Recovery annex.

2. Cumberland County will coordinate with the North Carolina Division of Emergency Management for necessary state and federal assistance. (Source: Public Law 93-288 Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, as amended by Public Law 100-707).

V. DIRECTION AND CONTROL

A. Each municipality should exercise its full authority in execution of locally designed emergency operations plans and procedures. However, such activities should be coordinated through the County EOC.

B. Major emergency situations affecting the unincorporated portions of the County will be under the auspices of the Cumberland County government. Emergencies which affect multi-jurisdictional areas (the county and municipalities) will be managed in a cooperative effort through the County EOC.

VI. CONTINUITY OF GOVERNMENT

A. County Government Line of Succession

1. ***Board of Commissioners:***

The line of succession for the Board of County Commissioners is from the Chairman to the Vice Chairman, continuing through the remaining board members according to seniority. In the absence of any commissioners, the line of succession would pass to Administration.

2. ***Sheriff:***

Line of succession for Sheriff in enforcement of law and order and public safety is from the Sheriff to his designated staff.

3. ***Emergency Management:***

The line of succession for county emergency preparedness and coordination is from the Emergency Management staff representative(s).

4. ***Department /Agencies:***

The line of succession within each county department/agency is according to each respective SOG.

B. Documentation and Preservation of Records

The documentation and preservation of records are to be maintained in order to provide accountability of the various operations, and to ensure continued operation and / or reconstitution, if necessary, of county government.

VII. PLAN DEVELOPMENT AND MAINTENANCE

Responsibility

A. This hazard specific annex is developed and maintained by the Cumberland County Office of Emergency Management in conjunction with Cumberland County government. The Emergency Management Coordinator will coordinate implementation of plans and

procedures addressing civil disorder preparedness and emergency response efforts.

B. The Cumberland County Office of Emergency Management will review this annex annually.

C. Changes and revisions will be coordinated with appropriate agencies having attending responsibilities.

VIII. AUTHORITIES AND REFERENCES

A. N.C. General Statutes, Chapter 166A.

B. Cumberland County Emergency Management Ordinance.

EMERGENCY ACTION CHECKLIST - CIVIL DISORDER / TERRORIST THREATS

Emergency response agencies tasked with responding to the hazards identified as threats to Cumberland County can use the hazard specific checklists contained in this attachment. These checklists are not all inclusive, but they cover key points.

This attachment may also contain suggested citizen instructions for major emergencies. These instructions can be used to expedite emergency public information measures. They contain general information for the threats.

CHAIRMAN, CUMBERLAND COUNTY COMMISSIONERS

Preparedness

- ☐ Assess initial intelligence information.
- ☐ Alert executive staff.
- ☐ Determine the nature of the threat.
- ☐ Decide to activate the EOC, if dictated by the situation.
- ☐ Review the legal basis for responding to the threat.
- ☐ Assess law enforcement needs.
- ☐ Review response procedures.
- ☐ Determine availability of forces.
- ☐ Estimate the need for auxiliary forces.

Response

- ☐ Direct activation of the EOC.
- ☐ Assemble and brief executive staff.
- ☐ Assess situation based upon reports from the Incident Commander.

- [ ] Determine policy for dealing with the emergency.
- [ ] Brief EOC agency representatives, as appropriate.
- [ ] Oversee operations and maintain coordination with EMC.
- [ ] Ensure a flow of information.
- [ ] Maintain continuous surveillance of the emergency situation.
- [ ] Authorize media releases when appropriate.

Recovery

- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions taken during the event.
- [ ] Ensure that SOGs are reviewed and revised as appropriate.

EMERGENCY MANAGEMENT COORDINATOR

Preparedness

- [ ] Negotiate mutual aid agreements.
- [ ] Maintain resource listings.
- [ ] Assess potential civil disturbance threat.
- [ ] Identify critical facilities susceptible to threat.
- [ ] Establish points of contact for making requests to support agencies.
- [ ] Establish communications systems to facilitate direction and control.
- [ ] Test communications systems.
- [ ] Prepare to activate the EOC.
- [ ] Ensure access to required personnel functions in EOC operations.
- [ ] Alert supporting agencies.

Response

- [ ] Activate the EOC.
- [ ] Recall EOC agency representatives.
- [ ] Dispatch a mobile communications van to the threatened site.
- [ ] Notify surrounding county agencies that mutual aid may be needed.
- [ ] Coordinate the exchange of vital information between response agencies and decision-making representatives in the EOC.

Recovery

- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions taken during the event.
- [ ] Write up after action report.
- [ ] Review SOGs and revise as appropriate.

SHERIFF

Preparedness

- ☐ Assess the situation.
- ☐ Brief government officials.
- ☐ Increase intelligence activities.
- ☐ Determine ingress and egress routes.
- ☐ Work with Police to establish traffic control procedures.
- ☐ Expand reaction force as dictated by the situation.
- ☐ Review plans and resource data inventories.
- ☐ Establish critical facility protection measures.
- ☐ Alert support agencies.
- ☐ Provide a representative to report to the EOC (if activated).
- ☐ Appoint an Incident Commander.

Response

- ☐ Control and limit access to the areas of disturbance.
- ☐ Maintain law and order at the site.
- ☐ Provide situational reports to the EOC.
- ☐ Isolate activists / militant leadership.
- ☐ *Consider use of the following as the situation dictates:*
  - ☐ Show of force.
  - ☐ Employment of water.
  - ☐ Employment of riot formations and / or agents.
  - ☐ Equipment to meet the demands of the situations.
  - ☐ Alert specialized forces who are trained to counter or suppress the rioting.
  - ☐ Brief decision-makers on the situation.
  - ☐ Continue intelligence gathering.
  - ☐ Coordinate traffic control.
- ☐ Establish limited access.
- ☐ Provide key facility protection activities.
- ☐ Determine what support is available.
- ☐ *Request augmentation of forces as needed from:*
  - ☐ Neighboring counties
  - ☐ State agencies
  - ☐ National Guard
  - ☐ Federal agencies

- [ ] Determine resources available to transport law violators to places of incarceration.
- [ ] Select buildings to be used for incarceration.

Recovery
- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions taken during the emergency.
- [ ] Revise SOGs as appropriate.

PUBLIC INFORMATION OFFICER

Preparedness
- [ ] Assess intelligence information as directed.
- [ ] Prepare to communicate advisories quickly to the public.
- [ ] Check logistical arrangements (e.g., phones, computer).
- [ ] Prepare pre-scripted media advisories.
- [ ] Ensure that adequate backup staff will be available.

Response
- [ ] Prepare news releases with law enforcement.
- [ ] Coordinate with the media.
- [ ] Decide which official(s) will be primary spokesperson(s).
- [ ] Coordinate scheduling of regular briefings at which official(s) will be available to talk with media.
- [ ] Promote coordination and cooperation among agencies regarding release of information.
- [ ] Hold joint media news briefings if appropriate.
- [ ] Monitor news coverage and correct erroneous information promptly.
- [ ] Double check news releases for accuracy before releasing to the media.
- [ ] Make sure news releases do not hamper operations.

Recovery
- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions during the event.
- [ ] Review SOGs and revise as appropriate.

FIRE MARSHAL

Preparedness
- [ ] Alert fire and rescue personnel.

Response
- [ ] Contain fires.
- [ ] Extinguish fires.

- ☐ Support rescue operations.
- ☐ Support law enforcement to control access to and from disturbance area.
- ☐ Coordinate Traffic Control with Fire Departments
- ☐ Assist in transporting the injured.
- ☐ Coordinate Hazardous Materials Team.

Recovery

- ☐ Participate in a debriefing after the emergency.
- ☐ Critique actions taken during the event.
- ☐ Write up after action report.
- ☐ Review SOGs and revise as appropriate.

HAZARDOUS MATERIALS TEAM

- ☐ Provide standardized training and tactical operating guidelines for responding to and mitigating hazardous materials emergencies on an ongoing basis.
- ☐ Facilitate joint planning and cooperation regarding effective tactical response to incidents.
- ☐ Develop and conduct training at the technical level and above.
- ☐ Respond to the scene of an incident per inter-agency agreement.
- ☐ Provide appropriate representation to the County EOC if activated.
- ☐ Provide technical expertise, equipment and assistance at the incident and perform duties as directed by the Incident Commander.
- ☐ Advise the Incident Commander of any additional resources available or needed to mitigate the incident.
- ☐ Conduct post-incident reviews of published operational procedures, training and equipment.
- ☐ Deploy HAZMAT units to the incident scene.
- ☐ Provide decontaminate equipment at the incident.

EMERGENCY MEDICAL SERVICES MANAGER

Preparedness

- ☐ Alert Health and Emergency Medical Services personnel.
- ☐ Mobilize needed equipment, supplies and vehicles.

Response

- ☐ Provide triage services.
- ☐ Provide consultation to medical shelters when established.
- ☐ Assist fire and rescue personnel.
- ☐ Coordinate the provision of medical resources.

Recovery

- ☐ Check medical supplies, equipment and vehicles and repair or replace as necessary.
- ☐ Participate in a debriefing after the emergency.
- ☐ Critique actions taken during the event.
- ☐ Write up after action reports.
- ☐ Review SOGs and revise as appropriate.

Department of Public Health

The responsibilities of the Cumberland County Health Department include, but are not limited to the following:

- ☐ Provide appropriate representation to the Cumberland County EOC if activated.
- ☐ Implementation of the state quarantine law by order of the County Health Director empowering law enforcement officers.
- ☐ Enforce Cumberland County Health Department codes concerning environmental, public health or safety problems.
- ☐ Provide advice to the IC on protective actions to protect the public.
- ☐ Contact the State Department of Natural Resources water / quality branches for on-scene monitoring and supervision of clean up.

HOSPITALS

- ☐ Coordinate with area hospitals with types of triaged patients- also types of hazardous materials involved.
- ☐ Brief hospitals on the level of decontamination that has been done.
- ☐ *Medical control to contact the Poison Control Center for the following information:*

A. Provide information concerning symptoms and recommended medical treatment for exposure to hazardous materials to on-site medical teams as requested.

B. Provide information concerning symptoms and recommended medical treatment for exposure to hazardous materials to receiving hospitals as requested.

C. Provide information concerning decontamination procedures to on-site responders as required.

MUNICIPAL PUBLIC WORKS DIRECTOR

Preparedness

- ☐ Alert public works crews.
- ☐ Prepare to mobilize needed equipment as situation dictates (e.g. barricades; special vehicles).

Response

- ☐ Provide damage assessment data.
- ☐ Repair damaged roads, bridges and utilities.

- [ ] Provide needed barricades.
- [ ] Call for mutual aid support (personnel and equipment) as needed.
- [ ] Assist in heavy duty rescue operations.

Recovery

- [ ] Check equipment and vehicles and repair or replace as necessary.
- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions taken during the event.
- [ ] Write up after action report.
- [ ] Review SOGs and revise as appropriate.

SOCIAL SERVICES DIRECTOR

Preparedness

- [ ] Alert DSS personnel.
- [ ] Prepare to coordinate social service operations for reception and lodging.
- [ ] Staff reception centers.
- [ ] Manage reception centers.
- [ ] Coordinate lodging operations.
- [ ] Provide support personnel for shelter and mass care operations.
- [ ] Provide support staff for clothing operations.

Recovery

- [ ] Participate in debriefing after the emergency.
- [ ] Critique actions taken during the event.
- [ ] Write up after action report.
- [ ] Review SOGs and revise as appropriate.

AMERICAN RED CROSS

Preparedness

- [ ] Alert ARC Volunteers.
- [ ] Prepare to activate shelters at EM's request.
- [ ] Manage shelter operations.
- [ ] Manage feeding operations.
- [ ] Coordinate clothing operations.

Recovery

- [ ] Participate in a debriefing after the emergency.
- [ ] Critique actions taken during the event.

- ☐ Write up after action report.
- ☐ Review SOGs and revise as appropriate.

CUMBERLAND COUNTY SCHOOLS AND CUMBERLAND TRANSIT AUTHORITY

- ☐ Provide as required buses and vans to transport citizens or emergency response personnel during the incident.
- ☐ Provide reports of bus pickup / drop-off of passengers, origin and destination route stops.
- ☐ Dispatch appropriate representation to the Cumberland County EOC if it is activated.

STATE AGENCIES

- ☐ Notification of State and Federal Agencies
- ☐ State Emergency Management
- ☐ North Carolina Highway Patrol
- ☐ Department Health / Human Services
- ☐ Department Natural Resources
- ☐ North Carolina National Guard

FEDERAL AGENCIES

- ☐ Federal Bureau of Investigation
- ☐ Environmental Protection Agency
- ☐ Department of Energy
- ☐ Federal Emergency Management

RESPONSE GUIDELINES TO ACTS OF TERRORISM INVOLVING WEAPONS OF MASS DESTRUCTION

FOREWORD

This document is to be used as guidance to the response organizations and as information and program clarification to agencies of the state and federal governments. Responders MUST be aware of a new thought process for response to terrorist incidents. It is imperative that first responders are aware of the potential for injury and death to themselves and others so they can ensure a timely response and maximize the safety and welfare of the citizens of our community.

I. PURPOSE

The purpose of this document is to provide guidance to responders of local government to an incident involving terrorist activity. It is meant as guidance only.

II. SCOPE

The planning process is imperative to ensure a timely, professional response to incidents of terrorism by all organizations of local government.

A. It is imperative that each level of government and each response organization (at all levels) be aware of the roles and responsibilities that are required for a professional response, consideration to personal hazards due to explosive and / or chemical devices, preservation of ground scene, medical response and support to response personnel and the public.

B. The legal foundation for this plan can be found in the Presidential Decision Directive (PPD) PDD-39 dated June 1995 and PPD 62 dated May 1998.

III. DEFINITION

Terrorism can be defined as criminal acts or threats by individuals or groups to achieve political, social or economic gain or recognition by fear, intimidation, coercion, or violence against the government and its citizens. In addition, there are two primary phases associated with terrorist incidents.

A. Crisis Management

Crisis management includes the broad spectrum of data collection and dissemination of information primarily to law enforcement groups and to other groups that are part of the initial response. This phase also represents the first-in organizations to incidents and is part of the consolidated efforts by all levels of government to ensure life, safety and rescue efforts.

B. Consequence Management

Consequence Management refers to response measures that are implemented to ensure continuity of essential services of government and to provide emergency relief to all levels of government. Consequence management is primarily an emergency management function. Crisis management and consequence management should be activated at the same time and work hand-in-hand to resolve and recover from acts of terrorism.

IV. CONCEPT OF OPERATIONS

As part of the awareness program associated with acts of terrorism, the first responders must first ensure their own protection of all responding departments. A new way of thinking, a new assessment process, and new response protocols will be required for first-in response departments. The three primary first responders of the city (fire, police, and Medic) will develop the Standard Operating Procedures (SOGs).

A. Listed below are the primary components of the concept of operations. The primary first responders can address some of these components; the Incident Command System (ICS) and / or the EOC, when activated, will address other components.

B. **Cumberland County Threat Assessment**

This element will be addressed by law enforcement agencies that consists of municipal Police Departments, Cumberland County Sheriff's Department, State Bureau of Investigation, Bureau of Alcohol, Tobacco, and Firearms, and other law enforcement agencies that could provide information on terrorist groups, individuals, and threat situations based on collected intelligence. These groups would provide information to determine the threat level of the incident.

C. **Notification Level- Internal / External - Primary / Support**

Listed below are the primary response and primary support departments that would be part of the notification process by law enforcement:

1. All law enforcement agencies - local, state and federal
2. Emergency Management Office
3. Fire Service agencies of the city and county
4. EMS-Paramedic Service
5. NC Division of Emergency Management
6. Hospitals
7. Department of Public Health
8. Mental Health
9. Debris Removal organizations

This list can be expanded as the need arises or as the scope of operations expands. The IC can dismiss departments if the situation changes. Each agency should develop its own internal notification procedures.

D. **Command and Control**

This function is perhaps the most critical for ensuring a successful operation. It is ABSOLUTELY IMPERATIVE that a team approach for command and control be used for response. In most incidents that involve a terrorist act, the fire department would be at the scene first and would be the *initial IC*. The IC could be transferred to other departments as the incident is resolved and recovery efforts are implemented. If questions or conflicts arise on the command or control function, the EOC, when activated, will resolve. Additional command and control guidelines are defined in the Direction and Control annex of the All Hazards Plan. The following departments of local government could assume the IC position:

- Fire Departments based on jurisdictional boundaries and their role in the event to mitigate the threat, fire or chemical.
- Sheriff's Department or municipal police, as it is ultimately a crime scene.
- Emergency Medical Services - Medic, to mitigate injuries of public and responders.

Emergency Management

All responding departments of local government must be prepared to interface with state and federal counterparts at both the incident site and the EOC.

The EOC, when activated, will be the command and control center and the IC will be at the location.

Operational command will be maintained at the incident site.

It is imperative that immediate command and control be established to ensure control measures are implemented for life, safety and evidence preservation.

Unified Command

This type of command and control is represented by multiple levels of government and is more often than not seen in the EOC environment. A unified command system consists of agencies of the city and county government as well as agencies of the state and federal government in a single location.

This command structure is also found in large-scale incidents and incidents such as terrorism.

E. **New Entry Protocols**

1. A terrorist incident will require new entry protocols to ensure responder safety.

   Guidelines are to be established based on threat level at the time of the incident. Minimum isolation distance of 1000 feet and 3000 feet. Entry into an area or building that may be contaminated or may have been destroyed by an explosion can range from normal site access with no protective measures to Level A entry sites with HOT ZONES set to protect responders.

2. Threat levels as defined in Section V will set new protocols.

F. **Crisis Management and Consequence Management**

These sections are combined because they go hand-in-hand for response and recovery. They deal with all phases or incident operation to include response, recovery, clean up and restoration of site.

G. **Roles, Responsibilities and Checklist**

This part of the planning document will be detailed in Section VI, Item A. The listing represents the primary factors associated with response to terrorist incidents.

H. **Chain of Evidence**

This operational area will be addressed in more detail in Section VII. This function may be part of new site entry protocols. Life safety issues will take precedence over this area of operation; however, maintaining the chain of evidence is a crucial element and should be given attention at all phases of response.

I. **Threat Assessment Levels**

This section of the plan will be more clearly defined in Section V. This area also represents part of the new thought process to terrorists' incidents. The primary departments for determining the appropriate threat level will be assigned to law enforcement agencies at local, state and federal levels.

V. IMPLEMENTING GUIDELINES

Threat Assessment Levels

As defined above, this operational area will be the responsibility of law enforcement agencies. The E911 Center for the city and county will likely be the first location to receive threats of terrorism. All E911 Communication Center supervisors / managers should be involved in the intelligence briefings that are part of threat level assessment. The threat levels (TL) are identified below:

A. **TL-1**:

This threat level represents above average monitoring of national and international events that have a direct connection to terrorist activity. The law enforcement agencies collecting this data are not required to notify other agencies. Two examples associated with TL-1 activity are:

1. U.S. Embassy bombing and other bombing activity in industrial and Third World nations of the world, but not in the United States.

2. Verifiable threat by terrorist in Third World countries. Protest of American policy in other parts of the world.

B. **TL-2**:

This threat level represents terrorist activity in the U.S. and particularly in Southern and Mid-Atlantic states. Monitoring by law enforcement agencies is a daily activity, and possibly full-time assignments by police personnel to monitor and collect intelligence. This threat level requires notification of all organizations listed in Section IV, Item C, above. In addition, a meeting of all agencies involved will be held to determine a plan of action, degree of plan activation, potential for incidents to take place in our community, and to identify possible targets. Daily reports will be made to city and county manager's office at this level. Examples of TL-2 are as follows:

1. Chemical threat like Anthrax.
2. Bomb like the type that occurred in Atlanta, Georgia.
3. Bomb threat like the type that occurred in Birmingham, Alabama.
4. Bomb threat in Cumberland County Courthouse or school.
5. KKK rallies or marches.
6. Threats from sources deemed to be valid by known groups.
7. Other racial groups known for violent behavior.

C. **TL-3**:

This level represents the highest degree of awareness and preparedness. No event has actually occurred; however, all indicators point to a possible event within a 24- hour period. Representatives from the agencies listed in Section IV, Item C., will be on 24- hour alert. A command location will be established that will act as the clearinghouse for all information, rumors and press releases. This location should be the EOC to ensure immediate command and control of the situation. The next step beyond this level is an actual event that has occurred in our community. The public service departments and corporate community departments will be activated at this time. Some possible examples of TL-3 are:

1. Planned rally or march by known radical groups.
2. Individual or group blocking access or holding occupants of building hostage until demands are met.

3. Serious threats of violence or mass fatalities by known groups or individuals at a specific location or facility.

VI. NEW ENTRY PROTOCOLS

This organizational area will be detailed by the Fayetteville Regional Response Team #3 and should be incorporated into SOGs for all responding organizations. In addition, this area is part of the new awareness that must be included in the training program that reaches out to all responders in the city and county. The new entry protocols should be based on intelligence provided by law enforcement. The fire service / hazmat team and law enforcement agencies must work together as a close-knit crew to ensure that entry into possible area(s) of danger are minimized and that a minimum of personnel is exposed to danger. The primary components of the new entry protocols are listed below:

- Awareness of secondary explosive devices.
- Personal protective equipment - when and what to wear as minimum requirement for entry into an incident site.
- Who should go into a facility?
- Maintaining the chain of evidence process.
- Training standards - all training in the same format to ensure uniformity.
- Clearly defined hot zones, warm zones and safe zones.
- Signs and symbols - critical for early identification of agent or chemical.
- Other, as defined by HazMat Team and by development team for SOGs.

A. Roles, Responsibilities and Checklists

This section will outline the primary areas of responsibility for the primary responding organizations. The checklist will identify critical items of concern for all organizations. All additional checklists, or areas or responsibilities will be covered in SOGs.

B. Areas of Concern - Threat Level Conditions

All responding organizations will implement or alert their people to the following areas of concern as part of Threat Level conditions:

- Develop internal notification procedures for responding departmental personnel.

  Ensure internal distribution of response plan.
- Follow directions of IC and EOC.
- Adhere to site entry protocols.
- Ensure adequate training programs are implemented in their department.
- Adjust work schedules for 24- hour operations for a minimum of 96 hours (4 days)
- Develop control measures for Chain-Of Evidence process.
- Provide department representatives to incident site and EOC.
- Document all response activities from time of notification until termination.
- Participate in Command and Control team as directed by IC and EOC.
- Be ready to commit all available departmental resources to response and recovery effort.
- Develop a need-to know list for internal operations.

- Other as directed by IC or EOC.

C. Law Enforcement Agencies - Local

- Develop or enhance intelligence gathering for acts of terrorism.
- Establish distribution or notification for sharing of information.
- Determine Threat Level (TL) based on information assessment.
- Initiate notification process to all organizations listed in Section IV, Item C.
- Maintain open lines of communications on intelligence with state and local agencies.
- Review personal protective equipment (PPE) requirements and site entry protocols.
- Initiate a meeting of organizations based on assessment of conditions.
- Assign representative to development team for SOGs.
- Establish site security based on hot zone, warm zone, and safe zone.
- Assist in site evacuation of personnel.
- Provide shelter security for activation of shelters resulting from incident.
- Provide guidance or training for maintaining Chain-of Evidence process.
- Provide stand-by capability for security at hospitals and medical facilities.
- Establish ICS if first on scene.
- Other as identified by local law enforcement.

D. Fire Service - Local

- Assign representative to SOG development team.
- Provide fire suppression at site and surrounding location as required.
- Determine hot zone, warm zone and safe zones.
- Provide rescue and resource operation.
- Provide Emergency Medical Responders for medical assistance.
- Assist in evacuation of personnel from site.
- Determine area to be evacuated for public safety.
- Work with law enforcement for preservation of site evidence.
- Interface with Medic (EMS paramedic provider) on medical assistance issues.
- Develop new site entry protocols as part of SOG team development.
- Identify, to maximum extent possible, injured personnel and fatalities.
- Assist medical examiner with remains recovery.
- Establish ICS if first on scene.
- Be prepared to assume IC position as conditions change.
- Provide or arrange to assist with medical coverage at shelter site.
- Provide for medical monitoring of response personnel.
- Train personnel in signs and symptoms of chemical and biological agents.
- Provide IC and EOC with needs assessment for incident resolve.

- Observe site entry protocols.
- Assist with mass decontamination of on-site personnel.
- Other - to be determined.

E. Emergency Medical Service - Provider

- Assume lead role for on-site medical assistance.
- Develop interface with medical doctors for on-site triage patients.
- Develop procedures for notification of medical service providers.
- Assign representative to SOG development team.
- Identify to maximum extent possible injured personnel and fatalities.
- Assist medical examiner with remains recovery.
- Establish ICS if first on scene.
- Be prepared to assume IC position as conditions change.
- Provide or arrange medical monitoring of response personnel.
- Train personnel in signs and symptoms of chemical and biological agents.
- Provide IC or EOC with needs assessment for incident resolve.
- Observe site entry protocols.
- Assist with mass decontamination of on-site personnel.
- Other.

VII. CHAIN OF EVIDENCE

A. New Site Protocols

This process is part of the new site entry protocols and is crucial for ensuring preservation of any evidence collected. Although, this phase of the operation is very critical to incident resolve from start to finish, it should NEVER take precedence over LIFE SAFETY operations. The law enforcement services at local, state and federal levels will provide guidance on this part of the incident operation. All agencies, both primary and support must be aware of the importance of this issue.

B. Considerations

- Do not throw away any debris or trash from scene.
- Debris removal will be controlled by law enforcement agency at local, state or federal level.
- Rescue personnel and medical personnel at the site and at the hospital will be familiar with this operation and will do all within their power to ensure preservation of evidence short of life safety or life and death situation. LIFE SAFETY ALWAYS COMES FIRST.
- Private contractors for debris removal MUST follow directions of law enforcement agencies.

VIII. MASS DECONTAMINATION

A. This segment of response to terrorist incidents is very critical part of response. The ability to conduct mass decontamination of large numbers of people in a very short period is imperative to limit exposure, possible burden to hospitals, and spread contamination. The primary departments assigned to this program element are:

1. Cumberland County Volunteer Fire Departments

2. Mutual Aid Fire Departments for:

   a. Dependable source of water
   b. Adequate resources to conduct operation
   c. Adequate workforce to perform mission.
   d. Ability to conduct operation at multiple locations.

B. Local resources will be the primary source for this program element. The State will also aid and mutual aid requests can provide resources and personnel. In addition, elements of the military, North Carolina National Guard, and the Air National Guard can assist in this phase of operation. Prior agreement with local and state units listed above will be part of local and state plans that address mass / large-scale decontamination.

IX. PUBLIC INFORMATION

This area of response for incidents of terrorism or suspected acts of terrorism is critical to ensure public confidence, eliminate rumors, and provide accurate, timely information to concerned responders and to its citizens. This activity MUST be a joint effort by all levels of government and MUST be centrally located in the EOC setting. The establishment by local government of a Joint Information Center (JIC) with all levels of responding organizations of government present will be the basis for disseminating information to the media and the public.

X. DEMOBILIZATION / DEACTIVATION

This part of response and recovery from terrorist incidents will be determined by the EOC based on feedback and information from law enforcement agencies and will be based on threat level as defined by the lead agency (law enforcement). In addition, the Emergency Management Office will establish a time for critique by responding agencies and by recovery crisis management and consequences management efforts associated with the incident.

BIO-TERRORISM RESPONSE WITH HEALTH INTERFACE

I. PURPOSE

Cumberland County Emergency Services, along with Fire/EMS/Law Enforcement/Health have agreed on a coordinated response to possible Terrorism with Biological Agent. The Emergency Operations Plan generalizes terrorism response and hazardous chemical response. This particular attachment will focus on Bio-Terrorism utilizing the National Domestic Preparedness Field Guide as a standard protocol.

II. SITUATION AND ASSUMPTIONS

This section provides the environment for utilizing the threat assessment for the County and determining the County's vulnerable areas. Also utilizing the response resources available in the County / State / Federal resources. Two (2) basic areas must be understood:

(1) Crisis Management is a Law Enforcement responsibility at the Local / State / Federal level. Crisis Management begins once an attack has occurred. Local Law Enforcement will request Regional and State resources as needed. Federal Resource request will be made through the NC State EOC.

(2) Consequence Management is coordinated by local Emergency Management and State Emergency Management will request Federal Resources for Consequence Management.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

COMMUNICATION / NOTIFICATION AND WARNING

Primary Agency: Cumberland County Emergency Services {Communications}

Support Agencies: Cumberland County Fire Marshal
Cumberland County Fire Departments
Cumberland County EMS
Fayetteville Communications Division

I. PURPOSE

This section describes the county's emergency communication / notification and warning system.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Communications / Notification and Warning play a critical role in emergency operations. Communications networks and facilities exist and operate throughout the county. Properly coordinated, these facilities provide for effective and efficient response activities.

2. The County Emergency Services / Communications Center is located in the Law Enforcement Center at 131 Dick Street. The County Emergency Communications Center will function as the County Warning Point. The City of Fayetteville Communications Center is located in City Hall, 433 Hay Street and serves as a backup to the County Emergency Services / Communications Center.

3. The County Emergency Services / Communications Center will normally initiate notification and warning of emergencies/disasters to emergency response agencies within the county.

4. Broadcast media will be relied upon to assist in the dissemination of warning to the general public. Along with the County's mass notification system.

5. Emergency vehicles are available for warning the general public.

6. Operational telephone and / or radio communications may be utilized to notify public officials, EOC staff, emergency personnel and others as required.

7. Special care groups or persons in-group quarters may have to be provided special warning notifications.

B. Assumptions

1. The communications system will survive and / or withstand the effects of a disaster.
2. Use of all available forms of warning and notification will not provide sufficient warning to the general public and special needs population.

3. Local broadcast media will cooperate in broadcasting disaster-related instructions to the public.

4. Depending on the severity of the emergency, telephone communication may be disrupted. Local and regional radio / television stations without emergency power may also be off the air. If this occurs, public address systems and door-to-door sweeps may be initiated.

5. Demand for information may be very heavy, therefore; sufficient staff will be provided and trained to work on an Information Hot Line.

III. CONCEPT OF OPERATIONS

A. Line of Succession for Communication / Notification and Warning is as shown below:

1. Cumberland County Emergency Communications Center Supervisor
2. Cumberland County Emergency Communications Center Deputy Director
3. Cumberland County Emergency Communications Center Director

B. General

1. The County Emergency Communications Center is operated 24 hours a day.
2. The Emergency Services Director will request the Communications Coordinator to expand the Communications Center as required.
3. The Emergency Services Director will implement emergency communications procedures and activate backup capabilities as necessary.
4. The Emergency Services Director will notify appropriate personnel.
5. Emergency warning may originate at the national, state or local level of government. Timely warning requires dissemination to the public by all available means:

    a. National Warning System (NAWAS)
    b. National Weather Service (NWS)
    c. Emergency Alert System (EAS)
    d. State Operated Two Way Radio Systems
    e. N.C. Division of Criminal Information (DCI)
    f. Local Government Radios
    g. Sirens, horns, or mobile public address systems
    h. Telephone

C. Specific

1. Telephone Service

    a. Telephone service in the county is provided by and Century Link and Star Telephone Company.
    b. The telephone company has been provided with a list of essential users of telephone service.

c. Essential users will receive priority telephone service during emergencies. (Reference APPENDIXES, LIST OF ESSENTIAL TELEPHONE SERVICE USERS AND RESTORATION PRIORITY.)

d. If telephone service is disrupted or damaged, the essential user list is applicable for restoration priority.

2. Two-Way Radio Systems

a. The two-way radio systems are designated as the principal system to be used for direction and control activities. They provide voice communications between mobile units operated by department heads or chiefs of emergency services and the Emergency Communications Centers. The principal operators are:

(1) The Sheriff (800 MHz)
(2) The EMS Director
(3) The Fire Chiefs
(4) The County Emergency Services Director

b. The following county and municipal departments, agencies and organizations operate two-way radio systems:

(1) Sheriff's Office
(2) County Fire Departments
(3) Emergency Medical Services (EMS)
(4) Emergency Services Department
(5) County Administration
(6) County Electrical and Mechanical
(7) County Engineering Department
(8) County Landscaping Department
(9) County Carpentry Department

(11) County Parks and Recreation Department
(12) Board of Education
(13) Fayetteville City Fire Department (800 MHZ)
(14) Fayetteville City Police Department (800 MHZ)
(15) Spring Lake Police Department
(16) Hope Mills Police Department

c. The following county volunteer organizations operate two-way radio systems:

(1) Amateur Radio Emergency Service (ARES)
(2) Cape Fear Amateur Radio Society

3. Satellite Phones

a. Satellite Phones (SAT) are located in the Cumberland County Emergency Services Communication Center. This is a 24-hour center. The SAT Phone System will enable communications through both SAT Phone and Two-Way communications statewide.

D. Receipt and Dissemination of Warning

1. The N.C. Highway Patrol is the State Warning Point at the Raleigh Communications Center. NAWAS and NWS alerts are received there from Federal agencies. The NC Division of Emergency Management Operations

Division is the alternate State Warning Point for NAWAS and selective signaling.

2. Warning received from the site of an emergency is normally reported to the Sheriff's Office Desk Sergeant and to the County Emergency Services / Communications Center.

3. Notification of governmental officials and emergency response personnel from the County Emergency Services / Communications Center will follow established procedures.

E. Dissemination of Warning to the General Public. The general public will be notified of major emergencies by:

1. Emergency Alert System (EAS)

2. Weather alert radios

3. Mobile public address systems as appropriate

4. House to house alert by emergency personnel

5. Television and Radio Station

6. Mass Communication System

F. Dissemination of Warning to Special Populations.

1. Hearing impaired, special care groups, persons in group quarters and non-English speaking groups are notified by the most expedient means possible.

2. Public school, hospitals and other special warning locations are notified by emergency personnel at the County Emergency Services / Communications Center and by weather alert radios.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

DIRECTION AND CONTROL

Primary Agency:	Chairman, Board of County Commissioners
Secondary Agency:	Board of County Commissioners County Administration Municipal Mayors and Councils City Managers

I. PURPOSE

This section outlines the direction and control procedures for emergency operations and identifies the personnel, facilities and resources that will be utilized in the coordinated response activities.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Many hazards exist within or threaten the county which has the potential to cause disaster of great magnitude, warrant centralization of the direction and control function in order to conduct effective and efficient emergency operations.

2. The County EOC serves as the central direction and control point for countywide emergency response activities. SEE APPENDIXES FOR COMMUNICATIONS INFORMATION.

3. The County EOC is located in the Cumberland County Law Enforcement Center at 131 Dick Street, Fayetteville.

4. The Department of Health located at 1235 Ramsey St., Fayetteville, NC 28301 serves as the Alternate EOC.

5. The City of Fayetteville operates an EOC. It is located in City Hall at 433 Hay Street, Fayetteville.

6. The Town of Hope Mills operates an EOC at the Hope Mills Fire Department located at 5788 Rockfish Road. The EOC has back-up power.

7. Municipalities may utilize facilities within their jurisdiction as EOCs and the county may provide staff as the situation dictates.

8. The County and / or Municipal EOC will be activated upon the threat or occurrence of major emergency / disaster and designated personnel will report to their EOC in a timely fashion.

9. The senior officers having primary responsibility for the situation will establish On-site direction and control.

B. Assumptions

1. All municipalities will not send a representative to the County EOC.

2. It is assumed that municipalities will maintain communications with the County EOC via telephone, radio, fax, or Internet e-mail.

3. The County EOC is adequate for coordinating countywide emergency operations.

4. Municipalities will act in unison with the county on such issues as proclamations, security, and public information.

5. Sufficient procedures have been developed to direct and control multi-hazard disaster operations.

6. Emergency operations and coordination at all levels of government will be carried out according to plans and procedures.

III. CONCEPT OF OPERATIONS

A. Line of Succession for Direction and Control is as shown below:

1. Chairman, Board of County Commissioners
2. Board of County Commissioners
3. County Manager

B. General

1. Emergency operations shall include all activities, which are directed toward the reduction of immediate hazards, establishing situation control and the restoration of normal operations.

2. Direction and control of normal day-to-day emergencies of single agency response is performed by the senior officer on the scene. (i.e. law enforcement, fire, EMS). Multi-agency responses are done in accordance with local ordinances, policies, and procedures. Response forces in Cumberland County will utilize the National Incident Management System (NIMS).

3. Municipalities within the County may exercise independent direction and control of their own emergency resources, outside resources assigned to the municipality by the County Emergency Operation Center, and resources secured through existing mutual aid agreements with other municipalities. Requests for state or federal assistance will be directed to the County Emergency Services Director.

4. Centralized countywide direction and control (EOC activation) is desirable when one or more of the following situations occur:

   a. There exists an imminent threat to the safety or health of the public.
   b. The disaster involves multiple departments /jurisdictions within the county, which are relying on the same resources to resolve the emergency / disaster.

c. Local resources are inadequate or depleted and significant mutual aid resources must be utilized to resolve the emergency situation;
d. Local emergency ordinances are implemented to control the emergency situation.

5. The Cumberland County EOC may be activated by:

a. The Chairman of the Board of County Commissioners,
b. The County Manager, or designee, or the Emergency Services Director.

6. Activation of a municipal EOC will be done by the Mayor or their designee.

7. Emergency operations and coordination at all levels of government will be carried out according to the supporting SOG's in place.

8. Operational readiness of the County EOC is the responsibility of the Emergency Services Director who will serve as the Operations Officer. Operational readiness of Municipal EOCs is the responsibility of the Mayor or their designee.

9. Backup electrical power is available in the EOC. Maintenance on the backup electrical power system and generator is the responsibility of the building electrical and mechanical personnel.

10. Administrative decisions regarding food supplies and other incidental needs for the County EOC during activations is the responsibility of the Logistics Officer in the EOC.

11. Administrative decisions regarding individual municipalities are the responsibility of the Town Mayor or Chief elected official.

12. Upon activation of any municipal EOC, the municipality will establish communications with the County EOC or Emergency Communications Center, who will in turn notify the County Emergency Services Director.

13. Whenever an EOC is activated or activation of an EOC appears to be imminent, the County Emergency Services Director will in turn notify the Division of Emergency Management, NC Division of Emergency Management Eastern Branch Office.

14. Frequent staff reviews / briefings will be conducted.

C. Staffing

1. Personnel reporting to an EOC will operate in one of two functional sections as assigned by the Operations Officer.

a. The Policy / Administration Group under the direction of the Chairperson of the jurisdiction or his designee consists of the decision makers of the jurisdiction and others as decided by the chairperson. This group is responsible for:

i. The approval of policies and strategies pertinent to the emergency / disaster operation.

ii. Provide leadership and decision making for implementation by the Support Group.
iii. In coordination with the Public Information Officer, prepare statements for release to the general public.
iv. Utilizing communications equipment available to the Policy/Administration Group, the members will maintain a line of communication with their respective administrators and County/Municipal elected officials.
v. Upon activation, maintain a presence in the EOC to carry out the direction and control function.
vi. In cooperation with the Support Group and the Operations Officer, maintain an awareness of actions being taken in response to the emergency situation.

b. The Support Group, under the direction of the Policy / Administration Group is responsible for on-scene operations including the allocation of resources. The Support Group consists of the following Sub Groups (Emergency Support Functions):

i. Information: Group Leader - Public Information Officer.
May include: County Manager, Commissioners and Emergency Services Director.
ii. Communications / Notification and Warning: Group Leader - County Emergency Communications Director.
May include: County/City Emergency Communications, the Sheriff/Police Department and Amateur Radio.
iii. Traffic Control / Law Enforcement/Emergency Transportation: Group Leader - Sheriff.
May include: Sheriff's Office, N.C. Highway Patrol, Municipal Police Departments and the N.C. Department of Transportation.
iv. Fire: Group Leader - Fire Marshal.
May include: Fire Chiefs Association President, Fire Marshal / Fire Chief, Sheriff's Office and EMS Director.
v. EMS: Group Leader - EMS Director.
May include: Fire Marshal / Fire Chief, Fire Chiefs Association President, Sheriff's Office and Fire Department.
vi. Search and Rescue: Group Leader – Sheriff's Office.
May include: Sheriff's Office, Fire Department, Fire Marshal / Fire Chief, Fire Chiefs Association President, EMS Director, EMS and Emergency Services
vii. Shelter / Mass Care: Group Leader - Department of Social Services.
May include: Department of Social Services, Health Department, Emergency Medical Services, Superintendent of Schools, American Red Cross and Emergency Services.
viii. Medical Emergency / Mass Casualty: Group Leader - Health Director.
May include: Health Department, Emergency Medical Service, Rescue, Sheriff's Office and Fire Department
ix. Utilities: Group Leader - Emergency Services.
May include: Emergency Services, Public Utilities Commission, Duke Energy, South River Electric Coop., Lumbee River Electric and Carolina Telephone.
x. Damage Assessment / Recovery: Group Leader - County Assessor.

May include: Emergency Services, County Assessor, Inspections Department, GIS Department and Finance Officer.

xi. Recovery: Group Leader - Assistant Finance Director.
May include: Emergency Services, County Assessor, Inspections Department, GIS Department and Solid Waste.

xii. HAZMAT: Group Leader - HAZMAT Leader.
May include: HAZMAT Team Representative, Law Enforcement, Emergency Medical Services and Emergency Services and Fire Chief.

xiii. Donated Goods / Unmet Needs: Group Leader - Emergency Services.
May include: Emergency Food and Shelter Committee, Volunteers and United Way.

xiv. Volunteers: Group Leader - Emergency Services.
May include: Volunteer Committee, Emergency Services, Fire Association President, Red Cross, Salvation Army and United Way.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

DONATED GOODS MANAGEMENT

Primary Agency: Cumberland County Emergency Services

Support Agencies: American Red Cross
Department of Social Services
Salvation Army
United Way
Urban Ministries
Cape Fear Community Food Bank

I. PURPOSE

This section describes the management of goods donated as disaster relief to the people of Cumberland County, as well as the collection and shipment of goods donated by the people of Cumberland County to victims in other areas.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Historically, persons not directly affected by an emergency / disaster are eager to render aid to disaster victims through donations of money, goods, and services.

2. Lack of an organized system of management for the identification, receipt, organization, and distribution of donations will result in chaos.

3. The timely release of information to the public regarding needs and points of contact is essential to management of donated goods.

4. Donated goods are essential to recovery in most cases.

5. Suitable facilities, equipment, and personnel are needed for the management of donated goods.

6. The coordination of the collection, packaging, and shipment of goods to a disaster area is best accomplished at the county level.

7. Churches, the community colleges, and other volunteer agencies in Cumberland County could serve as collection points for donated goods.

8. Monetary donations, staple goods, and those items specifically requested best serve the needs of victims.

9. The distribution of donated goods must be coordinated with the identification of unmet needs in the community.

B. Assumptions

1. Suitable space and equipment will be available to receive, sort, and store the influx of donated goods.

2. Adequate personnel for donated goods operations will be available.

3. Local distribution sites will be convenient to the affected populations.

4. A regional reception and distribution site for donated goods will be established by the State.

5. Unsolicited donations of goods can be expected.

6. Donations of non-useful and unwanted goods can be expected; these include loose, unsorted clothing, extremely perishable items, and worn-out items.

7. People unaffected by the disaster will seek to receive donated goods.

8. Some donors will seek to bypass the distribution system established by the county.

9. An aggressive public information effort will expedite the distribution of goods as well as limit an influx of unwanted goods.

10. Citizens and businesses of Cumberland County will elect to donate money and goods to disaster victims elsewhere; they will need and seek guidance on methods of participation.

11. Transportation will be available to ship donated goods from the county to other destinations.

12. It is inevitable that there will be a surplus of some donated goods, which will require disposal.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Donated Goods Management is as shown below:

1. Emergency Services Director
2. Emergency Services Deputy Director
3. Resource Management Team Leader

B. General

1. Magnitude of the disaster will dictate the amount of spaces and personnel required for the reception and distribution of donated goods.

2 A central reception center to receive and sort the foods will be identified. Distribution centers near the affected area will be established. The location will be announced through normal media channels.

3. Donation of goods and services will be utilized to the fullest extent possible to lessen the effects of the disaster on the victims and will be used for the purpose they were donated.

4 Individuals coming from outside the area to work as volunteers should be prepared to be self-sufficient for food and shelter. Agencies should coordinate housing needs prior to individuals arriving in the impacted area.

5. Donations of cash will be encouraged in lieu of goods.

C. Receipt of Donated Goods for Cumberland County

1. The Emergency Services Department will serve as the lead agency for the reception and distribution of donated goods.

2. The magnitude of the disaster and the severity of local need will dictate the amount of space and personnel required for the reception and distribution of donated goods.

3. Ideally, a central reception and sorting center for donated goods should be established, and separate locations convenient to the affected areas of the county should be utilized as distribution centers.

4. The Emergency Services will coordinate with other relief agencies working on the disaster to ensure needs are met without duplication of effort.

5. Operational personnel will be solicited from the EOC list of available personnel resources.

6. Public information regarding distribution sites, needed goods, volunteers, and other pertinent matters will be coordinated by the Public Information Officer.

7. Requests for needed goods and re-supply of needed goods will be channeled through the State EOC.

8. Upon receipt, donated goods must be sorted and packaged in a manner suitable for distribution.

9. When identifiable, unwanted goods should be refused.

10. Surplus donated goods will be sold or otherwise disposed of in a manner consistent with the donor's apparent intent.

D. Collection and Shipment of Donated Goods to Other Counties, States, and / or Localities.

1. An attempt will be made to identify the needs of the intended destination prior to collection of goods.

2. A systematic method will be established for collection of the donated goods to be shipped.

3. Goods will be sorted and packaged in an appropriate manner prior to shipment to accomplish the following:

a. Timely and undamaged arrival at the destination
b. Proper identification of contents
c. Minimal need for repackaging/sorting
d. Ease of loading and unloading

e. Elimination of inappropriate/unwanted goods

4. Shipments of donated goods will be coordinated with the receiving destination prior to departure from the county.

5. Suitable means of transport will be arranged for delivery of the shipment in a timely manner.

6. When appropriate, shipments of donated goods should be coordinated with the Eastern Branch or State Office of Emergency Management.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

EMERGENCY MEDICAL SERVICES

Primary Agency:	Cumberland County Emergency Medical Services of Cape Fear Valley Hospital System
Support Agencies:	Eastover Fire Department Vander Fire Department Cotton Fire Department Cedar Creek Fire Department Cumberland Road Fire Department Westarea Fire Department Stoney Point Fire Department Carvers Creek Fire Department Wade Fire Department Godwin-Falcon Fire Department Gray's Creek Fire Department Linden Fire Department Hope Mills Fire Department Spring Lake Fire Department Gray's Creek 2 Fire Department Fayetteville Fire Department

I. PURPOSE

This section provides for emergency medical services during natural and technological emergencies.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Cumberland County is served by four major medical facilities:

Cape Fear Valley Medical Center (Trauma Center)	512 Beds
Highsmith-Rainey Hospital	150 Beds
Womack Army Medical Center	288 Beds
Veterans Administration Medical Center	319 Beds

2. EMS / Fire Fighting Units provide first responder services. Advanced Life Support is provided by Emergency Medical Services. EMS is under control of Cape Fear Valley Medical Center.

3. Cumberland County is served by medical helicopters from Duke, UNC, and Pitt County.

B. Assumptions

1. A large-scale emergency will result in increased demands on all EMS and medical personnel, and a mass casualty event could overwhelm response capabilities.

2. Following a disaster many of the injured will be transported to medical facilities by persons other than trained medical personnel.

3. Disruption of the county's communications system will severely impede delivery of emergency medical service.

4. Debris on roadways may hamper first responder response.

5. Catastrophic disasters may affect large areas of the county and surrounding counties, and medical resources may be damaged, destroyed, or unavailable.

6. Following a major disaster occurrence, field emergency medical facilities may have to be established. This could include a temporary morgue.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Emergency Medical Services is as shown below:

1. Cape Fear Valley Emergency Medical Service Chief
2. Cape Fear Valley Emergency Medical Service Deputy Chief
3. Cape Fear Valley Emergency Medical Service Training Officer

B. General

1. Emergency operations for public health and medical services will be an extension of normal agency and facility duties.

2. Coordination between Health and Medical providers is necessary to ensure emergency operational readiness.

3. Coordination of resources beyond that of the county emergency response agencies will be directed through the Cumberland County Emergency Services Director to the NC Division of Emergency Management Eastern Branch Office.

C. Health

1. The primary concern of public health is disease control. County health agencies will implement effective environmental health, nursing and health education practices to minimize the incidence of disease.

2. Frequent inspections of damaged housing and emergency shelters will be necessary to determine the need for emergency repairs, pest control, sanitation, or other protective procedures.

D. Medical

1. EMS will provide field medical care as needed during emergency situations and coordinate necessary medical transportation.

2. EMS capabilities will be expanded by qualified volunteer first aid, rescue and fire personnel and first responders serving the respective response areas.

3. During mass casualty incidents, EMS will establish patient triage, holding, treatment and transportation areas.

4. When necessary an EMS official will be located at an established command post to coordinate responding medical units and establish communication links with hospitals, the Emergency Communications Centers or the EOC.

5. Transfer of authority on-scene will be in accordance with established procedures.

E. Mortuary

1. The Medical Examiner will identify and take charge of the proper recovery of human remains.

2. Local companies may be called upon to provide specialized equipment such as refrigerated trucks.

3. Evacuation of Special Populations (Institutions, Facilities and Special Care Individuals)

   a. Institutions within the county must develop procedures for evacuation and provide transportation to the shelter.
   b. Schools will develop evacuation procedures. Pre-designated buses will be utilized for students without their own vehicles. Schools within the danger zone for hazardous materials spills will develop procedures for in place sheltering and "walk-away" evacuations. Parents will be advised of the location of reception centers.
   c. The County Department of Social Services will advise the Emergency Services Department of individuals known to need transportation assistance. An attempt will be made to assist the individuals with transportation.
   d. The jail and detention center within the county will develop procedures for the relocation of prisoners to jails outside of the threatened area.
   e. Evacuation from county parks and recreation areas will be coordinated by the County Parks Department.
   f. Large employers within the county have procedures for evacuation of their employees. These procedures include, if needed, the temporary shutdown of their facilities.

4. Reentry

   a. The decision to allow reentry to Cumberland County will be made by the Policy / Administration Group, based on considerations of public safety.
   b. The Policy / Administration Group may establish a priority reentry system for the public.

c. Staging areas will be established, and personnel reporting to Cumberland County will be routed to one of these areas.
d. Sections of Cumberland County may remain isolated or closed to the public even after reentry begins.
e. Reentry to the affected areas will be coordinated with the Cumberland County Policy / Administration Group.
f. Shelter / mass care operations may need to be implemented depending upon the degree of destruction in Cumberland County.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

EMERGENCY OPERATIONS CENTER

GENERAL	ACTIVATION	ORGANIZATIONAL GROUPS	OPERATIONAL PROCEDURES Roles and Responsibilities	ADMINISTRATION	ANNEXES
A. Purpose	A. Warnings / Alerts	A. Executive	A. Executive	A. Registration	1. Key Personnel List
B. Scope	B. Alerting	B. Operations	B. Operations	B. Manpower	2. EOC Telephone #s
C. Facility	C. Activation of EOC	C. Technical / Plans	C. Technical / Plans	C. Staff Support	
D. Function		D. Logistics	D. Logistics	D. Housekeeping	
E. Manning		E. Finance	E. Finance	E. Office Supplies	
			F. Message Control	F. Transportation	
				G. Status Information	
				H. Maps	
				I. Security	
				J. Alerting Staff	

Primary Agency:

- Emergency Management

Support Agencies:

- Control / Executive Group
- Operations Group
- Technical / Plans Group
- Logistics Group
- Finance Group

I. GENERAL

A. Purpose

The purpose of this SOG is to establish standard guidelines for the activation and operation of the Cumberland County Emergency Operations Center (EOC). Also see Direction and Control for continuity of government and lines of succession in overall operations, including the Emergency Operations Center.

B. Scope

1. This SOG includes organizational and functional guidelines necessary to activate and operate the EOC quickly and efficiently.

2. This SOG will apply except when modified as needed to meet specific conditions and situations. Modifications will be carried out by the Emergency Management Coordinator or his / her designee.

C. Facility

The EOC is located 131 Dick Street, Fayetteville, North Carolina.

D. Function

The Emergency Operations Center provides necessary space and facilities for the centralized direction and control of the following functions:

1. Direction of emergency operations.
2. Communications and warning.
3. Damage assessment and reporting.
4. Containment and / or control of hazardous material incidents / emergencies.
5. Dissemination of severe weather watches and warnings.
6. Actions to protect the health and safety of the general public, to include:
   a. Public Information, instructions, and directions
   b. Evacuation and / or sheltering

E. Manning

The Cumberland County EOC will be manned by representatives of county and city governments involved in emergency operations and volunteers from civic organizations as appropriate. Personnel are listed in Attachment 1 of this document.

II. ACTIVATION OF EOC

A. Warning / Alerts

1. *Source and Means of Receipt*

   Warnings / alerts may be received from any source and by any means. The more likely sources and means are shown below. Warnings or directed messages will be verified according to developed procedures to preclude unnecessary reaction to possible prank notification.

   a. On-the-scene personnel
   b. Weather Service
   c. State Highway Patrol
   d. Division of Criminal Information (DCI)
   e. EM Area Coordinator, EBO
   f. News Media

g. Hazardous materials fixed facilities in city / county

2. *Persons to Receive Messages*

a. Warning may be received by the Cumberland County Communications Center. (911)

b. Cumberland County Emergency Management Director or his representative may also receive Warning/alerts.

B. Alerting Procedures

Upon receipt of a valid warning message, the Emergency Management Director will:

1. Consult with the appropriate county and / or city officials and make recommendations for the activation of the EOC.

2. Initiate alerting / notification guidelines to extent directed in the manner prescribed in this SOG.

3. Officials alerted by the action prescribed above will alert those individuals and / or departments for which they are responsible.

C. Activation

1. The EOC will be considered activated when sufficient personnel for operational activities are physically present.

2. Reporting - All personnel reporting for duty in the EOC will make their presence known to the Emergency Management Director or their section leaders.

3. When the EOC is activated, space will be utilized as suits the operation and designated by the Emergency Management Director.

4. The Emergency Management Director will provide the initial situation briefing when the EOC is activated. Subsequent briefings will be held as needed.

III. ORGANIZATION

A. Staffing

1. Full Activation – EOC team is activated, including personnel from all assisting agencies to support the response to a major incident or credible threat.

2. Enhanced Steady State / Partial Activation – Certain EOC teams' members / organizations are activated to monitor a credible threat, risk or hazard, and/or to support the response to a new and potentially evolving incident.

3. Normal Operations/ Steady-State – Activities that are normal for the center, when no incident or specific risk or hazard has been identified, are underway. This is to include routine watch and warning activities.

B. Operations groups will be composed of the following:

1. *Executive*

a. Chief executives (i.e., County Commission, County Manager)

b. Emergency Management Coordinator
c. Public Information Officer
d. S.E.R.T. (State Emergency Response Team) Representative

2. *Operations*
   a. Operations Director / Manager
   b. Law Enforcement
   c. Fire Services / Fire Marshal
   d. Public Works / Maintenance
   e. Social Services
   f. Emergency Medical Services and Rescue
   g. Communications and Warning
   h. Public Health
   i. School System
   j. Mental Health
   k. Cooperative Extension (Agriculture)
   l. Damage assessment

3. *Technical / Plans /Special Services*
   a. Hazardous Materials safety* As required
   b. Damage Assessment * As required
   c. Animal Control * As required
   d. Other technical support services

4. *Logistics*
   a. Communications
   b. Red Cross
   c. Ham Operators
   d. Salvation Army
   e. Other volunteer or support agencies

5. *Finance*
   a. Finance officer
   b. Purchasing

IV. OPERATIONAL PROCEDURES

A. General Duties and Responsibilities

1. *Executive*

   a. Chief Executives

      The Chief Executives are responsible for the formulating of policy and operational guidelines for the conduct of emergency operations. They are also responsible for the

overall management of survival and recovery efforts.

b. Emergency Management Coordinator

The County Emergency Management Director is charged with planning, organizing, directing and supervising emergency operations conducted within the County and will:

(1) Assign and where necessary, train personnel to accomplish required tasks in the operation of the EOC.
(2) Ensure that the EOC SOG and appropriate Annexes are periodically updated.
(3) Maintain sufficient supplies and equipment to ensure the operational capability of the EOC.
(4) Supervise and coordinate the functions during operations.
(5) Provide briefings as needed.
(6) Such other tasks as may be required to safeguard property and protect the people of Cumberland County in emergencies.
(7) Locate and coordinate resources and resource requests.

c. Public Information Officer (PIO)

The Public Information Officer is responsible for overall coordination of public information activities and will:

(1) Establish procedures for the dissemination of information.
(2) Provide the public with educational-type information for their safety and protection.
(3) Disseminate public instruction and direction.
(4) Act as the government's point-of-contact with the news media.
(5) Serve under the direction of the County Manager or designee.

d. S.E.R.T. (State Emergency Response Team)

The SERT representative is responsible for overall coordination of state and federal response resources and obtaining such resources from appropriate state and / or federal agencies and will:

(1) Forward requests for assistance and / or resources to the appropriate state agencies.
(2) Keep local officials briefed on the activities of the state.
(3) Carry out other duties assigned by the state.

2. *Operations*

a. Operations Director / Manager

The Operations Director controls the activity of those agencies making a direct response in the containment and reduction of the emergency and will:

(1) Be the recipient of all incoming information concerning the emergency situation.
(2) Have available the most current status of resources (i.e., manpower, equipment and supplies), in and out of government.
(3) Establish a priority of effort based on the two preceding items of information.
(4) Be supported within the EOC by the Administrative Department of county government which will:
    (a) Maintain a complete record of activities in chronological order.

(b) Provide personnel for secretarial and clerical activities as needed within the EOC.
(c) Provide personnel for posting the operational status and activities on EOC display boards, charts, maps, etc.

b. Law Enforcement

The County Sheriff or their representative heads the Law Enforcement Group. The Sheriff is supported as needed by the Municipal Police Departments and the North Carolina Highway Patrol. In addition to normal law enforcement activities, the Sheriff is charged in Emergency Operations with aiding in warning and evacuation, EOC Security, escorts for school buses, traffic control, and security for evacuated areas.

c. Fire Service / Fire Marshal

Fire Service within the County is represented in the EOC by the Cumberland County Fire Marshal and (as necessary) the Chiefs of various District Fire Departments, as appropriate. Additional duties assigned to the Fire Service are many and varied. These duties are contained in current plans, particularly those involving hazardous material incidents / emergencies including radioactive material.

d. Public Works

Public Works for the County will be made up of the personnel and equipment from the County Maintenance Department as well as Fayetteville Public Works. It will be under the direction and control of the County Public Works Director. This group will provide such emergency service as debris clearance, soil removal, refuse collection and other similar services as needed for the safety and protection of the population.

e. Social Services

In addition to the services provided by these organizations on a routine basis, they are tasked in emergencies with support operations of Congregate Care Centers if required. Facilities (schools) to be used as Congregate Care Centers are identified in appropriate plans. Supporting Congregate Care includes the entire spectrum of mass care from registering through feeding, bedding, physical hygiene, care of sick, aged, infirm and children, to returning the facility to its pre-shelter condition. The Health Department and Social Services are responsible for coordinating Congregate Care to the Special Needs population.

f. Emergency Medical Service and Rescue

The Director of Emergency Medical Services represents the Emergency Medical Service in the EOC. Resources for the service are those of the Health Department, and the Emergency Medical Service. In addition to services, which would be required of this group in emergencies, they will support the medical and health requirements of Congregate Care.

g. Communications and Warning

(1) Communications within the County are under the operational control of the Office of Emergency Communications Operations and Management. All emergency service agencies utilized within the County are terminated in the center station located at the EOC. Additional communications, which could be placed in service, are identified in the Resource Manual or Resource Database.

(2) Warning within the County is provided by EAS with Cable Television interrupt on all channels and is supplemented by public address systems mounted in emergency service vehicles. Warning is an assigned responsibility of the County Warning Point (EOC) and supplemented by the various emergency service agencies. The direction and control of the warning system is by the Emergency Management Coordinator.

h. Public Health

The Health Director represents public health in the EOC. He / she is supported, as needed by members of their staff as required, based upon the nature of the incident. In addition to normal duties, the Health Director will be responsible for directing their staff to assist in issues dealing with public health concerns with a specific focus on radiation contamination. The Health Director will also address specific issues concerning food products, sanitation and population exposure to diseases that may manifest themselves in times of disaster.

i. School System

The Superintendent and / or their respective appointed representative who has the authority to act on behalf of the schools represent the Cumberland County Schools in the EOC. The primary function of this person is to coordinate school related issues such as student evacuations, transportation and the use of school facilities as shelters by the American Red Cross. This person works closely with Red Cross and the Department of Social Services to ensure facilities are adequate and that the needs of both the public and the schools are met in times of disaster. This person serves as the primary liaison between the County and the School system.

j. Mental Health

Mental Health is represented in the EOC as required or requested by the EOC staff and / or the Emergency Management Director. Mental Health will be represented by the local director or the chief of a mental health agency should a public agency not be available. The primary function of this person will be to aid in the way of personnel to shelters when it is determined that mental health personnel are needed. They will support the Health Department, Social Services and the Red Cross. The mental health position is also responsible for arranging and coordinating CISD (critical incident stress debriefing) teams for emergency services personnel.

k. Cooperative Extension

Agriculture is represented by the Cooperative Extension Service Director and is responsible for all issues concerning agriculture including assessing crop, livestock and their product damages that may result from the loss suffered in a disaster. This person will keep the EOC advised regarding agriculture losses or the potential of such losses. This person is also responsible for the coordination of the removal of dead farm animals and / or the decontamination of such animals. This person will be responsible for issuing proper authority to farmers to reenter stricken areas in coordination with the Sheriff and / or appropriate law enforcement agency. Also, this person coordinates assistance to the public by means of public information concerning the consumption of food products or the preparation of same. This activity is conducted in a coordinated manner with the Health Department and the Public Information Officer.

l. Damage Assessment

Damage Assessment is represented by the Tax Supervisor and is responsible for the coordination of all damage assessment teams. He/she is also responsible to ensure that the teams are equipped and dispatched to the appropriate areas to conduct

damage surveys. Collections of these surveys and compiling the information for accurate reporting to the Emergency Management Director. Additional duties are found in the plan SOG dealing with damage assessment.

3. *Technical / Plans / Special Services*

   a. Hazardous Materials Safety Coordinator

      The HMSC has been appointed and will serve as the Hazardous Materials Safety Section Chief. They are responsible for the receipt evaluation and reporting of hazardous materials data. The HMC is also responsible for working with the Health Director in making recommendations for Emergency Workers. The head of Environmental Health Division of the Cumberland County Health Department shall assist the HMC.

   b. Damage Assessment

      The Damage Assessment Section will be manned by the Emergency Management Director who will serve as the Director of Damage Assessment supported by members of the Tax Department, Cooperative Extension Service, and the Inspections Department. Rapid and accurate means of developing this information is essential as it forms the basis for requesting assistance at the State and National level. American Red Cross will aid, if appropriate or requested, and / or local fire service personnel. Additional functions may be found in the plan SOG, Damage Assessment.

   c. Animal Control

      The Director of Animal Control and / or their appointed representative will man the Animal Control Section. Animal Control will coordinate all issues dealing with domestic companion animals and assist Cooperative Extension as much as possible with livestock issues. These include issues of companion animals at shelters. The Animal Control Section may draw upon whatever resources are necessary and available to assist them.

   d. Other Technical Support Services

      Other technical support services may be necessary such as representatives of utilities, chemical manufactures, radiation specialists, or other specialists. These persons serve as technical advisors and liaisons within the scope of their expertise.

4. *Logistics*

   An appointed assistant to the Emergency Management Director heads the Logistics Group. This group is responsible for maintaining a display within the EOC of the current status of available government resources. Additionally, they must be knowledgeable of those resources available within the County but not under government control. This information will be assembled and frequently updated in a resource manual by the Department of Emergency Management. The Logistics group may be established to coordinate the acquisition of supplies, equipment and other resources (public and private) necessary and approved to resolve / recover from the emergency or disaster situation. Logistics also is responsible for mass care and feeding and shelter operations.

   a. Communications

      Responsible for operation of two-way radio equipment as required, as well as computers and other communications support equipment.

b. Red Cross

In addition to the services provided by these organizations on a routine basis, they are tasked in emergencies with operations of Congregate Care Centers (shelters) if required. Facilities (schools) to be used as Congregate Care Centers (shelters) are identified in appropriate plans. Congregate Care includes the entire spectrum of mass care from registering through feeding, bedding, and physical hygiene, to returning the facility to its pre-shelter condition. The Health Department and Social Services are responsible for coordinating Congregate Care to the Special Needs population.

c. A.R.E.S.

A.R.E.S. or the Amateur Radio Emergency Service is represented by a volunteer, licensed Amateur radio operator and part of the amateur radio emergency service network. A liaison is assigned by Cumberland ARES to the EOC. This liaison is responsible for all ARES operations and staffing regardless of the location of ARES operators. The primary function is to perform back up communications via radio with shelters and messaging from the EOC to outlying emergency operations and serve as the link between shelter operations and the Red Cross liaison at the EOC. This person also ensures that all amateur radio equipment used is functional and within the standards of the service and that all amateur radio personnel are licensed and members of ARES. ARES is also responsible for updating weather information in a timely manner, using whatever tools are available and maintaining contact with NWS and keeping the EOC advised accordingly.

5. *Finance*

This group is under the direction of the County Finance Officer. This group may be established to:

a. Compile and maintain documentation of purchases, acquisition and utilization of emergency supplies, equipment and other services;

b. Perform financial and cost analysis to develop conclusions on efficient methods of resolving and recovering from the emergency / disaster situation.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

EVACUATION / REENTRY

Primary Agency: Sheriff's Office

Support Agencies: Emergency Services Department
Fayetteville Police Department
Hope Mills Police Department
Spring Lake Police Department
NC Highway Patrol

I. PURPOSE

This section provides for a coordinated evacuation and reentry of the county population if necessary, during emergencies.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. A hazard analysis and a vulnerability assessment have been completed identifying the types of threats and the areas and population in the county that are most vulnerable to these threats.

2. A demographic analysis has identified the facilities and populations within the county that pose special evacuation problems.

3. There are several highway routes allowing evacuation from various parts of the county. These include: I-95, US 13, US 301, US 401, NC 24, NC 53, NC 87 and NC 210.

4. An evacuation will require substantial physical resources for transportation, communication and traffic control. Available public and private resources have been identified.

B. Assumptions

1. Emergency situations may require evacuation of all or part of the county. Small-scale, localized evacuations may be needed as a result of a hazardous materials incident, major fire, or other incidents. Large-scale evacuation may be needed in the event an impending hurricane strikes the coastline on a path towards Cumberland County.

2 Sufficient warning time will normally be available to evacuate the threatened population.

3. Traffic control resources must be in place prior to the public release of an evacuation order.

4. Evacuation and reentry information will be made available to the public by all available means.

5. Effective evacuation will be completed during daylight hours whenever possible.

6. A delayed evacuation order will endanger lives and result in civil disorder.

7. If there is significant potential threat, some residents will evacuate prior to being advised to do so by public officials.

8. Most evacuees will seek shelter with relatives or friends rather than accept public shelter.

9. Some residents may refuse to evacuate regardless of warnings.

10. Some people will lack transportation. Others who are ill or disabled may require vehicles with special transportation capabilities.

11. Debris or damage to the roadway may hamper reentry.

12. Evacuation from Cumberland County will have an impact on adjacent counties.

13. Stranded motorists will present significant problems during an evacuation situation.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Evacuation / Reentry is as shown below:

1. Sheriff
2. Chief Deputy
3. Emergency Services Director
4. Operations Commander

B. General

1. The ultimate responsibility for ordering a countywide evacuation or reentry rests with the Policy / Administration Group. If the evacuation or reentry involves more than one jurisdiction, or an area outside of a municipality, the Chairman of the Policy/Administration Group, or his / her designated representative will issue the order on a county level. If a municipality is evacuated, the mayor will issue the order.

2. Public information concerning the Policy / Administration Group's evacuation or reentry orders will be released through all available media.

3. Regional coordination of traffic control, shelter / mass care and public information will enhance the total evacuation and reentry process. The State Division of Emergency Management Eastern Branch Office will coordinate regional evacuation activities.

4. Law Enforcement will implement traffic control for evacuation and for reentry.

C. Specific

1. Movement Control and Guidance

   a. Traffic control points to support a countywide evacuation have been pre-determined by law enforcement personnel.
   b. The size of the threatened area to be evacuated will be determined by conditions at the time of the emergency.

2. Staging Areas and Pick-up Points and Routes

   a. Identified stranded motorists will be assisted by law enforcement officers in reaching a pre-determined rally point for mass transportation to a location for best available shelter. The Operations Officer will determine the location of the best available shelter.

   b. The county has determined pre-designated staging areas as mobilization points to organize the emergency response personnel and equipment entering from areas outside the county.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

FIRE / RESCUE

Primary Agency: Cumberland County Fire Marshal

Support Agencies:
Eastover Fire Department
Vander Fire Department
Pearce's Mill Fire Department
Cotton Fire Department
Cumberland Road Fire Department
Cedar Creek Fire Department
Westarea Fire Department
Bethany Fire Department
Stoney Point Fire Department Station #13 & #19
Carvers Creek Fire Department
Wade Community Fire Department
Godwin-Falcon Fire Department
Gray's Creek Fire Department #18
Linden Fire Department
Hope Mills Fire Department
Spring Lake Fire Department
Stedman Fire Department
Gray's Creek Fire Department #24
Beaver Dam Fire Department
Fayetteville Fire Department

I. PURPOSE

This section provides for the coordination of fire, rescue and emergency medical activities to ensure the safety of life and property within Cumberland County during emergency situations.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Cumberland County is served by twenty-one fire departments with thirty-three stations.

2. The Cumberland County Fire Marshal acts as the county's liaison to the various non-municipal fire departments.

3. The N.C. Division of Forest Resources is the lead agency for forest fire control in Cumberland County. Cumberland County is in the Division's Fayetteville District.

4. All fire departments rely on 9-1-1 communications systems for primary dispatching and communications.

5. There is a hazardous materials response team located in the City of Fayetteville. This team provides services to all of Cumberland County.

6. A State Hazardous Materials Regional Response Team (RRT) is manned and operated by the City of Fayetteville Fire Department. The Team responds to incidents in 18 counties and is requested through the Emergency Services Director or Fire Chief to the Eastern Branch to the State Operations Section.

7. Mutual aid agreements exist among fire departments within Cumberland County, and Fort Bragg. Some agreements exist with departments in neighboring counties

8. Most fire departments operate First Responder units.

B. Assumptions

1. Existing fire and rescue personnel and equipment can cope with most emergency situations. Mutual aid agreements will offset any additional requirements for assistance.

2. When necessary, additional or specialized support can be obtained from state and federal agencies.

3. Fire departments will be called upon to assist with rescue and extrication of trapped persons, as well as search, debris removal on primary roadways, evacuations, reconnaissance, traffic control and security.

4. People seeking basic necessities and information may congregate at fire stations following a catastrophic disaster.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Fire / Rescue is as shown below:

1. Fire Marshal
2. Assistant Fire Marshal
3. Fire Chief of affected District

B. During emergencies, fire and rescue services must be prepared to support each other utilizing available expertise, equipment and manpower.

C. The National Fire Academy's Incident Command will be implemented on an appropriate scale at the scene of every fire / rescue event in Cumberland County.

D. If fire or threat of fire is involved, the fire chief of the district or his designated representative is the incident commander.

E. If no fire or threat of fire exists, the incident commander will be determined by prior mutual consent of the chiefs of all emergency services.

F. Under the North Carolina Hazardous Materials Right-to-Know Law and the Federal Emergency Planning and Community Right-to-Know (EPCRA), the Fire Chief is responsible for surveying facilities within his jurisdiction to identify types and volume of hazardous materials located within the County. This information will be considered when developing response plans for hazardous materials accidents within his district. Coordination of facility emergency response plans with the Cumberland County Emergency Operations Plan will be included in fire service planning.

G. Fire Stations will become a community focal point and source of public information when normal communications are disrupted by disaster.

H. During the critical phases of an emergency / disaster, fire stations will be opened and continuously manned, as conditions permit. All fire fighters will report to the station for duty. Communications will be established with the Emergency Communications Center and EOC.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

HAZARDOUS MATERIALS

Primary Agency:	Fayetteville Fire Department Hazardous Materials Team
Support Agencies:	Cumberland Emergency Services Fayetteville Fire / Emergency Management SARA Facilities County Fire Departments Cumberland County Local Emergency Planning Committee

Hazardous Materials Release Hazard-Specific Annex

Purpose

The Hazardous Materials Release (HAZMAT) Hazard-Specific Annex provides basic information and concepts for coping with a HAZMAT fixed-site or transportation-related incident in Cumberland County. It describes the county's specific concerns, capabilities, and resources that will help prepare for, respond to, and recover from the direct and secondary effects of a HAZMAT incident.

Scope

This Annex establishes a concept of operations and assigns specific functional responsibility to departments, agencies, and organizations within Cumberland County. Furthermore, this document establishes a plan of action for coordination and support of HAZMAT response operations as required pursuant to the Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III, the Emergency Planning and Community Right-To-Know Act of 1986, Sec. 303(c).

Situation Overview

This section provides a general outline of Cumberland County and its vulnerability to a fixed-site or transportation-related HAZMAT incident.

- The threat of a major disaster involving hazardous materials has escalated due to the increase in everyday use and transportation of chemicals by the various segments of our population.
- A fixed-site incident is an uncontrolled release of chemicals or other potentially HAZMAT from a facility. A transportation-related incident refers to accidental and uncontrolled releases of chemicals or other HAZMAT during transport (i.e., along highways, rail, pipelines, and airways).
- A HAZMAT incident (fixed-site or transportation-related) may occur at any time during routine business operations or as a result of a natural disaster.
- SARA Title III, the Community Right-to-Know, requires the reporting of Tier II information by facilities to the State Emergency Response Commission (SERC), the Local Emergency Planning Committee (LEPC) and local fire departments. This information is also reported to the Fayetteville Fire Department Hazardous Materials Response Team.
- Approximately 300 facilities file SARA Title III Tier II reports on an annual basis.
- Some facilities are placarded with NFPA approved placards showing worst case scenario for emergency responders.

- The primary interstate and highway hazardous materials transportation routes are: I-95, I-295, US-13, US-301, US-401, NC 24, NC 53, NC 87, NC 210, and NC 59.
- Rail carriers that travel through Cumberland County include CSX, Aberdeen and Rockfish, and Cape Fear Railway. Passenger service traveling through Cumberland County is provided by Amtrak. Two railways, CSX and Norfolk Southern, haul a wide range of HAZMAT daily through Cumberland County.
- The primary sources of HAZMAT hazards within the county are facility accidents, transportation accidents, illegal intentional releases, and terrorist events.

Fixed-Site Incident

- There have been 127 fixed-site HAZMAT accidents between July 1994 and August 2013 in Cumberland County, as reported by the National Response Center (NRC).

Transportation Incident

- There have been 119 transportation-related HAZMAT incidents between July 1994 and August 2013 in Cumberland County, as reported by the National Response Center. This does not include hundreds of incidents not requiring notification of the NRC.

Planning Assumptions

The following assumptions are those that Cumberland County assumes to be fact for planning purposes in order to execute the HAZMAT Hazard-Specific Annex. These assumptions may indicate areas where adjustments to this Annex have to be made ad hoc as the emergency evolves.

- Emergency response personnel (e.g., Fire, EMS/Rescue, Law Enforcement, and Emergency Management) and qualified technical experts will be available with equipment and resources to detect, analyze, evaluate, and cope with most HazMat incidents.
- Cumberland County and municipalities within Cumberland County maintain contracts with the Fayetteville Fire Department (FFD) for HAZMAT support. This plan assumes the availability of the FFD team. If the FFD team is unavailable, then Cumberland County will request assistance from the State.
- Most municipalities can effectively cope with minor HAZMAT situations through local fire departments; however, should an incident escalate into a major emergency situation, additional resources will be rapidly deployed through existing mutual-aid agreements.
- It is necessary for the county to plan for and be prepared to carry out HAZMAT response and short-term recovery operations using only local resources. It is likely that outside assistance would be available in most major disaster situations affecting the county, but most likely only after 72 hours after the accident.
- Hazardous substances involved in an incident can be identified within a reasonable period of time from many sources of information. These sources include the following:
  - U.S. Department of Transportation Emergency Response Guidebook
  - Material Safety Data Sheets (MSDSs)
  - SARA Title III Tier II Emergency and Hazardous Chemical Inventories
  - SARA Title III-designated Facility Emergency Coordinators
  - Shipping papers
  - Placards and product labels

- Product containers
- Emergency Support Information Services (e.g., Chemical Transportation Emergency Center)
- National Institute for Occupational Safety and Health Pocket Guide

- Emergency planning efforts will assume that most of the population(s) potentially affected (including designated evacuees) will cooperate with local officials and follow recommended protective actions. Such measures could include evacuation instructions for relocation to designated reception or shelter areas.
- Private automobiles will be the primary means of transportation for evacuation movement. Available alternate transportation resources would be coordinated to support evacuation of the public without transportation and individuals with disabilities and others with access or functional needs.
- The initial movement of population(s) at risk may occur immediately following the on-scene assessment of the situation by emergency response authorities or by the issuance of an evacuation order by Cumberland County public officials.
- Evacuees could be isolated from their homes for extended periods of time and may need to undergo decontamination prior to sheltering.

Concept of Operations

General

The basic types of HAZMAT (fixed-site and transportation) emergency conditions are detailed below.

- **Potential Emergency Condition:** In this condition, a HAZMAT incident can be controlled by first response agencies and does not require evacuation of anything other than the involved structure or immediate outdoor area. The incident is confined to a small area and does not pose an immediate threat to human health, the environment, or property.
- **Limited Emergency Condition:** This condition is defined as a HAZMAT incident involving a greater hazard or larger area that poses a potential threat to human health, the environment, or property and that may require protective action, including limited evacuation or in-place sheltering.
- **Full Emergency Condition:** This condition is defined as an incident involving a severe hazard or a large area that poses an extreme threat to human health, the environment, and property (most likely requiring a large-scale evacuation or sheltering in place) or an incident requiring the involvement of multiple levels of jurisdictional agencies and organizations, such as county, State, Federal, and private-sector entities.

Preparedness

- Hospitals, schools, daycare centers, and other mass-gathering facilities are required to develop an action plan for a HAZMAT emergency situation.
- Cumberland County will coordinate with the North Carolina Department of Transportation and local municipal public works departments to ensure coordinated plans are in place to adequately respond to a HAZMAT incident.
- Public education through handouts, ad campaigns, relevant maps, and family preparedness kits will be made available to the public.

Response

Pre-Impact Response Phase: Hazard Control and Assessment

- Cumberland County Emergency Management will direct all emergency response departments and agencies to alert and locate appropriate personnel and equipment when HazMat response is necessary.
- Cumberland County Emergency management will facilitate release of emergency information to the public through the Public Information Officer (PIO).

Impact Response Phase: Protective Action Implementation

Cumberland County will implement and carry out appropriate actions required to preserve life and property, including the following:

- Activate and staff the Cumberland County EOC, if not already activated.
- Provide situational updates to all emergency management and public safety agencies across the county.
- If necessary, execute other portions of the Cumberland County Emergency Operations Plan (EOP) and activate required EOC sections, branches, groups, and units.
- Ensure that an early check is made on critical access areas and areas containing hazardous substances to determine that the integrity of storage is maintained.
- Ensure traffic control on roadways and preserve law and order.
- Coordinate with Cumberland County DSS and volunteer agencies to ensure that shelters and provisions are established for displaced residents.
- Provide geographic information system (GIS) support to help track utility outages, service interruptions, transportation disruption, emergency service requests, and damage assessments.

Assessment and Allocation of Short-Term Needs

Following an initial situation assessment, Cumberland County will identify short-term needs and required resources. Immediate emergency management priorities may include some or all of the following functions:

- Notification:
  - Notification of a HAZMAT spill or release will be made through the 911 system or directly to the Cumberland County Communications Center through a Facility Emergency Coordinator. The Facility Emergency Coordinator is required to notify Cumberland County LEPC of a spill or release in a timely manner.
- Incident Command:
  - The Incident Command System (ICS) shall be implemented as a joint, coordinated endeavor, serving to ensure intra-agency cooperation between all authorities having responsibilities for public safety and environmental protection during HAZMAT response operations. The local fire chief, or designee, shall be considered as the on-scene Incident Commander (IC) responsible for managing emergency responses to a HAZMAT incident.
  - The initial action of the IC will be to assess the extent of the HAZMAT incident and identify appropriate emergency protective actions.

- Situational Awareness:
    - Following notification of an incident, the IC will secure the scene and coordinate with the Facility Emergency Coordinator to obtain the facility's emergency plan. The IC will immediately assess the situation to include information about chemicals involved in the release, material safety data sheet information, and facility layout details. A situational assessment will be communicated to the Cumberland County EOC as soon as possible.
    - Activation of the EOC will be based on the emergency conditions outlined above—potential, limited, or full emergency conditions.
    - The EOC will assign a HAZMAT Safety Officer to serve as liaison with the IC to maintain a continuous flow of information.
    - The EOC will support the IC with selecting appropriate protective actions and ensure that law enforcement personnel are available to order and execute mandatory evacuations.
    - The EOC is responsible for issuing emergency advisories through the PIO once given approval by elected officials. A PIO will be situated at the EOC and/or at the incident command post (depending on the situation) to control media interaction and ensure an accurate portrayal of the situation.
    - Mutual-aid resources may be requested by the IC through the EOC. Requested assets must check in at the incident command post to receive credentials, an incident briefing, a safety briefing, their assigned responsibilities, and a designated supervisor. The IC will maintain control of the incident and control all mutual-aid resources.

Recovery

- Facilitate transition to recovery operations and help develop restoration priorities for public facilities and infrastructure.
- Ensure volunteer agencies are capable of providing relief supplies to HAZMAT victims.
- Allocate mental health services for responders, if necessary.
- Provide a designated facility or area to set-up recovery center(s) and publicize their locations to the HAZMAT victims that wish to submit individual assistance applications.
- Arrange for a public and environmental health survey and promotion of disease prevention measures, if necessary.
- Distribute pertinent information related to clean-up and restoration of damaged private property.
- Document all equipment and supplies used, personnel labor hours, and other expenses related to HAZMAT operations.

Organization and Assignment of Responsibilities

Most departments of the Cumberland County government have emergency functions in addition to their normal, day-to-day duties. Emergency functions usually parallel or complement normal functions. Each department is responsible for developing and maintaining its own procedures related to HAZMAT response.

- In accordance with SARA Title III, Sec. 301(c), the Board of Cumberland County Commissioners submitted nominations to North Carolina State Emergency Response

Commission (NCSERC) for appointment to the Cumberland County Local Emergency Planning Committee (LEPC).

- County agencies involved in HAZMAT emergency response are responsible for the safety of their personnel, including training in the dangers of hazardous substances, emergency response techniques and procedures, protective measures, the provision of protective clothing and equipment, and medical monitoring of personnel as required by 29 Code of Federal Regulations 1910.120.
- In the event of a radiological incident, the county will contact the North Carolina Radiation Protection Section for technical assistance in support of control and disposition of radioactive materials through North Carolina Emergency Management.

The following departments will have specific responsibilities and provide overall support in the event of a HAZMAT incident.

Organization

- Cumberland County Emergency Services
- Fayetteville Fire Department Hazardous Materials Team
- Cumberland County Board of County Commissioners
- Cumberland County Finance Department
- Cumberland County Public Health
- Cumberland County Social Services / American Red Cross
- Cumberland County Public Information Office
- Cumberland County Local Emergency Planning Committee (LEPC)
- Facility Emergency Coordinator(s)

Assignment of Responsibilities

Cumberland County Emergency Services

- Serve as community emergency coordinator and the primary county point of contact for HAZMAT planning and response coordination.
- Ensure active coordination with the LEPC.
- Make every reasonable effort to ensure that county and municipal facilities with HAZMATs are identified and appropriately catalogued and seek the appointment of facility emergency coordinators.
- Develop capabilities for the timely notification and, as necessary, the activation of the county emergency response system.
- Identify and catalogue available resources and equipment that may be assembled to support HAZMAT emergency response operations.
- Ensure documentation and coordination of necessary records and reports.
- Ensure continuity of LEPC activities with government, industry, and local emergency services, pursuant to SARA, Title III, and the county's emergency management objectives.

- Ensure exercises and tests of the emergency response system for HAZMAT incidents are conducted on a regular basis.
- Ensure that critiques are conducted following exercises, tests, or actual emergency responses; identify deficiencies; and implement necessary corrective actions.
- Ensure that operational procedures and other tasks for radiological defense are accomplished as stated under the Normal Readiness Phase of these areas.
- Maintain a current notification roster.
- Establish a distribution system for HAZMAT equipment.
- Coordinate with EOC communications personnel to establish and maintain necessary communications capabilities for reception of HAZMAT data, including concentration levels and population exposure.
- Coordinate special monitoring functions with the State EOC (e.g., ground and aerial surveys during recovery actions).
- Coordinate with the county PIO to prepare pre-scripted announcements for HAZMAT emergencies.
- In concert with the PIO, prepare and distribute public educational programs relating to HAZMAT safety.
- Conduct damage assessment following HAZMAT emergencies.
- Support specialized HAZMAT teams (e.g., Radiological Emergency Response Teams, Decontamination Teams, Monitoring Teams, Civil Support Teams) as needed.

Fayetteville Fire Department Hazardous Materials Team

- Respond to Hazardous Materials incidents. Assess and mitigate hazardous conditions and assist development of protective actions.
- Ensure that appropriate training is provided for HAZMAT response personnel.
- Develop and maintain a decontamination capability for personnel, vehicles, equipment, and facilities.
- Provide for the maintenance of exposure records for emergency workers and ensure that dosimeters are read at appropriate intervals for radiological incidents.
- Support specialized HAZMAT teams (e.g., Radiological Emergency Response Teams, Decontamination Teams, Monitoring Teams, Civil Support Teams) as needed.

Cumberland County Board of County Commissioners

- Declare when a HAZMAT incident is of such severity that it would be unsafe for non-essential county employees to travel to work.
- Declare a state of emergency, if required.

Cumberland Finance Department

- Assist in identifying and procuring equipment and supplies to support HAZMAT response.
- Provide necessary forms and paperwork to responding agencies with specific instructions on what information must be retained for future records.
- Track personnel resources, regular labor hour, overtime hours, equipment hours, and service contracts related to HAZMAT response.

Cumberland County Department of Public Health

- Serve as the lead agency for water quality, wastewater disposal, food protection, solid waste disposal, drinking water, animal control, and environmental hazards.
- Develop and implement coordination with State and Federal environmental health resources on an as-needed basis.
- Assess short- and long-term public health effects of HAZMAT incidents.
- Request technical assistance state and Federal agencies, when necessary.

Cumberland County Social Services/American Red Cross

- Coordinate the operation of shelters and providing mass care services following a HAZMAT incident.
- Provide oversight during the evacuation and relocation of any long-term care facility in Cumberland County as a result of a HAZMAT incident.
- Arrange coordination for transitional and temporary disaster housing for victims unable to return to their homes.

Cumberland County Public Information Office

- Dispense public safety information to ensure safe evacuation or sheltering of residents in hazardous areas.
- Oversee media monitoring and press releases.
- Prepare county officials for press conferences and coordinate with PIOs from other agencies and organizations involved.

Cumberland County Local Emergency Planning Committee (LEPC)

- Fulfill responsibilities regarding local emergency planning for extremely hazardous substances (EHSs) pursuant to Title III of SARA, Sec 303, under the guidance of both the NCSERC and the Cumberland County Board of Commissioners.
- Ensure an active chemical hazard identification program, a vulnerability assessment, and a risk analysis are in place within the jurisdiction.
- Make recommendations to county officials regarding emergency response matters related to HAZMAT incidents.

Facility Emergency Coordinator(s)

- Ensure that facility information required under provisions of Title III of SARA is submitted to the LEPC-designated fire or rescue agency and maintained in a current status.
- Ensure that facility emergency response capabilities are effective, including provisions for the immediate and follow-up notification of the jurisdiction and State authorities in the event of a HAZMAT incident, under provisions of Sec. 304, Title III of SARA.
- Make every reasonable effort to ensure that facility personnel are knowledgeable of and adequately trained in onsite emergency response actions, including recognition of release and notification procedures.
- Ensure that the facility maintains a current inventory of available equipment and resources for response to a HAZMAT emergency.
- When requested, provide a qualified technical representative to the IC and the Cumberland County EOC.

Emergency Operations Center Supporting Sections

- Animal Control
- Communication / Notification and Warning
- Emergency Medical Services
- Evacuation/Re Entry
- Fire / Rescue
- Law Enforcement
- Mass Care
- Public Health
- Radiological Protection

Continuity of Operations

The possibility that emergency and disaster occurrences could disrupt government functions necessitates that all Cumberland County departments develop and maintain procedures to ensure continuity of operations. Refer to Section IV of the Cumberland County EOP Basic Plan for additional continuity details.

Direction, Control, and Coordination

When activated during a county emergency, the EOC acts as the base of direction and control of emergency management operations for the county. Please refer to the Cumberland County EOP Basic Plan for direction, control, and coordination details.

Response Agency Categories for Hazardous Materials

Within the county, there are 4 primary categories of response agencies that generally respond to HAZMAT incidents 24 hours per day:

- Sheriff's Office, Municipal Law Enforcement, and North Carolina State Highway Patrol
- Municipal and Volunteer Fire and Rescue including FFD HAZMAT Team
- Cumberland County Emergency Services
- EMS

Initial response efforts, combined with on-scene incident management, will be provided by appropriate emergency responders. The first dispatched agency arriving on scene will establish direction and control based on the size and complexity of the incident and will call in additional resources as required.

Information Collection, Analysis, and Dissemination

During an emergency or disaster situation requiring activation of the Cumberland County EOC, the EOC will coordinate all forms of essential and critical information. Please refer to the Cumberland County EOP Basic Plan for information collection, analysis, and dissemination details.

Communications

In the event of a potential or realized emergency situation, primary and support agencies will continue to exchange information for purposes of coordinating response and recovery efforts using established, routine communications practices and standard operating procedures. These practices will continue until deterioration of effective inter- and intra-function communications occurs and/or internal resources are exhausted. This applies to each support function and tasked support

department and agency described in this Annex. Refer to the Cumberland County EOP Basic Plan and/or direction from the EOC Manager for additional communications guidance.

Administration, Finance, and Logistics

Agreements and Understandings

Any agreements and/or contracts must be entered into by duly authorized officials and, where practicable, formalized in writing prior to performance. Should Cumberland County resources prove to be inadequate during emergency operations, requests for assistance may be made to other governmental jurisdictions, volunteer agencies, and the private sector in accordance with existing contracts or emergency negotiated agreements (i.e., mutual-aid agreements).

Response Agencies' Emergency Procedures during Hazardous Materials Incidents

The agencies that may become involved in a HAZMAT incident will develop and maintain emergency procedures and response capabilities as appropriate to address such incidents. Such capabilities will include appropriate HAZMAT training, coordination and use of the National Incident Management System - Incident Command System, maintenance of mutual-aid agreements, and compliance with Occupational Health and Safety standards.

Specific Fixed-Facility Information

Information about each facility identified under SARA, Title III as having EHSs exceeding maximum threshold quantities will be collected, catalogued, and maintained by Cumberland County LEPC and made available to emergency responders and the public as required.

HAZMAT Preparedness

- The county HAZMAT response program will develop a roster of HAZMAT response agencies and organizations to include names, addresses, telephone numbers, training status, and assignments.
- Each agency and organization assigned radiological responsibilities will be trained in the employment of assigned radiological emergency equipment.

Training and Logistics

- HAZMAT emergency equipment that is not issued to emergency response organizations will be stockpiled and maintained in reserve at the Cumberland County Emergency Services storage facility and/or strategically selected sites throughout the county.
- Transportation, as required by shelter and/or relocation operations or as required for securing supplies and equipment, will be coordinated by the Cumberland County EOC.

Records and Reports

Expenditures and obligations of public funds during emergency operations must be recorded by the responsible agencies in accordance with Cumberland County policies and procedures. Refer to the Cumberland County EOP Basic Plan for additional details.

Annex Development and Maintenance

Primary responsibility for coordinating the Annex development and maintenance process rests with the Cumberland County Emergency Management. Cumberland County Emergency Management will review and revise this Annex on a periodic basis. Reasons Cumberland County will update this Annex (in its entirety or individual components) may include:

- Changes to hazard consequences or risk areas;
- Changes to the Cumberland County concept of operations;

- Reorganization of supporting departments, agencies, and other stakeholders that results in a change in Cumberland County's capability to respond to a HAZMAT incident;
- A training exercise or an actual emergency reveals significant deficiencies in this Annex or its components; and
- Changes to Cumberland County ordinances, State requirements, or Federal planning standards are revised.

Plans for County Agencies and Municipalities

- County agencies and municipalities involved in HAZMAT emergency response should develop procedures to implement this Annex in coordination with Cumberland County.

Training and Exercises

- Cumberland County Emergency Management, in cooperation with designated EOC personnel, will schedule and conduct required training activities to ensure emergency response capabilities and certification. HAZMAT training and exercises will include private-sector partners as applicable.

Authorities and References

This plan applies to emergency management operations during HAZMAT response. Strategic planning guidance and authorities governing its enactment and implementation are shown below.

Authorities

Federal

- Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended
- SARA; Title III— "The Emergency Planning and Community Right-To-Know Act of 1986"

State

- N.C. General Statutes, Chapter 166A
- N.C. Executive Order 72.
- N.C. General Statutes 115C-242 (6)
- N.C. General Statutes Article 36A of Chapter 14
- N.C. Executive Order #43; North Carolina Emergency Response Commission, dated April 7, 1987
- N.C. Hazardous Chemicals Right-To-Know Act; General Statutes 95-173/95-218
- N.C. General Statutes, Chapter 166-A

County

Cumberland County Emergency Management Ordinance

Volunteer and Nongovernmental

Act 58-4-1905, American National Red Cross Statement of Understanding, December 30, 1985

References

Federal

- National Response Team Guidance; NRT-1, dated March 1987, “Hazardous Materials Emergency Planning Guide”
- FEMA Guidance On Off-Site Emergency Radiation Measurement Systems

State

State of North Carolina Emergency Operations Plan

County

- Cumberland County, North Carolina, Emergency Operations Plan
- Cumberland County, North Carolina, Hazard Mitigation Plan
- Fayetteville Fire Department Hazardous Materials Response Standard Operating Procedure.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

INITIAL IMPACT / DAMAGE ASSESSMENT

Primary Agency: Cumberland County Tax Office

Support Agencies: Cumberland County Emergency Services
Cumberland County Building Inspector
Cumberland County Finance Officer
Cumberland County Fire Departments
Cumberland County Sheriff's Office

I. PURPOSE

This section presents a system to coordinate damage assessment and reporting functions for those hazards listed in the county's hazard analysis. It also provides procedures to estimate the nature and extent of the damage and provide disaster recovery assistance.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Most hazardous events, which may affect Cumberland County, have the potential for causing damage. A planned damage assessment program is essential for effective response and recovery operations.

2. If a significant emergency / disaster occurs, a series of damage assessment activities will be required in the following order:

   a. The County Immediate Situation Report results in notification to the State EOC, information on the severity of the problems and the determination of need for further assistance.
   b. The State supported Impact Assessment results in the identification of immediate life support needs.
   c. Federal / State supported Damage Assessment precedes the delivery of a Presidential Disaster Declaration and defines the specific needs for long term recovery.

3. Following a significant disaster/emergency occurrence, a multitude of independent damage assessment activities will be conducted by a variety of organizations including county damage assessment teams, American Red Cross, insurance companies, utility companies, Federal Agencies, etc.

4. Recovery from a significant disaster will be managed in two identifiable phrases as follows:

   a. Phase One is the emergency reaction phase and the implementation of emergency plans. Actions under this phase include emergency security, debris removal, mass care, and restoration of essential services. The County Emergency Management will assume the lead role in coordination of this phase.

b. Phase Two is the long-term reconstruction phase. Actions under this phase include rebuilding of damaged public buildings, rebuilding of roadways and bridges, rebuilding of private homes and private businesses, etc. The County Manager, the City Manager, the Finance Officer will assume the lead roles in this phase and others as needed.

5. If the magnitude and severity of the emergency / disaster warrants, a Presidential Disaster Declaration could be requested. If approved, Government Assistance could be available to Cumberland County.

B. Assumptions

1. The county will continue to be exposed to various hazards resulting in damage to both public and private property.

2. Damage will be assessed by pre-arranged teams of local resource personnel.

3. Implementing damage assessment procedures will expedite relief and assistance for those adversely affected.

4. A significant response of both solicited and unsolicited resources from outside the impacted area can be expected and preparations will be made in order to manage this assistance.

5. Emergency public information is a critical tool in immediate post disaster response for informing the public about actions being taken, and for requesting help from outside the area of impact.

6. Damage to utility systems and to the communications systems will hamper the recovery process.

7. Routine government agency operations such as delivery of social programs, legal processes, elections and cultural events could be postponed as a result of the disaster.

8. A major disaster could have a significant long-term economic impact on the county.

9. A major disaster affecting the county could result in the severance of a main transportation artery resulting in a significant alteration of lifestyle in the county.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Initial Impact / Damage Assessment is as shown below:

1. County Tax Administrator
2. County Tax Real Estate Division Manager
3. County Tax Real Estate Supervisor

B. General

Responsibility for Immediate Situation Reports / Phase One of recovery operations lies with local government.

C. Specific

1. Emergency and recovery operations will initially be coordinated from the County EOC. Each municipality affected will maintain a presence in the Cumberland County EOC, as needed.

2. Accurate emergency logs and expenditure records will be kept from the onset of the disaster by each response agency / organization.

3. The Damage Assessment Officer will coordinate the compilation of damage survey data, prepare damage assessment reports for the Emergency Services Director and plot damaged areas on local maps.

4. The Emergency Services Director will review, with other appropriate local officials, the damage assessment reports to determine if any outside assistance will be necessary to recover from the disaster.

5. The Emergency Services Director will forward damage assessment reports and any requests for assistance to the N.C. Division of Emergency Management, Eastern Branch Office by the quickest means available. By Executive Order, the Secretary, N.C. Department of Crime Control and Public Safety is authorized to commit any state resources to assist with the emergency / recovery efforts.

6. Based upon the local damage assessment reports, the State Emergency Response Team will determine what recovery capabilities are available to meet the anticipated requirements.

7. The Governor may request a Presidential Declaration of a "major disaster", "major emergency", or a specific federal agency disaster declaration (Small Business Administration, Department of Agriculture, Corps of Engineers, etc.) to augment state / local / private disaster relief efforts.

8. The President, under a "major emergency" declaration may authorize the utilization of any federal equipment, personnel and other resources.

9. The President, under a "major disaster" declaration may authorize two basic types of disaster relief assistance:

    a. Individual Assistance (IA)

        I. Temporary housing.
        ii. Individual and family grants (IFG) [75% federal, 25% state/local funds].
        iii. Disaster unemployment assistance.
        iv. Disaster loans to individuals, businesses and farmers.
        v. Agricultural assistance.
        vi. Legal services to low-income families and individuals.
        vii. Consumer counseling and assistance in obtaining insurance benefits.
        viii. Social security assistance.
        ix. Veteran's assistance.
        x. Casualty loss tax assistance.

b. Public Assistance (PA) [75% federal, 25% state / applicant funds]

I. Debris removal.
ii. Emergency protective measures.
iii. Permanent work to repair, restore or replace road systems, water facilities, public buildings and equipment, public utilities, public recreational facilities, etc.

10. In the event a major disaster or emergency is declared:

a. A Federal Coordinating Officer (FCO) will be appointed by the President to coordinate the federal efforts.
b. A State Coordinating Officer (SCO) and Governor's Authorized Representative (GAR) will be appointed by the Governor to coordinate the state efforts.
c. A Disaster Field Office (DFO) will be established within the state (central to the damaged areas) from which the disaster assistance programs will be administered.
d. For IA only, Disaster Recovery Centers (DRCs) will be established central to the affected areas where individuals may apply for assistance.
e. If the area is declared eligible for Public Assistance programs, an Applicant's Briefing will be conducted for officials of the county, cities and private nonprofit organizations to explain eligibility criteria. The Emergency Services Director will be requested to assist with identifying and notifying eligible applicants.
f. At the applicant's briefing, each eligible entity will submit a Notice of Interest (NOI).
g. Each PA applicant (including local government entities) will appoint an "Applicant's Agent" to coordinate the collection of documentation and submission of information to the DFO.
h. The Assistant Finance Director will serve as the Recovery Manager for public assistance.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

LAW ENFORCEMENT

Primary Agency: Sheriff's Office

Support Agencies: Fayetteville Police Department
Hope Mills Police Department
Spring Lake Police Department
Stedman Police Department
NC Highway Patrol

I. PURPOSE

This section provides for security, maintenance of law and order and traffic control.

II. SITUATION AND ASSUMPTIONS

B. Situation

1. Law enforcement in Cumberland County is provided by the Cumberland County Sheriff's Office and municipal police departments in Fayetteville, Spring Lake, Hope Mills and Stedman.

2. State law enforcement agencies that regularly operate within Cumberland County's borders are the N.C. Highway Patrol, N.C. Wildlife Commission, and State Bureau of Investigation and Division of Motor Vehicles (DMV). Federal law enforcement agencies who maintain offices in Cumberland County include the Federal Bureau of Investigation, Bureau of Alcohol, Tobacco and Firearms, the US Marshal Service and State and County Alcohol Law Enforcement (ALE).

3. A spirit of cooperation exists between the local, state and federal law enforcement agencies that operate within the county. Federal and state agencies cooperate with and support local law enforcement officers during emergency events.

4. When N.C. Highway Patrol personnel are requested to support Cumberland County traffic control, a Trooper from the N.C. Highway Patrol may be present in the EOC to coordinate N.C. Highway Patrol operations.

5. Pre-determined the N.C. Highway Patrol has identified traffic control points, Sheriff's Office and municipal police to facilitate management of traffic flow when evacuation is required.

C. Assumptions

1. Activities of local law enforcement agencies will increase significantly during emergency operations. If local capabilities are overwhelmed, support may be obtained from state and federal law enforcement agencies.

2. An evacuation from a large area of the county could significantly impact Cumberland County law enforcement / traffic control operations.

3. During evacuations, accidents or mechanical failures could significantly impede the evacuating traffic flow.

4. The number of law enforcement personnel available in the county during an emergency event will not be adequate to provide for security until supplemented.

5. Following an emergency event, it may be necessary to supplement local law enforcement personnel with officers from other jurisdictions to provide security and traffic control.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for County Law Enforcement is as shown below:

1. Sheriff
2. Chief Deputy
3. Operations Commander

B. Emergency law enforcement operations will interrupt routine functions and responsibilities. Expanded emergency responsibilities will include maintenance of law and order, traffic control, crowd control and security.

C. The Cumberland County Sheriff's Office will be the coordinating agency for law enforcement operations in Cumberland County during multi-jurisdictional emergency events.

D. Law enforcement officers in Cumberland County will assist with the dissemination of emergency information to isolated populations and to motorists.

E. Law enforcement activities will remain under the control of the senior law enforcement officer for the jurisdiction in which the emergency operation is taking place.

F. Law enforcement agencies will have primary responsibility for traffic control and security in and near an evacuated area and in other areas of emergency operations.

G. Law enforcement officers in the field will observe and report emergency activity to the EOC.

H. Law enforcement officers will enforce the provisions outlined in the Proclamation of a State of Emergency.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

MASS CARE - SHELTER / FEEDING

Primary Agency:	American Red Cross Department of Social Services Cumberland Emergency Services
Support Agencies:	Cumberland County Department of Public Health Cumberland County Mental Health Department Cumberland County School System Cumberland County Sheriff's Office City of Fayetteville Parks & Recreation Department Fayetteville Police Department Cape Fear Amateur Radio Society

I. PURPOSE

This section provides for the protection and care of the population from the effects of hazards through the identification of shelters and provision of mass care and social service in shelters.

II. SCOPE

Mass Care encompasses the following activities:

A. Mass Shelter - The provision of emergency shelter for disaster victims includes the use of pre-identified shelter sites in existing structures and creation of temporary facilities.

B. Mass Feeding - The provision for feeding disaster victims and emergency workers through a combination of fixed sites, mobile feeding units and bulk food distribution.

C. Emergency First Aid - Emergency first aid services will be provided to disaster victims and workers at mass care facilities and other designated areas. This emergency first aid will be supplemental to emergency health and medical services established to meet the needs of disaster victims.

D. Disaster Welfare Information (DWI) - DWI regarding individuals within the affected area will be collected and provided to immediate family members outside the affected area. DWI will also be provided to assist in the reunification of family members within the affected area who were separated at the time of the disaster.

III. SITUATION AND ASSUMPTIONS

A. Situation

1. Based on the county's hazard analysis, there are several emergency and disaster scenarios that may require a mass care response, including severe storms, tornadoes, floods, HazMat incidents, fires and hurricanes.

2. All Cumberland County Schools are identified as potential shelter sites. Eight primary and secondary locations have been designated as the facilities that will be utilized as shelters. The shelter location will be determined by the scope of the emergency and the impact area. The information will be provided to the public in a timely manner through media channels. Other structures such as church fellowship halls, recreation centers and some private meeting facilities may be utilized as temporary shelters until all sheltered can be consolidated into fully staffed official shelters or if the situation extends beyond the county's capabilities.

3. Sheltering of Cumberland County residents being evacuated out of the county will be coordinated through the Eastern Branch Office of Emergency Management.

4. A written agreement exists between the American Red Cross, County Department of Social Services, the Emergency Services Department the county Sherriff' and Board of Education for the coordination of shelter and mass care activities.

5. While state law identifies the Department of Social Services and the Department of Public Health as the agencies legally responsible for insuring that county residents are sheltered and fed in an emergency, the responsibility for coordinating and conducting mass care operations for the general public has been delegated to and accepted by the American Red Cross. The operation of shelters for special needs populations shall remain the responsibility of the Department of Social Services and the County Health Department. The guidelines are established under the Department of Social Services Special Needs Shelter information.

B. Assumptions

1. There is sufficient in county sheltering to meet the needs of an evacuation during an emergency or disaster.

2. Local grocery stores, restaurants and other businesses may support the initial shelter / feeding operations by donating emergency supplies.

3. For an out-of-county evacuation, sufficient shelter capacity exists in adjacent counties and shelter locations can be arranged and made available.

4. A high percentage of evacuees will seek shelter with family or friends, or in commercial facilities rather than go to a public mass shelter.

5. Evacuees will be provided with public information in the shelter concerning the emergency.

6. Following a major disaster there will be an abundance of unsolicited goods delivered to the disaster area by well-intended citizens outside the impacted area.

IV. CONCEPT OF OPERATIONS

A. The decision to open and close mass care shelters, and the choice of specific shelter locations, will be made jointly by the County Policy / Administration Group.

B. Public and private institutional care providers will continue to be responsible for the care of the evacuees from their respective facilities while in any shelter. The care provider will be responsible for having evacuation, transportation and sheltering plans in place for their populations.

C. Cumberland County, the American Red Cross and other agencies involved in official mass care activities will assume no responsibility or liability for unauthorized mass care activities during emergency events.

D. All shelters, including special needs shelters, will provide statistical, registration and other necessary information on a daily basis.

E. Families separated will be provided information on location of other family members. To the extent possible, the American Red Cross, the Department of Social Services, the Department of Public Health and the City of Fayetteville Parks and Recreation Department will provide mutual assistance and support with shelter management and nursing human resources. The American Red Cross will make available the training required to provide mass care in official shelters.

F. At each official county shelter, the county will provide communications and security, to the extent possible. At each official shelter in municipalities, the City will provide communications and security.

G. Crisis intervention and mental health counseling, coordinated by Cumberland County Mental Health Department, will be made available at shelters and at the disaster scene for both victims and emergency workers. The American Red Cross, in conjunction with the Mental Health Department, will provide Disaster Mental Health training to volunteers to enable them to assist in official shelters.

H. The direct cost of opening and operating official Red Cross mass care shelters will be borne by the American Red Cross.

1. The following specific exceptions have been identified to include: No facilities fee will be charged. No reimbursement will be required for those paid staff responding as a part of their employing agencies' official participation in the county emergency operations plan.

2. The American Red Cross will assume responsibility for damage to a facility as a direct result of mass care activities, provided that a pre- and post-shelter inspection have been accomplished to the mutual satisfaction of representatives of the facility and the ARC.

3. The American Red Cross will assume responsibility for the reimbursement or replacement of supplies belonging to the shelter facility that are consumed in the course of the mass care operation.

I. The direct cost of opening and operating official special needs shelters will be borne by the county. The Special Needs Shelter will be under the direction of the Department of Social Services.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

MASS FATALITIES

Primary Agency: Cumberland County Department of Public Health

Support Agencies: Cumberland County Medical Examiner
Cumberland County Emergency Medical Services of Cape Fear
Valley Health Systems
Highsmith-Rainey Memorial Hospital
VA Medical Center
Womack Army Medical Center
Funeral Homes
Fire Departments

I. PURPOSE

This section outlines the procedures to be followed when a disaster results in mass fatalities to the extent that the number of dead exceeds the resources of the local medical examiner's office.

II. ORGANIZATION

By law, the County Medical Examiner is responsible for the dead. The mass fatalities team and other local funeral service personnel, when activated, will be available to assist under the direction of the County Medical Examiner.

III. SITUATIONS AND ASSUMPTIONS

Any major disaster could result in extensive property damage and possibly a large number of deaths, which may require extraordinary procedures.

IV. CONCEPT OF OPERATIONS

A. The Line of Succession for Mass Fatalities is as shown below:

1. Health Director
2. Medical Director
3. Emergency Medical Services Director

B. The mass fatalities team focus is to establish the means and methods for the sensitive respectful care and handling of human remains in multi-death disaster situations. The team will be available to aid in the necessary acts of evacuation, identification (sanitation and preservation such as preparation or embalming as authorized), notification of the next of kin, counseling and facilitating the release of identified remains to the next of kin or their representative under the direction of authorized persons.

C. When disaster conditions permit, and an estimate can be made of the dead, temporary morgue sites will be selected and activated. Remains will be recovered and evacuated to the temporary morgues for identification purposes and

safeguarding of personal effects found on the dead. Necessary information about each victim will be compiled and processed for the medical examiner. When authorized by officials and the family, the mass fatalities team shall prepare, process and release the remains for final disposition.

D. As an assist group to the medical examiner, the local funeral directors will provide needed supplies, equipment, vehicles and personnel as available. The State Funeral Directors Association may also assist in identifying other necessary resources.

E. Only when registered burial sites are exhausted, losses are massive, or as a last resort, should interment be in burial areas selected by local, county and / or state officials.

V. DIRECTION AND CONTROL

A. Operations will be coordinated by the medical examiner working with the Emergency Services Director, and where designated, the mortuary response team's coordinator.

B. When a disaster occurs, the county medical examiner should immediately contact the State Funeral Directors Association through its offices or through staff members. They, in turn, will notify the appropriate members of the mortuary response team.

VI. TEMPORARY MORGUE SITE

A. A morgue site is to be selected, organized and put into operation if the number of dead exceeds the local resources. Once a morgue site has been selected, the medical examiner or the designated mortuary response team coordinator will organize its operations and assign personnel to some or all of the following jobs: uniformed guards, information clerks, counselors, interviewers, telephone communicators, admissions clerk, general supervisor, identification personnel, orderlies, personal effects custodian, embalming supervisor, embalmers, secretaries, inventory clerk, distribution clerk, etc.

B. The temporary morgue should be located as near as possible to areas with heavy death toll and should have showers, hot and cold water, heat or air conditioning (depending on climate), electricity, drainage, ventilation, restrooms, parking areas, communication capabilities and rest areas. It should be fenced or locked for security of remains and personal property, it should be removed from public view and have sufficient space for body identification procedures. It should also be subject to partitioning for separation of functions such as body handling, x-ray, autopsy, records maintenance, interviewing, etc. The functions carried out at each morgue site will be determined by the circumstances.

VII. MASS BURIAL GUIDELINES

A. Mass burial may become necessary when the number of remains cannot be managed and becomes a public health concern, or when remains cannot be adequately refrigerated or embalmed, identified or processed in an acceptable manner.

B. Any decision to begin mass burial must be made at the highest levels of state government. Their direction will be essential before such an effort can be initiated for the public health, safety and welfare.

C. The location of any mass burial site must also be agreed upon by the above agencies, taking into consideration the number of remains to be buried, distance and transportation considerations. Plans should include the probability of exhumation at a later time.

VIII. CREMATIONS

Cremations should not take place for a minimum of seven (7) days after the last body has been processed. Cremation should never be used as a form of disposition for unidentified remains or tissue. Religious considerations as well as the possibility of future identification affect this decision.

IX. REMAINS NOT RECOVERED

Conditions and circumstances sometimes preclude the recovery of remains in spite of exhaustive efforts and resources expended by those involved. Once the determination has been made that one or more remains are unrecoverable, non-denominational memorial services should be arranged. If more than one, all efforts should be made to notify and include the surviving family members in this service. Assistance in post-death activities should be extended to the surviving family members. The family should be given the opportunity to select the locale of the non-denominational service if so desired.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

MITIGATION

Primary Agency: County Manager

Support Agencies: Cumberland County Emergency Services
Cumberland County Department of Public Health
Cumberland County Planning and Inspections

I. PURPOSE

This annex outlines the mitigation procedures that Cumberland County engages through its various departments in an effort to protect its citizens from the effects of natural and made disasters.

II. SITUATION AND ASSUMPTION

A. Situation

1. Day to day mitigation efforts are performed by the various departments and divisions of Cumberland County government in accordance with County ordinances, State Code, as well as through state and federal laws and regulations.

2. The County is susceptible to many hazards, which have the potential to cause disasters and / or major damage to both citizens and / or property.

3. In response to these hazards, Cumberland County engages in daily efforts to mitigate the effects of such hazards through regulation and enforcement in the interest of public safety and health and well-being of its citizens.

B. Assumption

Current mitigation programs enforced by the County through its various departments play a significant role during a local emergency and / or disaster in the protection of its citizens from hazards wrought by both natural and technological hazards.

III. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. General

1. *Planning & Inspections Department*
   - Subdivision Ordinance
   - Erosion Control Ordinance
   - Federal Flood Insurance Program
   - Building Code Enforcement
   - Watershed Protection Ordinance

2. *Environmental Health*
   - Sanitation
   - Water and Septic Tank
   - Solid Waste Ordinance
   - Hazardous Waste Management

3. *Fire Marshal / Emergency Management*
   - Civil Emergencies
   - State Fire Code
   - Hazardous Materials Ordinance
   - Blasting

4. *Sheriff's Department*
   - Civil Disorder
   - Terrorism
   - Mass Gatherings

B. Concept of Operations

1. On-going evaluation and assessment of the programs and program needs will be conducted by all agencies to increase awareness of potential hazards and the necessary responses that may be made on behalf of the County to further enhance mitigation efforts.

2. Following an emergency / disaster an evaluation of the County's mitigation programs and their effectiveness should be made relative to the impact of the damages incurred to the citizens of the County.

3. Identified areas in which hazards mitigation could be improved, so as to lessen the impact of a future disaster, shall be recommended by the County department head in the form of a written synopsis and forwarded to the County Manager.

4. Hazard assessment relative to mitigation functions is necessary and vital as a federally declared disaster occurring in any portion of the state makes all counties eligible to apply for hazard mitigation grants.

IV. ADMINISTRATION AND LOGISTICS

The post disaster review is to be performed for the purpose of identification of needed mitigation staging for Cumberland County. Recommendations for such review should be made in the following succession:

- Department Heads to County Manager

V. VULNERABILITY ASSESSMENT

Cumberland County is vulnerable to the broad range of threats to include, but not limited to, the following:

- Flooding
- Winter / Ice Storm

- Tornadoes / Severe Thunderstorms
- Earthquakes
- Dam Failure
- Civil Disorder / Terrorism
- Hurricanes
- Hazardous Materials Incidents

As such, mitigation of these threats, which would lessen their effect on the citizens and their property in Cumberland County, will be of primary concern and purpose of this annex.

VI. PLAN DEVELOPMENT AND MAINTENANCE

The Office of Emergency Management will review and amend this annex on an annual basis.

VII. AUTHORITIES AND REFERENCES

A. NCGS 166-A

B. County Ordinances

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

PUBLIC HEALTH SERVICES

Primary Agency: Cumberland County Department of Public Health

Support Agencies: Cumberland County Department of Social Services
Cumberland Emergency Services
Public Works Commission
Hope Mills Water and Sewage Department
Spring Lake Water and Sewage Department

I. PURPOSE

The purpose of this section is to provide for the public health and welfare of the population of Cumberland County during emergency / disaster.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. The Cumberland County Departments of Public Health main office is located at 1235 Ramsey Street Go, Fayetteville, N.C.

2. Social Services will maintain a current list of persons requiring special needs.

3. Home health care is provided by the private home health agencies. Agencies providing home health care services maintain a list of their clients with special needs. A list is maintained in the Emergency Services Office.

4. Rabies Control is a shared responsibility between the Animal Control Program, which reports to the Assistant County Manager, and the Health Department. The Vector Control programs are provided by the Cumberland County Health Department.

5. A significant portion of Cumberland County's population is dependent upon private wells, private sewage treatment systems and private septic systems. These systems are susceptible to problems when flooding occurs.

6. Municipalities that operate public water & sewer systems include Fayetteville Public Works Commission, Hope Mills Water and Sewage Department and Spring Lake Water and Sewage Department.

7. Private companies providing water include The Public Works Commission, Aqua Water Corp., Baywood Water Services, and Cypress Lakes Water Service.

8. The Cumberland County Health Department inspects on-site sewage disposal systems, both residential and small businesses in the county. The Department of Environmental Health and Natural Resources inspects package sewage treatment plants at large facilities within the county.

B. Assumptions

1. A large-scale emergency will result in increased demands on Public Health and medical personnel.

2. Emergency operations for Public Health personnel will constitute a manageable increase in normal agency duties.

3. Following an emergency / disaster, the Health Department will act to prevent the spread of communicable disease resulting from contaminated water supplies, malfunctioning septic systems, increased numbers of vectors, spoiled or contaminated food supplies and lack of functional sanitary facilities.

4. A catastrophic disaster could result in multiple fatalities necessitating extraordinary measures, including establishing a temporary morgue.

5. When local resources can no longer meet the demands of the situation, additional resource requirements will be requested through the local Emergency Services Director who will in turn contact the NC Division of Emergency Management Eastern Branch Office.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Public Health Services is as shown below:

1. Cumberland County Director of Public Health
2. Cumberland County Public Health Physician

B. The primary concern of public health is disease control. The County Department of Public Health will implement effective environmental health, nursing and health education practices to minimize the incidence of disease.

C. The Health Department will coordinate health care in approved shelters.

D. Frequent inspections of damaged areas and emergency shelters will be necessary to determine the need for pest control, sanitation or other protective measures.

E. The Health Director will assist the Medical Examiner in establishing temporary morgues and coordinate with Medical Examiners in the identification and proper recovery of human remains.

F. The Health Director will oversee the expeditious testing of emergency water supplies to ensure potability.

G. The Health Director will coordinate with the Public Information Officer concerning distribution of information to the general public on disaster related health matters.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

PUBLIC INFORMATION

I. PURPOSE

This section describes the process for staffing, operating and maintaining a public information system in the event of an emergency. In any type of crisis, information can be as important as food, water and shelter. Whether the information involves saving lives, protecting property or just calming fears, the public must have accurate, timely, easy-to-understand information. The primary focus of this plan is to provide the participating Public Information Officers (PIOs) with a structure that works. This plan also addresses the PIO's primary support responsibilities under the Cumberland County Emergency Operations Plan.

II. ESTABLISHING A JOINT INFORMATION CENTER

Joint Information System (JIS) provides the structure that supports PIOs working together to deliver accurate, coordinated information to ensure timely, accurate, and consistent messaging across multiple agencies/jurisdictions and/or disciplines. Utilization of the JIS simply provides a mechanism for coordinating public information activities.

In smaller incidents the utilization of the JIS may be very informal and be activated by any PIO needing support to provide an effective crisis response. This plan is designed to work equally well for large or small situations and can expand or contract to meet the needs of the incident.

A JIS may be activated by communication among JIS members either by phone, email or text messaging to enlist support as needed. Structure and scope of the JIS is at the discretion of the PIO calling for support and does not typically involve the establishment of a **Joint Information Center** (JIC), however as/if an incident escalates a JIC may be established. During incidents where an Emergency Operations Center (EOC) is activated, a JIC will be established in conjunction with the Cumberland County EOC.

Joint Information Center (JIC) is a central location that facilitates the operation of the JIS. It is a physical or internet-based virtual location where PIOs perform coordinated media and community relations during an incident or event.

A JIC is usually established for large-scale incidents and staffed by representatives from the affected agencies/jurisdictions. The decision to use a JIC is typically made by the Cumberland County Manager, Emergency Services Director, Public Information Officer, IC or designee. The JIC speeds information release time, enhances information coordination and analysis, reduces misinformation, maximizes resources, and helps build public confidence in response efforts.

JIC Responsibilities

- Be the first and best source of information
- Develop, recommend and execute public information plans and strategies on behalf of the unified command.
- Advise the UC concerning public affairs issues that could impact the response.
- Ensure various response agencies' information personnel work together to minimize conflict.
- Gain and maintain public trust and confidence
- Gather information about the incident/crisis.
- Capture images of the incident/crisis in video and photos that can be used by the response organization as well as the media.
- Write and communicate emergency public information regarding public protective actions, evacuations, sheltering and other public safety messages.
- Ensure the timely and coordinated release of accurate information to the public by providing a single release point of information.
- Facilitate and manage control of rumors.
- Monitor and measure public perception of the incident.

- Inform the UC of public reaction, attitude and needs.

III. PREPAREDNESS

Preparedness is essential for an effective response to an incident. PIO preparedness includes establishing relationships with other agency PIOs and the media, developing and maintaining readily available checklists, contact lists, and public information materials.

Media Relations: Good working relationships with the media help during an incident. To help build these relationships the JIS group will:

- Make a periodic effort to meet with the news managers at local media outlets to familiarize them with the JIS/JIC concepts and the Plan.
- On a periodic basis provide the media with a contact list with after-business hours contact information.
- Newsroom trainings may be scheduled with the news managers to acquaint reporting staff with JIS/JIC operations and procedures.

Contact lists: Review and update all contact lists (e.g., media, PIO, and other agencies) every six months. Include basic information such as e-mail address, telephone numbers (e.g., office, home, cell), fax numbers, and web sites, see Appendix A.

Go-Kits: It is important for the PIO to have tools and resources available for utilization during an incident. Suggested Go-Kit equipment list is below.

- Cell phones/PDAs & chargers
- Jump drive with contact lists, JIS plan, forms, list of free Wi-Fi locations and document templates (Press Release templates/agency letterhead)
- Extra batteries
- Basic office supplies
- Laptop computer, portable printer with alternate power source
- Camera

Information delivery systems: It is important to identify information and messaging delivery systems best suited to meet the needs of the incident and audience. Listed below are some types of delivery systems to consider:

- Facebook, Twitter and other social networking vehicles
- Electronic media Television/Radio
- Internet Postings
- Emergency Alert System
- News Conferences/Briefings
- Newspapers

PIO networking: It is important to establish relationships with a core group of PIOs who can assist in the event of an incident. It is helpful to network with well trained and practiced PIOs.

IV. SITUATION AND ASSUMPTIONS

A. Situation

1. The broadcast and print media will be relied upon to assist in the dissemination of public information to the general public.
2. The Public Information Officer (PIO) and Emergency Services Director have the capability to utilize the Emergency Alert System (EAS) to deliver information to the public.
3. Cumberland County will receive extensive out of county media coverage during emergency and disaster situations.
4. Scanner radios are used extensively by residents of the county and this provides an alternate avenue for delivery of emergency public information.
5. The county is served by the following news media outlets:

Radio Stations

WFAY 1230	AM	WKML 95.7	FM
WIDU 1600	AM	WAZZ 1490	AM
WFLB 96.5	FM	WQSM 98.1	FM

WFNC 640	AM	WZFX 99.1	FM
WFSS 91.9	FM	WIOZ 102.5	FM
WMGU 106.9	FM	WCCG 104.5	FM
WCLN 107.3	FM	WTEL 1160	AM
WUKS 107.7	FM	WRCQ 103.5	FM

Newspaper

The Fayetteville Observer Times
Up & Coming Weekly
The Fayetteville Press

TV Stations

	Cable #		Cable #
WRAL TV 5	(3)	WUVC (Univision)	(8)
WECT TV 6	(6)	WFPX TV 62	(9)
WTVD TV 11	(11)	WNCN TV 17	(10)
WLFL – Fox	(2)	WRDC TV 28	(12)
WRAZ – FOX	(13)	News 14 Carolina	(14)

Fayetteville/Cumberland Educational Channel (5)
City of Fayetteville Government Channel (7)

B. Assumptions

1. The County Public Information Officer will be available.
2. Demands for information will be heavy; therefore, sufficient numbers of trained staff will be provided to respond to questions from the public.
3. Special interest groups in the county may disagree with official public information.
4. The public will accept rumors, hearsay and half-truths as valid information, which will cause fear and confusion.
5. Local print and broadcast media will cooperate in printing and broadcasting detailed disaster related instructions to the public.
6. Emergencies and disasters, which impact the county or its municipalities, will be of interest to media sources outside the county and the state.

V. CONCEPT OF OPERATIONS

A. The Line of Succession for Public Information is as shown below:

1. County Public Information Officer: The PIO gathers, verifies, coordinates, and disseminates accurate and timely information on the incident's cause, size, current situation and desired public response.
2. County Manager
3. Emergency Services Director

B. General

1. Public information for law enforcement emergencies will be handled by the Sheriff or Chief Law enforcement officer with assistance from the Public Information Officer as necessary.
2. Ongoing public education programs will be conducted to increase public awareness concerning the following:
   a. Potential hazards of the county
   b. Family preparedness
   c. Necessary action to be taken by the public
   d. Shelter locations
   e. Flood prone areas
   f. Evacuation routes
   g. Emergency Services function
   h. Transportation to designated shelters
   i. Cumberland County Public Health Crisis Communication Plan (PIC) for SNS Operations.

3. The Emergency Services Director and County Public Information Officer are the authorities to activate the use of the Emergency Alert System (EAS).
4. The National Weather Service will issue weather watches or warnings directly to Cumberland County EOC, Emergency Communications Center and to the media for public release.
5. During emergencies or disasters, Policy / Administration Group decisions and general information advisories will be released on a timely basis to the media.
6. Action will be taken to correct identified errors in information released by the media, or rumors about the emergency situation.
7. Media releases from the Emergency Operations Center should be approved, when practicable, by the EOC manager and/or the policy group.
   News releases will be distributed to:
   - Local and regional news organizations
   - Appropriate county and/or municipal officials
   - All emergency services agencies involved including the Area “C” Office of the N.C. Division of Emergency Management.
   - All groups working in the EOC

   Releases will be posted on the county’s website, and information disseminated through the county’s official social media outlets.
8. Cumberland County will practice a progressive approach for the dissemination of information to isolated and non-English speaking populations during and following emergency events.
9. The magnitude of the disaster may require innovative means of communications to inform the public. For example: aircraft banners, balloons and billboards, etc.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

PUBLIC UTILITIES

Primary Agency: Emergency Services Director

Support Agencies: Cumberland County Maintenance Department
Cumberland County Solid Waste Department

I. PURPOSE

The purpose of this section is to provide for essential public works services during an emergency / disaster to including solid waste disposal, water distribution, fleet maintenance, and buildings and grounds.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Cumberland County

a. Cumberland County does not operate a Public Works Department. The county does operate a Maintenance Department that provides the following services:

(1) Building and Grounds
(2) Carpentry
(3) Electrical and Mechanical

b. The county owned landfills are located at Ann Street and Wilkes Road. The Ann Street Landfill accepts solid waste, commercial, industrial, and residential garbage. The Wilkes Road Landfill serves as the county tire collection site. It accepts most construction materials, household garbage and appliances. A separate facility on Wilkes Road collects household hazardous materials.

c. Container Collection Facilities are located throughout the county. Materials accepted from these facilities include: household garbage, batteries, up to 5 tires, used oil, cardboard, metal and newspaper for recycling, and wood.

The Container Collection Facilities are located:

(1) Camden Road – Waldo's Beach
(2) Lowell Harris Road
(3) River Road at Wade
(4) Off Turnbull Road - Beaver Dam
(5) Off Highway 210 - Beaver Dam
(6) Wade Stedman Road
(7) Hummingbird Place
(8) Macedonia Church Road

(9) McBride and Giles - Linden
(10) Little River Road - Spring Lake
(11) Off Tom Starling Road
(12) Ed Dudley Road - Cedar Creek
(13) Highway 59 to Odom Road
(14) Black bridge Road - Hope Mills
(15) Dumpster Road - Godwin
(16) Kennel Road - Eastover

d. Municipal waste is delivered to the landfill by municipal services in Fayetteville, Hope Mills, and Spring Lake. The municipalities and private refuge companies are permitted annually by the Health Department. The listing of the private companies is maintained at the Health Department, Solid Waste and Emergency Services offices.

e. Electrical service is provided in the county by Public Works Commission, Duke Energy, Lumbee River Electric Membership Corporation and South River Electric Membership Corporation.

f. Commercial and residential phone service is provided in the county by Century Link, Time Warner Cable and Star Telephone.

g. Numerous Cellular phone services providers operate in the area.

h. Private water systems are operated by Baywood Water Services, Brookwood (LaGrange) Water Corporation, Cypress Lakes Water Service, and Public Works Commission.

i. All public roads in Cumberland County are owned by the State and maintained by the North Carolina Department of Transportation.

j. Cumberland County is in N.C. DOT Division 6 and includes Districts 1, 2, and 3. The facility is located at 558 Gillespie Street in Fayetteville. A State fuel pump is located at this site. Other services provided include:

(1) Area Right of Way Office
(2) Area Roadside Engineering
(3) Area Traffic Engineering Office
(4) Bridge Maintenance
(5) Equipment
(6) Construction
(7) M & T Lab
(8) Maintenance
(9) Roadside Environmental
(10) Road Oil
(11) Traffic Services

k. The County Maintenance Facility is located at 426 Mayview Street, Fayetteville. Credit Cards are issued to departments to purchase fuel at local vendors.

l. In emergency situations, fuel will be provided at the Central Maintenance Facility with a County School System fuel truck. An

alternate point would be the City of Fayetteville Maintenance Facility on Grove Street.

2. Municipalities

a. City of Fayetteville.

(1) The City of Fayetteville Planning and Development Department provides services for Storm Water Services and maintenance of streets and drainage areas.

(2) The Solid Waste Department collects residential trash within the city.

(3) The Maintenance facility at 280 Lamon Street is the fuel point for city vehicles.

(4) Electricity is provided by the Public Works Commission.

b. Town of Hope Mills

(1) The Town of Hope Mills Street Department maintains the streets and drainage areas within the town.

(2) The Sanitation Department collects residential trash within the city.

(3) The Town of Hope Mills has an agreement with Exxon and uses Exxon gas station for fuel for all town vehicles.

(4) Electricity is provided by Duke Energy and Lumbee River Electric Corporation.

c. Town of Spring Lake

(1) The Town of Spring Lake Street Department maintains the streets and drainage areas within the town.

(2) The Sanitation Department collects residential trash within the city.

(3) The Town of Spring Lake operates a fuel pump for town vehicles behind the Town Hall at 300 Ruth Street.

(4) Electricity is provided by Duke Energy.

B. Assumptions

1. Following a catastrophic event, most roads and streets will be impassable due to debris.

2. Volunteers will be available to assist with emergency debris removal.
3. Interruption of some or all-essential services is an expected consequence of an emergency / disaster, resulting in large numbers of people without essential services.

4. During major emergencies, Cumberland County will require assistance from State agencies and other localities for significant debris removal and for utility restoration.

5. A catastrophic event affecting multiple counties and/or states may result in the following sequences:

   a. Loss of some or all-essential services for extended periods of time.

   b. A shortage of available outside assistance.

   c. A shortage of materials for repair of utilities-overall delay in restoration of essential services.

   d. Rapid exhaustion of local resources.

   e. Inability to relay resource requests/needs.

   f. Attempted price gouging for repair of essential services.

6. The N.C. DOT Division of Highways will remove debris from the highway and road system. The Division will not remove debris from private property except in extraordinary cases cleared through the State EOC.

7. The N.C. Division of Forest Resources can perform emergency debris removal beyond State property when requested and approved through the State EOC.

8. Privately owned farm and industrial equipment will be heavily utilized by volunteers assisting with debris removal.

9. Controlled burning will be allowed as a means of disposal.

10. Cities will remove debris from city owned streets.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Public Utilities is as shown below:

   1. Disaster Recovery Manager
   2. Solid Waste Director
   3. Emergency Services Director

B. In non-emergency periods, the role of public works activities is confined to trash collection, landfill operations, building, ground and street maintenance, water and sewage utility service and transportation, and equipment operations and maintenance.

C. During emergencies, the public works function expands, and coordination of public works emergency operations is essential. Solid Waste and Emergency Services arrange support and services for emergency response agencies and coordinates with the private sector.

D. Priority debris clearance will be given to streets and primary roadways to allow passage of emergency vehicles.

E. The County and the municipalities will keep individual records on debris clearance expenditures.

F. Priority will be given to restoration of the public water systems damaged during disaster.

G. The county Maintenance personnel are responsible for securing buildings and maintaining building generators for use in disasters.

H. Controlled burning will be allowed as a means of disposal.

I. Cities will remove debris from city owned streets.

J. Privately owned industrial equipment providers will be called upon for support.

K. A shortage of materials for repair / restoration can be expected.

L. Price gouging can be expected for essential supplies (ice, milk, building supplies, etc.).

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

QUARANTINE

(Under Development)

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

RADIOLOGICAL PROTECTION

Primary Agency: Cumberland Emergency Services Department

Support Agencies: Fayetteville Regional Response Team #3 - HazMat

I. PURPOSE

This annex establishes the organization and assigns responsibilities to provide a preparedness capability in response to radiological incidents caused by peace-time emergencies.

II. SITUATION AND ASSUMPTIONS

A. Situation

Radiological Hazards

1. Cumberland County is susceptible to accidents involving the transportation of radioactive materials. The primary road systems used are Interstate 95, US-13, US- 301, US 401, NC 24, NC 53, NC 59, NC 87 and NC 210. Pope Air Force Base, Simmons Army Field and Fayetteville Regional Airport serve the greater Fayetteville and Cumberland County area. Radiography sources used to x-ray pressure pipe welds can be transported over road systems within Cumberland County. These radiography sources can be located in the N.C. Department of Transportation District Engineers Office, Fayetteville, N.C.

2. Sources of potential radiological hazards within the County are:

    - Cape Fear Valley Medical Center – Owen Drive
    - Colocraft Corporation – 241 Tillinghast Street
    - Kelly Springfield – 401 North
    - 1 Hour Photograph Facilities (Countywide)
    - Dupont – Cedar Creek Road
    - Cargill Inc. – River Road
    - Crowell Construction, Inc.- 1100 Robeson Street
    - City of Fayetteville – 339 Alexander Street.
    - Fayetteville Technical Community College (FTCC) – Hull Road
    - Highsmith-Rainy Memorial Hospital – 150 Robeson Street

3. Without adequate initial response measures, an accident could result in radioactive contamination and unnecessary exposures.

B. Assumptions

1. Proper development and execution of a radiological protection system will significantly reduce the number of casualties from a radiological incident.

2. Adequate facilities will be available to collect and disseminate the necessary data including weapons effects and meteorological information.

3. Warning, detection, prevention and remedial measures will reduce the effect of nuclear radiation.

4. A combination of trained radiological personnel and operational equipment can be positioned to detect, measure, report, analyze, evaluate and conduct countermeasure operations.

5. Trained local emergency response agencies can effectively manage an accident scene with technical assistance from the Radiation Protection Section, DHR.

6. During nuclear threat attack, the Director of Social Services will coordinate with the American Red Cross (ARC) to support shelter operations.

7. Residents in areas where there is a high risk of nuclear weapons direct effects will be allocated only to PF2+ spaces. Where a deficit of these spaces exists, residents will be allocated to and encouraged to improvise home basement shelters or directed to the closest available fallout shelters.

8. Trained local emergency response agencies can effectively manage an accident scene with technical assistance from the Radiation Protection Section, DHR.

III. CONCEPT OF OPERATIONS

A. A very important part of an effective radiological protection system is detection and monitoring.

B. Cumberland County RO will develop, organize and maintain a Radiological Protection System (RADPRO) to include an EOC staff.

C. The Radiological Protection System (RADPRO) will provide:

1. A shelter radiological monitoring capability for monitoring and assessing the radiation environment for sheltered.

2. A self-protection radiological monitoring capability for monitoring and assessing the radiation environment to control or limit the radiation exposure of emergency response personnel.

3. A monitoring, reporting and assessment capability for determining the extent and magnitude of the radiological hazard.

4. A decontamination capability to include an inventory of equipment and listing by priority of facilities and industries to be returned to an operational status.

5. A radiological emergency response capability for handling radioactive materials.

IV. ORGANIZATION AND RESPONSIBILITIES

A. Organization

1. The Emergency Management Coordinator will coordinate and maintain the RADPRO System.

2. The Radiological Officer will conduct radiological protection operations and will coordinate with other departments to ensure radiological protection operational readiness.

3. Upon request of the Radiological Officer, selected county agencies will ensure the availability of personnel for training as radiological monitors in radiological emergencies.

4. The Radiological Officer will contact the North Carolina Department of Human Resources, Radiation Protection Section for technical assistance to control and dispose of radioactive materials.

B. Responsibilities

1. ***Emergency Management Coordinator***

   a. Appoint a Radiological Officer.
   b. Establish a comprehensive radiological training program.
   c. Acquire and provide radiological monitoring equipment.
   d. Coordinate overall radiological protection activities.

2. ***Radiological Officer***

   a. Ensure serviceability of radiological monitoring instruments.
   b. Provide public education about radiological hazards and protective actions.
   c. Develop Cumberland County radiological protection procedures.
   d. Develop mutual aid agreements with neighboring jurisdictions to exchange radiological data and provide support radiological capability.
   e. Conduct a semi-annual inventory of radiological equipment.
   f. Maintain a current internal notification / recall roster.
   g. Establish a distribution system for radiological protection equipment.
   h. Develop a radiological decontamination capability and establish priorities for decontaminating facilities.
   i. Identify available protective equipment, instruments and clothing needed to perform assigned tasks in a hazardous chemical or radiological environment.
   j. Coordinate with emergency service chiefs to ensure training of response personnel in radiological monitoring techniques.
   k. Ensure that all emergency support services, vital facilities and essential industries provide trained radiological protection personnel.
   l. Provide a system of controlling the exposure of personnel within the jurisdiction to hazardous substances.
   m. Provide for the crisis training of radiological monitors for all public fallout shelters planned for use.

n. Coordinate with the Communications Director to establish a radiological communications system.
o. Report to EOC upon activation to direct and control the radiological protection emergency response.
p. Obtain radiation exposure rates using a network of reporting sources.
q. Provide for maintaining dose records for emergency workers and ensuring that dosimeters are read and reported at appropriate frequencies.
r. Ensure that radiological monitors are available to provide data to the EOC.
s. Report information on radiation levels to the EOC during emergency operations.
t. Estimate total population exposure during radiation emergencies.
u. Support specialized radiological teams as needed (e.g. Radiological Emergency Response Teams).
v. Coordinate the release of public information about radiation safety through the PIO.
w. Coordinate with the PIO to prepare pre-scripted announcements for radiological emergencies.
x. Coordinate special monitoring functions (e.g. ground and aerial surveys during recovery actions).
y. Conduct damage assessment following radiological emergencies.

3. ***Sheriff***

a. Provide security
b. Provide site security and protect citizens during radiological incidents.

4. ***Health Director***

Assist the Radiation Protection Section in the coordination of technical assistance.

V. DIRECTION AND CONTROL

A. Overall coordination of emergency operations and support requirements for radiological protection will be conducted between the heads of departments / agencies and the Emergency Management Coordinator.

B. When the EOC is activated, the Radiological Officer will supervise plotting radiological damage assessment and decontamination operations.

C. The Radiological Officer will coordinate the collection and evaluation of radiological information and make recommendations for protective measures to the EMC.

VI. CONTINUITY OF GOVERNMENT

A. Line of succession is:

1. Fayetteville Hazmat Team
2. North Carolina Regional Response Team No. 3
3. North Carolina Radiological Response Team

VII. ADMINISTRATION AND LOGISTICS

A. Administration

1. ***General***

   a. The Radiological Officer will develop and maintain current standard operating procedures (SOPs) for the RADPRO System.

   b. The RO will also maintain a roster of all radiological monitors to include names, addresses, telephone numbers and assignments.

2. ***Record Keeping***

   The computation of radiological data from a radiological incident is vital for emergency workers. These records should be kept current for exposure levels and will be supplied by the Emergency Management Coordinator.

3. ***Reporting***

   Radiological Hazards to State Warning Point via the County Warning Point.

B. Logistics

1. The Emergency Management Coordinator will provide equipment and supplies for EOC operations. Each individual organization assigned responsibilities will utilize radiation detection equipment and / or vehicles when feasible.

2. Radiation detection equipment that is not issued to self-protection entities will be stockpiled at the County EOC during increased readiness as stipulated in the SOP.

3. The North Carolina Division of Emergency Management is responsible for maintenance and calibration of RADPRO instruments.

VIII. PLAN DEVELOPMENT AND MAINTENANCE

A. The Radiological Officer will direct and control radiological operations.

B. This annex will be reviewed on an annual basis.

IX. AUTHORITIES AND REFERENCES

A. N.C. General Statutes, 166A. (Emergency Management Act)

B. N.C. General Statutes, 104 E. (Radiation Protection Act)

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

RECOVERY OPERATIONS

Primary Agency: Cumberland Emergency Services

Support Agencies: Cumberland County Finance Department
Damage Assessment Team
Designated County Agencies
Fire Departments
Cumberland County Solid Waste

I. PURPOSE

This section presents a system for the provision of disaster recovery operations.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Recovery consists of those measures undertaken by a community following a disaster to return all systems to normal or improved levels. Recovery will not just happen, despite the fact that citizens generally take the initiative in "picking up the pieces" and trying to resume the activities that make up community life. Effective recovery consists of a complex array of inter-dependent and coordinated actions. These actions are undertaken at several levels (individual, organizational, community, national) and over a long period of time.

2. A properly managed recovery program will allow the prompt restoration of essential services, the reconstruction of damaged property and the resumption of traditional lifestyles.

3. Recovery from a significant disaster will be managed in two identifiable phases:

a. Short Term Recovery Phase

This is the emergency reaction phase that begins with the implementation of emergency plans. Actions under this phase will include:

(1) Initial emergency response (i.e., fire / rescue, law enforcement, EMS operations and mass care)
(2) Initial impact assessment
(3) Emergency debris removal
(4) Restoration of vital services
(5) Security of damaged/evacuated areas
(6) Management/distribution of donated goods
(7) Preliminary damage assessment

b. Long Term Recovery Phase

Actions under this phase will include:

(1) Completion of damage assessment
(2) Completion of debris removal
(3) Request for Disaster Declaration/assistance
(4) Restoration of essential facilities
(5) Repair / rebuilding of damaged public and private buildings and facilities
(6) Repair / rebuilding of roadways and bridges
(7) Repair / rebuilding of private homes and businesses
(8) Hazard mitigation projects

4. A request from the Governor to the President of the United States for a Presidential Declaration will be based on the magnitude and severity of the situation and the inability of the county to recover without assistance. A declaration request must come from the County, not a Municipality.

5. The President's Disaster Relief Program is designed to supplement the efforts and available resources of State and local governments, voluntary relief organizations and other forms of assistance such as insurance. The President's declaration, of a major disaster or an emergency, authorizes Federal assistance under the Stafford Act and triggers other Federal disaster relief programs as well.

6. A full Presidential Declaration of Disaster includes all of the following emergency assistance programs:

a. Public Assistance Programs (PA)
b. Individual Assistance Programs (IA)
c. Small Business Administration assistance (SBA)
d. Hazard Mitigation Programs

7. In lieu of a full Presidential Declaration, Federal assistance can also be delivered through a partial Declaration and any combination of the following:

a. Search and Rescue Assistance
b. Fire Suppression Assistance
c. Health and Welfare measures
d. Emergency Conservation Program
e. Emergency Loans for Agriculture
f. Disaster Loans for Homeowners & Businesses
g. Repairs to Federal Aid System Roads
h. Tax Refunds/IRS Assistance to victims
i. Voluntary Agency Assistance via Red Cross
j. Department of Defense Pre-declaration Emergency Assistance (via the Stafford Act)

8. There exists in the county a United States Department of Agriculture (USDA) County Emergency Board responsible for providing leadership and coordination for all USDA emergency programs at the county level. The USDA State Emergency Board provides guidance, direction and assistance on emergency programs.

9. The President may declare an emergency in the absence of a Governor's request when the emergency involves a subject area for which the Federal Government exercises exclusive or preeminent responsibility and authority.

10. Close cooperation among the agents of Local, State and Federal government will be essential in expediting assistance to the county after any Presidential Declaration.

11. Hazard Mitigation Grants may be available through FEMA after a Presidential Declaration; the grant total will be based on the amount of Public Assistance funds provided to Cumberland County Public Assistance applicants.

12. As potential applicants for Public Assistance, local governments and private non-profit agencies must thoroughly document disaster-related expenses from the onset of an emergency / disaster.

13. Businesses that intend to apply for Small Business Administration Disaster Loans, etc. will need thorough documentation of the history of the business and the effect of the disaster on the business.

B. Assumptions

1. A major disaster will have a significant long-term economic impact on the county.

2. Unsolicited resources and donated goods can be expected from outside the impacted area. The county must be prepared to manage this influx of resources and goods as part of the recovery effort (See Donated Goods Section).

3. Space will be available for the operation of one or more Disaster Recovery Centers in the county following a Presidential Declaration of Disaster.

4. A Disaster Field Office will be set up in North Carolina by the Federal Emergency Management Agency. The DFO will be near the disaster area.

5. The damage assessment process will identify local individuals with unmet needs.

6. A minimum loss of 30% of one of the county's major crops will qualify the county's agri-business community for USDA Disaster Assistance; however, the loss must be incurred as a result of natural disaster.

7. The State's share of PA funds provided for Public Assistance will be 25%, supplementing the mandated Federal share of 75%.

8. Mitigation is extremely important to local officials who must bear the agony of loss of life and property when disaster strikes.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Recovery Operations is as shown below:

1. County Manager
2. County Emergency Services Director
3. Assistant Finance Director

B. General

1. Responsibility for coordination and support of the recovery effort lies with local government.

2. Recovery operations will initially be coordinated from the County EOC.

3. Accurate emergency logs and expenditure records will be kept from the onset of the disaster by each local government agency/organization. Standardized forms have been developed for local government; these forms will be available through the County Emergency Services.

4. The President may authorize the utilization of any Federal equipment, personnel and other resources.

5. The Governor may request a Presidential Declaration or specific Federal Agency declarations, i.e., Small Business Administration, Department of Agriculture, Corps of Engineers, etc., to augment state/local/private disaster relief efforts.

6. The Farm Service Agency will be the lead agency for agricultural disasters under a declaration. For natural disasters where loss is confined to agriculture, the following actions will occur:

   a. Damage assessment
   b. USDA County Emergency Board meeting
   c. Submission of a USDA Flash Situation Report to Farm Service Agency Area Office
   d. USDA State Emergency Board meeting
   e. Exchange of information on available programs/ actions plus other counties affected
   f. State Review of damage assessments reports
   g. Decision made by State Board on "concurring" and "not concurring" with information in the damage assessment reports
   h. Forwarding of reports to Rural Economic & Community Development National Headquarters to support a request for designation of a county for FHA Emergency Loans

7. A Presidential Declaration of Disaster will initiate the following series of events:

   a. A Federal Coordinating Officer (FCO) will be appointed by the President to coordinate the federal efforts.
   b. A State Coordinating Officer (SCO) and Governor's Authorized Representative (GAR) will be appointed by the Governor to coordinate the state efforts.
   c. A Disaster Field Office (DFO) will be established within the state (central to the damaged areas) from which the disaster assistance programs will be administered.
   d. Disaster Recovery Centers (DRCs) will be established in the affected areas to accommodate persons needing Individual Assistance.
   e. An Applicants' Briefing will be held to explain Public Assistance eligibility criteria for officials of the county, cities and private nonprofit organizations. The Emergency Services Director will assist with identification and notification of potential applicants.

f. Each eligible entity will submit a Notice of Interest (NOI) within thirty days of the Declaration.

8. A Presidential Declaration of Disaster may authorize two basic types of disaster relief assistance:

a. Individual Assistance (IA) - supplementary Federal assistance provided under the Stafford Act to individuals and families adversely affected by a major disaster or an emergency. Such assistance may be provided directly by the Federal Government or through State or local governments or disaster relief organizations.

Individual Assistance can consist of any or all of the following:

(1) Temporary housing (100% federal dollars)
(2) Individual and family grants (IFG) (75% federal, 25% state/local funds)
(3) Disaster unemployment assistance
(4) Disaster loans to individuals, businesses and farmers
(5) Agricultural assistance
(6) Legal services to low-income families and individuals
(7) Consumer counseling and assistance in obtaining insurance benefits
(8) The Cora Brown Fund
(9) Veterans' assistance
(10) Casualty loss tax assistance

b. Public Assistance (PA) - supplementary Federal assistance provided under the Stafford Act to State and local governments or certain private nonprofit organizations, other than assistance for the direct benefit of individuals and families.

Categories of Public Assistance available include:

A. Debris removal
B. Emergency protective measures
C. Permanent work to repair, restore or replace:
D. Road systems
E. Water control facilities
F. Public buildings and equipment
G. Public utilities
H. Public recreational facilities

9. Following the Public Assistance Applicant's briefings, Damage Survey teams will be dispatched from the DFO to inspect every damaged site and prepare Damage Survey Reports (DSR) for each applicant. The DSR will provide a recommended scope of work and give estimated costs in accordance with FEMA eligibility criteria. The criteria allow repairs or restoration of facilities to their pre-disaster condition in accordance with applicable codes, specifications and standards.

10. A Public Assistance Damage Survey team will be comprised of the following:

a. A Federal representative who will serve as the team leader
b. A State representative

c. Local applicant's representative

11. The Emergency Services Director and the County Engineer will take the lead in determining mitigation projects needed following a disaster. Applications will be prepared for available mitigation grants.

12. Following any major emergency or disaster event, a critique will be held to evaluate the jurisdiction's response to the event. A critique will include the following issues related specifically to recovery:

    a. Mitigation of potential problems through use of Hazard Mitigation Grants
    b. Plan Revision based on lessons learned
    c. Unmet Needs status
    d. Management of Donated Goods
    e. Interagency cooperation
    f. Damage Survey Report process / documentation
    g. Recovery training needed

B. Specific

Areas of the county where large quantities of disaster supplies could be stockpiled at are:

1. Charlie Rose Agri-Expo Center
2. Cape Fear Community Food Bank
3. Cumberland County Schools Operations Building on Gillespie Street

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

RESOURCE MANAGEMENT

Primary Agency:	Emergency Services Department
Secondary Agency:	Fire Marshal's Office Sheriff's Office Emergency Communications Center County Fire Departments Solid Waste Department Parks and Recreation Department County Tax Assessor County School System Central Maintenance Facility Municipal Fire Department Municipal Police Departments Municipal Street Maintenance Municipal Sanitation Department

I. PURPOSE

This section provides for the identification and management of resources that may be utilized during emergency / disaster situations.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. A multitude of resources will be critical to immediate emergency response following a major emergency / disaster event. Additionally, many resources will be critical for long-term recovery operations.

2. Several categories of resources have been identified and include:

   a. Personnel
   b. Equipment
   c. Facilities
   d. Information
   e. Commodities

3. Cumberland County Emergency Services maintains a list of public and private sector resources, updated on a regular basis that could be utilized during an emergency / disaster response. This list will be maintained in the EOC during emergencies and in the Emergency Services Offices during normal operations.

B. Assumptions

1. During or immediately following an emergency / disaster situation, the initial emergency response will be dependent upon available local, public and private resources.

2. Adequate local resources do not exist to cope with a catastrophic emergency / disaster response.

3. Identified public and private sector resources are identified and will be available for emergency / disaster response.

4. Required personnel and supplies will be available to respond to emergency resource requirements.

III. CONCEPT OF OPERATIONS

A. The Line of Succession for Resource Management is as shown below:

1. Emergency Services Director (Operations Officer)
2. Logistics Officer
3. Assistant Finance Director

B. Cumberland County Jurisdictions and Agencies will use their own resources and equipment during emergency / disaster situations and will have control over the management of the resources as needed to respond to the situation.

C. Resource management will be coordinated from the Cumberland County EOC during countywide emergency / disaster situations. It will be coordinated from Municipal EOCs during emergencies, isolated to a municipality.

D. The commitment of resources from outside Cumberland County will be initiated by the Emergency Services Director with operational control being exercised by the on-site commander of the service requiring that resource.

E. Requests for additional resources to respond to an emergency will be directed to the Resource Manager function within the EOC.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

SCHOOL EMERGENCY PLAN

Primary Agency:

- Superintendent of Schools / Associate Superintendent of Auxiliary Services

Support Agencies:

- Cumberland County Board of Education
- Cumberland County Schools - Building Maintenance
- School Principals
- Cumberland County Board of Commissioners
- Emergency Management
- Sheriff

I. INTRODUCTION

A. The School Emergency Plan (SEP) for protective actions to be taken in the event of an emergency have been developed by the NC Division of Emergency Management in conjunction with Cumberland County Emergency Management and the school system.

B. There are numerous situations and circumstances that may implement this portion of the Emergency Operations Plan. The conditions may be:

1. Severe weather
2. Manmade events, such as chemical spills
3. Mass casualty event at the school or other such event

Each condition requires a specific response from local government. Local government will activate the Emergency Operations Center (EOC), as necessary, when an event affects schools or the school system.

II. NOTIFICATION

A. Should an event occur (i.e., weather, chemical spill, etc.) which requires notification; action will be taken based upon the conditions at the time. If protective actions by the public and / or schools are necessary, local government will activate the primary notification system.

B. School officials will be notified by telephone of the emergency.

C. If an emergency incident occurs at the school, school officials will contact the Cumberland County Warning Point, via 9-1-1.

D. Schools in Cumberland County are also supplied with a weather alert radio system to warn of impending severe weather. This system can also be used for other emergency events.

E. Upon notification that an incident has occurred, the school principal or his / her designee shall activate its emergency response plan to ensure the safety and welfare of students and staff.

F. Following receipt of notification of an emergency, the principal (or designee) will notify the Superintendent of Schools, the Safety/Security Officer, the school transportation system director, and the EOC representative of their course of action. This will ensure that resources are activated or put on standby to implement the school plan.

III. PROTECTIVE ACTION: SHELTERING

Protective actions include sheltering and evacuation. All actions shall be performed under the direction of the school principal or his / her designee. When notified that sheltering is necessary the following actions shall be taken:

A. Notify students and staff of existing emergency and instructions to be followed by PA system.

B. Ensure that all outside activities have ceased and all have returned to the buildings.

C. Remain indoors until notified that it is safe to leave the building. DO NOT GO OUTSIDE. All students will remain in classrooms under the supervision of a teacher.

D. Teachers and staff members will close all doors and windows.

E. Custodial staff will turn off ventilation systems leading to the outside (i.e., air conditioning, heat system, fans).

F. Remain in the interior section of the building away from exterior doors and windows for greatest protection (i.e., basement, interior rooms, etc.)

G. Food service staff should cut off all fans, air conditioners, forced air heating systems, and any other ventilation system leading to the outside.

H. Communicate with superintendent of schools regarding protective actions undertaken.

IV. PROTECTIVE ACTION: EVACUATION

A. Notification to evacuate a school may occur depending upon the severity of conditions during an emergency. Efforts will be made to evacuate all schools within the shortest possible time.

B. Upon notice to evacuate, the principal or designee will announce the course of action that the school will take over the PA system. Students will clear their desks, lockers, and closets of personal items and report to classrooms or homerooms. Teachers will take roll call and account for all students.

C. Each school will be evacuated to the reception center identified for that school. Teachers and other school staff will be requested to drive personal vehicles to reception center location and assist in accountability of students; however, at least one (1) teacher or staff member will be

assigned to each bus leaving the school. Students will not be allowed to drive their personal vehicles to the reception center location.

D. Each school will be assisted in traffic and crowd control by a law enforcement officer from local or state government. Buses will leave each school and proceed to the reception center as a convoy. Each convoy will be escorted and followed by a law enforcement officer. They will also serve as the primary communications link between the convoy and the EOC. Additional buses will be allocated if necessary.

E. After leaving the school, all evacuees will proceed directly to the appropriate reception center. Families will be notified by Cumberland County Schools “Connect ED” message system and local media of the reception center location to which their children have been relocated. Parents / guardians should not attempt to go to the school for pick up but should proceed to the appropriate reception center location.

V. STUDENT IDENTIFICATION

A. Each student shall be provided with a visible identification badge (either a school id self-adhesive label or school manufactured badge that will be worn on the student’s body pinned to clothing with a safety pin) prior to evacuation. The following information will be on the badge:

1. School
2. Student's name
3. Address
4. Name of parent / guardian
5. Home telephone number
6. Teacher's name
7. Bus number of evacuations

B. The identification badges will be prepared at the beginning of each year and updated on a routine basis to ensure that each student is provided with a means of identification if evacuation should become necessary. If utilized for evacuation for other than a radiological emergency, new badges shall be made for each student following use of the earlier badges. It is vitally important that this information be maintained and updated routinely since some younger students may be confused and unable to communicate their identity to reception center officials. Identification badges will be kept by the teacher and distributed in the event an evacuation is ordered.

VI. TRANSPORTATION

A. Transportation resources will be pre-established to expedite the evacuation process. Transportation needs will be reviewed at the beginning of each academic year to ensure adequate resources. School buses will be the primary means of transportation. In addition, activity buses and other support vehicles may be used. If additional transportation is necessary, it will be provided through the EOC. Students driving to schools will not be permitted to drive their own cars out of the area but will be instructed by the principal to report immediately to the assigned reception center.

B. The principal or designee at each school will assign the order in which buses will be loaded by classroom with at least one (1) teacher or staff member assigned to each bus. All buses will be

loaded to maximum safe capacity.

C. Each school will have a supply of information packages for bus drivers. Each package will contain protective information and directions to the appropriate reception center.

* Plans, specific to each school, are available from the school principal or the Administrative Offices.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

TRAINING AND EXERCISE

Primary Agency:

- Cumberland County Emergency Management

Support Agencies:

- NC Division of Emergency Management
- Emergency services training officers
- Red Cross

I. PURPOSE

To identify training and exercise programs available to county personnel in support of the County's planning efforts and response / recovery operations.

II. SCOPE

The Training and Exercise annex covers the below listed programs and identifies the target and audiences along with other information for each.

III. PROGRAMS

A. *Shelter Management Course*

1. Scope

   A four to six-hour course which includes registration and identification of those being sheltered, organization of the shelter, types of shelter groups, organization of property brought into the shelter and shelter resources; shelter rules, social control and goals in radiological protection. It also includes the importance of water, safety, food, fresh air, sleeping, recreational activities and support.

2. Availability

   Conducted by the American Red Cross in Cooperation with Emergency Management.

3. Refresher Training

   At least once every year by the County Shelter Officer or upon request to the office of Emergency Management.

B. *Shelter Monitoring*

1. Scope

   A three-hour course presents an overview of the appropriate emergency response plans and standard operating procedures for persons assigned

duties at personnel monitoring and decontamination stations, personal dose measurement, record keeping, and personal monitoring and decontamination duties should take the 12-hour FCRM Course and this three-hour course to be fully trained.

2. Availability

   Conducted by the Division of Emergency Management certified instructors upon request.

3. Refresher Training

   At least once every two years or as deemed necessary

C. NIMS

1. Scope

   The NIMS represents a core set of doctrine, principles, terminology, and organizational processes to enable effective, efficient and collaborative incident management at all levels. To provide the framework for interoperability and compatibility, the NIMS is based on a balance between flexibility and standardization.

2. **Availability**

   Conducted by the Division of Emergency Management certified instructors upon request.

3. Refresher Training

   At least once every two years or as deemed necessary

Additional courses may be found on the North Carolina Emergency Management *website under Training.*

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

UNMET NEEDS

Primary Agency:

- Cumberland County Department of Social Services

Support Agencies:

- Health Department
- County Manager
- Emergency Management
- Other agencies as appropriate, and private and faith-based organizations

I. PURPOSE

This section describes the process for addressing unmet needs following an emergency / disaster.

II. SITUATION AND ASSUMPTION

A. Situation

1. "Unmet needs" refers to those needs of individuals that are not met, or cannot be met, through a variety of service organizations i.e., Red Cross, Salvation Army, or Federal, State and local government programs.

2. Typical unmet needs can include the following:

    - Financial Assistance
    - Housing
    - Food
    - Transportation
    - Home Furnishings
    - Medical
    - Debris Removal
    - Counseling

3. An unmet needs committee is in place consisting of the following representatives:

    - Emergency Services
    - County Commissioners
    - Mayors & Commissioners
    - Social Services

    Faith based organizations or businesses

This committee is chaired by the Social Services Director and is responsible for the identification of those persons who, for whatever reason, did not receive assistance or sufficient assistance to get them back to pre-disaster levels.

4. There are many sources of assistance available to be utilized through Church groups, civic groups, individual contributions and others.

B. Assumptions

1. There may be people with unmet needs following an emergency / disaster.

2. The committee will work with all available sources to identify those people with needs and all victims will be identified.

3. Assistance will be available to help with unmet needs.

4. All victims will be returned to pre-disaster levels.

III. CONCEPT OF OPERATIONS

A. The committee will meet following an emergency / disaster and start assessing the needs, monitoring assistance and creating files on the victims and their needs.

B. The committee will coordinate with other relief agencies to eliminate duplication of aid.

C. Pre-disaster situations of victims will be determined on a case-by-case basis.

D. Assistance other than the normal Federal, State and local programs will be identified and utilized in meeting needs.

E. The committee will maintain a presence in the Disaster Application Center.

F. The committee will refine the concept of operation as needed to best address the unmet need of the emergency at hand.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

VITAL FACILITIES

Primary Agency:

- Cumberland County Emergency Management

Support Agencies:

- County Manager
- County Maintenance
- Sheriff
- Superintendent of Schools

I. PURPOSE

This section provides for the identification and management of critical / vital facilities.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. Many of these identified facilities would be vital to emergency response during a major emergency or disaster event. Other facilities would be critical for immediate and long-term recovery operations.

2. Several categories of vital facilities and resources have been identified in Cumberland County including:

   Vital Facilities:
   a. Shelter facilities
   b. Health / Medical facilities
   c. Government facilities
   d. Communications facilities
   e. Public buildings
   f. Emergency service facilities

   Vital Utilities:
   a. Communications network components
   b. Electric distribution system components
   c. Transportation networks
   d. Energy facilities
   e. Water distribution / waste water facilities

   Vital Resource and services sites:
   a. Private shelter / reception centers
   b. Landfill and debris collection sites
   c. Public / Private supply centers
   d. Helicopter landing sites

Special Needs Facilities:

a. Correctional facilities
b. Congregate Care facilities
c. Day Care facilities
d. Hospitals

3. Cumberland County Emergency Management maintains a list of public and private sector resources that could be utilized during an emergency / disaster response.

4. Cumberland County vital facility information is updated on a regular basis.

B. Assumptions

1. Identification of vital facilities will make it possible to predict the consequences of disaster, and to expedite the response of necessary resources from outside the area of impact.

2. Knowledge of the location and function of vital facilities will reduce the dependence on unwritten and assumed information.

3. Knowledge of vital facilities will expedite damage assessment and loss estimation.

4. The identification of vital facilities allows for the prioritization of post-disaster areas and restoration.

III. CONCEPT OF OPERATIONS

A. Information pertaining to vital facilities and resources will be maintained in the Cumberland County computer systems, and accessible to the Cumberland County and Municipal Emergency Operations Centers.

B. Annual update of the vital facilities inventory will be maintained through the Office of Emergency Management.

C. Vital facilities may serve as the basis for establishing mutual aid and statements of understanding with other governmental or non-governmental agencies.

D. Knowledge of the location and function of vital facilities allows for the implementation of planned mitigation approaches / projects in an attempt to reduce vulnerabilities.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

GLOSSARY

AREA "C" EMERGENCY MANAGEMENT COORDINATOR - Supervisor of the field office of the N.C. Division of Emergency Management, which serves the East Central Area of the state. The Area C Coordinator serves as liaison between State and Local governments, procures and coordinates necessary State resources.

CFR - Code of Federal Regulations: "49 CFR" refers to Title 49, the primary volume regarding HAZMAT transportation regulations.

CHEMTREC - **Chem**ical **Tr**ansportation **E**mergency **C**enter operated by the Chemical Manufacturers Association to provide information and/or assistance to emergency responders.

Command Post - A centralized base of operations established near the site of a hazardous materials incident.

Community Emergency Coordinator - A person appointed for the local emergency planning committee (pursuant to SARA), who makes determinations necessary to implement plans, and who receives official emergency notification of releases.

Comprehensive Emergency Management (CEM) - An integrated approach to the management of emergency programs and activities for all four phases (mitigation, preparedness, response, and recovery), for all types of emergencies and disasters (natural, manmade, and attack), and for all levels of government (local, State, and Federal) and the private sector.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 - Legislation (PL 96-510) covering hazardous substance releases into the environment and the cleanup of inactive hazardous waste disposal sites. CERCLA established the "Superfund" to provide resources for these clean-ups. Amended and extended by SARA. (See CERCLA)

Continuity of Government (COG) - Plans and procedures for ensuring the survival and operational capabilities of governmental processes and lines of succession. This includes the protection and maintenance of agency and departmental vital records.

CPG 1-5, Objectives for Local Emergency Management - prepared by FEMA. Describes and explains functional objectives that represent a comprehensive and integrated emergency management program.

CPG - 1-8, Guide for Development of State and Local Emergency Operations Plans - prepared by FEMA (see EOP).

CPG 1-8a, Guide for the Review of State and Local Emergency Operations Plans - prepared by FEMA. Provides FEMA staff with a standard instrument for assessing EOPs that are developed to satisfy the eligibility requirement to receive Emergency Management Assistance (EMA) funding. Also called the "crosswalk" checklist. Utilized in development of NRT-1a.

Damage Assessment/Estimation - The conduct of on the scene surveys following any disaster to determine the amount of loss or damage caused by the incident. Extent of damage is assessed in all types of disasters such as flash flood, tornado, winter storm, hurricane, nuclear power incident, and chemical explosion.

Department of Crime Control and Public Safety (CC&PS) - The North Carolina department responsible for state crime control and disaster preparation and response.

Disaster - An occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from any natural or man-made accidental, military or paramilitary cause.

Division of Emergency Management (EM) - The North Carolina state agency tasked with protecting the general public from the effects of natural or man-made disasters.

Emergency Alert System (EAS) - A voluntary network of broadcast stations and interconnecting facilities, which have been authorized by the Federal Communications Commission to disseminate information during an emergency, as provided by the Emergency Alert System Plan. EAS is made up of AM, FM, TV Broadcast Stations and non-governmental electronic communications operating in a voluntary organized manner during natural / man-made emergencies or disasters at national, state or local levels. This system keeps the public informed.

Emergency Management - Organized analysis, planning, decision-making, assignment, and coordination of available resources to the mitigation of, preparedness for, response to, or recovery from major community-wide emergencies. Refer to local and state emergency legislation.

Emergency Services Director (ESD) - The Emergency Response person responsible to the Direction and Control Group for coordinating the response activities of the combined government, industry, and public forces at work in the disaster.

Emergency Medical Services (EMS) - Local medical response teams, usually rescue squads or local ambulance services which provide medical services during a disaster.

Emergency Operations Center (EOC) - The protected site from which civil government officials (municipal, county, State, and Federal) exercise centralized direction and control in an emergency. Operating from an EOC is a basic emergency management concept. The person-in-charge of the disaster directs the response from this location, and all community officials assigned primary emergency response tasks coordinate their actions from this center. The EOC also serves as a Resource Center and coordination point for additional field assistance. The EOC may be partially activated with key staff persons meeting periodically, or it may be fully activated, thus operating on a continuous 24-hour basis, depending on the situation.

Emergency Operation Plan (EOP) - An all-hazards document, which briefly, clearly, and concisely specifies actions to be taken or instructions to be given in the event of natural disasters, technological accidents, or nuclear attack. The plan identifies authorities, relationships, and the coordinated actions to be taken based on predetermined assumptions, objectives, and existing capabilities.

Emergency Public Information - Information disseminated primarily in anticipation of an emergency, or at the actual time of an emergency; in addition to providing information as such, frequently directs actions, instructs, and transmits direct orders.

Evacuation - A population protection strategy involving orderly movement of people away from an actual or potential hazard.

Exercise - Maneuver or simulated emergency condition involving planning, preparation, and execution for the identification of areas of strength and weakness for improvement of emergency plan (EOP).

Extremely Hazardous Substance - EPA list of 300-plus substances named in SARA section 302(a)(2). Section 302, 303, and 304 of CERCLA apply to these substances. Length of list may be altered by EPA review process.

Federal Emergency Management Agency (FEMA) - A federal agency tasked with national emergency preparedness and disaster response. Responsibilities include assistance in all aspects of community planning, preparedness and response to the full range of likely disasters and emergencies, including recommendation for a Presidentially declared disaster area and administration of disaster funds. Provides a range of expertise and administrative skills in community preparedness planning via state emergency offices. It also deals in flood insurance, temporary emergency housing, training of state and local emergency response personnel and funding of preparedness projects and functions.

General Statute (G.S.) - The specific form of state law, codified and recorded for reference.

Hazard Analysis - A process used by emergency managers to identify and analyze crisis potential and consequences.

Hazard Identification - The Hazard Identification provides a structured approach for identifying those hazards judged by local officials to pose a significant threat to their jurisdiction.

HazMat, Hazardous Materials - any substance or material in a particular form or quantity, which the Secretary of Transportation finds may pose an unreasonable risk to health, safety, and property.

Hurricane - Pronounced rotary circulation, constant wind speed of 74 miles per hour (64 knots) or more.

ICS - Incident Command System: combination of facilities, equipment, personnel, procedures, and communication operating within a common organizational structure with responsibility for management of assigned resources to effectively direct and control the response to an incident. Intended to expand as situation requires larger resource, without requiring new, reorganized command structure.

In-Place Sheltering - Directing of personnel to remain in a building or seek shelter in a building or structure, in lieu of evacuation, for protection from a life safety threat.

Integrated Emergency Management System (IEMS) - A system, which allows improved capability by all levels of government to mitigate, prepare for, respond to, and recover from all disasters or emergencies.

LEPC - Local Emergency Planning Committee. (See "Committee")

Material Safety Data Sheet (MSDS) - Compilation of the health, flammability and reactivity hazards of a chemical. It is a legal document, required by the OSHA and SARA to be submitted to LEPC, SERC, and local fire department by chemical manufacturer or importer.

Mitigation - Is an activity that actually eliminates or reduces the probability of a disaster occurrence or reduces the effects of a disaster. Mitigation includes such actions as, zoning and land use management, safety and building codes, flood proofing of buildings, and public education.

Mutual Aid Agreements - Formal or informal understanding between jurisdictions that pledge exchange of emergency or disaster assistance.

National Contingency Plan (NCP) - Term referring to the National Oil and Hazardous Substance Pollution Contingency Plan. Regulations prepared by the Environmental Protection Agency implement the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the response system of the Clean Water Act (sec. 311); refer to 40 CFR Part 300. It establishes three organizational levels: the National Response Team (NRT), Regional Response Teams (RRTs), and On-Scene Coordinators (OSCs), and can be implemented using two sources of federal response

funding. One fund enables the OSC to conduct oil spill activities; the other is used for chemical releases.

National Response Center (NRC) - Established under the Clean Water Act and CERCLA and operated by the U.S. Coast Guard. The NRC receives and relays notices of discharges or releases, disseminates reports when appropriate, and provides facilities for use in coordinating a national response action when required. For release reporting call 24-hours a day (800) 424-8802; in Washington, D.C. call (202) 426-2675.

National Response Team (NRT) - Organization of representatives from 14 federal agencies with responsibility for national planning and coordination (interagency and interjurisdictional) of CERCLA objectives.

NOAA - National Oceanic and Atmospheric Administration.

National Warning System (NAWAS) - The Federal Warning System, used to disseminate warnings of imminent natural disaster or enemy attack into a Regional Warning System, which passes it to the State Warning Points for action.

National Weather Service (NWS) - A federal Agency tasked with forecasting weather and providing appropriate warning of imminent natural disaster such as hurricane, tornados tropical storm, etc.

NRT-1 - Emergency Planning Guide issued by NRT, dated March 1987; fulfills Congressional requirement for unified Federal guidance document for HazMat emergency planning. Product of numerous inputs from State and local government, industry, emergency planners, environmental groups, and the public. Known to some as the "orange book", and is a key, central document for LEPC/SERC guidance.

NRT-1A - "Criteria for Review of Hazardous Materials Emergency Plans", issued by NRT in May 1988, to assist communities in assessing the effectiveness of their plans. Derived in part from FEMA documents such as CPG 1-8,1-8a, and NRT-1.

NSF - The Coast Guard's National Strike Force (NSF), composed of two strategically located strike teams which are extensively trained and equipped to assist OSCs in responding to major oil spills and chemical releases. Their capabilities are especially suited to incidents in a marine environment but also include site-assessment, safety, action plan development and documentation for both inland and coastal zone incidents.

On-Scene Commander - Official who directly commands and allocates local resources and supervises all local operations at the scene.

Public Information Officer (PIO) - Official responsible for preparing and coordinating the dissemination of public information in cooperation with other responding Federal, State, and local government agencies. Also called Public Affairs Officer (PAO).

Recovery - Activity involves assistance to return the community to normal or near-normal conditions. Short-term recovery returns vital life-support systems to minimum operating standards. Long-term recovery may continue for a number of years after a disaster and seeks to return life to normal or improved levels. Recovery activities include; temporary housing, loans or grants, disaster unemployment insurance, reconstruction, and counseling programs.

Regional Response Team - Established under CERCLA and operated under the National Response Team, chaired by EPA and co-chaired by Coast Guard; composed of representatives of Federal agencies and a representative from each State in the Federal region.

Response - Activities occur immediately before, during, and directly after an emergency or disaster. They invoke lifesaving actions such as the activation of warning systems, manning the EOCs, implementation of shelter or evacuation plans, and search and rescue.

Risk Analysis - Assesses probability of damage (or injury) due to probable hazards, in light of the hazard analysis and vulnerability analysis.

SARA - Superfund Amendments and Reauthorization Act of 1986 (PL99-49-9). Extends and revises Superfund authority (in Title I & II). Title III of SARA includes detailed provisions for community planning and Right-To-Know systems.

Sect III (of SARA) - The "Emergency Planning and Community Right-to-Know Act of 1986". Specifies requirements for organizing the planning process at the State and local levels for specified extremely hazardous substances; minimum plan content; requirements for fixed facility owners and operators to inform officials about extremely hazardous substances present at the facilities; and mechanisms for making information about extremely hazardous substances available to citizens. (42 USC., sec.1101, et. seq.-1986)

SERC - State Emergency Response Commission, designated by the Governor, responsible for establishing HAZMAT planning districts and appointing/overseeing Local Emergency Planning Committees.

Shelter - A facility to house, feed, and care for persons evacuated from a risk area for periods of one or more days. For the risk areas the primary shelter and the reception center are usually located in the same facility.

Staging Area - A pre-selected location having large parking areas such as a major shopping area, schools, etc. The area is a base for the assembly of and management of responding resources.

Standard Operating Procedures (SOPs) - Set of instructions having the force of a directive, covering features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness, and implemented without a specific direct order from higher authority.

State Emergency Response Plan - Plan designated specifically for State-level response to emergencies or major disasters; which sets forth actions to be taken by the State and local governments, including those for implementing Federal disaster assistance.

State Emergency Response Team (SERT) - A team of emergency response personnel from the Department of Crime Control and Public Safety who are dispatched to the scene of a disaster in order to evaluate conditions, offer advice, and coordinate all recovery activities.

State Warning Point (SWP) - The State facility (State Highway Patrol Communications Center) that receives warnings and other emergency information over NAWAS and relays this information in accordance with current directives.

Superfund Amendments and Reauthorization Act of 1986 (SARA) - Act (PL99-499) reauthorizing the Comprehensive Environmental Response, Compensation, and Liability Act for another 5 years. Under Title III of SARA, new authorities are established for chemical emergency planning and preparedness, community right-to-know reporting, and toxic chemical release reporting.

Threshold Planning Quantity (TPQ) - The amount of an Extremely Hazardous Substance present in a facility at any one time which, when exceeded, subjects the facility to Emergency Planning Notification (sec.302).

Threshold Report Quantity (TRQ) - The amount of Hazardous Chemical present in a facility at any one time which, when exceeded, subjects the facility to the Hazardous Chemical Reporting

requirements of 40 CFR 370. The threshold reduces over several years to a base value that will be the reporting level thereafter.

Tier I or Tier II - Inventory form for reporting Hazardous Chemicals (Sec. 312) and Extremely Hazardous Substances (Sec. 302). Tier II describes more detailed chemical quantity and location(s) within the facility.

Traffic Control Points - Places along evacuation routes that are manned to direct and control movement to and from the area being evacuated.

Tropical Depression - Rotary circulation at surface, highest constant wind 38 miles per hour (33 knots).

Tropical Disturbance - A moving area of thunderstorms in the Tropics that maintains its identity for 24-hours or more. A common phenomenon in the tropics.

Tropical Storm - Distinct rotary circulation, constant wind speed ranges 39-73 miles per hour (34-63 knots).

Tornadoes - Spawned by hurricanes sometimes produce severe damage and casualties. If a tornado is reported, a warning will be issued.

Vulnerability - The susceptibility to life, property, and the environment to damage is a hazard manifests its potential.

Vulnerability Analysis - Identifies what is susceptible to damage. Should provide information on: extent of the vulnerable zone; population, in terms of size and types that could be expected to be within the vulnerable zone; private and public property that may be damaged, including essential support systems and transportation corridors; and environment that may be affected, and impact on sensitive natural areas and endangered species.

Warning Point - A facility that receives warning and other information and disseminates or relays this information in accordance with a prearranged plan.

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

ACRONYMS AND ABBREVIATIONS

ARC - American Red Cross

ARES - Amateur Radio Emergency Service

CFR - Code of Federal Regulations

CPCS - Common Program Control Station

CPG - Civil Preparedness Guide

DCI - Division of Criminal Information (formerly Police Information Network)

DEHNR - Department of Environment, Health and Natural Resources

EAS - Emergency Alert System

EHS - Extremely Hazardous Substance

EM - Emergency Management

EMD - Emergency Management Director

EMS - Emergency Medical Services

EMT - Emergency Management Technician

EOC - Emergency Operations Center

EOP - Emergency Operations Plan

FAR - Federal Aviation Regulation

FCC - Federal Communications Commission

FEMA - Federal Emergency Management Agency

GS - General Statute

HAZMAT - Hazardous Materials

IC - Incident Commander

ICS - Incident Command System

IDLH - Immediately Dangerous to Life and Health

IEMS - Integrated Emergency Management System

LEPC - Local Emergency Planning Committee

MSDS - Material Safety Data Sheet

NAWAS - National Warning System

NCEM - North Carolina Division of Emergency Management

NCERC - North Carolina Emergency Response Commission

NCGS - North Carolina General Statues

NCP - National Contingency Plan

NFPA - National Fire Protection Association

NOAA - National Oceanic and Atmospheric Administration

NRC - Nuclear Regulatory Commission

NRT - National Response Team

NWS - National Weather Service

OSHA - Occupational Safety and Health Act

PIO - Public Information Officer

RRT - Regional Response Team

SARA - Superfund Amendments and Reauthorization Act

SERC - State Emergency Response Commission

SERT - State Emergency Response Team

SOG - Standard Operating Guidelines

SOP - Standard Operating Procedure

SWP - State Warning Point

TLV - Threshold Limit Value

TPQ - Threshold Planning Quantity

TRQ - Threshold Reporting Quantity

USCG - United States Coast Guard

CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

Comprehensive Glossary of Terms
For Nuclear, Biological and Chemical

July 2004

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INTRODUCTION

Section 1 – Introduction

1.1 Background

In this era of the Sophisticated and complex, integrated battlefield, the threat of asymmetric warfare by opposing (national or terrorist) forces using Weapons of Mass Destruction (WMD) has become a very real issue. The number of nations capable of developing and possessing WMD is steadily increasing. Furthermore, the potential for the use of WMD can range from conflict, national war, or acts of terrorism and blackmail. The contingencies necessary to protect U.S. and Allied Forces have never been more important than they are today, especially in the area of design and fielding of Nuclear, Biological and Chemical (NBC) defense equipment.

Our forces must be able to survive, fight, and win in an NBC-contaminated warfare environment. While the U.S. Forces remain the best-protected forces in the world for surviving and conducting operations in an NBC-contaminated environment, NBC warfare is not an area that healthcare providers are willingly familiar with. After Operation Desert Shield/Desert Storm, it became obvious that healthcare providers knew little about the effects of NBC agents or the medical defense against them. However, through education medical professionals have learned that medical defenses are possible and effective, that NBC casualties can be saved and returned to duty, and that mortality can be minimized. There are several ongoing initiatives directed at evaluating the health hazards, integrating human systems, and executing plans on potential materials and prototype pieces of equipment.

1-2. Purpose

Our national leaders take the global NBC threat seriously. The threat of WMD is real, and the potential for devastating casualties is high for NBC agents. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) has developed this Glossary to serve as a tool in providing an explanation of the terms, definitions, and the technical semantics associated with the discussion of NBC equipment, agents, and their potential effects.

1-3. Scope

The NBC threat will continue in planning for future conflicts as well as domestic and International terrorism. It is critical not only for our military to understand the threat of WMD, their impact on tactical operations, and the required preparations for managing casualties but for Federal, state, and local planners; first responders; and medical professionals to understand the WMD threat to civilian populations as well. This Glossary is meant to be available to a wide audience of readers, to include

those who will plan and develop new concepts and systems as well as those who may be called upon to implement plans and systems in response to the use of WMD. By including terms relevant to the diverse backgrounds of users of this document, some terms may not be applicable to a particular group of readers but may still be of benefit by enhancing understanding of the terminology associated with the different aspects of WMD threats, impacts, responses and solutions. For the ease of the reader, the guide has been broken down into separate sections for General, Nuclear, Biological, and Chemical terminology.

Section 2 – General Terms

Absorption
The process of a substance penetrating into or through another substance or medium. The uptake and entry of a substance through intact skin, eyes, or linings of the body (e.g., ingestion or once the substance has entered the lungs).
Acceptable Daily Intake (ADI)
An estimate of the dose resulting from exposure to a toxicant that is likely to be without harmful effect even if continued exposure occurs over a lifetime

Acceptable Intake for Chronic Exposure (AIC)
An estimate similar in concept to the reference dose but derived using a less strictly defined methodology. Chronic reference doses have replaced acceptable intake for chronic exposures as the USACHPPM preferred values for use in evaluating potential non-carcinogenic health effects resulting from chronic exposure to a chemical.

Acceptable Intake for Sub chronic Exposure (AIS)
An estimate similar in concept to the sub chronic reference dose but derived using a less strictly defined methodology. Sub chronic reference doses have replaced acceptable intake for sub chronic exposures as the USACHPPM preferred values for use in evaluating potential non-carcinogenic health effects resulting from
sub chronic exposure to a chemical.

Accuracy
The discrepancy between the true value and the result obtained by measurement.

Acute Effects
Effects that arise quickly and have a relatively short, severe course.
Acute Exposure
Single or multiple exposure(s) to a substance for less than 24 hours.

Acute Toxicity
A term used to describe immediate and severe toxicity. Its use is associated with toxic effects that are severe (e.g., mortality) in contrast to the term “sub chronic toxicity,” which is associated with toxic effects that are less severe.

Adult
An individual 18 or more years of age.

Adsorption
The adhesion of a substance to the surface of another solid or liquid.

Adverse Effect
A biochemical change, functional impairment, or pathological lesion that impairs performance and reduces the ability of the organism to respond to additional challenges.

Adverse Effect Level (AEL)

An exposure level at which there are statistically or biologically significant increases in frequency or severity of harmful effects between the exposed population and its appropriate control group.

Aerosol
A suspension of finely divided liquid or solid particles suspended in a gaseous form. They are solid or liquid substances classified as dusts, fumes, smokes, mists, and fogs according to their physical nature, particle size, and method of generation. Particle size may vary from 100 micrometers (□m) to 0.01 in diameter

Airborne Exposure Limits
These are allowable concentrations in the air for occupational and general population exposures.

Air Sampling
This sampling involves the collection and analysis of samples of air to measure its radioactivity or to detect the presence of radioactive substances, particulate matter or chemical pollutants.

American Conference of Governmental Industrial Hygienists (ACGIH)
Membership includes practitioners in industrial hygiene, occupational health, environmental health, or safety. The ACGIH has 12 technical committees for a range of topics: agriculture safety and health, air sampling instruments and procedures, bio-aerosols, biological exposure indices, computer technology, construction, industrial ventilation, infectious agents, small business, chemical substance threshold limit values, and physical agent threshold limit values. Through the efforts of the committees, ACGIH provides information and recommended practices to industrial hygienists worldwide.
http://www.acgih.org/home.htm

Anecdotal Data
Data based on descriptions of individual cases rather than on controlled studies.

Annual Basis or Annually
Annual basis or annually should be from the month of the current year to the same month of the following year. However, the time period will not exceed 13 months. This does not apply to items covered under the Army Maintenance Management System.

Antidote
Any substance or other agent that inhibits or counteracts the effects of a poison.

Aplasia
Lack of development of an organ or tissue.

Attack
Any act or series of acts by an enemy causing substantial damage or injury to property or persons in any manner by sabotage or by the use of bombs, shellfire, or atomic, radiological, chemical or biological means or other processes.

Availability (Operational)
A measure of the degree to which a system is either operating or is capable of operating at any time when used in its typical operational and support environment.

Blast Effects
When a high explosive detonates, the solid or liquid explosive material is converted into mostly gaseous product. These extremely hot gases expand immediately and compress the air around the charge to form a blast wave.

Btu
A British thermal unit. The amount of heat required changing the temperature of one pound of water one-degree Fahrenheit at sea level.

Carcinogen
A chemical substance known to cause cancer (i.e., malignant tumors) in experimental animals and / or man. Four types of responses are generally accepted as evidence -

a. An increase in incidence of the tumor types that occur in controls.
b. The development of tumors earlier than in controls.
c. The occurrence of tumor types not observed in controls.
d. Two or more tumors of independent origin in one individual.

Carcinogen Classification Schemes
a. American Conference of Governmental Industrial Hygienists (ACGIH)

(1) A1 - Confirmed Human Carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiological studies of, or convincing clinical evidence in, exposed humans.

(2) *A2 - Suspected Human Carcinogen:* The agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that are not considered relevant to worker exposure. Available epidemiological studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

(3) *A3 - Animal Carcinogen*: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that are not considered relevant to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

(4) *A4 - Not Classifiable as a Human Carcinogen*: There are inadequate data on which to classify the agent in terms of its carcinogenicity in humans and / or animals.

(5) *A5 - Not Suspected as a Human Carcinogen*: The agent is not suspected to be a human carcinogen on the basis of properly conducted epidemiological studies in humans. These studies have sufficiently long follow-up, reliable exposure histories, sufficiently high dosage, and adequate statistical power to conclude that exposure to the agent does not convey a significant risk of cancer to humans. Evidence suggesting a lack of carcinogenicity in experimental animals will be considered if supported by other relevant data. Substances for which no human or experimental animal carcinogenic data have been reported are assigned no carcinogen designation.

b. U.S. Environmental Protection Agency (USEPA)
(1) *Group A - Human Carcinogen*: Sufficient evidence in epidemiological studies to support causal association between exposure and cancer.

(2) *Group B - Probable Human Carcinogen*: Limited evidence in epidemiological studies (Group B1) and / or sufficient evidence from animal studies (Group B2).

(3) *Group C - Possible Human Carcinogen*: Limited to equivocal evidence from animal studies and inadequate or no data in humans.

(4) *Group D - Not Classified*: Inadequate or no human and animal evidence of carcinogenicity.

(5) *Group E - No Evidence of Carcinogenicity for Humans*: No evidence of carcinogenicity in at least two adequate animal tests in different species or in adequate epidemiological and animal studies.

c. International Agency for Research for Cancer (IARC)
(1) *Group 1 - The agent (mixture) is carcinogenic to humans*. The exposure circumstance entails exposures that are carcinogenic to humans. This category is used when there is sufficient evidence of carcinogenicity in humans. Exceptionally, an agent (mixture) may be placed in this category when evidence in humans is less than sufficient; however, there may be sufficient evidence of carcinogenicity in experimental animals and strong evidence in exposed humans that the agent (mixture) acts through a relevant mechanism of carcinogenicity.

(2) *Group 2* - This category includes agents, mixtures, and exposure circumstances for which, at one extreme, the degree of evidence of carcinogenicity in humans is almost sufficient, as well as those for which, at the other extreme, there are no human data but for which there is evidence of carcinogenicity in experimental animals. Agents, mixtures, and exposure circumstances are assigned to either Group 2A (probably carcinogenic to humans) or Group 2B (possibly carcinogenic to humans) on the basis of epidemiological and experimental evidence of carcinogenicity and other relevant data.

Group 2A - The agent (mixture) is probably carcinogenic to humans. The exposure circumstance entails exposures that are probably carcinogenic to humans. This category is used when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals. In some cases, an agent (mixture) may be classified in this category when there is inadequate evidence of carcinogenicity in humans but sufficient evidence of carcinogenicity in experimental animals and strong evidence that the carcinogenesis is mediated by a mechanism that also operates in humans. Exceptionally, an agent, mixture, or exposure circumstance may be classified in this category solely on the basis of limited evidence of carcinogenicity in humans.

Group 2B - The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans. This category is used for agents, mixtures, and exposure circumstances for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in humans but sufficient evidence of carcinogenicity in experimental animals. In some instances, an agent, mixture, or exposure circumstance for which there is inadequate evidence of carcinogenicity in humans but limited evidence of carcinogenicity in experimental animals, together with supporting evidence from other relevant data, may be placed in this group.

(5) *Group 3 - The agent (mixture of exposure circumstance) is not classifiable as to its carcinogenicity to humans*. This category is used most commonly for agents, mixtures, and exposure circumstances for which the evidence of carcinogenicity is inadequate in humans and inadequate or limited in experimental animals. Exceptionally, agents (mixtures) for which the evidence of carcinogenicity is inadequate in humans but sufficient in experimental animals may be placed in this category when there is strong evidence that the mechanism of carcinogenicity in experimental animals do not operate in humans. Agents, mixtures, and exposure circumstances that do not fall into any other group are also placed in this category.

(6) *Group 4 - The agent (mixture) is probably not carcinogenic to humans*. This category is used for agents or mixtures for which there is evidence-suggesting lack of carcinogenicity in humans and in experimental animals. In some instances, agents or mixtures for which there is inadequate evidence of carcinogenicity in humans but evidence suggesting lack of carcinogenicity in experimental animals, consistently and strongly supported by a broad range of other relevant data, may be classified in this group.

Carcinogenicity
The potential for development of cancer in a living individual. A cancer is a malignant tumor resulting from a change in the normal growth and development of cells. (Cancerous tumors have the tendency to invade surrounding tissue and spread to other sites in the body.)

Casualty
Any person who is lost to the organization by reason of having been declared dead, wounded, injured, diseased, interned, captured, retained, missing, missing in action, beleaguered, besieged, or detained.

CBRNE
Chemical, Biological, Radiological, Nuclear, and Explosives. This term is used in reference to Homeland Security Issues. (See Homeland Security.)

Ceiling Limit
An airborne concentration of a substance that should not be exceeded.

Ceiling Value
Normally refers to the maximum exposure concentration at any time, for any duration. Practically, it may be an average value over the minimum time required to detect the specified concentration.

Centers for Disease Control and Prevention (CDC)
The CDC is recognized as the lead Federal agency for protecting the health and safety of people, at home and abroad, providing credible information to enhance health decisions, and promoting health through strong partnerships. The CDC serves as the national focus for developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve the health of the people of the U.S. (See the Department of Health and Human Services (DHHS).) http://www.cdc.gov/aboutcdc.htm

Central Nervous System (CNS)
The part of the human nervous system that consists of the brain and spinal cord. Sensory impulses are transmitted, and motor impulses pass out. The CNS supervises and coordinates the activity of the entire nervous system.

Cerebral Anoxia
Absence of oxygen supply to the brain despite adequate perfusion of the tissue by blood.

ChE
Cholinesterase. This is an enzyme that catalyzes the hydrolysis of acetocholine to choline (a vitamin) and acetic acid.

ChE50
The dosage producing 50 percent ChE inhibition in the given population. (Note that the ChE50 is not a dosage that produces this effect in 50 percent of the given population.)

Chemical Abstracts Service (CAS)
CAS is a producer of comprehensive databases of chemical information. Their principal databases, Chemical Abstracts (CA) and REGISTRY, now include about 15 million document records and more than 23 million substance records respectively. CAS also produces databases of chemical reactions, commercially available chemicals, listed regulated chemicals and compounds claimed in patents.

Chemical / Biological Incident Response Force (CBIRF)
This is a Marine strategic organization. It is manned, trained, and equipped to counter the growing chemical / biological terrorist threat. This response force will respond to chemical or biological incidents worldwide, when directed by the National Command Authority, to assist local civilian and

military agencies in order to assist the on-scene commander in providing initial post-incident consequence management. This Force deploys to incident locations by the most expeditious means possible, where they will coordinate initial relief efforts, provide security and area isolation at the affected site; detection, identification and decontamination; expert medical advice and assistance to local medical authorities; and service support assistance as required.

Chemical Stockpile Emergency Preparedness Program (CSEPP)
The U.S. Congress directed that the Army destroy certain kinds of chemical weapons stockpiled at eight U.S. Army installations within the continental U.S. The CSEPP was started in 1988 to enhance the emergency preparedness of the communities around the chemical stockpile (until the stockpile is destroyed) by developing emergency plans and providing chemical accident response equipment, training and warning systems. The CSEPP includes Army, Federal Emergency Management Agency (FEMA), state and local emergency management officials. http://www.fema.gov/ptc.csepp1.htm

Chronic Effects
These are effects that persist over a long period of time. These effects may arise after months or years, may have a long course ranging from relatively mild to severe, or may arise immediately after exposure.

Chronic Exposure
These are multiple or continuous exposures occurring over an extended period of time or a significant fraction of an individual's lifetime.

Chronic Reference Dose (RfD)
An estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of harmful effects during a lifetime. Chronic RfDs are specifically developed to be protective for long-term exposure to a compound (as a Superfund program guideline, seven years to lifetime).

Chronic Study
A toxicity study designed to measure the effects (toxic) of chronic exposure to a chemical.

Chronic Toxicity
Effects that persist over a long period of time whether or not they occur immediately or are delayed. The term "chronic toxicity" is often confused with the term of chronic exposure and is often used to describe delayed toxicity.

cm
Centimeter

Code of Federal Regulations (CFR)
The Code is a consolidation and codification by subject matter of the general and permanent laws of the U.S.

Collective Protection
A shelter, with filtered air, that provides a contamination free working environment for selected personnel and allows relief from continuous wear of protective gear.

Combat Developer (COMDEV)
The command or organization responsible for formulating concepts doctrine, organization, materiel objectives, requirements, and user tests and evaluations.

Compound

A chemical combination of two or more elements combined in a fixed and definite proportion by weight.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
This act was enacted into law in 1980, and its follow-up amendment, the Superfund Amendments and Reauthorization Act (SARA), was passed in 1986. These two laws establish a series of programs for the cleanup of hazardous waste disposal and spill sites nationwide CERCLA and SARA also establish cleanup programs for inactive and abandoned hazardous waste sites. CERCLA and SARA are administered by the USEPA in cooperation with individual states and site owners. CERCLA also enabled the revision of the National Contingency Plan (NCP).
http://www.epa.gov/superfund/action/law/cercla.htm

Concentration (C)
The total quantity of substance present in a given unit volume (of gas or liquid). It may be expressed in any unit or mass per unit of volume such as milligrams per cubic meter (mg/m3), grams per Liter (g/L), or as volume per volume such as parts per million (ppm).

Congestion
The excessive or abnormal accumulation of blood in a tissue or organ.

Contaminant
An impurity in water, soil, materials, etc.

Contaminate
To make impure by contact or mixture into water, soil, materials, etc.

Contamination
Any deposit, adsorption, or absorption of radioactive, biological, or chemical substances on and by structures, areas, personnel, objects, soil, and water. Food and / or water made unfit for human or animal consumption by the presence of radioactive, biological, or chemical substances.

Continuous Exposure Guidance Level (CEGL)
The ceiling concentrations designed to avoid adverse health effects, either immediate or delayed, of more prolonged exposures and to avoid degradation in growth performance that might endanger the objectives of a particular mission as a consequence of continuous exposure for up to 90 days.

Convection
The transfer of heat through a liquid or gas by the actual movement of the molecules.

Convulsion
An abnormal violent and involuntary contraction or series of contractions of the voluntary muscles.

Coronary
Pertaining to the heart.

Criterion
A standard that represents the best scientific estimate of an environmental concentration of a contaminant corresponding to a given level of hazard, which, in the case of non-cancer toxicity, represents a level that is not expected to cause additional health risk.

Ct
This means concentration times time. Note that Ct □□□k, a 2-minute exposure to a concentration of 100 mg/m3 (Ct = 200 milligram-minutes per cubic meter (mg-min/m3)), does NOT necessarily produce the same toxicological effects as a 50-minute exposure to a concentration of 4 mg/m3 (Ct = 200 mg-min/m3).

Ct Value

A measure of vapor or gas exposure by inhalation. It is a product of the concentration usually expressed in mg/m3 and duration of exposure (t) in minutes. The resulting (and somewhat confusing units) is mg-min/m3. It is important to recognize that this is not simple algebra; predictions of toxic effects should never be extrapolated more than twice, or less than half, known toxic exposure data. (Exposure to 1 mg/m3 for 20 minutes; 2 mg/m3 for 10 minutes; or 4 mg/m3 for 5 minutes is all valid extrapolations of 2-minute exposure data. All three equate to a Ct of 20 mg-min/m3.

Cutaneous
Pertaining to the skin.

Cytokine
A non-antibody protein released by one cell population that acts as an intercellular mediator on another cell population(s).

Data Quality Objectives
A quantitative or qualitative statement that clarifies study, technical, and quality objectives, defines the appropriate type of data, and specifies potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions.

Data Quality Assessment
The scientific and statistical evaluation of data to determine if data are of the right type, quality, and quantity to support the intended use.

Decontaminate
To breakdown, neutralize, or remove a radioactive, chemical, or biological substance that poses a hazard to personnel or equipment.

Decontamination
Decreasing the amount of chemical agent on any person, object or area by absorbing, neutralizing, destroying, ventilating or moving chemical agents. Decontamination procedures are critical during a. Response Phase: to eliminate direct and immediate threats to human life. b. Recovery Phase: to eliminate indirect and less immediate threats to human life (such as cross-contamination).

Department of Health and Human Services (DHHS)
The DHHS is the U.S. government's principal agency for protecting the health of all Americans and providing essential human services through over 300 different programs. Operating divisions with DHHS include the following:

a. National Institutes of Health (NIH), a world-class medical research organization, supporting some 35,000-research projects nationwide in diseases like cancer.
b. The CDC is the lead Federal agency responsible for protecting the health of the American public through monitoring of disease trends, investigation of outbreaks, health and injury risks, foster a safe and healthful environment, and implementation of illness and injury control and prevention interventions.
c. The Agency for Toxic Substances and Disease Registry (ATSDR) which seeks to prevent exposure to hazardous substances from waste sites by conducting public health assessments, health studies, surveillance activities, and health education training in communities around waste sites on the USEPA’s National Priorities List. ATSDR also has developed toxicological profiles of hazardous chemicals found at these sites. http://www.os.dhhs.gov/

Deposition Probability
The fraction of the activity or mass of an inhaled aerosol that is deposited in a particular region of the lung.

Dermal Exposure
Exposure to or by absorption through the skin. The inflammation of the skin from any cause.

Desquamation
The shedding of epithelial elements, chiefly of the skin, in scales or small sheets; exfoliation.

Detection
The discovery of the existence of a substance/contaminant.

Developmental Reference Dose (RfDdt)
An estimate (with uncertainty spanning perhaps an order of magnitude or greater) of an exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of developmental effects. Developmental reference doses are used to evaluate the effects of a single exposure event.

Differential Pressure
To differentiate in pressure between two points of a system, such as between the inlet and the outlet of a pump.

Diffusion
The process of spontaneous intermixing of different substances due to molecular motion that tends to produce uniformity of concentration.

DNA (Deoxyribonucleic Acid)
A complex sugar-protein polymer of nucleoprotein that contains the complete genetic code for every enzyme in the cell. It occurs as a major component of the genes, which are located on the chromosomes in the cell nucleus.

Dosage
The amount of substance administered (or received) per body weight.

Dose
The amount of substance or energy that is taken into or absorbed by the body; the amount of substance, radiation, or energy absorbed in a unit volume, an organ, or an individual.

Dose Response
The characteristics of exposure to a substance and the spectrum of effects.

Dose-Response Evaluation
The process of quantitatively evaluating toxicity information and characterizing the relationship between the dose of a contaminant administered or received and the incidence of adverse health effects in the exposed population. From the quantitative dose-response relationship, toxicity values are derived that are used in the risk characterization step to estimate the likelihood of adverse effects occurring in humans at different exposure levels.

Dose-Response Relationship
The relationship between—

a. The dose often based on an "administered dose" (i.e., exposure) rather than absorbed dose.

b. The extent of toxic injury produced by that chemical. The response can increase with greater doses and can be expressed either as the severity of injury or proportion of exposed subjects affected.

Dust

Any solid particulate matter from 1 to 150 microns (□) in diameter.

Dry Deposition
Depositing onto surfaces by settling out of particles, as opposed to droplets (liquid); also, by absorption from the vapor phase.

ECt50 (Median Exposure Concentration)
The dosage causing a specifically defined effect in 50 percent of the given population. The route of exposure can be either inhalation or percutaneous. Similarly, the ECt05, ECt16, ECt84, and ECt95 are the dosages causing that defined effect in 5 percent, 16 percent, 84 percent, and 95 percent of the given population, respectively.

ED50 (Median Effective Dose)
The dose of a substance that produces a given, defined therapeutic or toxic effect in 50 percent of the exposed population. NOT A 50 PERCENT EFFECT. This is a quantal (yes/no) determination, but it can be applied to graded effects if they are defined in a quantal manner (e.g., the dose of drug necessary to decrease diastolic blood pressure by 10 millimeters (mm) mercury in 50 percent of the subjects). Under these circumstances, it is imperative that the assumptions and definition of "effect" be stated with the dose.

Edema
The presence of abnormally large amounts of fluid in the intercellular tissue.

Element
One of the 103 known chemical substances that cannot be broken down further without changing its chemical properties. Some examples include hydrogen, nitrogen, gold, lead, and uranium.

Elimination
Removal of material from the body via urine, feces, sweat, or exhalation. Excretion usually refers to elimination via urine or feces.

Embryo / Fetus
The development of a human organism from conception until the time of birth. More accurately; embryo: 2 weeks (when implantation occurs) – 8 weeks; fetus: end of 8-week term.

Emergency
A rare and unexpected situation with potential for significant loss of life, property, or mission accomplishment.

Emergency Disposal
Immediate transportation and disposal of chemical agents/munitions when the senior explosive ordnance disposal person determines the health or safety of any person is clearly endangered.

Emergency Exposure Guidance Level (EEGL)
A concentration of a substance in air (as a gas, vapor, or aerosol) that will permit continued performance of specific tasks during rare emergency conditions, lasting for periods of 1 to 24 hours. This should not be used for planned exposures because these guidance levels are neither safe nor hygienic.

Emergency Phase
As used by FEMA and the USEPA, the initial phase of response actions, during which actions are taken in response to a threat of release or a release in progress. Short-term protective actions, such as sheltering and evacuation, may be taken during this phase to mitigate the hazard from immediate exposure to the passing plume.

Enclosed Area

Any operating building, shed, magazine, railroad car, truck, or trailer that sufficiently restricts natural ventilation to allow possible accumulation of agent vapors.

Endpoint
A response measure in a toxicity study.

Environment
The external surroundings and influences.
Estimate
A numerical value calculated from data. The average is a numerical value of the quantity under measurement. Other parameters, such as the standard deviation, are often estimated from the data.

Evacuation
The urgent removal of people from an area to avoid or reduce high-level, short-term exposure, usually from the plume or from deposited activity. Evacuation may be a preemptive action taken in response to a facility condition rather than an actual release.
Evaporation
The change of a liquid into a gas at any temperature below its boiling point.

Exposure
The amount of chemical that enters the body by some route for a specified frequency and duration.

Exposure Assessment
A process that considers the chemical and physical properties of the substance, the effect the substance produces, the exposure frequency and duration, and the affected subject.

Exposure Duration
The length of time that a receptor population is exposed to a contaminant.

Exposure Routes
The major courses of exposure include ingestion, inhalation, and absorption through the skin.

Extrapolation
An estimate of response or quantity at a point outside the range of the experimental data. Also refers to the estimation of a measured response in a different species or by a different route than that used in the experimental study of interest (i.e., species to species, route to route, acute to chronic, high to low).

Extremity
A bodily limb such as hand, elbow, arm below the elbow, foot, knee, or leg below the knee.

Federal Emergency Management Agency (FEMA)
The mission of FEMA is to reduce loss of life and property and protect the nation's critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response and recovery.
http://www.fema.gov/about

Fertility
The ability to reproduce.

Fever
Abnormally high body temperature, characterized by marked increase of temperature, acceleration of the pulse, increased tissue destruction, restlessness, and sometimes delirium.

Field Operations

Activities conducted outdoors or outside of man-made enclosures or structures which contain built-in alarms or engineered chemical agent controls. Short-term operations in storage structures are also considered field operations.

First Aid
Any one-time treatment, and any follow-up visit for the purpose of observation or minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such one-time treatment and follow-up visit for observation, is considered first aid, even though provided by physician or registered medical professional personnel.

g
gram.

g/L
grams per Liter

Gas
A state of matter in which the material is compressible and has a low density and viscosity.

Genetic Effect
An effect in a descendant resulting from the modification of genetic material in a parent.

Geneva Protocol
“Geneva Protocol for the Prohibition of the Use in War of Asphyxiating Gases and Poisonous or other Bacteriological Methods of Warfare” of 17 June 1925; first diplomatic attempt to limit biological warfare; ratified by the USA in 1975. http://www.state.gov/www/global/arms/treaties/geneva1.html#1

Germ Cell
A cell from which another organism can develop; a sex cell.

Global Positioning System (GPS)
A high-precision satellite navigation service created by the U.S. military.

Granulocytopenia
A symptom complex consisting of a marked decrease in the number of circulating white blood cells, with lesions of the throat and mucous membranes.

Hazardous Materials
Any material that is flammable, corrosive, an oxidizing agent, explosive, toxic, poisonous, etiological, radioactive, nuclear, unduly magnetic, a chemical agent, biological research material, compressed gases, or any other material that, because of its quantity, properties, or packaging, may endanger human life or property.

Health Hazard
An existing or likely condition, inherent to the operation or use of materiel, that can cause death, injury, acute or chronic illness, disability, or reduced job performance of personnel by exposure to acoustical energy, biological substances, chemical substances, oxygen deficiency, radiation energy, shock, temperature extremes, trauma, and vibration.

Health Hazard Assessment (HHA)
The application of biomedical knowledge and principles to document and quantitatively determine the health hazards of systems. This assessment identifies, evaluates, and recommends solutions to control the risks to the health and effectiveness of personnel who test, use, or service Army systems. This assessment includes the evaluation of hazard severity, hazard probability, risk assessment, and

operational constraints; the identification of required precautions and protective devices; and the training requirements.

Health Hazard Assessment Report (HHAR)
The formal Army documentation for a given system, the assessment of health hazard issues and risks, the recommendation of preventive or control actions, and the recommendation of training requirements.

Health Hazard Domain Report (HHDR)
This report is one of the seven domain reports made under the Army Manpower and Personnel Integration (MANPRINT) Program. It identifies potential health hazards that may be associated with the development, acquisition, operation, and maintenance of Army systems. This identification will be done early in the system's life cycle to preserve and protect the humans who will—

a. Operate, maintain, and support the equipment.
b. Enhance total system effectiveness.
c. Reduce system retrofit needed to eliminate health hazards.
d. Reduce personnel compensation.

Data from this report are entered into the MANPRINT Program Report and the System Manpower and Personnel Integration Program Management Plan (SMMP).

Health Standards
Published documents specifying conditions of acceptable risk for individual health hazards. These can include medical exposure limits, health conservation criteria, and materiel design standards.

Heat Cramps
An illness due, in part, to excessive loss of salt during sweating resulting in painful muscle spasms in the extremities, back and abdomen.

Heat Exhaustion
An illness due to circulatory failure in which venous blood returned to the heart is significantly reduced; fainting may result. This failure is caused because the individual's blood supply is not adequate to serve both heat regulation and other bodily needs.

Heat Strain
The natural, physiological response reaction of the body to the application of heat stress.

Heat Stress
The relative amount of thermal strain from the environment.

Heat Stroke
An illness due to the body temperature reaching a level where sweating stops. The body temperature can then rise to critical levels causing tissue damage and death.

Homeland Security
A national strategy to strengthen protections against terrorist threats or attacks in the U.S. (See Office of Homeland Security.)
http://www.whitehouse.gov/homeland

Host
A living animal or plant that harbors or nourishes another organism.

Hypotension
Abnormally low blood pressure.

Ileus
Obstruction of the intestines.

Immediate versus Delayed Toxicity
The immediate effects that occur or develop rapidly after a single administration of a substance; delayed effects are those that occur after the lapse of some time. These effects have also been referred to as acute and chronic, respectively.

Immediately Dangerous to Life or Health (IDLH)
The maximum concentration from which, in the event of respiratory failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing (for example, severe eye irritation) or irreversible health effects (Department of Health and Human Services, National Institute for Occupational Safety and Health (NIOSH) Publication No. 90- 117). (Respiratory protection and sufficient oxygen to support life (at least 16 percent by volume) are addressed in Code of Federal Regulations, Part 1910.134, Title 29 e (3) and g (5).)

Incapacitate
To render a subject unable to perform normal activities or tasks.

Incapacitating Agent
A chemical that produces a temporary, disabling condition that persists for hours to days after exposure has ceased. Complete recovery of casualties is expected without medical treatment.

Incapacitating Dose
The concentration / dose that renders an individual unable to perform normal activities or tasks.

Incapacitation
Considered to be "moderate-to-severe"-unless otherwise specified. It may include prostration and convulsions.

Incidence
The number of new cases of a disease within a specified period of time or dose.

Incidence Rate
The rate new cases of a disease or condition develop within a specified period of time or dose.

Incubation Period.
The time required between initial contact with an infectious agent and the appearance of the first clinical symptoms of disease.

Individual
Any human being.

Individual Risk
The probability that a person will experience an adverse effect. This is identical to population risk unless specific population subgroups can be identified that have different (higher or lower) risks.

Inflammation
Reaction of tissues to injury; characterized by pain, heat, redness, or swelling of the affected parts.

Initial Response Force (IRF)
An emergency action organization tasked to provide first response to a chemical accident/incident at an installation assigned a chemical surety mission or in the public domain. The IRF performs the following functions:

a. Rescue operations.
b. Accident site security.
c. Firefighting.
d. Initiation of appropriate explosive ordnance material procedures.

e. Radiation monitoring.
f. Establishment of command, control, and communication.
g. Public affairs activities.

Injury
A specific impairment of body structure or function caused by an outside agent or force that may be physical or chemical.

Intake
Quantity of material introduced into the body by inhalation, by ingestion, or through the skin.

International Agency for Research for Cancer (IARC)
The mission of IARC is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The Agency is involved in both epidemiological and laboratory research and provides scientific information through publications, meetings, courses, and fellowships. http://www.iarc.fr/

In-vitro
In an artificial environment, referring to a process or reaction occurring therein, as in a test tube or culture media.

In-vivo
In the living body, referring to a process or reaction occurring therein.

Irritant
A substance that produces an irritating effect when it contacts skin, eyes, nose, or respiratory system.

kg
kilogram.

km
kilometers.

Laboratory
A location or facility where engineering controls include a glove box or laboratory type ventilation hood and the quantities of chemical agents in use at one time are small, normally not exceeding one Liter. These operations may include research and development, production/acceptance testing, sample analysis and evaluation, limited detoxification, animal testing, or other small-scale agent operations.

Latent Period
A period of seeming inactivity.

LC50 (Median Lethal Concentration)
A dosage of a substance by inhalation that results in death in 50 percent of the exposed population.

LD50 (Median Lethal Dose)
A dose of a substance that produces death in 50 percent of the exposed population usually as a single dose, with the route of exposure specified.

Liter
A metric unit of volume equal to 1000 cubic centimeters (cm3) or 1.056 quart.

Local versus Systemic Toxicity

Local effects occur at the site of entry (e.g., lungs, stomach) of a toxicant into the body; systemic effects are elicited after absorption and distribution of the toxicant from its entry point to a distant site.

Lowest-Effect Level (LEL)
The lowest exposure level at which there are statistically or biologically significant increases in frequency or severity of effects between the exposed population and its appropriate control group.

Lowest-Observed Adverse Effect Level (LOAEL)
The lowest exposure level at which there are statistically or biologically significant increases in frequency or severity of adverse effects between the exposed population and its appropriate control group.

Malformation
A birth defect; an abnormal structure or form.

"Man"
An individual assumed to be a healthy, 18-35-year-old, 70 kg adult male.

Manpower and Personnel Integration (MANPRINT)
The process of integrating the full range of manpower, personnel, training, human engineering, health hazard, system safety, and soldier survivability to improve individual performance and total system performance throughout the entire system development and acquisition process.

Materiel Developer (MATDEV)
The command or organization responsible for developing or modifying materiel.

Maximum Contaminant Level (MCL)
The maximum permissible level of a contaminant in water that is delivered to the consumer.

Medical Contaminant Criteria
The varying amounts of air contaminants and duration of exposure causing specific adverse effects to health.

meter (m)
A metric unit of length equal to 39.37 inches.

mg/kg
milligram/kilogram.

mg/m3
milligrams per cubic meter.

mg-min/m3
milligram-minutes per cubic meter. It is a product of the concentration of a substance in milligrams per cubic meter times the exposure time in minutes.

micron (□)
A unit of measurement equal to one-millionth (10-6) of a meter.

milligram (mg)
A metric unit of mass equal to one thousandth of a gram, 1 x 10-3 gram.

milliliter (mL)
A metric unit of liquid capacity equal to 0.061 cubic inch.

□g

microgram, 1 x 10-6 g of 1 x 10-3 mg.

□m
micrometer(s)

Microsecond
A one-millionth part of a second. (See Curie, Section 3.)

Military Occupational Specialty (MOS)
A grouping of duty positions possessing such a close occupational or functional relationship that an optimal degree of interchangeability among persons so classified exists at any given skill level.

Military Standard (MIL-STD)
Standards and specifications, also known as MIL-SPEC, developed to specify military-unique requirements whether it is for parts, materials, processes, interfaces, data, or tests.

Milli
A prefix that divides a basic unit by 1000.
Minor
An individual less than 18 years of age.

Minute Volume (MV)
The amount of air expelled from the lungs in a minute that is assumed to be 15 L—unless otherwise stated. This amount represents mild activity.

Mission-Oriented Protective Posture (MOPP)
A flexible system that provides maximum nuclear, biological, and chemical protection for the individual with the lowest risk possible and still maintains mission accomplishment. Typically used to refer to chemical response personnel's personal protection equipment.

Mission Specific Protection
Measures for important units, systems, and functions so that the military units can continue to work with their primary tasks to the greatest extent possible. The aim is that the defense forces will retain their operative ability even after an NBC attack.

Mist
The liquid particles up to 100 □□in diameters.

mm
millimeter.

Molecule
A group of atoms held together by chemical forces. The smallest unit of a compound that can exist by itself and retain all its chemical properties.

Morbidity
The ratio of sick to well individuals in a community; sick rate.

Mortality
The ratio of people who die to those who survive exposure to nuclear/radiological, biological, or chemical agents; death rate.

Mutagen
Anything that can cause a change (mutation) in the genetic material of a living cell.

Mutagenicity
The cause of changes in cellular genetic material that may be passed on to subsequent generations of cells. When these changes occur in germ cells (i.e., sperm or ova), the mutations may be passed on to subsequent generations.

National Command Authority (NCA)
The U.S. President and the Secretary of Defense or their duly deputized alternates or successors, hold this nuclear weapons release authority for the U.S. Armed Forces.
http://www.periscope.ucg.com/terms/t0000206.html

National Contingency Plan (NCP)
The set of regulations that implement CERCLA and direct responsibility and procedures for cleanup of hazardous material spills. The regulations are codified at Code of Federal Regulations, Part 300, Title 40, et seq. http://www.epa.gov/oilspill/ncpover.htm

National Institute for Occupational Safety and Health (NIOSH)
NIOSH was established by the Occupational Safety and Health Act of 1970. NIOSH is part of the CDC and is the only Federal institute responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries.
http://www.cdc.gov/niosh/homepage.html

Nausea
Tendency to vomit; sickness of the stomach.

NBC
Nuclear, Biological and Chemical. This terminology is used in deployment issues.

Nerve Agent
A toxic substance that inhibits the cholinesterase enzyme and, therefore, elevates the acetylcholine level in the body. Symptoms include pinpoint pupils, difficulty focusing, headache, and secretion from the skin and mucous membranes. Nausea, vomiting, and loss of bladder and bowel control lead to severe dehydration. These lead to general muscular fasciculation followed by violent convulsions, respiratory arrest, and death. (See Section 5, Nerve Agent.)

No-Observed Adverse Effects Level (NOAEL)
An exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects (to tissue, cells, organs, etc.) between the exposed population and its appropriate control (some effects may be produced at this level, but they are not considered as adverse, nor precursors to specific adverse effects). It is based on the highest exposure without adverse effect.

No-Observed Effects Level (NOEL)
An exposure level at which there are no statistically or biologically significant increases in the frequency or severity of any effect (to tissue, cells, organs, etc.) between the exposed population and its appropriate control.

North Atlantic Treaty Organization (NATO)
This organization is to enhance the stability, well-being and freedom of its members through a system of collective security. Members of the alliance agree to defend one another from attack by other nations. The alliance includes Belgium, Canada, Denmark, France, the United Kingdom, Iceland, Italy, Luxembourg, The Netherlands, Norway, Portugal, the United States, Greece, Turkey, the newly unified Germany, Hungary, Poland, and the Czech Republic. http://www.nato.int/

Nuclear, Biological, and Chemical (NBC) Contamination
The deposition and / or absorption of residual radioactive material or biological or chemical agents on or by structures, areas, personnel, or objects.

Nuclear, Biological, and Chemical (NBC) Survivability
The capability of a system (and its crew) to withstand an NBC-contaminated environment and relevant decontamination without losing the ability to accomplish the assigned mission. An NBC-contamination survivable system is hardened against NBC contamination and decontaminants. This system can be decontaminated and is compatible with individual protective equipment.

Occupational Safety and Health Administration (OSHA)
The mission of OSHA is to save lives, prevent injuries and protect the health of America's workers. OSHA and its state partners have thousands of inspectors, plus complaint discrimination investigators, engineers, physicians, educators, standards writers, and other technical and support personnel spread over more than 200 offices throughout the country. This staff establishes protective standards, enforces those standards, and reaches out to employers and employees through technical assistance and consultation programs. http://www.osha.gov/comp.links.html

Office of Homeland Security
President George W. Bush established this office on 8 October 2001. Its mission is to develop and coordinate the implementation of a comprehensive national strategy to secure the U.S. from terrorist threats or attacks. The Office will coordinate the executive branch's efforts to detect, prepare for, prevent, protect against, respond to, and recover from terrorist attacks within the U.S. http://www.whitehouse.gov/homeland

Overpressure
The transient pressure that is created by the shock wave of an explosion and exceeds the ambient pressure; expressed in pounds per square inch.

Parameter
The property or quantity that measurements are expected to evaluate.

Parasite
A plant or animal that lives upon or within another living organism at whose expense it obtains some advantage.

Particle Size-Selective-Threshold Limit Values (PSS-TLV□□s)
Expressed in three forms—
a. Inhalable Particulate Mass-TLVs (IPM-TLVs): for those materials that are hazardous when deposited anywhere in the respiratory tract. Particles with aerodynamic diameters up to 100 □m are of interest.
b. Thoracic Particulate Mass-TLVs (TPM-TLVs): for those materials that are hazardous when deposited anywhere within the lung airways and the gas-exchange regions. Particles with aerodynamic diameters up to 25 □m are of interest.
c. Respirable Particulate Mass-TLVs (RPM-TLVs): for those materials that are hazardous when deposited in the gas-exchange region. Particles with aerodynamic diameters up to 10 □m are of interest.

Particulate
A particle of solid or liquid matter. Particle aerodynamic diameters of biological interest range up to 100 □m.

Parts per million (ppm)
Parts (molecules) of a substance contained in a million parts of air.

Pathogenic Organism
Any disease-producing organism.

Perceived Threat

Any possible danger that is experienced by a person subjectively and out of proportion to the real threat or physical danger.

Percutaneous Exposure
The absorption of a contaminant through the unbroken skin.

TLV
Is a registered trademark of the American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio. Use of trademarked name does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.

Periodic Table
An arrangement of chemical elements in order of increasing atomic number. Elements of similar properties are placed one under the other, yielding groups or families of elements. Within each group, there is a variation of chemical and physical properties, but in general, there is a similarity of chemical behavior within each group.

Permissible Exposure Limit (PEL)
Time-weighted average concentrations that must not be exceeded during any 8-hour work shift of a 40-hour workweek.

Personal Protective Equipment (PPE)
The combination of clothing and respirator designed to protect the wearer from exposure to chemical and biological warfare agents.

Personnel
Military and civilian individuals with the abilities, skill level, and grades required to operate, maintain, and support a system in peacetime and wartime. It refers to the Army's ability to provide qualified people of specific aptitudes, experience, and other human characteristics needed to use, operate, maintain, and support Army systems or items. It requires a detailed assessment of the aptitudes that soldiers must possess in order to complete training and to use, to operate, and / or to maintain the system successfully.

Pico
A prefix that divides a basic unit by one trillion.

Population
A group of items / persons / animals belonging to a well-defined class from which
Items / persons / animals are taken for measurement.

Potency
The degree to which an agent can cause strong or toxic effects.

Preliminary Hazard Analysis (PHA)
The initial effort in hazard analysis during the system design phase or the programming and requirements development phase for facilities acquisition. It may also be used on an operational system for the initial examination of the state of safety. The purpose of the PHA is not to affect control of all risks but is to fully recognize the hazardous states with all of the accompanying system applications.

Preliminary Hazards List (PHL)
This list provides the MATDEV with a list of hazards that may require special safety design emphasis or hazardous areas where in-depth analyses need to be done. The MATDEV may use the results of the PHL to determine the scope of follow-on hazard analyses.

Pressor
Tending to increase blood pressure.

Prevalence
The total number of cases of a disease existing in a population at a certain time in a designated area.

Prodrome
A premonitory symptom or precursor; a symptom indicating the onset of a disease.

Prodromal Effects
The forewarning symptoms of more serious health effects.

Properties
The characteristics by which a substance may be identified. Physical properties describe its state of matter, color, odor, and density; chemical properties describe its behavior in reaction with other materials.

Pulmonary
Pertaining to the lungs.

Quarter
A period of time equal to one-fourth of the year observed by the licensee (approximately 13 consecutive weeks), providing that the beginning of the first quarter in a year coincides with the starting date of the year and that no day is omitted or duplicated in consecutive quarters.

Range
The difference between the largest and smallest values in a collection of measurements.

Readiness
Phase of preparations to deal with an accident or incident.

Reaction
Any process involving a chemical or nuclear change.

Reconstruction
Rebuilding and replacing destroyed structures and utilities to approximate the pre-disaster condition.

Recovery Phase
a. The period following the response when immediate threat to human life has passed and general evacuation has ceased. This phase includes—
(1) Recovery: Recovery decontamination refers to the actions taken to restore an affected area to its pre-emergency condition. Thus, it refers to the process of reducing exposure rates and concentrations in the environment to acceptable levels for unconditional occupancy or use after the emergency phase of an accident or incident. Recovery differs from reentry in that recovery encompasses the efforts and resources needed to return the affected area to its pre-accident condition. Recovery includes both short- and long-term activities. Short-term recovery returns vital systems to minimum operating standards, seeks to restore critical services to the community, and provides for the basic needs of the public. Long-term recovery focuses on restoring the community to its normal, or improved state of affairs and on returning life to normal or improved levels. The recovery period is also an opportune time to institute mitigation measures, particularly those related to the recent emergency.

(2) Reentry: Reentry deals with persons entering an affected (i.e., contaminated or potentially contaminated) area following a release. The terms-controlled reentry, restricted reentry, occupational reentry, and emergency reentry refer to the temporary, short-term readmission of persons (primarily

emergency workers) into a restricted zone for the purpose of performing specific tasks (such as monitoring teams). The terms uncontrolled reentry, unrestricted reentry, and general reentry are used in the context of uncontrolled, permanent re-access referring to those provisions leading up to unlimited public access, reoccupation, or use of previously restricted zones after the hazards have been reduced to acceptable levels or have been declared "clean."
(3) Restoration: Removal and decontamination of all NBC agents, removal of any rubble, and emergency repair of structures and facilities. The culmination of these activities is reestablishment of major utilities and services and the return of social and economic activities to near-normal levels. The terms *recovery* and *restoration* have been used in combination to refer to the entire group of activities undertaken to prepare a previously contaminated and restricted area for unlimited reoccupation and / or use by the public.

Reference Concentration (RfC)
An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime.

Reference Dose (RfD)
The toxicity value for evaluating non-carcinogenic effects resulting from exposure at Superfund sites. See specific entries for chronic reference dose, sub chronic reference dose, and developmental reference dose. The acronym RfD, when used without other modifiers, either refers generically to all types of reference dose or specifically to chronic reference dose; it never refers specifically to sub chronic or developmental RfD.

Reference Man
A hypothetical aggregation of human physical and physiological characteristics arrived at by international consensus. These characteristics may be used by researchers and public health workers to standardize results of experiments and to relate biological insult to a common base.

Relocation
Temporary or permanent removal of a population or community in response to an emergency or disaster. A protective action in which persons are asked to vacate a contaminated area to avoid chronic exposure from deposited contamination.

Reproductive Death
The loss of the ability to reproduce. Reproductive death may cause irreversible organ damage.

Reproductive Effects
A toxic effect of a substance that is evident in the second or third generation of exposed grandparents.

Residual Hazards
Hazards that are not eliminated by design.

Residual Risk
The probability or likelihood of injury resulting from the actual use of a substance in the quantity and manner proposed once all recommendations to eliminate or minimize the hazard have been implemented.

Restricted Area or Zone
Any region with controlled access from which the population has been evacuated or relocated; any area to which access is controlled for the protection of individuals from exposure to contamination from NBC agents.

Retained Quantity

The quantity of a deposited material in a compartment, in an organ, or in the whole body at a given time after intake, deposition, or uptake.

Retention Function
A function describing the time dependence of the retained quantity.

Return
Refers to the reoccupation of areas cleared for unrestricted residence or use by previously evacuated populations. It includes what was termed "resettlement" in earlier draft USEPA guidance.

RfDs
Sub chronic Reference Dose. An estimate (with certainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population (including sensitive populations) that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime.

Risk
The probability or likelihood of an adverse effect or event (e.g., injury, disease, or death) resulting from the actual use of a substance in the quantity and manner proposed. It is the product of—
a. The probability that an adverse effect or event will occur under specific circumstances of exposure.
b. The probability that those specific circumstances of exposure will be realized. In quantitative terms, risk is expressed in values ranging from zero (representing the certainty that harm will not occur) to one (representing the certainty that harm will occur).

Risk Assessment
The scientific process of evaluating the toxic properties of a chemical and the conditions of human exposure to it, in order to both ascertain the likelihood that exposed humans will be adversely affected, and to characterize the nature of the effects they may experience. It may contain some or all of the following four steps:
a. Hazard Identification: The determination of whether a particular chemical is or is not causally linked to particular health effect(s).
b. Dose-Response Assessment: The determination of the relation between the magnitude of exposure and the probability of occurrence of the health effects in question.
c. Exposure Assessment: The determination of the extent of human exposure.
d. Risk Characterization: The description of the nature and often the magnitude of human risk, including attendant uncertainty.

Risk Assessment Code (RAC)
A code used to quantify risk to personnel operating or maintaining the system or conducting an operation. The RACs show the adverse health effect or possible loss of bodily systems described in categories of hazard severity and hazard probability. The RAC is assigned based on the failure to implement the recommendations for eliminating or minimizing the hazard. It is an expression of the risk associated with a hazard that combines the hazard severity and accident probability into a single Arabic numeral as described in Army Regulation 385-10.

Risk Management
A decision-making process that entails consideration of political, social, economic, and engineering information with risk-assessment information to develop, analyze, and compare regulatory options and to select the appropriate regulatory response to a potential health risk.

RNA (Ribonucleic Acid)
RNA consists of five-carbon sugar (ribose), phosphate, and four nitrogenous bases (adenine, guanine, cytosine, and uracil). In an RNA molecule, the sugar and phosphate combine to form a structure to which the nitrogenous bases are attached. These molecules range in composition from fewer than 100 to several thousand nitrogenous bases and vary in shape from helical to uncoiled. RNA is the primary agent of protein formation, and processes genetic information from DNA molecules into enzymes necessary for life.

Safety
The opposite of risk. It is the probability that harm will not occur under specified conditions.

Sample Data Collection
A method for obtaining information on the performance and maintainability of equipment. Data are obtained directly from observations made in the field. An effort is made to see that the sample form from which feedback is obtained represents the total population.

Sanitary Sewerage
A system of public sewers for carrying off waste water and refuse, but excluding sewage treatment facilities, septic tanks, and leach fields owned or operated by the licensee.

Sepsis
The presence of pathogenic microorganisms (bacteria) or their toxins in the blood or other tissues.

Severity
The degree to which an effect changes and impairs the functional capacity of an organ system.
Shock
An upset in the body caused by inadequate amounts of blood circulating in the bloodstream. It manifests itself by a drop-in blood pressure, rapid weak pulse, pale moist clammy skin, marked thirst, and a state of great anxiety. Shock can be caused by marked blood loss, overwhelming infection, severe injury to tissues, emotional factors, etc.

Short-Term Exposure
Multiple or continuous exposures occurring over a week or so.

Short-Term Public Emergency Guidance Level (SPEGL)
A suitable concentration of a substance in air (as a gas, vapor, or aerosol) for unpredicted, single, short-term, emergency exposure of the general public.

Site Closure and Stabilization
Those actions that are taken upon completion of operations that prepare the disposal site for custodial care and assure that the disposal site will remain stable and will not need ongoing active maintenance.

Skin Permeability
The rate at which the skin absorbs a liquid; expressed as a coefficient. The lower a substance's coefficient, the greater the rate of absorption.

Symptom
Information related by an individual about himself/herself that may indicate illness or injury. Signs or observations are made about an individual or an animal that may indicate illness or injury.

Syndrome
A set of symptoms that occur together.

Synergistic
Acting together to enhance the effect of another force or agent

System MANPRINT Management Plan (SMMP)
It is a planning and management tool that outlines and documents the Human Systems Integration (HSI) management approach, associated decisions and planning efforts, user concerns, and resolution of MANPRINT issues during system development and acquisition process. Identifying and documenting these issues early in the system acquisition process increases the probability of their

resolution, thereby enhancing total system performance, affordability, supportability, and conservation of the Army resources.

Systemic
Spread throughout the body, affecting all body systems and organs, not localized in one spot or area.

Systemic Effects
Results that require absorption and distribution of the toxicant to a site distant from its portal of entry, at which point effects are produced. Most chemicals that produce systemic toxicity do not cause a similar degree of toxicity in all organs, but usually demonstrate major toxicity to one or two organs. These are referred to as target organs of toxicity for that chemical.

Systemic Toxicity
See Systemic Effects.
t
time.

Terrorism
Terrorism is the use or threatened use of force designed to achieve political or social objectives. It is the premeditated, deliberate, systematic murder, mayhem, and threatening of uninvolved people to create fear and intimidation. To protect against terrorism, individuals should—
a. Be alert and learn where emergency exists are located. Think ahead about how to evacuate a building, subway, or congested public area in a hurry. Learn where staircases are located.
b. Take precautions when traveling. Be aware of conspicuous or unusual behavior. Do not leave luggage unattended. Do not accept packages from strangers.
c. Learn about the different types of terrorist weapons including explosives, kidnappings, hijackings, biological agents, arson, and shootings. (http://www.whitehouse.gov/homeland/)

Threshold
The lowest dose or exposure at which a specified effect begins to be produced.

Threshold, Th50
The vapor dosage producing the defined threshold (low-level) response in 50 percent of the given population. Within the context of this Glossary, the route of exposure can be either inhalation or percutaneous. (Note that percutaneous vapor effects can also include direct vapor effects upon the eyes.)

Threshold Dose
The smallest amount of toxic substance that can produce the first recognizable injuries (e.g., irritation of skin, eyes, or nose; miosis).

Threshold Limit Value (TLV)
A value that refers to airborne concentrations of substances and represents conditions under which it is believed nearly all workers may be repeatedly exposed day after day, without adverse health. A table of these values and accompanying precautions is published annually by the ACGIH.

Threshold Limit Value Categories—
a. Threshold Limit Value- Time-Weighted Average (TLV-TWA): The TWA concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.
b. Threshold Limit Value- Short-Term Exposure Limit (TLV-STEL): The concentration to which workers can be exposed continuously for a short period of time without suffering from:
(1) irritation, (2) chronic or irreversible tissue damage, or (3) narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue, or materially reduce work efficiency, provided

that the daily TLV-TWA is not exceeded. It is not a separate independent exposure limit; rather, it supplements the time-weighted average limit where there are recognized acute effects from a substance whose toxic effects are primarily of a chronic nature. Exposures up to the STEL should not be longer than 15 minutes and should not occur more than four times per day.
c. Threshold Limit Value - Ceiling (TLV-C): The concentration that should not be exceeded during any part of the working exposure.

Time-Weighted Average (TWA) Concentration
The concentration of airborne contaminants that have been weighted for the time duration, usually eight hours. A sufficient number of samples are needed to determine a time-weighted average concentration throughout a complete cycle of operations or through the work shift.

Time-Weighted Average Exposure
An average over a given (working) period of an individual's exposure, as determined by sampling at given times during the period.

Total Parenteral Nutrition
By injection through some route other than the canal providing sustenance or nourishment.

Toxic
Harmful to living organisms; poisonous.

Toxic Dose
The dose of a substance needed to produce a defined toxic effect in 100 percent of the exposed population.

Toxic Dose, TD50
The dose of a substance needed to produce a defined toxic effect in 50 percent of the exposed population. It is an infrequently used term, equivalent to ED50 where "toxicity" is the measured "effect."

Toxic Substances
A substance that destroys life or injures health when introduced into or absorbed by a living organism.

Toxicity
The capacity of a substance to induce injury. It describes the nature, degree, and extent of undesirable effects.

Training Device
Any three-dimensional object developed, fabricated, or procured specifically for improving the learning process.

Tumor
A swelling or enlargement due to pathogenic overgrowth of tissue.

Uncertainty Factor (UF)
One of several, generally 10-fold, factors used in operationally deriving a standard or a reference dose from experimental data. UFs are intended to account for—
a. The variation in sensitivity among the members of the human population.
b. The uncertainty in extrapolating animal data to the case of humans.
c. The uncertainty in extrapolating from data obtained in a study involving less-than-lifetime exposure.
d. The uncertainty in using lowest-observed adverse effect level data rather than NOAEL data.
e. The inability of any single study to address adequately all possible adverse outcomes in man.

Uptake

Quantity of material taken up into the extra-cellular fluids. It is usually expressed as a fraction of the deposition in the organ from which uptake occurs.

U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)
The Department of Defense's lead laboratory for medical aspects of biological warfare defense. It conducts research to develop vaccines, drugs, and diagnostics for laboratory and field use. USAMRIID also formulates strategies, information, procedures, and training programs for medical defense against biological threats. It is Located in Fort Detrick, MD. http://www.usamriid.army.mil

U.S. Environmental Protection Agency (USEPA)
The mission of the USEPA is to protect human health and to safeguard the natural environment. The USEPA implements the Federal laws designed to promote public health by protecting our nation's air, water, and soil from harmful pollution and endeavors to accomplish its mission systematically by proper integration of a variety of research, monitoring, standard-setting, and enforcement activities. http://www.epa.gov/

Vapor
The gaseous form of substances that is normally in the solid or liquid state; it can be changed to this state by increasing the pressure or decreasing the temperature. These vapors will diffuse.

Vaporization
Change of a substance from a liquid into a gas.

Ventilation
One of the principal methods to control health hazards; it may be defined as "causing fresh air to circulate to replace foul air simultaneously removed."

Ventilation, Dilution
Airflow designed to dilute contaminants to acceptable levels.

Ventilation, Mechanical
Air movement caused by a fan or other air-moving device.

Ventilation, Natural
Air movement caused by wind, temperature difference, or other non-mechanical factors.

Virus
Any of various submicroscopic pathogens consisting essentially of a core of a single nucleic acid surrounded by a protein coat, having the ability to replicate only inside a living cell.

Weapons of Mass Destruction (WMD)
This term means any destructive device to include—
a. Any explosive, incendiary, or poison gas.
b. Bomb.
c. Grenade.
d. Rocket having a propellant charge of more than four ounces.
e. Missile having an explosive or incendiary charge of more than one-quarter ounce.
g. Mine.
h. Any type of weapon (excluding a shotgun or a shotgun shell used for sporting purposes) that can be readily converted to, expel a projectile by the action of an explosive or other propellant, and which has any barrel with a bore of more than one-half inch in diameter.
i. Any combination of parts either designed or intended for use in converting any device into any destructive device described above, above from which a destructive may be readily assembled.
j. Any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals or their precursors.
k. Any weapon involving a disease or organism.

l. Any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

Well Bore
A drilled hole in which wire line service operations or subsurface tracer studies are performed.

Wire Line
A cable containing one or more electrical conductors, which is used to lower and raise logging tools in the well bore.

Wire Line Service Operation
Any evaluation or mechanical service that is performed in the well bore using devices on a wire line.

Section 3 – Nuclear Terms

Ablation
The functional destruction of an organ through surgery or exposure to large doses of radiation.

Absorbed Dose
The energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the rad and the gray.

Absorber
Any material that absorbs or lessens the intensity of ionizing radiation. Neutron absorbers (like boron, hafnium, and cadmium) are used in control rods for reactors. Concrete and steel absorb gamma rays and neutrons in reactor shields. A thin sheet of paper or metal will absorb or weaken alpha particles and all except the most energetic beta particles. (See Shielding.)

Absorption
The process by which the number of particles or photons entering a body of matter is reduced or attenuated by interaction with the matter.

Accident Response Group
A group of technical and scientific experts composed of U.S. Department of Energy personnel assigned responsibility for aiding peacetime accidents and significant incidents involving nuclear materials anywhere in the world.

Activation
The process of making a material radioactive by bombardment with neutrons, protons, or other nuclear radiation. (See Induced Radioactivity.)

Activity
The rate of disintegration (transformation) or decay of radioactive material. The units of activity are the curie (Ci) and the becquerel (Bq).

Activity Median Aerodynamic Diameter
The diameter of a unit density sphere with the same terminal settling velocity in air as that of the aerosol particle whose activity is the median for the entire aerosol.

Acute Radiation Exposure
The absorption of a relatively large amount of radiation (or intake or radioactive material) over a short period of time.

Acute Radiation Health Effects

Prompt radiation effects (those that would be observable within a short period of time) for which the severity of the effect varies with the dose, and for which a practical threshold exists.

Acute Radiation Syndrome
The combination of clinical syndromes occurring during a period of hours to weeks after an exposure.

Added Filtration
Any filtration that is in addition to the inherent filtration.

Afterwind
Wind currents that are created near a nuclear explosion by the updraft accompanying the rise of the fireball and that travel toward the blast.

Airborne Radioactive Material
Radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

Airborne Radioactivity Area
A room, enclosure, or area in which airborne radioactive materials exist in concentrations—
a. In excess of the specified derived air concentrations.
b. To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake or 12 derived air concentration hours.

Air Burst
The explosion of a nuclear weapon at such a height that the expanding fireball does not contact the Earth's surface.

Alpha Particle
A positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to a helium nucleus that has a mass number of 4 and an electrostatic charge of +2.

Aluminum Equivalent
The thickness of type 1100 aluminum alloy (the nominal chemical composition of type 1100 aluminum is 99.00 percent minimum aluminum, 0.12 percent copper) affording the same attenuation, under specified conditions, as the material in question.

Analytical X-Ray Equipment
Equipment used for x-ray diffraction or fluorescence analysis.

Analytical X-Ray System
A group of components utilizing x or gamma rays to determine the elemental composition or to examine the microstructure of materials.

Anion
Negatively charged ion. (See Ionization.)

Annual Limit on Intake (ALI)
The derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. The ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 5 rems (0.05 Sievert (Sv)) or a committed dose equipment of 50 rems (0.5 Sv) to any individual organ or tissue.

Anti-contamination Clothing

Clothing consisting of coveralls show covers, gloves, and hood of hair cap. This clothing provides protection for the user from alpha radiation and is also a control device to prevent the spread of contamination.

Armed
The configuration of a nuclear weapon which a single signal initiates the action for a nuclear detonation.

Armed Forces Radiobiology Research Institute
This organization provides support to commanders during the response to a nuclear accident or radiological incident. They provide functional area experts in the field of health physics, radiation medicine, and site remediation. http://www.afrii.usuhs.mil

Arming System
As applied to weapons and ammunition, the changing from a safe condition to a state of readiness for initiation.

As Low As is Reasonably Achievable (ALARA)
Making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical and consistent with the purpose for which the licensed activity is undertaken. It must be taken into consideration the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

Atmospheric Release Advisory Capability
A centralized computer-based system that provides estimates of the transport, diffusion, and deposition of radioactive or other hazardous material released to the atmosphere and dose projection to people and the environment.

Atom
The smallest particle of an element that cannot be divided or broken up by chemical means. It consists of a central core called the nucleus, which contains protons and neutrons. Electrons revolve in orbits in the region surrounding the nucleus.

Atomic Energy
Energy released in nuclear reactions. Of particular interest is the energy released when a neutron initiates the breaking up or fission of an atom's nucleus into smaller pieces (fission), or when two nuclei are jointed together under millions of degrees of heat (fusion). It is more correctly called "nuclear energy."

Atomic Number
The number of positively charged protons in the nucleus of an atom and the number of electrons on an electrically neutral atom.

Atomic Weight
The number of nucleons (neutrons or protons) in the nucleus of an atom. (See Mass Number.)

Attenuation
The process by which a beam of radiation is reduced in intensity when passing through some material. It is the combination of absorption and scattering processes and leads to a decrease in flux density of the beam when projected through matter.

Attenuation Coefficient
Of a substance, for a parallel beam of specified radiation: the quantity micro (□) in the expression □*dx* for the traction removed by attenuation in passing through a thin layer of thickness *dx* of that

substance. It is a function of the energy of the radiation. As *dx* is expressed in terms of length, mass per unit area, moles or atoms per unit area, □□is called the linear, mass, molar, or atomic attenuation coefficient respectively.

Back End
The series of steps after fuel is burned in the reactor, including the handling of discharged fuel elements from the reactor, chemical reprocessing, recycling of recovered fissile and fertile material, and radioactive waste disposal.

Background Radiation
Radiation from cosmic sources; naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material) and global fallout as it exists in the environment from the testing of nuclear explosive devises. Background radiation does not include radiation from source, byproduct, or special nuclear materials.

Beam Limiting Device
A device that provides a means to restrict the dimensions of the x-ray field.

Beryllium
A low-density, gray metal used in many industries because of its high permeability to x-rays, lightweight, and high tensile strength. It is also used in aerospace structures and inertial guidance systems. It is highly toxic; death may result from ingestion of very low concentrations of the element and its salts. Beryllium compounds can enter the body through inhalation of the dusts and fumes, and they may act locally on the skin.

Beta Gauge
An industrial device that uses beta radiation for measuring thickness or density of materials.

Beta Particle, Radiation
A charged particle emitted from a nucleus during radioactive decay, with a mass equal to 1/1837 that of a photon. A negatively charged beta particle is identical to an electron. A positively charged beta particle is called a positron. Large amounts of beta radiation may cause skin burns, and beta emitters are harmful if they enter the body. Beta particles are easily stopped by a thin sheet of metal or plastic.

Becquerel (Bq)
A unit, in the International System of Units, of measurement of radioactivity equal to one transformation per second.

Binding Energy
The minimum energy required separating a nucleus into its component neutrons and photons.

Bioassay
The determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement (in-vivo counting) or by analysis and evaluation of materials excreted or removed from the human body (radio bioassay).

Biological Half-Life
The time required for a biological system, such as that of a human, to eliminate by natural processes half the amount of a substance (such as a radioactive material) that has entered it.

Biological Shield
A mass of absorbing material placed around a reactor or radioactive source to reduce the radiation to a level safe for humans.

Blast Wave
A pulse of air in which the pressure increases sharply at the front propagated by the explosion.

“Blue Glow”. The characteristic blue light emitted by very high-energy particle interaction with matter. It is usually only visible in the vicinity of very intense radiation such as a reactor core or spent fuel pools.

Body Burden
The amount of radioactive material that if deposited in the total body will produce the maximum permissible dose rate to the body organ considered the critical organ.

Bone Seeker
A radioisotope that tends to accumulate in the bones when it is introduced into the body. An example is strontium-90, which behaves chemically like calcium.

Brachytherapy
A method of radiation therapy in which sealed sources are utilized to deliver a radiation dose at a distance of up to a few centimeters, by surface, intracavitary, or interstitial application.

Breeder, Breeder Reactor
A reactor which produces more fissile nuclei than are consumed. The fissile material is produced both in the reactor’s core and when neutrons are captured in fertile material placed around the core.

Bremsstrahlung
The process by which a beta particle emits an x-ray photon during its interaction with an atomic nucleus.

Buildup Factor
In the passage of radiation through a medium, the ratio of the total value of a specified radiation quantity at any point to the contribution to that value from radiation reaching the point through the medium without having undergone a collision.

Buildup Factor, Energy Absorption, BA
A photon buildup factor in which the quantity of interest is the absorbed or deposited energy in the shield medium. The energy response function is that of absorption in the material.

Buildup Factor, Exposure BD
A photon buildup factor in which the quantity of interest is exposure. The energy response function is that of absorption in air.

Byproduct Material
a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material.
b. The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground are bodies depleted by these solution extraction operations and do not constitute byproduct material within this definition.

Cadmium
A metal with a very high absorption factor for neutrons in a certain energy range. It is used in detectors to separate thermal neutrons from fast neutrons, and for control rods and neutron shielding.

Cation
A positively charged ion. (See Ionization.)

Centrifuge
A machine using centrifugal force that can be used for isotope enrichment or uranium.

Cephalometric Device
A device intended for the radiographic visualization and measurement of the dimensions of the human head.

Chain Reaction
A response that stimulates its own repetition. In a fission chain reaction, a fissionable nucleus absorbs a neutron and fissions, releasing additional neutrons. These in turn can be absorbed by other fissionable nuclei, releasing still more neutrons. A fission chain reaction is self-sustaining when the number of neutrons released in a given time equals or exceeds the number of neutrons lost by absorption in non-fissionable material or by escape from the system.

Charged Particle
An ion. An elementary particle carrying a positive or negative electric charge.

Chemical Recombination
Following an ionization event, the positively and negatively charged ion pairs may or may not realign themselves to form the same chemical substance they formed before ionization. Thus, chemical recombination could change the chemical composition of the material bombarded by radiation.

China Syndrome
A phrase referring to the possibility of a core reassembling into a critical mass after meltdown and burning its way downward through the earth to China.

Chronic Exposure
The absorption of radiation (or intake of radioactive materials over a long period of time, i.e., over a lifetime).

Class (Lung Class or Inhalation Class)
A classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times; for Class D (Days) of less than 10 days, for Class W (Weeks) from 10 to 100 days, and for Class Y (Years) of greater than 100 days.

Cleanup System
Components used for continuously filtering and demineralizing the reactor coolant system to reduce contamination levels and minimize corrosion.

Cloudshine
Gamma radiation from radioactive materials in an airborne plume.

Cobalt
A gray, hard, magnetic, ductile, and somewhat malleable metal. It is relative rare and generally obtained as a byproduct of other metals such as copper.

Cold Neutrons
Neutrons in thermal equilibrium with an environment cooled well below 20 degrees Celsius typically at 20-50□Kelvin.

Collective Dose
The sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.

Command Disable

A subsystem of command and control features that destroy a weapon's ability to produce nuclear yield.

Committed Dose Equivalent (HT, 50)
The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

Committed Effective Dose
See Committed Effective Dose Equivalent.

Committed Effective Dose Equivalent (HE, 50)
The sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues— (HE, 50 □□_ WTHT, 50)

Contamination, Radioactive
The deposition of unwanted radioactive material on the surfaces of structures, areas, objects, or personnel.

Contamination Control
Procedures to avoid, reduce, remove, or render harmless, temporarily or permanently, nuclear, biological, chemical agent and hazardous materials contamination.

Containment Building
A structure made of steel-reinforced concrete that houses the nuclear reactor. It is designed to protect the reactor from external hazards and to prevent the escape of radioactive material into the environment.

Containment Vessel
A gas-tight shell or other enclosure around a nuclear reactor.

Coordinating Committee (COCOM)
This group grew out of the NATO's Cold War efforts to restrict militarily useful trade to the Soviet Union. Belgium, Canada, Denmark, France, the United Kingdom, Italy, Luxembourg, The Netherlands, Norway, Portugal, and the United States founded COCOM. Since its inception, COCOM has worked to control technology rather than products.

Correction Factor, Shield Tissue Interface
A correction factor to be applied to the basic infinite-medium exposure buildup factor to correct for the scattering in a tissue phantom after emerging from a shield.

Cosmic Radiation
Penetrating ionizing radiation, both particulate and electromagnetic, originating in space. Secondary cosmic rays, formed by interactions in the earth's atmosphere, account for about 45 to 50 millirem annually.

Count Rate
The number of particles of a given type or radiation counted per second.

Counter
A general designation applied to radiation detection instruments or survey meters that detect and measure radiation. The signal that announces an ionization event is called a count.

Critical Mass
The smallest mass of fissionable material that will support a self-sustaining chain reaction.

Critical Organ
The body organ receiving a radionuclide or radiation dose that results in the greatest overall damage to the body.

Criticality
A term used in reactor physics to describe the state when the number of neutrons released by fission is exactly balanced by the neutrons being absorbed (by the fuel and poisons) and escaping the reactor core. A reactor is said to be “critical” when it achieves a self-sustaining nuclear chain reaction.

Cumulative Dose
The total dose resulting from repeated exposures of radiation to the same region, or to the whole body, over a period of time.

Curie (Ci)
The basic unit used to describe the intensity of radioactivity in a sample of material. The Ci is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 g of radium. A Ci is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second.

Daughter Products/Progeny
Isotopes that are formed by the radioactive decay of some other isotope. In the case of radium-226, for example, there are 10 successive daughter products, ending in the stable isotope lead-206.

Decay
The decrease in the radiation intensity of any radioactive material with respect to time.

Decay Heat
The heat produced by the decay of radioactive fission products after the reactor has been shut down.

Decay, Radioactive
The decrease in the amount of any radioactive material with the passage of time, due to the spontaneous emission from the atomic nuclei of either alpha or beta particles, often accompanied by gamma radiation.

Decommission
The process or removing a nuclear facility from service by a reduction of residual radioactivity to a level that permits the release of the property for unrestricted use or maintenance under protection for reasons of public health and safety.

Decontamination, Radioactive
The reduction or removal of contaminating radioactive material from a structure, area, object, or person. Decontamination may be accomplished by—
a. Treating the surface to remove or decrease the contamination.
b. Letting the material stand so that the radioactivity is decreased as a result of nature decay.
c. Covering the contamination to shield or attenuate the radiation emitted.

Deep-Dose Equivalent (Hd)
Which applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 centimeter (cm) (1000 mg/m3).

Delayed Fallout
Radioactive fallout that returns to Earth later than 24 hours after a nuclear detonation.

Delayed Health Effects

The results of radiation that are manifested long after the relevant exposure. The vast majority is stochastic, that is, the severity is independent of dose and the probability is assumed to be proportional to the dose, without threshold.

Demilitarization
The process of eliminating or reducing military weapons, materials, or other hardware and organizational structures.

Depleted Uranium
Uranium having a percentage of uranium-235 smaller than the 0.7 percent found in natural uranium. It is obtained from spent (used) fuel elements or as by-product tails, or residues, from uranium isotope separation.

Derived Air Concentration
The concentration of a given radionuclide in air which, if breathed, by the reference man for a working year of 2,000 hours under conditions of light work (inhalation rate 1.2 m3 of air per hour), results in an intake of one ALI.

Derived Air Concentration-Hour (DAC-Hour)
The product of the concentration of radioactive material in air (expressed as a fraction or multiple of the derived air concentration for each radionuclide) and the time of exposure to that radionuclide, in hours. A licensee may take 2,000 derived air concentration-hours to represent one ALI equivalent to a committed effective dose equivalent of 5 rems (0.05 Sv).

Derived Response Level (DRL)
The amount of radioactivity in an environmental medium that would be expected to produce a dose equal to its corresponding Protective Action Guide.

Detector
A material or device that is sensitive to radiation and can produce a response signal suitable for measurement or analysis. A radiation detection instrument.

Deterministic Effect
A result that occurs after a certain dose threshold, with the severity of the effect determined by the dose.

Detonation
An explosion.

Detonator
A device containing a sensitive explosive intended to produce a detonation wave for setting off a high explosive element.

Deuterium
An isotope of hydrogen with one proton and one neutron in the nucleus. (See Heavy Water.)

Deuteron
The nucleus of deuterium. It contains one proton and one neutron.

Disassembly
The process of taking apart a nuclear warhead and removing the subassemblies, components, and individual parts.

Disintegration
See Decay, Radioactive.

Doppler Coefficient
See Fuel Temperature Coefficient of Reactivity.

Dose or Radiation Dose
A generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.

Dose Conversion Factor
Any factor that is used to change an environmental measurement to dose in the units of concern. Frequently used as the factor that expresses the committed effective dose equivalent to a person from the intake (inhalation or ingestion) of a unit activity of a given radionuclide.

Dose Equivalent (HT)
The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and Sv. The ICRP defines this as the equivalent dose.

Dose Rate
The radiation dose delivered per unit of time. Measured, for example, in rem per hour.

Dosimeter
A portable instrument for measuring and registering the total accumulated exposure to ionizing radiation.

Dosimetry
The theory and application of the principles and techniques involved in the measurement and recording of radiation doses. Its practical aspect is concerned with the use of various types of radiation instruments with which measurements are made. (See Film Badge.)

Dosimetry Processor
An individual or an organization that processes and evaluates individual monitoring equipment in order to determine the radiation dose delivered to the equipment.

Dynamic Pressure
Air pressure that results from the wind behind the shock front of a blast wave.

Early Fallout
Radioactive debris that returns to the Earth within 24 hours after a nuclear detonation; local fallout.

Effective Dose Equivalent (HE)
The sum of the products of the dose equivalent to the organ or tissue (HT) and the weighting factors (WT) applicable to each of the body organs or tissues that are irradiated (HE = _WTHT). The ICRP defines this as the effective dose.

Effective Half-Life
The time required for the amount of a radioactive element deposited in a living organism to be diminished 50 percent as a result of the combined action of radioactive decay and biological elimination. (See Biological Half-Life.)

Electromagnetic Pulse
A sharp pulse of radio-frequency electromagnetic radiation is produced when a nuclear explosion occurs in an unsymmetrical environment, especially at or hear the earth's surface or at high altitudes.

Electromagnetic Radiation

A traveling wave motion resulting from changing electric or magnetic fields. Familiar electromagnetic radiation ranges from x rays (and gamma rays) of short wavelength, through the ultraviolet, visible, and infrared regions, to radar and radio waves of relatively long wavelength. All electromagnetic radiation travel in a vacuum with the velocity of light. (See Photon.)

Electron
An elementary particle with a unit negative charge and a mass 1/1837 that of the photon. Electrons surround the positively charged nucleus and determine the chemical properties of the atom.

Energy Absorption Coefficient
Of a substance, for a parallel beam of specified radiation: the quantity □*en* in the expression □*endx* for the fraction removed by attenuation in passing through a thin layer of thickness *dx* of that substance. It is a function of energy of the radiation. As *dx* is expressed in terms of length, mass per unit area, moles per unit area, or atoms per unit area, □*en* is called the linear, mass, molar, or atomic energy absorption coefficient. NOTE: It is that part of the attenuation coefficient resulting from energy absorption only and is equal to the product of the energy transfer coefficient and 1-g, where g is the fraction of the energy of secondary charged particles that is lost to bremsstrahlung in the material.

Energy Reorganization Act (Public Law 93-438, 93rd Congress, H.R. 11510, October 11, 1974)
An act to reorganize and consolidate certain functions of the Federal Government in a new Energy Research and Development Administration and in a new Nuclear Regulatory Commission (NRC) in order to promote more efficient management of such functions. (http://www-acala1.ria.army.mil/LC/R/RS/act.htm)

Enrichment
See Isotopic Enrichment.

Exposure
A measure of the ionization produced in air by x or gamma radiation; the sum of electric charges on all ions of one sign produced in air when all electrons liberated by photons in a volume of air are completely stopped in air, divided by the mass of the air in the volume; a unit of exposure in air is the roentgen (R), or coulomb per kg (International System of Units).

Eye Dose Equivalent
Applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm (300 mg/m3).

Fallout
The process or phenomenon of the descent to the Earth's surface of particles contaminated with radioactive material from the radioactive cloud produced by a nuclear detonation.

Fast Breeder Reactor
This reactor is fueled by a mixture of plutonium and natural uranium oxides and relies on the nuclear fission of the two atoms in an intense flux of high energy neutrons produced in a highly compact core without any moderator.

Fast Fission
Fission of a heavy atom (such as uranium-238) when it absorbs a high-energy (fast) neutron. Most fissionable materials need thermal (slow) neutrons in order to fission.

Fast Neutron
A neutron with kinetic energy greater than its surroundings released during fission.

Federal Radiological Emergency Response Plan
The Federal plan to assist state and local government officials or other Federal agencies in the response to a radiological emergency in the U.S., its possessions and territories. http://www.fema.gov/pte/rep/352-22.htm

Federal Radiological Monitoring and Assessment Center
A Center established near the scene of a radiological emergency responsible for off-site radiological response from which the Center Director conducts the response.

Federal Radiological Monitoring and Assessment Plan
A plan to provide coordinated radiological monitoring and assessment assistance to the state and local governments in response to radiological emergencies.

Fertile Material
A material, which is not itself fissile (fissionable by thermal neutrons) that can be converted into a fissile material by irradiation in a reactor. There are two basic fertile materials, uranium-238 and thorium-232. When these fertile materials capture neutrons, they are converted into fissile plutonium-239 and uranium-233, respectively.

Film Badge
A pack of photographic film used for approximate measurement of radiation exposure for personnel monitoring purposes. The badge may contain two or three films of differing sensitivity, and it may contain a filter that shields part of the film from certain types of radiation.

Fireball
Hot gases that form a luminous sphere after a nuclear explosion.

Fissile Material
Although sometimes used as a synonym for fissionable material, this term has acquired a more restricted meaning; namely, any material fissionable by thermal (slow) neutrons. The three primarily fissile materials are uranium-233, uranium-235, and plutonium-239.

Fission
The splitting of a nucleus into at least two other nuclei and the release of a relatively large amount of energy. Two or three neutrons are usually released during this type of transformation.

Fission Gases
Those fission products that exist in the gaseous state. Primarily the noble gases (e.g., krypton, xenon, etc.).

Fission Products
The nuclei (fission fragments) formed by the fission of heavy elements, plus the nuclides formed by the fission fragments' radioactive decay.

Fissionable Material
Commonly used as a synonym for fissile material, the meaning of this term has been extended to include material that can be fission by fast neutrons, such as uranium-238.

Flash Burn
A burn caused by excessive exposure of the skin to thermal radiation.

Fluence
The number of radioactive particles, neutrons, or photons per unit cross-sectional area.

Flux
A term applied to the amount of some type of radiation crossing a certain area per unit time. The unit of flux is the number of particles, energy, etc., per square centimeter per second.

Flux Density
The flux density at a point is the number of radioactive particles, neutrons, or photons passing per unit time, per unit area of the beam.

Fuel Cycle
The sequences of operations involved in supplying fuel for nuclear power generation, for irradiating the fuel in a nuclear reactor, and for handling and treating the fuel elements following discharge from the reactor.

Fuel Temperature Coefficient of Reactivity
The physical property of fuel pellet material (uranium-238) that causes the uranium to absorb more neutrons away from the fission process as fuel pellet temperature increases. This acts to stabilize power reactor operations. Also known as the Doppler Coefficient.

Fusion
A nuclear reaction characterized by joining together of light nuclei to form heavier nuclei, the energy for the reactions being provided by violent thermal agitation of particles at very high temperatures. If the colliding particles are properly chosen and the agitation is violent enough, there will be a release of energy from the reaction. The energy of the stars is derived from such reactions.

Gamma Ray
High-energy, short wavelength electromagnetic radiation (a packet of energy) emitted from the nucleus. Gamma radiation frequently accompanies alpha and beta emissions and always accompanies fission. Gamma rays are very penetrating and are best stopped or shielded against by dense materials, such as lead or uranium. Gamma rays are similar to x-rays but are usually more energetic.

Gamma Ray, Radiation
High-energy electromagnetic radiation emitted by nuclei during nuclear reactions or radioactive decay. These rays have high energy and a short-wave length.

Gamma Ray Camera
A device for transporting and handling intense gamma ray sources in the field for the purpose of gamma radiography. It consists of a heavily shielded container with a shutter and remote controls so that the source can be exposed without hazard to the operator.

Gamma Ray Detector
A detector designed to measure gamma rays rather than x-rays.

Gases
Normally formless fluids that completely fill the space and take the shape of their container.

Gaseous Diffusion
A method of isotopic separation based on the fact that gas atoms or molecules with different masses will diffuse through a porous barrier (or membrane) at different rates. This method is used to separate uranium-235 from uranium-238; it requires large gaseous diffusion plants and enormous amounts of electric power.

Geiger-Mueller Counter
A radiation detection and measuring instrument. It consists of a gas-filled tube containing electrodes, between which there is an electrical voltage but no current flowing. When ionizing radiation passes through the tube, a short, intense pulse of current passes from the negative electrode to the positive electrode and is measured or counted. The number of pulses per second measures the intensity of radiation.

Gonad Shield
A protective barrier for the testes or ovaries.

Graphite
A form of carbon, similar to the lead used in pencils, used as a moderator in some nuclear reactors.

Gray (Gy)
The International System of Units of absorbed dose. One Gy is equal to an absorbed dose of 1 J kg-1 (100 rad).

Groundshine
Gamma radiation from radioactive materials deposited on the ground.

Half-Life
The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Measured half-lives vary from millionths of a second to billions of years.

Half-Life, Effective
The time required for a radionuclide contained in a biological system, such as a human or an animal, to reduce its activity by half as a combined result of radioactive decay and biological elimination.

Half-Thickness
The thickness of any given absorber that will reduce the intensity of a beam of radiation to one half its initial value. (See Attenuation; Shielding.)

Half-Time, Biological (Tb)
The time in which half the quantity of a material in a component, in an organ, or in the whole body is eliminated by biological processes.

Half-Time, Effective (Te)
The time taken for the activity of a radioactive material in a compartment, in an organ, or in the whole body to be reduced to half its value by a combination of biological elimination and radioactive decay. 1 = 1 + 1 or Te = Tb x TR Te Tb TR Tb + TR

Half-Time, Physical (TR)
The time taken for the activity of a radionuclide to lose half its value by radioactive decay.

Health Physics
The science concerned with recognition, evaluation, and control of health hazards from ionizing and non-ionizing radiation.

Heat Exchanger
Any device that transfers heat from one fluid (liquid or gas) to another fluid or to the environment.

Heat Sink
Anything that absorbs heat; usually part of the environment, such as the air, a river or outer space.

Heavy Metal
The fuel materials, including uranium, plutonium, and thorium, with atomic numbers of 90 and above, used in nuclear reactors and nuclear weapons.

Heavy Water (D2O)
Water containing significantly more than the natural proportions (1 in 6500) of heavy hydrogen (deuterium) atoms to ordinary hydrogen atoms. Heavy water is used as a moderator in some reactors because it slows down neutrons effectively and also has a low probability for absorption of neutrons.

Heavy Water Reactor
A nuclear reactor that uses heavy water as a moderator and / or coolant and natural uranium as fuel.

Hematopoietic
Pertaining to or effecting the formation of blood cells.

Hemorrhage
The escape of blood from the vessels.

High-Radiation Area
An area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 milli/Sv (m/Sv) in 1 hour at 30 cm from the radiation source or from any surface that the radiation penetrates.

Hot
A colloquial term meaning highly radioactive.

Hot Cells
Any type of shielded room with remote handling equipment for examining and processing radioactive materials.

Hot Line
The inner boundary of the contamination control station marked with tape or line.

Hot Spot
The region in an NBC contamination area in which the level of contamination is noticeably greater than in neighboring regions in the area.

Hydrogen Bomb
A nuclear weapon that derives its energy largely from fusion; it is also known as thermo-nuclear weapon.

Hyperpyrexia
A highly elevated body temperature.

Image Intensifier
A device, installed in its housing, which instantaneously converts an x-ray pattern into a corresponding light image or higher energy density.

Image Receptor
Any device, such as a fluorescent screen or radiographic film, which transforms incident x-ray photons either into a visible image or into another form which can be made into a visible image by further transformations.

Individual Monitoring
a. The assessment of dose equivalent by the use of devices designed to be worn by an individual.
b. The assessment of committed effective dose equivalent by bioassay (see Bioassay) or by determination of the time-weighted air concentrations to which an individual has been exposed (i.e., derived air concentration-hours).
c. The assessment of dose equivalent by the use of survey data.

Individual Monitoring Devices (Individual Monitoring Equipment)
Devices designed to be worn by a single individual for the assessment of dose equivalent such as film badges, thermo luminescent dosimeters, pocket ionization chambers, and personal (“lapel”) air sampling devices.

Induced Radioactivity
Radioactivity that is created when stable substances are bombarded by neutrons. For example, the stable isotope cobalt-59 becomes the radioactive isotope cobalt-60 under neutron bombardment.

Industrial Radiography
The examination of the macroscopic structure of materials by nondestructive methods using sources of ionizing radiation to produce radiographic images.

Ingestion Pathway
Route for internalization of radioactive contaminants; the pathway most accessible for decontamination.

Inhalation Pathway
The means by which a person at the accident area or downwind is subjected to respiratory radiation exposure.

Inherent Filtration
The filtration of the useful beam provided by the permanently installed components of the tube housing assembly.

Internal Dose
That portion of the dose equivalent received from radioactive material taken into the body.
International Commission on Radiological Protection (ICRP)
ICRP is an independent Registered Charity, established in 1928 in the United Kingdom, to advance for the public benefit the science of radiological protection, in particular by showing recommendations and guidance on all aspects of protection against ionizing radiation. http://www.icrp.net/

Ion
An atom that has too many or too few electrons, causing it to be chemically active; an electron that is not associated (in orbit) with a nucleus. (See Ionization.)

Ionization
The process of stripping electrons from their atomic orbits by radiation.

Ionization Chamber
An instrument that detects and measures ionizing radiation by measuring the electrical current that flows when radiation ionizes gas in a chamber, making the gas a conductor of electricity. (See Counter.)

Ionizing Radiation
Any radiation capable of displacing electrons from atoms or molecules, thereby producing ions. Examples: alpha, beta, gamma, x-rays, neutrons and ultraviolet light. High doses of ionizing radiation may produce severe skin or tissue damage.

Irradiation
Exposure to radiation.

Isotone
One of several different nuclides having the same number of neutrons in their nuclei.

Isotope
One of two or more atoms with the same number of protons but different numbers of neutrons in their nuclei. Thus, carbon-12, carbon-13, and carbon-14 are isotopes of the element carbon, the numbers

denoting the approximate atomic weights. Isotopes have very nearly the same chemical properties but often different physical properties (e.g., carbon-12 and -13 are stable, carbon-14 is radioactive).

Isotope Separation
The process of separating isotopes from one another or changing their relative abundances, as by gaseous diffusion or electromagnetic separation. Isotope separation is a step in the isotopic enrichment process.

Isotopic Enrichment
A process by which the relative abundances of the isotopes of a given element are altered, thus producing a form of the element that has been enriched in one particular isotope and depleted in its other isotopic forms.

keV
A kiloelectronvolt, 1000 electronvolts.

Kelvin
The unit of thermodynamic temperature equal to 1/273.16 of the thermodynamic temperature of the triple point of water.

Kilo (k)
A prefix that multiplies a basic unit by 1000. Example: 1 kilometer = 1000 meters.

Kilovolt (kV)
The unit of electrical potential equal to 1000 volts.

Kinetic Energy
The energy that a body possesses by virtue of its mass and velocity; the energy of motion.

Laser
A device that produces a coherent, intense, and collimated beam of electromagnetic radiation of well-determined wave length, through a physical process known as stimulated emission.

Late Effect
A biological effect that occurs long after radiation exposure ends (e.g., cancer).

Lethal Dose (LD) 50/60
The dose of radiation expected to cause death within 60 days to 50 percent of those exposed. Generally accepted as 500 rad received over a short period of time.

Light Water
Ordinary water (H2O) as distinguished from heavy water (D2O).

Light Water Reactor
The most common type of nuclear reactor in which ordinary water is used as the moderator and coolant and enriched uranium is used as fuel. They are usually boiling water reactors or pressurized water reactors.

Limits
The permissible upper bounds of radiation doses (dose limits).

Linear Energy Transfer
A measure of the ability of biological material to absorb ionizing radiation; specifically, for charged particles traversing a medium, the energy lost per unit length of path as a result of those collisions with electrons in which the energy loss is less than a specified maximum value. A similar quantity may be defined for photons.

Liquid Nitrogen
A major coolant for various types of radiation detectors.

Lixiscope
A portable light intensified imaging device using a sealed source.

Low-Level Waste
A general term for a wide range of radioactive wastes that includes materials such as laboratory wastes and protective clothing that contain only small amounts of radioactivity, pose few health hazards, and are usually disposed of by shallow land burial.

Low Population Zone
An area of low population density often required around a nuclear installation. The number and density of residents is of concern in emergency planning so that certain protective measures (such as notification and instructions to residents) can be accomplished in a timely manner.

Lung Class (Days, Weeks, or Years or Fast Absorption, Moderate Absorption, and Slow Absorption)
A classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung.

Lymphocyte
A mononuclear leukocyte; chiefly a product of lymphoid tissue and participates in humoral and cell-mediated immunity.

Mach Stem
The shock front formed by the merging of the primary and reflected shock fronts from an explosion.

Mass-Energy Equation
The equation developed by Albert Einstein which is usually given as E = mc2, showing that, when the energy of a body changes by an amount E (no matter what form the energy takes), the mass, m, of the body will change by an amount equal to E/c2. The c2, the square of the speed of light in a vacuum, may be regarded as the conversion factor relating units of mass and energy. The equation predicted the possibility of releasing enormous amounts of energy by the conversion of mass to energy. It is also called the Einstein equation.

Mass Number
The number of nucleons (neutrons and protons) in the nucleus of an atom. Also known as the atomic weight of an atom.

Maximum Permissible Dose
That radiation dose which a military commander or other appropriate authority may prescribe as the limiting cumulative radiation dose to be received over a specific period of time by members of the command, consistent with operational military consideration.

Mean Free Path
The average distance that photons of a given energy travel before an interaction in a given medium occurs. It is equal to the reciprocal of the attenuation coefficient. Thus, the distance *x* in ordinary units can be converted into the dimensionless distance □*x*, the number of mean free path lengths.

Mean Lifetime
An average lifetime related to the biologic of the effective half-time, or the physical half-life. Effective mean lifetime = 1.443 x effective half-time.

Mega

A prefix that multiplies a basic unit by 1,000,000.

Megacurie
One million curies. (See Curie.)

Meltdown
A situation in a nuclear reactor, in which the core materials melt.

MeV
A megaelectronvolt, 1 million electronvolts.

meV
A millielectronvolt, 1/1000 of an electronvolt.

Member of the Public
An individual in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives an occupational dose.

Microcurie
A one-millionth part of a curie.

Milli
Prefix meaning 10-3, or 1/1000th part.

Milling
A process in the uranium fuel cycle by which ore containing only a very small percentage of uranium oxide is converted into material containing a high percent of uranium oxide, often referred to as yellowcake.

Millirem
A one-thousandth part of a rem. (See Rem.)

Milliroentgen
A one-thousandth part of a roentgen. (See Roentgen.)

Missile Technology Control Regime
A joint effort of 23 member countries led by the U.S. to control the proliferation of missiles (and missile technology) capable of delivering nuclear weapons. http://fas.org/nuke/control/mtcr/

Moderator Temperature Coefficient of Reactivity
The property of a reactor moderator to slow down fewer neutrons as its temperature increases. This acts to stabilize power reactor operations.

Monitoring, Radiation
The measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

Nadir
The point at which a blood count drops to or closest to zero before beginning to increase.

Nano
A prefix that divides a basic unit by one billion.

Nanocurie
One billionth part of a curie.

Natural Radiation
See Background Radiation.

Natural Uranium
Uranium is found in nature. It contains 0.7 percent uranium-235, 99.3 percent uranium-238, and a trace of uranium-234.

Negative Temperature Coefficient
See Moderator Temperature Coefficient of Reactivity.

Neutron
An uncharted elementary particle with a mass slightly greater than that of the proton and found in the nucleus of every atom heavier than hydrogen.

Neutron Capture
The process in which an atomic nucleus absorbs or captures a neutron.

Neutron Chain Reaction
A process in which some of the neutrons released in one fission event causes other fissions to occur. There are three types of chain reactions—
a. Non-sustaining (see Subcriticality).
b. Sustaining (see Criticality).
c. Multiplying (see Supercriticality).

Neutron Generation
The release, thermalization, and absorption of fission neutrons by a fissile material and the fission of that material producing a second generation of neutrons. In a typical reactor system, there are about 40,000 generations of neutrons every second.

Neutron Radiography
The industrial use of neutrons to produce x-ray like images of the internal structure of objects. It has been used to examine explosive devices.

Neutron Source
A radioactive material (i.e., decays by neutron emission) that can be inserted into a reactor to ensure that a sufficient quantity of neutrons is available to start a chain reaction and register on neutron detection equipment.

Non-penetrating Radiation
External radiation of such low penetrating power that the absorbed dose from human exposure is in the skin and does not reach deeper organs to any damaging extent.

Neutron, Thermal
A neutron that has (by collision with other particles) reached an energy state equal to that of its surroundings.

Noble Gas
A gaseous chemical element that does not readily enter into chemical combination with other elements. An inert gas. (See Fission Gases.)

Non-ionizing Radiation
Electromagnetic radiation that does not have sufficient energy to remove electrons from the outer shells of atoms. Types of non-ionizing radiation would include ultraviolet, visible light, infrared,

microwave, radio and television, and extremely low frequency. The primary health effect from high exposure levels of non-ionizing radiation arises from heat generation in body tissue.

Nonstochastic Effect
Health effects, the severity of which varies with the dose and for which a threshold is believed to exist. Radiation-induced cataract formation is an example of a non-stochastic effect (also called a Deterministic Effect).

Normal Form Radioactive Material
Radioactive material that has not been demonstrated to qualify as special form radioactive material.

Nuclear Accident Response Procedures
A manual summarizing Department of Defense responsibilities and provides procedural guidance for a joint response to accidents involving nuclear weapons or components thereof in the U.S. and its territories or possessions. http://www.dtra.mil/cs/cs_narp.html

Nuclear Detonation
A nuclear explosion resulting from fission or fusion reactions in nuclear materials such as from a nuclear weapon.

Nuclear Device
Nuclear fission together with the arming, fusing, firing, chemical explosive, canister, and diagnostic measurement equipment that have not reached the development status of an operational nuclear weapon.

Nuclear Emergency Search Team
A cadre of highly trained technical personnel that maintain on-call, deployable search, identification and diagnostic capabilities to respond to lost or stolen nuclear weapons and special nuclear materials; nuclear explosive threats; and radiation dispersal threats.
http://www.milnet.com/milnet/nest.htm

Nuclear Energy
The energy liberated by a nuclear reaction (fission or fusion) or by radioactive decay.

Nuclear Force
A powerful short-ranged attractive force that holds together the particles inside an atomic nucleus.

Nuclear Materials Licensing Requirements
Within the U.S., a license is required from the NRC to deliver, receive, possess, use, or transfer thorium, plutonium, or uranium. A specific license is required to authorize a general licensee to acquire, deliver, receive, possess, use, transfer, import, or export special nuclear material.

Nuclear Power Plant
Any device or assembly that converts nuclear energy into useful power. In a nuclear electric power plant, heat produced by a nuclear reactor is used to produce steam to drive a turbine that in turn drives an electricity generator.

Nuclear Radiation
See Radiation.

Nuclear / Radiological Agent
Traditionally, uranium and plutonium used to produce a nuclear detonation via the fission or fusion process. The fuel is compressed into a given volume to cause supercriticality. The major products include blast effects, heat, nuclear radiation, and fallout.

Nuclear Reaction
See Reaction.

Nuclear Regulatory Commission (NRC)
The NRC is an independent agency established by the Energy Reorganization Act of 1974 to regulate civilian use of nuclear materials. Its mission is to regulation the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment. http://www.nrc.gov/

Nuclear Technology Security Program
A Department of Energy program dedicated to controlling the transfer or dissemination outside the U.S. or certain unclassified equipment and materials and scientific and technical information.
ttp://www.td.anl/gov/Programs/nmts/nmts.html

Nuclear Waste
The radioactive by-products formed by fission and other nuclear processes in a reactor. It is separated from irradiated fuel in a processing plant.

Nuclear Weapon
A device that releases nuclear energy in an explosive manner as the result of nuclear chain reactions involving the fission or fusions, or both, of atomic nuclei.

Nuclear Weapon Incident
An unexpected event involving a nuclear weapon, facility, or component resulting in any of the following, but not constituting a nuclear weapon(s) accident:
a. An increase in the possibility of explosion or radioactive contamination.
b. Errors committed in the assembly, testing, loading, or transportation of equipment, and / or the malfunctioning of equipment and material which could lead to an unintentional operation of all or part of the weapon arming and / or firing sequence, or which could lead to a substantial change in yield, or increased dud probability.
c. Any act of God, unfavorable environment, or condition resulting in damage to a weapon, facility, or component.

Nucleated Blood Cell
A blood cell that contains a nucleus, to include white cells and reticulocytes.

Nucleon
Common name for a constituent particle of the atomic nucleus. At present, applied to protons and neutrons but may include any other particles found to exist in the nucleus.

Nucleus, (Pl. Nuclei)
The small, central, positively charged regions of an atom that carries essentially all the mass. Except for the nucleus of ordinary (light) hydrogen, which has a single proton, all atomic nuclei contain both protons and neutrons. The number of protons determines the total positive charge, or atomic number; this is the same for all the atomic nuclei of a given chemical element. The total number of neutrons or protons is called the mass number (or Atomic Nucleus).

Nuclide
A general term referring to all known isotopes, both stable (279) and unstable (about 5000), of the chemical elements.

Occupational Dose
The dose received by an individual in a restricted area or in the course of employment in which the individual's assigned duties involve exposure to radiation and to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person.

Occupational dose does not include dose received from background radiation, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the general public.

Open Beam Configuration
An analytical x-ray system in which an individual could accidentally place some part of his body in the primary beam path during normal operation.

Oralloy
Uranium enriched in the isotope uranium-235. This material is an excellent fission fuel and is capable of sustaining a chain reaction.

Parent
A radionuclide that upon radioactive decay or disintegration yields a specific nuclide (the daughter/progeny).

Particulate Radiation
Radiation in the form of particles as opposed to electromagnetic radiation.

Penetrating Radiation
External radiations of such penetrating power that the absorbed dose from exposure is delivered in significant and damaging quantities to human tissues and other organs. It refers to most gamma radiation, x-ray radiation, and neutron radiation.

Personnel Monitoring
The determination of the degree of radioactive contamination on individuals using survey meters, or the determination of radiation dosage received by means of dosimetry devices.

Phantom
A volume of material behaving in a manner similar to tissue with respect to the attenuation and scattering of radiation.

Photo dosimetry
The determination of the cumulative dose of ionizing radiation by use of photographic film.

Photon
A quantum (or packet) of energy emitted in the form of electromagnetic radiation. Gamma rays and x-rays are examples of photons.

Photo timer
A method for controlling radiation exposures to image receptors by the amount of radiation that reaches a radiation monitoring device(s). The radiation monitoring device(s) is part of an electronic circuit that controls the duration of time the tube is activated.

Picocurie
One trillionth part of a curie.

Pig
A container (usually lead) used to ship or store radioactive materials. The thick walls protect the person handling the container from radiation. Large containers are commonly called casks.

Pit
The components of a nuclear warhead located within the inner boundary of the high explosive assembly, but not including safing materials.

Planned Special Exposure
An infrequent exposure to radiation, separate from and in addition to the annual dose limits.

Plume
Airborne material spreading from a particular source; the dispersal of particles, gases, vapors, and aerosols in the atmosphere.

Plutonium (Pu)
A heavy, radioactive, manmade metallic element with atomic number 94. Its most important isotope is fissile plutonium-239, which is produced by neutron irradiation of uranium-238.

Pocket Dosimeter
A small ionization detection instrument that indicates radiation exposure directly. An auxiliary charging device is usually necessary.

Positron
Particle equal in mass, but opposite in charge, to the electron; a positive electron.

Power Reactor
A nuclear reactor designed to produce electricity as distinguished from reactors used primarily for research for producing radiation or fissionable materials.

Primary Stage
The fission trigger or first stage of a thermonuclear weapon or device.

Projected Dose
Future dose calculated for a specified time period on the basis of estimated or measured initial concentrations of radionuclides or exposure rates and in the absence of protective actions.

Proportional Counter
An instrument in which an electronic detection system receives pulses that are proportional to the number of ions formed in a gas-filled tube in ionizing radiation.

Protective Action
An activity conducted in response to an incident or potential incident to avoid or reduce radiation dose to members of the public (sometimes called a protective measure).

Protective Barrier
A radiation absorbing material(s) used to reduce radiation exposure. The types of protective barriers are as follows:
a. Primary Protective Barrier: the material, excluding filters, placed in the useful beam, for protection purposes, to reduce the radiation exposure.
b. Secondary Protective Barrier: a barrier sufficient to attenuate the stray radiation to the required degree.

Proton
An elementary nuclear particle with a positive electric charge located in the nucleus of an atom. (See Atomic Number.)

Public Dose
The dose received by a member of the public from exposure to radiation and to radioactive material released by a licensee, or to another source of radiation either within a licensee's-controlled area or in unrestricted areas. It does not include occupational dose or doses received from background

radiation, as a patient from medical practices, or from voluntary participation in medical research programs.

Quality Factor
The modifying factor that is used to derive dose equivalent from absorbed dose.

Quantum Theory
The concept that energy is radiated intermittently in units of definite magnitude called quanta and absorbed in a like manner. (See Photon.)

Rad
The special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/g or 0.01 J kg-1 (0.01 Gy).

RADIAC
An acronym derived from “radioactivity detection indication and computation,” a generic term applying to radiological instruments or equipment.

Radiation
Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this part, does not include non-ionizing radiation, such as radio- or microwaves, or visible, infrared, or ultraviolet light. (See Ionizing Radiation.)

Radiation Area
An area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 cm from the radiation source or from any surface that the radiation penetrates.
Radiation Detection Instrument
A device that detects and records the characteristics of ionizing radiation.

Radiation Dispersal Weapon
Any device other than a nuclear exposure device and including weapons or equipment that are specifically designed to disseminate radioactive material to cause destruction, fear, or injury by means of the radiation produced by the decay of such material.

Radiation Machine
Any device capable of producing radiation except those that produce radiation only from radioactive material.

Radiation Shielding
Reduction of radiation by interposing a shield of absorbing material between any radioactive source and a person, work area, or radiation-sensitive device.

Radiation Sickness
The complex of symptoms characterizing the disease known as radiation injury, resulting from excessive exposure to the whole body (or large part) to ionizing radiation. The earliest of these symptoms are nausea, fatigue, vomiting, and diarrhea, which may be followed by loss of hair (epilation), hemorrhage, inflammation of the mouth and throat, and general loss of energy. In severe cases, where the radiation exposure has been relatively large, death may occur within 2 to 4 weeks. Those who survive 6 weeks after the receipt of a single large dose of radiation may generally be expected to recover. (See Syndrome.)

Radiation Source

Usually a manmade-sealed ounce of radiation used in teletherapy, radiography, as a power source for batteries, or in various types of industrial gauges. Machines such as accelerators and radioisotope generators and natural radio nuclides may be considered sources.

Radiation Standards
Exposure standards, permissible concentrations, rules for safe handling, regulations for transportation, regulations for industrial control of radiation and control of radioactive material by legislative means.

Radiation Syndrome
See Radiation Sickness.

Radiation Warning Symbol
An officially prescribed symbol (a magenta, purple, or black trefoil) on a yellow background that must be displayed where certain quantities of radioactive materials are present or where certain doses of radiation could be received.

Radioactive Cloud
An all-inclusive term for the cloud of hot gases, smoke, dust, dirt, and debris from a weapon and the environment. The cloud is carried aloft in conjunction with the rising fireball produced by the detonation of a nuclear weapon.

Radioactive Contamination
Deposition of radioactive material in any place where it may harm persons or equipment.

Radioactive Decay
The process in which a radioactive nucleus emits radiation and changes to a different isotope or element.

Radioactive Isotope
A radioisotope. (See Radioisotope.)

Radioactive Series
A succession of nuclides, each of which transforms by radioactive disintegration into the next until a stable nuclide result. The first member is called the parent, the intermediate members are called daughters, and the final stable member is called the end product.

Radioactive Waste
See Waste, Radioactive.

Radioactivity
The spontaneous emission of radiation, generally alpha or beta particles, often accompanied by gamma rays, from the nucleus of an unstable isotope.

Radioassay
The process of identifying the radioactive elements and their amounts in a sample of material such as low-level waste.

Radiographer
Any individual who performs or personally supervises industrial radiographic operations and who is responsible to the licensee or registrant for assuring compliance with the requirements of these regulations and all license and / or certificate of registration conditions.

Radiological Accident

A loss of control over radiation or radioactive material which presents a potential hazard to personnel, public health, property, or the environment.

Radioisotope
An unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation. Approximately 5000 natural and artificial radioisotopes have been identified.

Radiological Assistance Program Team
A part of the Nuclear Incident Response, it is a team of expert personnel who assist state and local authorities in dealing with accidents or incidents involving radiation.
http://www.llnl.gov/nai/rdiv/nucinc.html

Radiological Control Team
A special radiological team of the U.S. Army and U.S. Navy organized to provide technical assistance and advice in radiological emergencies.

Radiological Release
An unplanned incident in which radiological material is discharged into the biosphere.

Radiological Survey
The evaluation of the radiation hazards accompanying the production, use, or existence of radioactive materials under a specific set of conditions. Such evaluation customarily includes a physical survey of the disposition of materials and equipment, measurements or estimates of the levels of radiation that may be involved, and a sufficient knowledge of processes affecting these materials to predict hazards resulting from unexpected or possible changes in materials or equipment.

Radiology
That branch of medicine dealing with the diagnostic and therapeutic applications of radiant energy, including x-rays and radioisotopes.

Radionuclide
A radioisotope.

Radio sensitivity
The relative susceptibility of cells, tissues, organs, organisms, or other substances to the injurious action of radiation.

Radium (Ra)
A radioactive metallic element with atomic number 88. As found in nature, the most common isotope has a mass number of 226. It occurs in minute quantities associated with uranium in pitchblende, carnotite and other minerals.

Radon (Rn)
A radioactive element that is one of the heaviest gases known. Its atomic number is 86, and its mass number is 222. It is a decay product or progeny of radium.

Rainout
The removal of radioactive particles from a nuclear cloud by precipitation when the cloud is within a rain cloud.

Reactivity
A term expressing the departure of a reactor system from criticality. A positive reactivity addition indicates a move toward supercriticality (power increase). A negative reactivity addition indicates a move toward subcriticality (power decrease).

Reactor
A facility that contains a controlled nuclear fission chain reaction. It can be used to generate electricity, conduct research, and produce isotopes and manmade elements such as plutonium.

Recording Level (RL) (for intake of radionuclides)
Level of committed dose equivalent or intake, above which the result is of sufficient interest to be worth keeping and interpreting. Recording levels are defined for routine monitoring, RLR, and for special or operational monitoring, RLS. Derived recording levels, DRLR and DRLS, are values of body or organ content or elimination rate that correspond to recording levels, RLR and RLS. The values are calculated by means of defined models of intake, deposition, uptake, retention, and elimination.

Recovery
The process of reducing radiation exposure rates and concentrations of radioactive material in the environment to levels acceptable for unconditional occupancy or use.

Recycling
The reuse of fissionable material after it has been recovered by chemical processing from spent or depleted reactor fuel, re-enriched and then re-fabricated into new fuel elements.

Reentry
Temporary entry into a restricted zone under controlled conditions.

Rem (Roentgen Equivalent Man)
The special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rad multiplied by the quality factor (1 rem = 0.01 Sv).

Respiratory Protective Device
An apparatus, such as a respirator, used to reduce the individual's intake or airborne radioactive materials.

Roentgen (R)
A unit of exposure to ionizing radiation. It is that amount of gamma or x-rays required to produce ions carrying 1 electrostatic unit of electrical charge in 1 cm3 of dry air under standard conditions.

Safing
As applied to weapons and ammunition, the changing from a state of readiness to initiation to a safe condition that prevents an unauthorized firing.

Scattered Radiation
Radiation that, during passage through matter, has been deviated in direction.

Scavenging
The selective removal of material from the radioactive cloud by inert substances, such as precipitation, introduced into the fireball.

Scintillation Detector or Counter
The combination of phosphor, photo-multiplier tube, and associated electronic circuits for counting light emissions produced in the phosphor by ionizing radiation.

Secondary Radiation
Radiation originating as the result of absorption of other radiation in matter. It may be either electromagnetic or particulate in nature.

Seismic Category I

A term used to define structures, systems and components that are designed and built to withstand the maximum potential (earthquake) stresses for the particular region that a nuclear plant is sited.

Sievert (Sv)
The SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in Sv is equal to the absorbed dose in gray multiplied by the quality factor (1 Sv - 100 rem).

Shallow-Dose Equivalent (Hs)
Applying to the external exposure of the skin or an extremity is taken as the dose equivalent at a tissue depth of 0.007 cm (7 milligram per square meter (mg/m2)) averaged over an area of 1 square centimeter (cm2).

Sheltering
The use of a structure for radiation protection from an airborne plume and / or deposited radioactive materials.

Shielded Room Radiography
Industrial radiography conducted in a room shielded so that radiation levels at every location on the exterior meet the limitations specified in the regulations.

Shielding
Any material or obstruction that absorbs radiation and thus tends to protect personnel or materials from the effects or ionizing radiation.

Shock Wave
A pressure pulse that is initiated by the expansion of hot gases produced in an explosion and that is continuously propagated in the medium surrounding the explosion.

Short-Lived Daughters
Radioactive progeny of radioactive isotopes that have half-lives on the order of a few hours or less.

Site Boundary
That line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

Skin Decontamination
Removal of radioactive material from the skin.

Somatic Cell
Body cell other than a germ cell.

Somatic Effects of Radiation
Effects of radiation limited to the exposed individual, as distinguished from genetic effects, which may also affect subsequent unexposed generations.

Source Image Receptor Distance
The distance from the source to the center of the input surface of the image receptor.

Source Material
a. Uranium or thorium or any combination or uranium and thorium in any physical or chemical form.
b. Ores that contain, by weight, one-twentieth of 1 percent (0.05 percent), or more, of uranium, thorium, or any combination of uranium and thorium.

Special Form Radioactive Material
Radioactive material that satisfies the following conditions:

a. It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule.
b. The piece or capsule has at least one dimension not less than 5 mm (0.197 inch).
c. It satisfies the test requirements specified by the NRC.

Special Nuclear Material
a. Plutonium, uranium-233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the NRC determines to be special nuclear material but does not include source material.
b. Any material artificially enriched by any of the foregoing but does not include source material.

Spent Fuel
Fuel elements that have been removed from the reactor because they contain too little fissile material and too high a concentration of radioactive fission products. They are highly radioactive.

Stable Isotope
An isotope that does not undergo radioactive decay.

Stay Time
The period during which personnel may remain in a restricted area before accumulating some permissible dose.

Stochastic Effects
Health effects that occur randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be a linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects.

Stratosphere
A relatively stable layer of the atmosphere extending from the tropopause to an altitude of about 30 miles.

Subcriticality
The condition of a nuclear reactor system when the rate of production of fission neutrons is lower than the rate of production in the previous generation due to increased neutron leakage and poisons.

Subsurface Burst
The explosion of a nuclear weapon beneath the surface of the Earth.

Supercriticality
The condition for increasing the level of operation of a reactor. The rate of fission neutron production exceeds all neutron losses, and the overall neutron population increases.

Surety
Umbrella term for safety, security, and use control of nuclear weapons.

Survey, Radiological
An evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

Survey Meter
Any portable radiation detection instrument especially adapted for inspecting an area to establish the existence and amount of radioactive material present.

Tail, Tailings
The depleted stream of an enrichment plant or stage after the enriched produced is removed, expressed as percent of uranium-235 content.

Technologically Enhanced
Substance that because of processing contains more naturally occurring radioactive material than originally.

Teletherapy
Therapeutic irradiation in which the source of radiation is at a distance from the body.

Tenth Thickness
The thickness of a given material that will decrease the amount (or dose) of radiation to one tenth of the amount incident upon it. Two-tenth thickness will reduce the dose received by a factor of 10 x 10 (i.e., 100, and so on). (See Shielding.)

Terrestrial Radiation
The portion of natural radiation (background) that is emitted by naturally occurring radioactive materials in the earth.

Thermal Radiation
Electromagnetic radiation (infrared, visible, and ultraviolet) emitted from the fireball of a nuclear explosion as a consequence of high temperatures.

Thermal Reactor
A reactor in which the fission chain reaction is sustained by low-energy neutrons that have been moderated to thermal energy in order to produce a chain reaction.

Thermonuclear
An adjective referring to the process in which very high temperatures are used to bring about the fusion of light nuclei, such as those of the hydrogen isotopes, deuterium and tritium, with the accompanying liberation of energy. (See Fusion.)

Tomogram
The depiction of the x-ray attenuation properties of a section through the body.

Total Effective Dose Equivalent (TEDE)
The sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

Transport Index
The dimensionless number, rounded up to the first decimal place, placed on the label of a package to designate the degree of control to be exercised by the carrier during transportation. The transport index is the number expressing the maximum radiation level in millirem per hour at 1 meter from the external surface of the package.

Transition
A nuclear change from one energy state to another, generally accompanied by thee mission of particles. Often called decay or disintegration.

Tritium

A radioactive isotope of hydrogen (one proton, two neutrons). Because it is chemically identical to natural hydrogen, tritium can easily be taken into the body by any ingestion path. Its radioactive half-life is about 12 1/□□years.

Tube
An x-ray tube, unless otherwise specified.

Type A Quantity
A quantity of radioactive material, the aggregate radioactivity of which does not exceed A1 for special form radioactive material or A2 for normal form radioactive material.

Type B Quantity
A quantity of radioactive material greater than a Type A quantity.

Ultraviolet
Electromagnetic radiation of a wavelength between the shortest visible violet and low-energy x-rays.

Uranium (U)
A radioactive element with the atomic number 92, and as found in natural ores, an atomic weight of approximately 238. The two principal natural isotopes are uranium-235 (0.7 percent of natural uranium), which is fissile, and uranium-238 (99.3 percent of natural uranium), which is fissionable by fast neutrons and is fertile. Natural uranium also includes a minute amount of uranium-234.

U.S. Munitions List
The following is a list of items designated by the President to require export licenses to all nuclear countries: firearms; artillery projectors; ammunition; launch vehicles, etc.; explosives, propellants, incendiary agents and their constituents; vessels of war and special naval equipment; tanks and military vehicles; aircraft and associated equipment; military training equipment; protective personnel equipment; military electronics; fire control, range finder, optical and guidance and control equipment; auxiliary military equipment; toxicological agents and equipment and radiological equipment; spacecraft systems and associated equipment; nuclear weapons design and related equipment; classified articles, technical data, and defense services
not otherwise enumerated; submersible vessels, oceanographic and associated equipment; and miscellaneous articles. http://www.ciponline.org/facts/munilist.htm

Very High Radiation Area
An area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rad (5 Gys) in 1 hour at 1 m from a radiation source or from any surface that the radiation penetrates. [Note: At very high doses received at high dose rates, units of absorbed dose (e.g., rad and Gy) are appropriate, rather than units of dose equivalent (e.g., rem and Svs).]

Venting
The escape through the surface to the atmosphere of gases or radioactive products from a subsurface high explosive or nuclear detonation.

Vessel
The part of the nuclear reactor that contains the nuclear fuel.

Warhead
That part of a missile, projectile, torpedo, rocket, or other munition that contains either the nuclear or thermonuclear system, high explosive system, chemical or biological agents, or inert materials intended to inflict damage.

Washout

The removal of radioactive particles from a nuclear cloud by precipitation when the cloud is below a rain or snow cloud.

Weapon Debris
The highly radioactive material consisting of fission products, various products of neutron capture, unspent fuel, and shards of bomb casing that remain after a nuclear explosion.

Weapon System
Collective term for the nuclear and nonnuclear components, systems, and subsystems that compost a nuclear weapon.

Weathering Factor
The fraction of radioactivity remaining after being affected by average weather conditions for a specified period of time.

Weighting Factor WT
For an organ of tissue (T) is the proportion of the risk of stochastic effects resulting from irradiation of that organ or tissue to the total risk of stochastic effects when the whole body is irradiated uniformly. Presently, the organ dose weighting defined by the NRC and ICRP differ.

Well Logging
All operations involving the lowering and raising of measuring devices or tools which may contain sources of radiation into well bores or cavities for the purpose of obtaining information about the well or adjacent formations.

Whole Body
For purposes of external exposure, head, trunk, arms above the elbow, or legs above the knee.

Whole-Body Counter
A device used to identify and measure the radiation in the body (body burden) of human beings and animals; it uses heavy shielding to keep out background radiation and ultra-sensitive radiation detectors and electronic counting equipment.

Whole-Body Exposure
An exposure of the body to radiation, in which the entire body rather than an isolated part, is irradiated. Where a radioisotope is uniformly distributed throughout the body tissues, rather than being concentrated in certain parts the irradiation can be considered as a whole-body exposure.

Wipe Sample (Swipe Sample)
A sample made for the purpose of determining the presence of removable radioactive contamination on a surface. It is done by wiping, with slight pressure, a piece of soft filter paper over a representative type of surface area.

Working Level (WL)
Any combination of short-lived radon daughters (for radon-222, polonium-218, lead-214, bismuth-214, and polonium-214; and for radon -220: polonium-216, lead-212, bismuth-212, and polonium-212) in 1 liter of air that will result in the ultimate emission of 1.3 x 105 million electron volts of potential alpha particle energy.

Working Level Month (WLM)
An exposure to 1 working level for 170 hours (2,000 working hours per year/12 months per year = approximately 170 hours per month).

Wound Contamination
The presence of a radioactive substance in a wound, whether an abrasion, puncture, or laceration; condition in which the loss of intact skin increases the risk that the contaminant will be absorbed.

X-ray Control
A device that controls input power to the x-ray high voltage generator and / or the x-ray tube. It includes equipment such as timers, photo-timers, automatic brightness stabilizers, and similar devices, which control the technique factors of an x-ray exposure.

X-ray Equipment
An x-ray system, subsystem, or component thereof. Types of x-ray equipment are as follows:
a. Mobile x-ray equipment means x-ray equipment mounted on a permanent base with wheels and / or casters for moving while completely assembled.
b. Portable x-ray equipment means x-ray equipment designed to be hand carried.
c. Stationary x-ray equipment means x-ray equipment that is installed in a fixed location.

X-ray High Voltage Generator
A device that transforms electrical energy from the potential supplied by the x-ray control to the tube operating potential. The device may also include means for transforming alternative current to direct current, filament transformers for the x-ray tube(s), high voltage switches, electrical protective devices, and other appropriate elements.

X-ray System
An assemblage of components for the controlled production of x-rays. It includes minimally an x-ray high voltage generator, an x-ray control, a tube housing assembly, a beam limiting device, and the necessary supporting structures. Additional components that function with the system are considered integral parts of the system. X-ray subsystem means any combination of two or more components of an x-ray system.

X-rays
Penetrating electromagnetic radiation (photon) having a wavelength that is much shorter than that of visible light. Rays produced by excitation of the electron field around certain nuclei are called characteristic x-rays. In nuclear reactions, it is customary to refer to photon originating in the nucleus as gamma rays, and to those originating in the electron field of the atom as X-rays.

Yellowcake
A concentrated form of uranium ore known as UO.

Yield
The energy released in a nuclear explosion, expressed usually as the number of tons of TNT that would release the same amount of energy.

Section 4 – Biological Terms

Acetylcholine (ACH, ACh)
The neurotransmitter substance at cholinergic synapses that causes cardiac inhibition, vasodilation, gastrointestinal peristalsis, and other parasympathetic effects. It is liberated from preganglionic and post-ganglionic endings of parasympathetic fibers and from pre-ganglionic fibers of the sympathetic nervous system as a result of nerve injuries, whereupon it acts as a transmitter on the effector organ; it is hydrolyzed into choline and acetic acid by acetylcholinesterase before a second impulse may be transmitted.

Acetylcholinesterase (AChE)
True cholinesterase. Acetylcholinesterase hydrolyzes acetylcholine within the Central Nervous System and peripheral neuroeffector functions.

Active Immunization
The act of artificially stimulating the body to develop antibodies against infectious disease by the administration of vaccines or toxoids.

Acute Samples
Samples (e.g., blood, sputum, urine, etc.) taken from a patient who is experiencing the full symptoms of a disease.

Adenopathy
Swelling or morbid enlargement of the lymph nodes.

Aedes Aegypti
Asian tiger mosquito; an alien mosquito established in the southeast U.S. and from which Eastern Equine Encephalitis has been isolated.

Aerosol
A suspension of very small solid liquid particles in gas (such as air).

Alpha Interferon
One of a group of heat-stable and soluble basic antiviral glycoproteins produced by cells exposed to the action of a virus, bacterium, or toxin; used medically as an antiviral compound.

Amikacin
An antibiotic drug effective against Gram-negative bacteria (particularly gentamicin- and tobramycin-resistant strains) or staphylococci.

Amino Acid
An organic compound having both an amino group (NH2) and a carboxylic acid (COOH) group.

Analgesic
a. A compound capable of producing analgesia (i.e., one that relieves pain without producing anesthesia or loss of consciousness).
b. Characterized by reduced response to painful stimuli.

Anaphylaxis
Hypersensitivity or abnormal reaction to a foreign substance (e.g., penicillin) induced by a small preliminary or sensitizing injection of the substance; it is an extreme form of allergy that often has serious consequences (i.e., swelling of tissues) and has been known to be fatal.

Anemia
A condition in which the blood is deficient in red blood cells, in hemoglobin, or in total volume.

Anthrax
A highly lethal infection caused by the bacterium *Bacillus anthracis*; normally, a disease of livestock that can be transmitted to man by direct contact with or ingestion of contaminated meat, hide, wool, hair, blood, or excreta. In most cases involving humans, the bacteria enter the body through skin wounds and infects the skin. In other cases, the bacteria may be ingested (eaten) or inhaled. Spore inhalation results in the inhalation form of anthrax that is characterized by a human fatality rate of nearly 90 percent. A short period of flu-link symptoms that is followed by respiratory distress; shock and death usually follow within 24 - 36 hours after onset of respiratory distress. Anthrax can be treated with antibiotics, but treatment must be started early to be effective.

Anthrax Vaccine
Inactivated vaccine made from protective antigen of organisms. Protects against dermal exposure in occupational setting. Vaccine may be less effective with overwhelming challenge of inhaled spores.

Antibody

A protein substance produced in the blood or tissues in response to a specific antigen, such as bacterium or a toxin. Antibodies destroy or weaken bacteria and neutralize organic poisons, thus forming the basis of immunity.

Antibiotic
A substance produced by or derived from a microorganism that inhibits or kills another microorganism (such as bacteria).

Anticonvulsant
An agent that prevents or arrests seizures.

Antigen
A molecule capable of eliciting a specific antibody or T-cell response.

Antiserum
The blood fluid remaining after blood cells, fibrinogen, and fibrin are removed, and which also contains antibodies; immune serum.

Antitoxin
An antibody formed in response to and capable of neutralizing a biological poison; an animal serum containing antitoxins.

Arbovirus
A group of viruses transmitted to humans and animals from ticks and insects such as mosquitoes and sand flies; shortened form of arthropod-borne virus.

Arenavirus
A family of viruses that includes the viral Hemorrhagic Fevers, Lassa Fever, Argentine Hemorrhagic Fever, Venezuelan Hemorrhagic Fever, Brazilian Hemorrhagic Fever, and Bolivian Hemorrhagic Fever.

Arthralgia
Severe pain in a joint, especially one not inflammatory in character.
Aseptic
Preventing infection; free or freed of pathogens by use of disinfectants, filtration, etc.

AST
Aspartate aminotransferase, a liver enzyme.

Asthenia
Weakness or debility.

Ataxia
An inability to coordinate muscle activity during voluntary movement so that smooth movements occur. Most often due to disorders of the cerebellum or the posterior columns of the spinal cord; may involve the limbs, head, or trunk.

Atelectasis
The absence of gas from a part or the whole of the lungs, due to failure of expansion or resorption of gas from the alveoli.

Bacillus
A rod-shaped bacterium.

Bacteria

Small, free-living microscopic organisms that reproduce by simple division; the diseases they produce often respond to treatment with antibiotics. Bacteria are single-celled, can exist independently, and vary in size from about 0.3 □m to 10 □m. Bacteria can cause disease either by directly invading body tissue or by producing toxins once inside the body.

Bilirubin
A red bile pigment formed from hemoglobin during normal and abnormal destruction of erythrocytes. Excess bilirubin is associated with jaundice.

Biodegradation
The breakdown of substances of environmental concern by living cells.

Biohazard
A biological agent or condition (e.g., an infectious organism or insecure laboratory procedures) that constitutes a hazard to humans or the environment.

Biological Agent
A microorganism that causes disease in man, plants, or animals or causes the deterioration of material.

Biological Integrated Detection System (BIDS)
This system provides commanders with an effective system to detect and presumptively identify biological warfare agents. Its primary purpose is to provide information to limit the impact of large-area-coverage biological agent attacks that have the potential for catastrophic effects to U.S. forces at the operational levels of war. It consists of wheeled vehicles and specially trained operators.

Biological Operation
Employment of biological agents to produce casualties in man or animal and damage to plants or materiel, or defense against such employment.

Biological Warfare
The use, for military or terrorist purposes, of living organisms or material derived from them, which are intended to cause death or incapacitation in man, animals, or plants.

Biological Warfare Agent
Living organisms or their derivatives that can be used in weapons to cause incapacitation or death. Biological agents have the ability to reproduce themselves, thus they are less predictable than chemical agents.

Bioregulators / Modulators
Biological agents that are biochemical compounds, such as peptides that occur naturally in organisms.

Biosafety Level (BSL)
A designation that indicates specific precautions that must be taken when culturing or working with infectious organisms or toxins. Each biosafety level describes appropriate laboratory practices and techniques as well as required safety equipment. Biosafety levels range from BL-1, for organisms that can cause minor infections, to BL-4 for those that can cause fatal diseases for which there is no known cure.

Blood Agar
A mixture of blood and nutrient agar used for the cultivation of many medically important microorganisms.

Bomblet

A small munition capable of containing a biological warfare agent; a submunition. Numerous bomblets could be packed inside a larger munition (e.g., a bomb or warhead) that would explode in the air scattering the bomblets over a relatively wide area.

Botulism
Poisoning by toxic derived from the microorganism *Clostridium botulinum*.

Bronchiolitis
The inflammation of the bronchioles often associated with bronchopneumonia.

Bronchitis
Inflammation of the mucous membrane of the bronchial tubes.

Brucella
A genus of encapsulated, non-motile bacteria (family *Brucellae*) containing short, rod-shaped to coccoid, Gram-negative cells. These organisms are parasitic, invading all animal tissues and causing infection of the genital organs, the mammary gland, and the respiratory and intestinal tracts, and are pathogenic for man and various species of domestic animals. They do not produce gas from carbohydrates. If used as a biological warfare agent, it would move likely be delivered by the aerosol route; the resulting infection would be expected to mimic natural disease.

Bubo
Inflammatory swelling of one or more lymph nodes, usually in the groin; the confluent mass of nodes usually suppurates and drains pus.

Bubonic Plague
A form of plague characterized by the presence of inflammatory swellings of lymph nodes that first occur at the regional node site closets to the bite of an infected flea. (See Plague.)

Bulla (Pl. Bullae)
A large blister appearing as a circumscribed area of separation of the epidermis from the subepidermal structure (subepidermal *bulla*) or as a circumscribed area of separation of epidermal cells (intraepidermal *bulla*) caused by the presence of serum, or occasionally by an injected substance.

Carbuncle
Deep-seated pyogenic infection of the skin and subcutaneous tissues, usually arising in several contiguous hair follicles, with formation of connecting sinuses; often preceded or accompanied by fever, malaise, and prostration.

Casual Contact
A person who has been in the proximity to an infected person or animal (e.g., sharing an airplane, bus, taxi, etc.) but has not been associated with body fluids or excretions.

Cerebrospinal
Relating to the brain and the spinal cord.

Chemoprophylaxis
Prevention of disease by the use of chemicals or drugs.

Cholera
A diarrheal disease caused by *Vibrio cholera*, a short, curved, gram-negative bacillus. Humans acquire the disease by consuming water or food contaminated with the organism. The organism multiplies in the small intestine and secretes an enterotoxin that causes a secretory diarrhea. If used as a biological warfare agent, it would most likely be used to contaminate water supplies.

Cholinergic
Relating to nerve cells or fibers that employ acetylcholine as their neurotransmitter.

Ciprofloxacin
An antibiotic drug useful in treating bacterial infections; the recommended antibiotic for treating anthrax infections as well as prophylaxis in a biological warfare setting.

Clostridium Perfringens Toxins
A common anaerobic bacterium associated with three distinct disease syndromes: gas gangrene or clostridial myonecrosis, enteritis necroticans, and clostridium food poisoning.

Coagulopathy
A disease affecting the coagulability of the blood.

Coccobacillus
A short, thick bacterial rod of the shape of an oval or slightly elongated coccus.

Communicable
Capable of being transmitted from human to human, animal to animal, animal to human, or human to animal.

Conjunctiva (Pl. Conjunctivae)
The mucous membrane investing the anterior surface of the eyeball and the posterior surface of the lids.

Contagion
The spread of disease from one person to another.

Crimean-Congo Hemorrhagic Fever
A viral disease caused by Crimean-Congo Hemorrhagic Fever virus. The virus is transmitted by ticks, principally of the genus Hyalomma. Humans become infected through tick bites, crushing an infected tick, or at the slaughter or viremic livestock. If used as a biological warfare agent, it would most likely be delivered by aerosol.

Cutaneous
Relating to the skin.

Cyanosis
A dark bluish or purplish coloration of the skin and mucous membrane due to deficient oxygenation of the blood, evident when reduced hemoglobin in the blood exceeds 5 g/100 mL.

Cytotoxin
Toxin that directly damages and kills the cell with which is makes contact.

Decay Rate
The predictable rate at which microorganisms die/or which biological agents lost viability.

Dengue
An acute infectious disease caused by an arbovirus transmitted by Aedes aegypti mosquitoes characterized by fever, chills, headache, nausea, vomiting, rash, and severe muscle and joint pains.

Diathesis
The constitutional or inborn state disposing to a disease, group of diseases, or metabolic or structural anomaly.

Diplopia

The condition in which a single object is perceived as two objects.

Distal
Situated away from the center of the body, or from the point of origin; specifically applied to the extremity or distant part of a limb or organ.

Dysarthria
A disturbance of speech and language due to emotional stress, to brain injury, or to paralysis, incoordination, or spasticity of the muscles used for speaking.

Dysentery
An often-infectious disease characterized by severe diarrhea with passage of mucus and blood.

Dysphagia, dysphagy
Difficulty in swallowing.

Dysphonia
Altered voice production.

Dyspnea
Shortness of breath, a subjective difficulty or distress in breathing, usually associated with disease of the heart or lungs; occurs normally during intense physical exertion or at high altitude.

Eastern Equine Encephalitis
A member of the Alphavirus family transmitted by mosquitos that generally infect horses but can cause epidemics in humans. Those infected present symptoms of malaise, headache, nausea, and vomiting.

Ebola
An RNA virus of the Filovirus family that causes one of the viral hemorrhagic fevers. Contact with infected body fluids rather than aerosols may be the principal mode of transmission. The incubation period is 20 to 21 days. The initial symptoms are fever, headache, sore throat, abdominal pain, vomiting and diarrhea. Those patients who exhibit hemorrhage usually follow a downhill course to shock and death.

Ecchymosis
A purplish patch caused by extravasation of blood into the skin, differing from petechiae only in size (larger than 3 mm diameter).

Eczema
Generic term for inflammatory conditions of the skin, particularly with vesiculation in the acute stage, typically erythematous, edematous, papular, and crusting; followed often by lichenification and scaling and occasionally by duskiness of the erythema and, infrequently, hyperpigmentation; often accompanied by sensations of itching and burning.

Edema
An accumulation of an excessive amount of watery fluid in cells, tissues, or serous cavities.

Enanthem, Enanthema
A mucous membrane eruption, especially one occurring in connection with one of the exanthemas.

Encephalitis (Pl. Encephalitides)
Inflammation of the brain.

Endemic

A disease process that is continuously present in a given community, population, or geographic location.

Endotoxemia
Presence in the blood of endotoxins.

Endotoxin
A toxin produced in an organism and liberated only when the organism disintegrates.

Endotracheal Intubation
Passage of a tube through the nose or mouth into the trachea for maintenance of the airway during anesthesia or for maintenance of an imperiled airway.

Enterotoxin
Toxins of bacterial origin that affect the intestines, causing diarrhea (e.g., toxins from Vibrio cholera, Staphylococcus, Shigella, E. coli, Clostridium perfringens, Pseudomonas.

Enzyme
A protein formed by living cells which acts as a catalyst on physiological chemical processes.

Enzyme-Linked Immunosorbent Assay (ELISA)
An immunological technique used to quantify the amount of antigen or antibody in a sample such as blood plasma or serum.

Epidemic
The condition in which a disease spreads rapidly through a community in which that disease is not normally present.

Epistaxis
Profuse bleeding from the nose.

Epizootic
a. Denoting a temporal pattern of disease occurrence in an animal population in which the disease occurs with a frequency clearly in excess of the expected frequency in that population during a given time interval.
b. An outbreak (epidemic) of disease in an animal population; often with the implication that it may also affect human populations.

Erythema
Redness of the skin due to capillary dilatation.

Erythema Multiforme
An acute eruption of macules, papules, or subdermal vesicles presenting a multiform appearance, the characteristic lesion being the target or iris lesion over the dorsal aspect of the hands and forearms; its origin may be allergic, seasonal, or from drug sensitivity, and the eruption, although usually self-limited (e.g., multiforme minor), may be recurrent or may run a severe course, sometimes with fatal termination (e.g., multiforme major).

Erythrocyte
A mature red blood cell.

Erythropoiesis
The formation of red blood cells.

Etiologic Agent
A viable microorganism or its toxin that causes, or may cause, human disease.

Exanthema
A skin eruption occurring as a symptom of an acute viral or coccal disease, as in scarlet fever or measles.

Exotoxin
A toxin secreted by a microorganism into the surrounding medicine.

Extracellular
Outside the cells.

Extraocular
Adjacent to but outside the eyeball.

Fasciculation
Involuntary contractions, or twitching, of groups (fasciculi) of muscle fibers, a coarser form of muscular contraction than fibrillation.

Febrile
Denoting or relating to fever.

Filovirus
A member of the Filoviridae viral family. Filoviruses are highly pathogenic and capable of epidemic transmission. The family includes the Ebola and Marburg viruses. Filoviruses are string shaped, often with a little hook or loop at one end.

Flash Message
A communication message with top priority to warn units of an actual or predicted chemical or biological agent hazard; a category of the NBC Warning and Reporting System.

Fomite
Objects, such as clothing, towels, and utensils that possibly harbor a disease agent and are capable of transmitting it.

Formalin
A 37 percent aqueous solution of formaldehyde.

Fulminant Hepatitis
Severe, rapidly progressive loss of hepatic function due to viral infection or other cause of inflammatory destruction of liver tissue.

Fungus
A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, molds, smuts, etc., which are characterized by the absence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose.

Gene
A sequence of nucleic acids in the DNA molecules representing the genetic code for the production of one or more proteins in a living cell.

Generalized Vaccinia
Secondary lesions of the skin following vaccination that may occur in subjects with previously healthy skin but are more common in the case of traumatized skin, especially in the case of eczema (eczema vaccinium). In the latter instance, generalized vaccinia may result from mere contact with a

vaccinated person. Secondary vaccinal lesions may also occur following transfer of virus from the vaccination to another site by means of the fingers (autoinoculation).

Germicide
An agent that destroys disease-causing microorganisms.

Gram Stain
A staining procedure used in classifying bacteria. A bacterial smear on a slide is stained with a purple basic triphenyl methane dye, usually crystal violet, in the presence of iodine/potassium iodide. The cells are then rinsed with alcohol or other solvent, and then counterstained, usually with safranin. The bacteria then appear purple or red according to their ability to keep the purple stain when rinsed with alcohol. This property is related to the composition of the bacterial cell wall.

Gram-Negative
Refers to the inability of many bacteria to retain crystal violet or similar stain through the standard Gram stain procedure. They show only the red counterstain.

Gram-Positive
Refers to the ability of many bacteria to retain crystal violet or similar stain through the standard Gram stain procedure. They retain a purple color.

Granulocytopenia
Less than the normal number of granular leukocytes in the blood.

Guarneri Bodies
Intracytoplasmic acidophilic inclusion bodies observed in epithelial cells in variola (smallpox) and vaccinia infections, and which include aggregations of Paschen body's or virus particles.

Half-Life, Biological
The time required for the body to eliminate half of the material taken in by natural biological means.

Hemagglutination
The agglutination of red blood cells; may be immune as a result of specific antibody either for red blood cell antigens per se or other antigens which coat the red blood cells or may be non-immune as in hemagglutination caused by viruses or other microbes.

Hemagglutinin
A substance, antibody or other, that causes hemagglutination.

Hematemesis
Vomiting of blood.

Hematuria
Any condition in which the urine contains blood or red blood cells.

Hemoglobin
The constituent of red blood cells that carried oxygen and gives them their color.

Hemopoietic
Pertaining to or related to the formation of blood cells.

Hemorrhage
The discharge of blood, as from a ruptured blood vessel.

Hemorrhagic Fever

Any of a diverse group of diseases characterized by a sudden onset, fever, muscle aches, petechiae, bleeding in the internal organs, and shock.

Hematuria
Any condition in which the urine contains blood or red blood cells.

Hemodynamic
Relating to the physical aspects of the blood circulation.

Hemolysis
Alteration, dissolution, or destruction of red blood cells in such a manner that hemoglobin is liberated into the medium in which the cells are suspended (e.g., by specific complement-fixing antibodies, toxins, various chemical agents, tonicity, alteration of temperature).

Hemolytic Uremic Syndrome
Hemolytic anemia and thrombocytopenia occurring with acute renal failure.

Hemoptysis
The spitting of blood derived from the lungs or bronchial tubes as a result of pulmonary or bronchial hemorrhage.

Hepatic
Relating to the liver.

Heterologous
a. Pertaining to cytologic or histologic elements occurring where they are not normally found.
b. Derived from an animal of a different species, as the serum of a horse is heterologous for a rabbit.

Host
Organism that serves as a home to, and often as a food supply for, a parasite, such as a virus.

Hot Agent
An extremely lethal infectious microorganism that is potentially airborne.

Hot Zone
An area that contains lethal, infectious organisms.

Human Immunodeficiency Virus (HIV)
The condition of having antibodies indicating the presence of HIV; the pathogen that causes Acquired Immune Deficiency Syndrome (AIDS).

Hyperemia
The presence of an increased amount of blood in a part or organ.

Hyperesthesia
Abnormal acuteness of sensitivity to touch, pain, or other sensory stimuli.

Hypotension
Subnormal arterial blood pressure.

Hypovolemia
A decreased amount of blood in the body.

Hypoxemia
Subnormal oxygenation of arterial blood, short of anoxia.

Idiopathic
Denoting a disease of unknown cause.

Immunity
a. Resistance usually associated with the presence of antibodies or cells in a body that effectively resist the effects of an infectious disease organism or toxin.
b. A condition of being able to resist a particular disease especially through preventing growth and development of a pathogenic microorganism or by counteracting the effects of its products.

Immunization
Administration either of a non-toxic antigen to confer active immunity or antibody to confer passive immunity to a person or animal in order to render them insusceptible to the toxic effects of a pathogen or toxin.

Immunoassay
Detection and assay of substances by serological (immunological) methods; in most applications the substance in question serves as antigen, both in antibody production and in measurement of antibody by the test substance.

Immunogen
An antigen that provokes an immune response.

Induration
a. The process of becoming extremely firm or hard, or having such physical features.
b. A focus or region of indurated tissue.

Infectious
Capable of producing disease in a susceptible host.

Inguinal
Relating to the groin.

Inoculation
Introduction into the body of the causative organism of a disease.

Interim Biological Agent Detector (IBAD) – Rapid Prototype
Detector that provides a near-term solution to a deficiency in shipboard detection of biological warfare agents. This equipment is capable of detecting an increase in the particulate background, which may indicate a man-made biological attack is underway, and sampling the air for identification analysis. It can also detect a change in background within 15 minutes and can identify biological agents within an additional 30 minutes.

Ion-Channel-Binding Toxins
These toxins interfere with the movement of ions such as sodium or potassium, through membranes.

Isolation
Separation of infected persons or animals from others to prevent or limit direct or indirect transmissions of the infectious agent.

Joint Biological Point Detection System (JBPDS)
The Army, Navy, Air Force, and Marine Corps use this detection system. The developmental system will replace all existing biological detection systems (Biological Integrated Detection System, Interim Biological Agent Detector, and Air Base/Port Advanced Concept Technology Demonstration) and

provide biological detection capabilities throughout the services and throughout the battlespace. The common biological detection suite will consist of four functionalities—
a. Trigger (detects a significant change in the ambient aerosol in real time).
b. Collector (collects samples of the suspect aerosol for analysis by the JBPDS, and for confirmatory analysis by supporting laboratories in the Communications Zone and the continental U.S.
c. Detector (able to broadly categorize the contents of the aerosol and lend confidence to the detection process; e.g., biological material in the aerosol or not, bacteriological, spore, protein, etc.).
d. Identification (provides presumptive identification of the suspect biological warfare agent and increases confidence in the detection process). The JBPDS program consists of two phases (Block I and Block II) to allow the fastest possible fielding of a joint biological detection system, while at the same time preparing to take advantage of the rapid advances taking place in the biological detection/identification, information processing and engineering services.

Lassa Fever
An acute illness caused by the RNA containing Arenavirus. This is also classified as one of the viral hemorrhagic fevers. Transmission may be from infected rodents, contact with infected body fluids, or person-to-person contact. The incubation period is 6 to 21 days. Headache, sore throat, cough, chest pain, abdominal pain, vomiting, diarrhea and fever are frequent symptoms.

Lethal Toxin
One of the proteins comprising the anthrax toxin; a zinc metalloprotease with a molecular weight of 90,000.

Leukopenia
The opposite of leukocytosis; any situation in which the total number of leukocytes in the circulating blood is less than normal, the lower limit of which is generally regarded as 4000-5000/mm3.

Long Range Biological Standoff Detection System (LR-BSDS) P31
This detection system uses infrared light detection and ranging (Infrared Light-Detection and Ranging) technology to detect, range, and track aerosol clouds that are indicative of a biological warfare attack; the LR-BSDS cannot discriminate biological from non-biological clouds. The system has three major components—
a. Diode pulsed ionizing radiation laser transmitter operating at infrared wavelength.
b. A receiver and telescope.
c. An information processor and display.
This system has been designed in two phases: a non-developmental item phase designed to rapidly field an interim capability, and a pre-planned product improvement (P31) phase. The nondevelopment item system is able to detect and track man-made aerosols out to 30 km, but nonissue out to about 2.5 km. The P31 LR-BSDS will be eye safe, have a longer operating range (50 km), and be easier to operate.

Lumbosacral
Relating to the lumbar vertebrae and the sacrum.

Lumen (Pl. Lumina)
The space in the interior of a tubular structure, such as an artery or the intestine.

Lymphadenopathy
Any disease process affecting a lymph node or lymph nodes.

Lymphopenia
A reduction, relative or absolute, in the number of lymphocytes in the circulating blood.

M31 Biological Integrated Detection System (BIDS)
This detection system uses a multiple technology approach, both developmental and off-the-shelf material, to detect biological agents with maximum accuracy. The BIDS is a vehicle-mounted, fully

integrated biological detection system. The system is capable of detecting and presumptively identifying four biological warfare agents simultaneously in less than 45 minutes.

Macula, (Pl. Maculae)
a. A small spot, perceptibly different in color from the surrounding tissue.
b. A small, discolored patch or spot on the skin, neither elevated above nor depressed below the skin's surface.

Malaria
A chronic parasitic disease caused by Plasmodia and transmitted by the bites of infected mosquitoes. It is accompanied by severe chills and fever at regular intervals.

Marburg Virus
One of the RNA containing Filovirus family also classified in the viral hemorrhagic fever group. The incubation period is 3 to 9 days. The disease is contracted by skin or mucous membrane contact with blood or other tissues of infected monkeys or humans. The disease is manifested by headache, sore throat, muscle aches, chest pain, vomiting, diarrhea, skin rash, jaundice, easy bruising and bleeding.

Mediastinitis
Inflammation of the cellular tissue of the mediastinum.

Mediastinum
The median partition of the thoracic cavity covered by the mediastinal pleura and containing all the thoracic viscera and structures except the lungs.

Megakaryocyte
A large cell with a polyploid nucleus that is usually multilobed; megakaryocytes are normally present in bone marrow, not in the circulating blood, and give rise to blood platelets.

Melena
Passage of dark-colored, tarry stools, due to the presence of blood altered by the intestinal juices.

Melioidosis
An infectious disease of humans and animals caused by *Pseudomonas pseudo mallei*, a gram-negative bacillus. A biological warfare attack with this organism would most like be by the aerosol route.

Meningism
A condition in which the symptoms simulate a meningitis, but in which no actual inflammation of these membranes is present.

Meningitis
Inflammation of the membranes covering the brain and spinal cord.

Meningococcemia
Presence of meningococci (*N. meningitidis*) in the circulating blood.

Meninges
Any membrane; specifically, the membranous coverings of the brain and spinal cord.

Microcyst
A tiny cyst, frequently of such dimensions that a magnifying lens or microscope is required for observation.

Microscopy

Investigation of minute objects by means of a microscope.

Microorganism
Any organism of microscopic dimensions. Once they enter the body, microorganisms multiply, overcoming the body's natural defenses, and produce disease.

Monkey Pox Virus
A virus that causes a blister type rash in monkeys similar to small pox in man. The disease is endemic in Western and Central Africa and has infected humans in this geographic area. It may have the ability for person-to-person transmission. It causes swollen lymph nodes in the neck and groin areas.

Moribund
Dying; at the point of death.

Mucocutaneous
Relating to mucous membrane and skin; denoting the line of junction of the two at the nasal, oral, vaginal, and anal orifices.

Myalgia
Muscular pain.

Mycotoxin
A fungal toxin. They can cause illness or death upon ingestion; skin contact or inhalation. They exhibit great stability and heat resistance. Mycotoxins are difficult to detect, to identify, and to decontaminate.

Mydriasis
Dilation of the pupil.

Narcosis
General and nonspecific reversible depression of neuronal excitability, produced by a number of physical and chemical agents, usually resulting in stupor rather than in anesthesia.

Necrosis
Pathologic death of one or more cells, or of a portion of tissue or organ, resulting from irreversible damage.

Nephropathic Epidemica
A generally benign form of epidemic hemorrhagic fever reported in Scandinavia.

Neurotoxic
Poisonous to nerve tissue.

Neutrophilia
An increase of neutrophilic leukocytes in blood or tissues; also frequently used synonymously with leukocytosis, inasmuch as the latter is generally the result of an increased number of neutrophilic granulocytes in the circulating blood (or in the tissues, or both).

Node
Swelling

Nodule
A small mass of rounded or irregular shape.

Nosocomial

Denoting a new disorder (not the patient's original condition) associated with being treated in a hospital, such as a hospital-acquired infection.

Oliguria
Scanty urine production.

Organism
A complex structure of interdependent and subordinate elements whose relations and properties are largely determined by their function in the whole.

Oropharynx
The portion of the pharynx that lies posterior to the mouth; it is continuous above with the naSOGharynx via the pharyngeal isthmus and below with the laryngopharynx.

Osteomyelitis
Inflammation of the bone marrow and adjacent bone.

Pancytopenia
Pronounced reduction in the number of erythrocytes, all types of white blood cells, and the blood platelets in the circulating blood.

Pandemic
Denoting a disease affecting or attacking the population of an extensive region, country, continent; extensively epidemic.

Papule
A small, circumscribed, solid elevation on the skin.

Parasitemia
The presence of parasites in the circulating blood; used especially with reference to malarial and other protozoan forms, and microfilariae.

Passive Immunity
Providing temporary protection from disease through the administration of exogenously produced antibody (i.e., transplacental transmission of antibodies to the fetus or the injection of immune globulin for specific preventive purposes).

Pathogen
Biological agents that are disease-producing microorganisms, such as bacteria, mycoplasma rickettsia, fungi, or viruses.

Penicillin
A drug of choice for therapy of anthrax. (See antibiotics.)

Peptide
Any of various amides that are derived from two or more amino acids by combination of the amino group of one acid with the carboxyl group of another and are usually obtained by partial hydrolysis of proteins.

Percutaneous
Denoting the passage of substances through unbroken skin, for example, by needle puncture, including introduction of wires and catheters.

Perivascular
Surrounding a blood or lymph vessel.

Petechia (Pl. Petechiae)
Minute hemorrhagic spots, of pinpoint to pinhead size, in the skin, that are not blanched by pressure.

Pharyngeal
Relating to the pharynx.

Pharyngitis
Inflammation of the mucous membrane and underlying parts of the pharynx.

Photophobia
Morbid dread and avoidance of light. Photosensitivity, or pain in the eyes with exposure to light, can be a cause.

Plague
An acute infectious disease caused by *Yersinia pestis*. Under normal conditions, humans become infected as a result of contact with rodents and their fleas. In a biological warfare scenario, the plague bacillus could be delivered by means of contaminated vectors (fleas) causing the bubonic type or, more likely, by means of aerosol causing the pneumonic type. The incubation period is 2 to 8 days following the bite of an infected flea and is characterized by high fever; chills; prostration; enlarged, painful lymph nodes known as buboes, located particularly in the groin or under the arms. The bacteria can invade the blood stream leading to the septicemic form of the disease. Subsequent invasion of the lungs causes a rapidly fatal form known as pneumonic plague that can be transmitted from person-to-person via airborne respiratory droplets. The agent is highly infectious by the aerosol route and most populations are completely susceptible.

Plasma
The fluid portion of the blood, as opposed to the particulate bodies suspended in the blood.

Pleurisy
Inflammation of the two membranous sacs (pleura), each of which lines one side of the thoracic cavity and envelops the adjacent lung, reducing the friction of respiratory movements to a minimum.

Pneumonia
Inflammation of the lungs caused by viral or bacterial infections or by irritants.

Polymerase Chain Reaction (PCR)
An in-vitro method for enzymatically synthesizing and amplifying defined sequences of DNA in molecular biology. It can be used for improving DNA-based diagnostic procedures for identifying unknown biological warfare agents.

Polymorphonuclear
Having nuclei of varied forms; denoting a variety of leukocyte.

Polyuria
Excessive excretion of urine.

Potency
The quality or state of having force or power to cause an effect, as—
a. Chemical or medicinal strength (e.g., a vaccine or drug).
b. The ability of a pathogen or toxin to cause infection or intoxication. (When two pathogens or toxins are being compared, the one with the smallest effective dose is the most potent.)

Presynaptic Neurotoxins

Microbial paralytic toxins, such as botulinum and tetanus toxins and snake phospholipases. They block release of actylcholine from nerve terminals.

Prophylaxis (Pl. Prophylaxes)
The prevention of disease or of a process that can lead to disease.

Prostration
A marked loss of strength, as in exhaustion.

Protein
Any of numerous naturally occurring extremely complex substances that consist of amino-acid residues joint by peptide bonds, contain the elements carbon, hydrogen, nitrogen, oxygen, usually sulfur, and occasionally other elements and include many essential biological compounds or immunoglobulins.

Proteinuria
The presence of urinary protein in concentrations greater than 0.3 g in a 24-hour urine collection or in concentrations greater than 1 g/L in a random urine collection on two or more occasions at least 6 hours apart; specimens must be clean, voided midstream, or obtained by catheterization.

Pruritus
Itching.

Ptosis (Pl. Ptoses)
Drooping of the eyelids.

Pulmonary Edema
Swelling or excessive accumulation of serous fluid in the lungs.

Pyrogenic
Causing fever.

Q Fever
An acute, febrile, incapacitating disease caused by the rickettsia bacterium Coxiella burnetti and transmitted via inhalation of contaminated aerosols, the bites of infected ticks or ingestion of milk from infected dairy animals. A biological warfare attack would cause disease similar to that occurring naturally.

Quarantine
Detaining, isolating, or restricting the activities of people or animals exposed to a communicable disease during the period in which the disease can be transmitted to prevent others from contracting disease.

Reservoir
Any person, animal, anthropoid, plant, soil, or substance (or combination of these) in which an infectious agent normally lives and multiplies, on which it depends for survival, and in which it reproduces itself in such a manner that it can be transmitted to a susceptible vector.

Retinitis
Inflammation of the retina (a delicate multiplayer light-sensitive membrane lining the inner eyeball and connected by the optic nerve to the brain).

Retrosternal
Posterior to the sternum.

Rhinorrhea

A discharge from the nasal mucous membrane.

Ribavirin
An antiviral drug used in the treatment of viral hemorrhagic fevers.

Ricin
A glycoprotein toxic from the seed of the castor plant. It blocks protein synthesis by altering the RNA, thus killing the cell. Ricin's significance as a potential biological warfare agent relates to its availability worldwide, ease of production, and extreme pulmonary toxicity when inhaled.

Rickettsia
A microorganism of the genus Rickettsia made up of small rod-shaped coccoid occurring intracytoplasmically or free in the lumen of the gut of lice, fleas, ticks, and mites, by which they are transmitted to man and other animals. They cause diseases such as typhus, scrub typhus, and Rocky Mountain Spotted Fever in humans.

Rift Valley Fever
One of the viral hemorrhagic fevers caused by the Bunyaviridae viral group. It is transmitted to humans by Aedes Aegypti mosquitoes. It may affect the retina of the eye, leading to permanent blindness.

Salmonella
A group of nonspore forming bacteria capable of causing gastroenteritis, enteric fever, bacteremia, and localized infections. After ingestion of contaminated food or water, nausea, vomiting, diarrhea, fever headache, and muscle aches will occur lasting between 2 to 7 days.

Saxitoxin
The parent compound of a family of chemically related neurotoxins. In nature they are predominantly produced by marine dinoflagellates, although they have also been identified in association with such diverse organisms as blue-green algae, crabs, and the blue-ringed octopus. The natural route of exposure to these toxins is oral. In a biological warfare scenario, the most likely route of delivery would be by inhalation or toxic projectile. It could also be used in a confined area to contaminate water supplies.

Scarification
The making of a number of superficial incisions in the skin. It is the technique used to administer tularemia and smallpox vaccines.

Secondary Contamination
Contamination that occurs due to contact with a contaminated person or object rather than to direct contact with agent aerosols; cross contamination.

Septic Shock
a. Shock associated with sepsis, usually associated with abdominal and pelvic infection complicating trauma or operations.
b. Shock associated with septicemia caused by Gram-negative bacteria.

Sequellae
A condition following as a consequence of a disease.

Serum
That part of the whole blood that remains after the blood has clotted; generally yellowish in color.

Shigellosis
Bacillary dysentery caused by bacteria of the genus *Shigella*, often occurring in epidemic patterns.

Shock
An upset in the body caused by inadequate amounts of blood circulating in the bloodstream. It can be caused by marked blood loss, overwhelming infection, severe injury to tissues, emotional factors, etc.

Smallpox
An acute, systemic, potentially fatal and highly contagious viral disease caused by the variola Orthopoxvirus; characterized by the appearance of skin lesions and pustules on the face and body, with chills and fever. Under natural conditions, the virus is transmitted by direct (face-to-face) contact with an infected case, by fomites, and occasionally by aerosols.

Spores
Resistant, dormant cells of some bacteria; primitive reproductive bodies of fungi.

Staphylococcal Enterotoxin
An incapacitating toxin produced by the bacterium Staphylococcus aureus; responsible for the fever, chills, and gastrointestinal upsets of "food poisoning" from ingestion of improperly prepared food items. The weaponized form is an aerosol; potent incapacitator in small doses; could render up to 80 percent of exposed personnel clinically ill for approximately two weeks.

Sterile Abscess
An abscess whose contents are not caused by pyogenic bacteria.

Sterilization
The complete killing of all organisms, usually by the use of physical or chemical means such as autoclaving or exposure to high concentrations of formaldehyde.

Stridor
A high-pitched, noisy respiration, like the blowing of the wind; a sign of respiratory obstruction, especially in the trachea or larynx.

Submunition
Individual bomblets that can be filled with biological or chemical agent and packed into the aeroshell of a missile; follow independent flight patterns after air burst release from the "parent" missile.

Superantigen
An antigen that interacts with the T-cell receptor in a domain outside of the antigen recognition site. This type of interaction induces the activation of larger numbers of T cells compared to antigens that are presented in the antigen recognition site.

Superinfection
A new infection in addition to one already present.

T-Cell
Any of several types of lymphocytes that control cell-mediated and humoral immunity, or that lyse antigen-bearing cells.

T-2 Mycotoxin
A trichothecene mycotoxin produced by filamentous fungi growing on moldy cereal grains.

Tachycardia
Rapid beating of the heart conventionally applied to rates over 100 per minute.

Teratogenicity
The property or capability of producing fetal malformation.

Tetracycline
A drug that can be used in combination with streptomycin in the therapy of brucellosis. It is also a drug of choice for Q Fever and may be used as alternative therapy for plague and tularemia. (See antibiotic.)

Thrombocytopenia
A condition in which there is an abnormally small number of platelets in the circulating blood.

Toxemia
A condition caused by the circulation of toxins in the blood.

Toxic
Poisonous.

Toxin
Any poisonous substance of microorganism, plant, or animal origin.

Toxoid
A modified bacterial toxin that has been rendered nontoxic (commonly with formaldehyde) but retains the ability to stimulate the formation of antitoxins (antibodies) and, thus, producing an active immunity. Examples include Botulinum, Tetanus, and Diphtheria Toxoids.

Tracheitis
Inflammation of the lining membrane of the trachea (a thin-walled cartilaginous and membranous tube carrying air to the lungs).

Trichothecene Mycotoxins
A diverse group of more than 40 compounds produced by fungi. They are potent inhibitors or protein synthesis, impair DNA synthesis, alter cell membrane structure and function, and inhibit mitochondrial respiration. Secondary metabolites of fungi, such as T-2 toxin and others, produce toxic reactions called mycotoxicosis upon inhalation or consumption of contaminated food products by humans or animals.

Tularemia
A zoonotic disease caused by *Francis Ella tularemia*, a gram-negative bacillus. Humans acquire the disease under natural conditions through inoculation of skin or mucous membranes with blood or tissue fluids of infected animals, or bites of infected deerflies, mosquitoes, or ticks.

Undulating
Rising and falling; fluctuating.

Urticaria
An eruption of itching wheals, usually of systemic origin; it may be due to a state of hypersensitivity to foods or drugs, foci of infection, physical agents (heat, cold, light, friction), or psychic stimuli.

Vaccine
A suspension of attenuated live or killed microorganisms (bacteria, viruses, or rickettsia), or fractions thereof, administered to induce immunity and thereby prevent infectious disease.

Vaccinia

An infection, primarily local and limited to the site of inoculation, induced in man by inoculation with the vaccinia (cowpox) virus in order to confer resistance to smallpox (variola). On about the third day after vaccination, papules form at the site of inoculation which become transformed into umbilicated vesicles and later pustules; they then dry up, and the scab falls off on about the 21st day, leaving a pitted scar; in some cases, there are more or less marked constitutional disturbances.

Varicella
An acute contagious disease, usually occurring in children, caused by the varicella-zoster virus, a member of the family Herpesviridae. It is marked by a sparse eruption of papules, which become vesicles and then pustules, like those of smallpox although less severe and varying in stages, usually with mild constitutional symptoms. The incubation period is about 14 to 17 days (synonym: chickenpox).

Variola
Smallpox.

Variolation
The historical practice of inducing immunity against smallpox by “scratching” the skin with the purulency from smallpox skin pustules.

Vectors
An animal, insect, or other organism that carries and transmits a virus or other microorganism.

Venezuelan Equine Encephalitis
A member of the Alphavirus family transmitted by mosquitoes that generally infects horses but can cause epidemics in humans. It can also cause infections if aerosols containing the virus are inhaled. Infection is manifested by fever, headache, sore throat, vomiting, and muscle aches.

Viral Hemorrhagic Fevers
A diverse group of human viral illnesses characterized by acute febrile onset accompanied by headache and complicated by increased vascular permeability, damage, and bleeding; mortality is high. Examples include Rift Valley Fever, Ebola Hemorrhagic Fever, and Yellow Fever.

Viremia
The presence of virus in the bloodstream.

Virion
The complete virus particle that is structurally intact and infectious.

Virus
Any of a large group of submicroscopic agents infecting plants, animals, and bacteria and unable to reproduce outside the tissues of the host.

Western Equine Encephalitis Virus
A member of the Alphavirus family transmitted to mosquitoes that generally affects horses but can cause epidemics in humans.

Yellow Fever Virus
A member of the Flavivirus group endemic to South America and Africa transmitted to humans by the Aedes Aegypti mosquito. It is also a viral hemorrhagic fever virus. After a 3 to 6-day incubation period, there is abrupt onset of headache, nausea, vomiting, muscle aches, chills, and fever.

Yellow Rain
A lethal yellow substance thought to have been dispersed aerially as a warfare agent in Southeast Asia and Afghanistan; the lethal component is thought to have been a trichothecene mycotoxin.

Reported to produce severe nausea and vomiting, disturbances in the central nervous system, fever, chills, and abnormally low blood pressure. Case mortality approximately 50 percent.

Zoonosis
An infection or infestation shared in nature by humans and other animals that are the normal or usual host; a disease of humans acquired from an animal source.

Zootoxin
A toxin or poison of animal, such as the venom of snakes, spiders, and scorpions.

Section 5 – Chemical Terms

Accessible Form
Undiluted agent that has not been decontaminated or neutralized, but that could possibly be removed for unauthorized purposes. Includes agents in munitions, bulk, and in laboratory containers.

Action Level
A concentration designated in Code of Federal Regulations, Part 1910, Title 29 for a specific substance, calculated as an 8-hour time-weighted average (TWA) which initiates certain required activities such as exposure monitoring and medical surveillance. (Note: For many substances the action level is one-half the permissible exposure limit.)

Agent
A force or substance that causes a change.

Agent Activity / Operation
Any operation which involved chemical agents, including storage, shipping, handling, manufacturing, maintenance, test chamber activities, laboratory activities, surveillance, demilitarization, decontamination, disposal, and training.

Agent Area
A physical location where entry and exit are restricted and controlled; where agents are manufactured, processed, packaged, repackaged, demilitarized, released, handled, stored, used, or disposed of.

Agent Facility
Any location at which chemical agent operations are carried out including storage facilities, renovation, maintenance, and demilitarization facilities, manufacturing plants, disposal sites, and laboratories. Depending on the activity, the facility may be a building, enclosure, or possibly an open area.

Agent BZ
The chemical 3-quinuclidinyl ester, CAS Registry No. 6581-06-2. BZ is a code designation for a potent psychoactive compound that has a pharmacological action similar to that of other anticholinergic drugs (e.g., atropine, scopolamine) except that the effects are more severe and longer lasting. It has an incapacitating agent classified as a Class B poison for transportation purposes. It is an odorless, white crystalline solid that in granular form may be compounded with a fuel-oxidizer mix for thermal dissemination.

Agent GA
The chemical Ethyl N, N-dimethylphosphoramidocyanidate, CAS Registry No. 77-81-6, in pure form and in the various impure forms found in storage as well as in industrial, depot, or laboratory operations (synonym - Tabun). Agent GA is a nerve agent.

Agent GB

The chemical ISOGropyl methylphosphonofluoridate, CAS Registry No. 107-44-8, in pure form and in the various impure forms found in storage as well as in industrial, depot, or laboratory operations (synonym - Sarin). Agent GB is a nerve agent.

Agent GD
The chemical Pinacolyl methyl phosphorofluoridate, methyl-1, 2, 2-trimethylpropyl ester, CAS Registry No. 96-64-0, in pure form and in the various impure forms found in storage as well as in industrial, depot, or laboratory operations (synonym - Soman). Agent GD is a nerve agent.

Agent H
Levinstein mustard, CAS Registry No. 471-03-4. A mixture of 70 percent bis(2-chloroethyl) sulfide and 30 percent sulfur impurities produced by the Levinstein process. Agent H is a blister.

Agent HD Distilled mustard or bis(2-chloroethyl) sulfide, CAS Registry No. 505-60-2. Distilled mustard (HD) is mustard (H) that has been purified by washing and vacuum distillation to reduce sulfur impurities. Agent HD is a blister agent.

Agent HT
A plant-run mixture of 60 percent HD and 40 percent T plus a variety of sulfur contaminants and impurities. T is bis[2-(2-chloroethylthio) ethyl] ether, CAS Registry No. 63918-89-8. T is sulfur, oxygen and chlorine compound similar in structure to HD. Agent HT is a blister agent.

Agent L, or Lewisite
Dichloro 2-chlorovinyldichloroarsine, CAS Registry No. 541-25-3; its chemical formula is C2H2AsCl3. Agent L is a blister agent.

Agent Operating Area
That portion of an agent area where workers are actively conducting agent operations.

Agent VX
The chemical Phosphonothioic acid, methyl-S-[2-(bis(1-methylethyl) amino) ethyl] 0-ethyl ester, CAS Registry No. 50782-69-9, in pure form and in the various impure forms that may be found in storage as well as in industrial, depot, or laboratory operations. Agent VX is a nerve agent.

AIC
Acceptable Intake for Chronic Exposure.

Aldehydes
Any of various highly reactive compounds typified by acetaldehyde and characterized by the group CHO.

Alkali
A class of bases that neutralize acids and forms salts.

Amine
Any of a class of organic compounds derived from ammonia by replacement of hydrogen with one or more alkyl groups.

Analgesic
A substance used in medicine to relieve pain.

Anthropometric
Relates to the study of human body measurements, especially on a comparative basis.

Aqueous Media

Environmental media that contain a large proportion of water, such as storm water runoff from agricultural fields, animal and plant fluids, etc.

Arsenicals
A category of blister agents in which arsenic is the central atom. Although more volatile than mustard agents, they are much more dangerous as liquids than as vapors.

Atropine
An alkaloid obtained from the plant Atropa belladonna. It is used as an antidote for nerve agent poisoning. It inhibits the actions of acetylcholine at the nerve/muscle junction.

Automatic Chemical Agent Alarm (ACAA)
See M8A1, M-21, M-22, and M-90 descriptions.

Automatic Continuous Air Monitoring System (ACAMS)
This system can detect G agents, VX, or mustard at very low levels. It is an automated gas chromatograph that first collects agent on a solid sorbent and then thermally desorbs the agent into a separation column for analysis.

Automatic Liquid Agent Detector (ALAD)
A liquid agent devise that can detect droplets of GD, VX, HD, and Lewisite as well as thickened agents. It transmits its alarm by field wire to a central alarm unit.

Binary Chemical Munitions
Munitions designed to use two non-lethal chemicals that combine only during weapon functions to produce a chemical agent.

Binary Precursors
The component chemicals that combine to produce chemical agents. Examples of two common chemical agent ingredients are as follows:
a. The precursors for binary GB (GB2) are methylphosphonic difluoride (DF) and ISOGropyl alcohol with an amine added (OPA).
b. The precursors for binary VX (VX2 are O, O-ethyl (2-iSOGropyl aminoethyl) methylphosphinite (QL) and dimethyl polysulfide (NM).

Blast
The brief and rapid movement of air vapor away from a center of outward pressure, as in an explosion. This term is commonly used to mean explosion, but the two terms should be distinguished.

Bliss Slope
The slope of the dose-response curve when the x-axis is expressed as the log of the administered dose and the y-axis is expressed as probits (probability units) of response. It is also called a Probit Slope.

Blister Agent
A chemical (e.g., sulfur mustard) that produces local irritation and damage to the skin and mucous membranes that progresses in severity to fluid-filled blisters on skin. This chemical can cause damage by exposure to liquid or vapor inhalation. It can also produce damage to the respiratory tract.

Blood Agent
A chemical (e.g., hydrogen cyanide, allyl chloride) that is absorbed into the general circulation system and carried to all body tissues. These agents deprive tissue cells of oxygen, even though the blood is capable of carrying oxygen. The brain, being highly dependent upon a continual source of

oxygenation, is especially susceptible. Clinical signs include hyperventilation, which further enhances the dose received, resulting in abrupt cardiovascular collapse.

Breathing Zone
That zone of the surrounding environment in which a person performs the normal respiratory function.

Breathing Zone Sample
An air sample collected in the breathing area (around the nose) of an individual to assess his / her exposure to airborne contaminants.

Buddy-Aid
The administration of a chemical agent antidote to a soldier exhibiting symptoms of severe chemical agent poisoning when unable to administer self-aid.

Buffer Zone
As used by the FEMA and the USEPA, an area adjacent to a restricted zone which residents may return to, but where protective measures are recommended to reduce dose or exposure.

CAIRA
Chemical Accident or Incident Response and Assistance.

Chemical Accident/Incident (CAI)
Chemical events involving chemical agent material—
a. Chemical Accident: a chemical event resulting from non-deliberate acts where safety is of primary concern.
b. Chemical Incident: a chemical event resulting from deliberate acts (e.g., terrorism or criminal acts) where security is of concern.

Chemical Agent
A chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate people through its physiological properties. For consideration are blood, nerve, choking, blister, and incapacitating agents. Excluded are industrial chemicals, riot control agents, chemical herbicides, and smoke and flame materials.

Chemical Agent Casualty
An individual who has been affected sufficiently by a chemical agent to prevent or seriously degrade his or her ability to carry out the mission.

Chemical Agent Monitor (CAM)/Improved Chemical Agent Monitor (ICAM)
This item is used to detect chemical agent vapors and provide a readout of the relative concentration of the vapor present. It is a hand-held, battery-operated device for the monitoring of decontamination procedures and effectiveness on personnel and equipment. It can detect, identify and provide relative vapor concentration readouts for G and V-type nerve agents and H-type blister agents. The ICAM is a hand-held, soldier-operated, post-attack device for monitoring chemical agent decontamination on people and equipment. It detects vapors of
chemical agents by sensing molecular ions of specific mobilities (time of flight) and uses timing and microprocessor techniques to reject interference.

Chemical Bombs
Devices in which a chemical reaction takes place within a confined space. The following are the most common types:
a. Acid Bomb. Common ingredients are hydrochloric acid and aluminum foil that chemically reacts to give off heat, ultimately producing hydrogen gas and sufficient pressure to burst the container.
b. Caustic Bomb. Alkali based devices mixed with water and aluminum foil. The most common ingredient is sodium hydroxide, a corrosive in both liquid and solid forms that can immediately cause serious burns to skin on contact.

c. Dry Ice Bomb. When dry ice evaporates, carbon dioxide gas is released. It usually takes 30 to 45 minutes for enough pressure to build to rupture the contained. When detonation occurs before all the dry ice has evaporated, the remaining dry ice becomes fragments that can cause frostbite when contacting skin tissues.

Chemical Cartridge
A type of absorption unit used with a respirator for removal of solvent vapors and certain gases.

Chemical Contamination
The deposition of chemical agents on personnel, clothing, equipment, structures, or areas. Chemical contamination mainly consists of liquid, solid particles, and vapor hazards. Vapor hazards are probably the most prevalent means of contaminating the environment, although they are not necessarily a contact hazard.

Chemical Demilitarization
The mutilation, destruction, or neutralization of chemical agent materials, rendering it harmless and ineffectual for military purposes.

Chemical Demilitarization Program
The Department of Defense was directed by Congress through Public Law 99-145 as the government agency responsible for the destruction of the chemical weapons stockpile. This program is also responsible ensuring maximum protection to the environment, general public, and personnel involved in the destruction effort. To comply with treaty agreements and Congressional mandate, destruction of these weapons must be complete by 2007. The Program Manager for Chemical Demilitarization is responsible for the Chemical Stockpile Disposal Program that consists of four separate programs—
a. The Chemical Stockpile Disposal Program (CDSP): responsible for the destruction of the U.S. stockpile of unitary chemical weapons. The current technology uses manual unpacking, automated disassembly, and incineration of agent, explosives, metal, and dunnage in four separate incinerators, followed by exhaust gas processing through separate pollution abatement systems.
b. The Alternative Technologies and Approaches (ATA): responsible for conducting pilot testing of alternative destruction technologies that may be implemented in future chemical weapon destruction facilities.
c. The Non-Stockpile Chemical Materiel Program (NSCMP): responsible for the destruction of non-stockpile chemical warfare material, including binary chemical weapons, miscellaneous chemical warfare materiel, recovered chemical weapons, former production facilities, and buried chemical warfare materiel.
d. The Chemical Stockpile Emergency Preparedness Program (CSEPP): responsible for providing maximum protection of the civilian population during storage, handling, and destruction of the U.S. chemical weapons stockpile by improving state and local governments preparedness for an accidental release of agent.
http://www.hnd.usace.army.mil/chemde/index.asp

Chemical Event
Applies to the following:
a. Chemical agent leaks of munitions in the chemical agent stockpile.
b. Requirements for emergency transportation and / or disposal of known or suspected chemical agents.
c. Any release of chemical agent to the environment outside of closed systems, facilities, or devices (for example, lab hood, glove box, munitions, bulk container which are specifically designed to contain chemical agents) greater than established The Surgeon General airborne exposure standards (as per Department of Defense Directive 6055.9 standards promulgated in Army Regulation 385-64), or release resulting in personnel exhibiting clinical signs or symptoms of chemical agent exposure.
d. Any exposure or release of agent that does not exceed airborne exposure standards established by The Surgeon General but, nonetheless, is receiving media attention.

e. Any deliberate release of chemical agent resulting from a terrorist or criminal act (including employment of an improvised chemical device intended to disperse chemical agent regardless of whether device has functioned or not).
f. Loss of chemical surety material (other than deliberate destruction by approved, authorized laboratory, and demilitarization process, including training expenditures).
g. Release of or exposure to chemical agents, whether classified as chemical agent or experiments.

Chemical Event Emergency Notification System
A joint system of emergency notification of chemical events for off-post response. If a release of chemical agents happens, immediate action must be taken to notify and protect personnel in the predicted hazard area. The criteria to make this notification will be based on predicted dosage and distances.

Chemical Management Evaluation
An evaluation conducted by The Inspector General or the Major Army Command Inspector General of chemical operations with inquiry into the chemical functions and responsibilities of staff agencies, inspection teams, major and intermediate command levels, and assistance teams to determine management, systemic, or functional problem areas in the chemical program attributable to any echelon.

Chemical Overgarment-84 (OG-84)
This garment is a camouflage colored (woodland or desert), expendable, two-piece over garment consisting of one coat and one pair of trousers. It provides protection against chemical agent vapors, liquid droplets, biological agents, toxins, and radioactive alpha contamination. Its protective qualities last for a minimum of 30 days. This over garment provides a minimum of 24 hours of protection against exposure to liquid or vapor chemical agent.

Chemical Substance
A substance usually associated with some description of its toxicity or exposure hazard, including solids, liquids, mists, vapors, fumes, gases, and particulate aerosols. Exposure, via inhalation, ingestion, or contact with skin or eyes, may cause toxic effects, usually in a dose-dependent manner.

Chemical Surety
Those controls, procedures, and actions that contribute to the safety, security, and reliability of chemical agents and their associated weapon systems throughout their life cycle without degrading operational performance.

Chemical Surety Material
All lethal and incapacitating chemical agents and their related weapon systems, including binary munitions and their critical components that are either adopted or considered for military use. Excluded are riot control agents, defoliants, incendiaries, smoke, and flame.

Chemical Warfare
All aspects of military operations involving the use of lethal munitions/agents and the warning and protective measures associated with such offensive operations.

Chemical Weapons
a. Toxic chemicals and their precursors, except where intended for purposes not prohibited under the Chemical Weapons Convention.
b. Munitions and devices specifically designed to cause death or other harm through the toxic properties of toxic chemicals which would be released as a result of the employment of such munitions and devices.
c. Any equipment specifically designed for use directly in connection with the employment of munitions.

Chemical Weapons Convention
This Convention prohibits the development, production, stockpiling, and use of chemical weapons. It was opened for signature in 1993 and entered into force in 1997. The Organization for the Prohibition of Chemical Weapons (OPCW) in the Hague is responsible for implementation. The State Parties to this Convention work towards achieving effective progress towards general and complete disarmament under strict and effective international control, including the prohibition and elimination of all types of weapons of mass destruction. This Convention reaffirms the principles and objectives of, and obligations assumed under the Geneva Protocol of 1925, and the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction signed on in April 1972. http://www.opcw.nl/ http://projects.sipri-se/cbw/docs/cw-cwc-mainpage.html

Chemical Weapons System
An integrated relationship of chemical agents, munitions or spraying devices and their mode of delivery to the target.

Choking Agent
Compounds that injure an unprotected individual chiefly in the respiratory tract (the nose, throat, and lungs). In extreme cases membranes swell, lungs become filled with liquid, and death results from lack of oxygen.

Chlorine (Cl)
A choking agent. A chemical agent that is typically a non-persistent, heavy greenish-yellow gas. It irritates the eyes and throat and can lead to pulmonary edema resulting in death.

Cholinesterase (ChE)
An enzyme that catalyzes the hydrolysis of acetocholine to choline (a vitamin) and acetic acid.

Clean Areas
Those areas where environments are free of liquid agent contamination and have been monitored to verify that air concentrations are below the adverse effect levels.

Complementary Binary Precursors
Both the critical and non-critical precursors of a binary chemical agent (e.g., DF and OPA, or QL and NM).

Confounder
A condition or variable that may be a factor in producing the same response as the substance under study. The effects of such factors may be discerned through careful design and analysis.

Controlled Release
A release of a chemical agent that may not be intended but is anticipated. It is followed by immediate action that will suppress the vapor or liquid release by approved decontamination procedures and / or use of other suppression techniques that have also been approved beforehand.

Cyanide
A compound that contains nitrogen and a carbon atom bound in a special way. It is very poisonous and affects the ability of our tissues to use oxygen. Health effects are similar whether it is breathed, ingested, or come in contact with skin. Symptoms include difficulty breathing, irregular heartbeat, uncontrolled movement, convulsions, coma, and possibly death.

Decomposition

The breaking down of a substance of compound through a chemical reaction into its similar components.

Demilitarization
The mutilation, destruction, or neutralization of chemical agent material, thereby, rendering it harmless and ineffectual for military purposes.

Desiccant
A substance that has an affinity for water.

Detection Limit
Analytical capability based on the amount of the sample and the sensitivity of the analytical method.

Diesel Fuel Smoke
A visual obscurant used to conceal personnel and equipment. It is formed by injecting diesel fuel into the exhaust manifold of a tactical vehicle where the fuel is vaporized and expelled with the vehicle's exhaust. Upon dilution and cooling to the ambient temperature, the fuel condenses into a dense white smoke.

Dilute Solutions
Those mixtures presenting significantly reduced hazards. A solution of H, HD, L, or HT is considered dilute if its concentration is not greater than 10 milligrams per milliliter (neat agent/solvent) and it contains no more than 100 mg of neat agent. For agent GB, a maximum concentration of 2 mg/mL of agent in a solution containing a maximum quantity of 20 mg of neat agent is considered dilute. For agent VX, a maximum concentration of 1 mg/mL of agent in a solution containing a maximum quantity of 10 mg of neat agent is considered dilute.

DS-2
A decontaminating agent against biological and chemical contamination, an ageotropic mixture combining diethylenetriamine (70 percent), ethylene glycol monomethyl ether (28 percent), and sodium hydroxide (2 percent).

Enzyme
Organic substance capable of causing chemical changes to take place quickly at body temperature by catabolic action as in digestion.

Erythema
A severe redness of the skin, as caused by chemical poisoning or sunburn.

Exclusion Area
The area immediately surrounding one or more receptacles in which chemical agents are contained. In the absence of positive preventive measures, access into area constitutes access to the chemical agent.

Experimental Chemical Agent
Chemical substances being tested, developed, or altered for chemical defense purposes that will be used solely by the military. These substances will have toxicities equal to or greater than current nerve or mustard agents.

Explosive Ordnance Disposal (EOD)
The detection, identification, field evaluations, rendering safe, recovery, and final disposal of unexploded explosive ordnance or munitions chemical agents.

Explosive Ordnance Disposal Procedures

Those particular courses or modes of action for access to, recovery, render safe, and final disposal of explosive ordnance or any hazardous material associated with an explosive ordnance disposal incident.

Exposed Worker, Chemical Agent
a. An exposed worker—
(1) Exhibits clinical signs or symptoms or nerve agent intoxication.
(2) Has cholinesterase depression, consistent with nerve agent effect.
b. A potentially exposed worker—
(1) Works in an agent operating area where levels of nerve agent or mustard exceed the protective capability of the personal protective equipment.
(2) Works in an agent operating area where levels of nerve agent or mustard are detectable and there is a breech in personal protective equipment or engineering controls.
c. An exposed worker is an individual who exhibits clinical signs or symptoms of mustard effect.

Feasibility Study
A study undertaken by the lead agency to develop and evaluate options for remedial action.

Flash Point
The lowest temperature at which a substance gives off enough combustible vapors to produce momentary ignition when a flame is applied under controlled conditions.

Fog Oil Smoke
Smoke generated by injecting mineral oil into a heated manifold. The oil vaporizes upon heating and condenses when exposed to the atmosphere, producing respirable particles. Graphite can be added to fog oil to provide screening in the infrared range of the electromagnetic spectrum. The chemical and physical properties of fog oil are similar to those of petroleum-based lubricating and cutting oils.

G-Series Nerve Agents
Include tabun (GA), sarin (GB), suman (GD), and GF that are members of a class of compounds that are more lethal and quicker acting than mustard. They act rapidly and may be absorbed through the skin or the respiratory tract. Exposure to a lethal dose may cause death in as little as several minutes. These less persistent agents are used to cause immediate casualties and to create a short-term respiratory hazard on the battlefield.

Gas
A fluid that has neither independent shape nor volume but tends to expand indefinitely.

Hexachloroethane Smoke
The toxicity of hexachloroethane (HCE) (referred to as HC smoke) is attributed to the production of zinc chloride. HC smoke is produced by burning a mixture containing roughly equal parts of hexachloroethane and zinc oxide. The U.S. military uses HC smoke in a wide variety of munitions. It is used in smoke pots and smoke grenades to generate a screening effect.

Hg
Mercury.
High-Efficiency Particulate Air (HEPA) Filter
A filter that is at least 99.97 percent efficient in removing particles with a diameter of 0.3 □; used to treat exhaust air from equipment that may generate aerosols.

Hydrocarbons
An organic compound containing only carbon hydrogen and often occurring in petroleum, natural gas, coal, and bitumen's.

Hydrolyzed

Refers to a compound which has undergone chemical reaction with water; hydrolysis is the reaction of a particular compound (e.g., a chemical warfare agent) with water to form new chemical compounds ("reaction products").

ICt50
Inhalation dose of a chemical agent (vapor or aerosol) that produces a given, defined level of "incapacitation" in 50 percent of the exposed subjects (see ED50 and consider "incapacitation" as the effect). (NOTE: There is no general consensus on a military definition of incapacitation. It can refer to behavioral manifestations, physiologic endpoints, or individual combat effectiveness, all of which may vary depending upon the task the individual soldier is expected to accomplish.)
ID50
Dose of a liquid chemical agent needed to produce "incapacitation" in 50 percent of the exposed subjects (see note under ICt50).

Idiosyncratic Reaction
A genetically determined abnormal reactivity to a chemical.

Igloo
A reinforced concrete, earth-covered shelter used for storing explosives and munitions.

Impervious
Providing protection by precluding penetration of a substance (as demonstrated by methods in Military Standard 282) for the useful life of the item concerned.

Improved (Chemical Agent) Point Detection System (IPDS)
This detection system is a new shipboard point detector and alarm that replaces the Chemical Agent Point Detection System. This system can detect nerve and blister agent vapors at low levels and automatically provides an alarm to the ship.

Incendiary
Primarily an antimaterial compound that generates sufficient heat to cause destructive thermal degradation or destructive combustion of material.

Individual Chemical Agent Detector (ICAD)
A miniature lightweight chemical warfare agent detector that can be worn by the individual. It detects and alarms to nerve, blood, choking, and blister agents and is intended for a variety of applications. It may be used as a point detector.

Industrial Chemical
Chemicals developed or manufactured for use in industrial operations or research, by industry, Government, or the academia. These chemicals are not primarily manufactured for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for use by man. Hydrogen cyanide (AC), cyanogen chloride (CK), and phosgene (CG) and methylphosphonicdifluoride (DF) are considered industrial chemicals.

Interspecies Dose Conversion
The process of estimating equivalent doses between species (e.g., frequently a known animal dose is converted to estimate an equivalent human dose). The USEPA's cancer risk assessment guidelines generally recommend using the surface area approach unless there is evidence to the contrary. The dose as mg/kg of body weight/day divided by a 10-fold UF is generally used to convert between species for non-cancer effects of chemicals.

Joint Chemical Agent Detector (JCAD)

This detector will employ surface acoustic wave technology to detect nerve and blister agents. It will also allow detection of new forms of nerve agents.

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)
This detector is a fully coordinated joint service Research, Development, Test, and Evaluation program, chartered to develop a lightweight standoff chemical detector for the quad-services. It will be capable of scanning 360 degrees x 60 degrees, and automatically detecting nerve or blister agents at a distance up to 5 km. The system will be light, compact, and operate from a stationary position or on the move. The JSLSCAD Michelson interferometer employs a passive infrared system that will detect presence of chemical agents by completing a spectral analysis of target vapor agent chemical clouds. This detector is envisioned for employment on various platforms and in various roles, including fixed site defense, unmanned aerial vehicles, tank and other vehicles, and on-board ships.

Joint Service Warning and Identification LIDAR Detector (JSWILD)
This detector is a joint effort chartered to develop a chemical warning and identification system for the quad-services. The JSWILD will be a lightweight, vehicle-mountable, contamination monitoring system, which detects and quantifies all types of chemical agent contamination (including agent rain, vapors, and aerosols) in a standoff mode from a distance of 20 km. In addition, it will provide similar but short-range (1-5 km) capabilities in biological standoff detection as the LR-BSDS. It will operate from fixed sites and ground vehicles. The system has distance-ranging and contamination-mapping capabilities and transmits this information to a battlefield information network.

K Agents
Incapacitating agents.

Levinstein Mustard (H)
A blister agent. It contains about 30 percent sulfur impurities. The properties of H are essentially the same as HD except that sulfur impurities lessen its effectiveness and depress the freezing point by 2 to 5 degrees.

M8 Chemical Agent Detection Paper
A chemically treated, dye-impregnated paper, issued in a book of 25 sheets. It is designed to detect liquid V, G, and H agents. M8 paper will change colors to identify non-persistent G-type nerve (yellow), V-type nerve (black or dark green), or blister (red) agents. It is included in the M256A I Kit and in the M18A2 Chemical Agent Detection Kit.

M8A1 Automatic Chemical Agent Alarm (ACAA) System
The only remote continuous air-sampling alarm in the U.S. Army. This alarm will sample the air for the presence of nerve agent vapors (GA, GB, GD, or VX) only. It is capable of detecting nerve agent levels in 2 minutes or less. The system is an electrochemical, point sampling, chemical agent alarm that can be hand-carried, backpacked, or mounted on a tactical vehicle. It consists of the M43A1 detector, as many as 5 M42 alarm units, and various power supplies. The M8A1 will automatically signal the presence of the nerve agent in the air by providing troops
with both an audible and visible warning. It requires an NRC license.

M9 Chemical Agent Detection Paper
A self-adhesive paper that can be readily attached to the body or to vehicles, shelters, and other equipment. It cannot distinguish the identity of agents. The agent sensitive dye will turn red upon contact with liquid nerve agents (G and V) and blister agents (H and L). The paper produced colored spots when in contact with nerve and blister agents.

M11 Portable Decontaminating Apparatus
A device containing DS-2 used to decontaminate small areas, such as the steering wheel or other equipment that soldiers must touch. It is filled with 1 1/3 quarts of DS-2.

M13 Portable Decontaminating Apparatus

The M13 is about the size of a 5-gallon gasoline can and is used to decontaminate vehicles and crew-served weapons larger than a .50-caliber piece.

M17 Lightweight Decontamination System (LDS)
The M17 is a portable pump and water-heating unit for producing hot water and steam. The system incorporates a 1,580-gallon collapsible water tank, two wand assemblies, connecting hoses, and a shower rail. It is issued to Army battalion-size units and to chemical decontamination companies and battalions.

M17 Protective Mask
This chemical and biological mask assembly includes the mask, the M15A1 carrier, two lenses, and the M1 waterproofing bag. It is made of molded rubber with filter elements in each cheek, plastic eye lenses, and a voice emitter outlet valve in the front. The A1 and A2 models include the capability to drink water while masked. The mask protects the wearer's face, eyes, and respiratory tract against field concentrations of chemical and biological agents.

M18A2 Chemical Agent Detector Kit
A kit used by technical escort teams and used in depots. It consists of portable tests capable of detecting selected choking and blood agents as well as nerve agents and blister (e.g., mustards, arsenicals, urticants) agents. It is used to detect and classify dangerous concentrations of toxic chemical agents in the air and liquid chemical agent contamination on exposed surfaces.

M-21 Remote Sensing Chemical Agent Automatic Alarm (RSCAAL)
A two-man portable tripod-mounted, automatic scanning, passive, infrared sensor which detects nerve and blister agent vapor clouds based on changes in the infrared energy emitted from remote objects, or from a cloud formed by the agent. The M-21 is line-of-sight dependent with a detection range up to 3 miles and a field of view of 1.5 degrees vertical and 60 degrees horizontal. It will be used for surveillance and reconnaissance missions and will search areas between enemy and friendly forces.

M22 Automatic Chemical Agent Alarm (ACADA)
An advanced, point-sampling, chemical agent alarm system employing ion-mobility spectrometry. It is man-portable, operates independently after system start-up, and provides an audible and visual alarm. The system detects and identifies nerve and blister agents. It also provides communications interface for automatic battlefield warning and reporting. The M22 system replaces the M8A1 Alarm as an automatic point detector and augments the CAM as a survey instrument.

M34 Soil Sampling Kit
Materials used to sample soil, surface matter, and water.

M40 / M42 Chemical / Biological Protective Mask
This is the standard protective mask. The mask consists of a silicone face piece with in-turned periphery, binocular eye lens system, and elastic head harness. Other features include front and side voice emitters, allowing for better communications, drink tube, clear, and tinted inserts and filter canister with NATO standard threads. The mask protects against chemical and biological agents, toxins, radioactive fallout particles, and battlefield contaminants. The M40/42 Series field protective masks will replace the M17 (general purpose), M25 (vehicle crewman), and M9 (heavy-duty) masks.

M-90 Automatic Agent Detector (AMAD)
An automatic nerve and mustard agent detector that detects agents in vapor form. It transmits an alarm by radio to a central alarm unit. It is currently used by the Air Force.

M90 DIA Chemical Agent Detector (CAD)
A man-portable instrument designed to determine and indicate the hazard from nerve or blister (mustard) agent vapors present in the air. Hazard levels are indicated in high, medium, and low concentrations. This detector is programmable, with the capability to add new agents as they are

developed. It is operable over a multitude of operational platforms including day or night conditions. It can be used to verify clean areas, perform area surveys, identify contamination, and verify the effectiveness of decontamination operations. The M90 is currently fielded within the Air Force.

M-93 and M-93A1 FOX
This reconnaissance system provides NBC protection, warning, and sampling equipment integrated into a high speed, high mobility armored carrier with collection protection for its crew. The system contains a CAM, a chemical agent detector alarm, a radiation detection device, a navigation system, secure communications, and an area marking system. The system provides combat information on the presence of NBC hazards and can operate in all areas, in adverse weather and under all types of battlefield conditions.

M256A1 Chemical Agent Detector Kit
A portable and disposable chemical agent detector kit consisting of 12 individually packaged samplers/detectors and a packet of M8 detector paper. It is used at squad, crew or section level to detect and identify field concentrations of nerve, blister or blood agent vapors. It is usually used to determine when it is safe to unmask in about 15 to 20 minutes, to locate and identify chemical hazards, and to monitor decontamination effectiveness.

M258A1 Skin Decontamination Kit
A kit issued to each soldier containing wipes with solutions that will neutralize most nerve and blister agents.

M272 Water Testing Kit
A lightweight portable kit used to detect and identify dangerous levels of common chemical warfare agents in raw and treated water in about seven minutes. It is a test water sampler and is not a continuous monitor. Each kit conducts 25 tests for each agent.

M291 Skin Decontamination Kit
This kit is used to decontaminate the soldier's hands, face, ears, and neck. Packets in the kit consist of a foil-laminated fiber material containing a reactive resin. It replaces the M258A1 Skin Decontamination Kit.

Maximum Credible Event
The worst single event that could occur at any time with maximal release of chemical agent from a munition, bulk container, or process as a result of an unintended, unplanned, or accidental occurrence. The event must be realistic with reasonable probability of occurrence.

Merck Index
Includes basic information on several thousand compounds that are important in general chemical and biochemical practice.

Metabolic Products
The breakdown products of the chemical processes in living organisms that convert food into new tissues and energy; they are also products or reactions which tend to detoxify nonfood chemicals.

Mini-Cam
Miniature chemical agent monitor.

Miosis
The excessive smallness or contraction of the pupil of the eye. The pupil is unable to dilate and remains contracted; thus, performance of tasks, navigating on foot, identifying or engaging targets, or driving vehicles is practically impossible. Miosis is often accompanied by pain, headaches, and pinpointing of the pupils.

Monitoring
The continued or periodic act of seeking to determine whether a chemical agent is present.

Most Probable Event
The worst potential mishap most likely to occur during routine handling, storage, maintenance, or surveillance operations, which results in the release of agent and exposure to personnel.

Mustard Agents
A category of blister agents including the sulfur mustards (H, HD) that are chlorinated thioethers, and the nitrogen mustards (HN-1, HN-2, HN-3) that are derivatives of ammonia.

Napalm
An incendiary mixture typically made of polystyrene, benzene, and gasoline and used in flame weapons.

Neat Agent Equivalent
The actual volume of chemical agents that will be formed when two separate volumes of an agent's precursors are mixed. The resulting chemical agent is deemed to be pure for purposes of accountability and for determining storage limits.

Neat Chemical Agent
A non-diluted, full-strength (as manufactured) chemical agent in any concentration in excess of those designated exempt. A chemical agent manufactured by the binary synthesis route will also be considered a neat agent regardless of purity.

Nerve Agent
Organic esters of phosphoric acid used as a chemical warfare agent because of their extreme toxicity (tabun (GA), sarin (GB), soman (GD), GF, and VX). All are potent inhibitors of the enzyme, acetylcholinesterase, which is responsible for the degradation of the neurotransmitter, acetylcholine. Symptoms result from excess accumulation of acetylcholine in neuronal synapses or myoneural junctions. Nerve agents are readily absorbed by inhalation and / or through intact skin.

Neutralent
Those materials remaining from the chemical neutralization of agents.

Neutralization
Altering the chemical, physical, and toxicological properties to render the chemical agent ineffective for use as intended.

Nitrogen Mustard
A form of blister agent that includes HN-1, HN-2, and HN-3.

Nonlethal Agents
Chemical agents that can incapacitate but which, by themselves, are not intended to cause death.

Nonpersistent Agent
Chemical agent that when released dissipates and / or loses its capability to cause casualties after 10 to 15 minutes.

Nonstock pile Chemical Materiel
The Army has five categories of non-stockpile chemical warfare materiel—
a. *Binary chemical weapons* form lethal chemical agents by mixing two less toxic chemicals. Army policy requires that the components of binary weapons only be loaded together into a munition

immediately prior to use on the battlefield, thus forming the lethal chemical agent during flight to the target.
b. *Buried chemical warfare materiel* includes any buried materiel. Land burial was a principal means of disposing of hazardous materials for many years. In most cases, the materiel was burned or chemically neutralized prior to burial.
c. *Recovered chemical weapons* include items recovered during range-clearing operations from chemical burial sites, and from research and development testing. Recovered chemical warfare materiel is over packed and either stored on site or transported and stored at a permitted Department of Defense site following recovery from range-clearing operations and burial.
d. *Former production facilities* include government facilities that produced chemical weapons and agents prior to the signing of the Chemical Weapons Convention. These facilities produced chemical agent, precursors, and components for chemical weapons or were used for loading and filling munitions.
e. *Miscellaneous chemical warfare materiel* includes unfilled munitions, support equipment, and devices designed to be used with chemical weapons. These include complete assembled rounds without chemical fill, with or without bursters and fuses; simulant-filled munitions; inert munitions; dummy munitions; bursters and fuses; empty rock warheads and motors; projectile cases; and other components of metal and plastic parts. http://www-pmcd.apgea.armylmil/text/NSCMP/index.html

Occupational Environment Controls
The basic principles for controlling the workplace environment are substitution, isolation, and ventilation.

On-Scene Commander
A general officer that has operational control of emergency response forces and supervises all on-site operations at the scene of a chemical accident. Also referred to as Service Response Force Commander.

On-Scene Coordinator
The person designated to direct cleanup efforts under the NCP.

Organic Solvent
An organic chemical compound that dissolves another to form a solution. Examples include alcohols, turpentine, kerosene, benzene, chloroform, acetone, carbon tetrachloride, and toluene.

Persistent Agent
Chemical agents that do not hydrolyze or volatilize readily (e.g., VX and HD.)

Phosgene
Carbonyl chloride; a colorless liquid below 8.2 degrees Celsius, but an extremely poisonous gas at ordinary temperatures; it is an insidious gas, since it is not immediately irritating, even when fatal concentrations are inhaled.

Phytotoxin
A toxin derived from a plant. An example is ricin from the castor bean.

Potentially Exposed Worker
An individual who works in an agent-operating area where agent levels—
a. Exceed the protective capability of the personal protective equipment.
b. Are detectable and there is a breach of personal protective equipment or engineering controls.

Precursor
Any chemical reactant that takes part at any stage in the production by whatever method of a toxic chemical. This includes any key component of a binary or multicomponent chemical system.

Probit Analysis

Application of the methods of Bliss to determine the slope and various effective dosage levels (e.g., LCt50, LD50, LCt16, LD16, LCt84, LD84, LCt05, LD05, etc.) for quantal dose-response data.

Prostration
A complete physical or mental exhaustion; extreme exhaustion or powerlessness.

Protection Factor
The ratio of the concentration outside the personal protective equipment to the concentration inside the personal protective equipment. Measurement sites are critical for proper determination (e.g., for a protective mask, the measurements inside the mask would be made at a subject's breathing zone, and the measurements outside the mask would be made in a corresponding zone).

Reagent
A chemical substance used to produce a chemical reaction.

Red Phosphorus/Butyl Rubber Smoke
The military application of phosphorus smokes for environmental screening can contain either white phosphorus or red phosphorus in various matrices (e.g., felt, butyl rubber, or polymer epoxy binders). The compositions of the various phosphorus smokes are similar, being composed primarily of polyphosphoric acid with less than 1 percent trace levels of organic compounds. The purpose of the butyl rubber is to reduce the cloud-pillar effect found with pure red phosphorus. In Army field use, red phosphorus smoke is deployed explosively from grenades and mortar shells. It is used in grenades to provide a partial self-protection system for armored vehicles. It is also the major ingredient in mortar rounds used to generate smoke.

Relative Risk (sometimes referred to as Risk Ratio)
The ratio of incidence or risk among exposed individuals to incidence or risk among nonexposed individuals.

Release
Controlled or uncontrolled escape of chemical agent(s) into the environment. Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant).

Remedial Actions
Activities taken to restore a contaminated site to its pre-contaminated condition. In contrast to removal actions, these are longer-term actions, including cleanup, treatment, and neutralization of contamination and access control or permanent relocation of residents, if necessary. Remedial actions are coordinated by the remedial project manager. U.S. Department of the Army Pamphlet 50-6, *Chemical Accident or Incident Response and Assistance* (CAIRA) Operations, treats remedial actions as taking place in a "non-emergency atmosphere," and describes the goal as returning the chemical accident or incident site to "technically achievable and acceptable conditions."

Removal Actions
Immediate, short-term response activities for cleanup and removal of hazardous materials, assessment of the release, and actions to protect the public such as temporary relocation (CERCLA, and NCP; Code of Federal Regulations, Part 300, et seq., Title 40). Removal operations are coordinated by the on-scene coordinator.

Reproductive Effect
A toxic effect of a substance that is evident in the second or third generation of exposed grandparents.

Respond

Removal, remedy, or remedial actions.

Reversible versus Irreversible Toxicity
Reversible toxic effects are those that can be repaired, usually by a specific tissue's ability to regenerate or mend itself after chemical exposure, while irreversible toxic effects are those that cannot be repaired.

Rhinitis
The inflammation of the mucous membrane of the nose.

Riot Control Agents
Compounds widely used by governments for domestic law enforcement purposes and which produce transient effects on man that disappear within minutes after removal from exposure.

Safety Assessment Report (SAR)
A formal summary of the safety data collected during the design and development of the system. In this summary, the material developer summarizes the hazard potential of the item, provides a risk assessment, and recommends procedures or other corrective actions to reduce these hazards to an acceptable level.

Safety Controls
Mandatory, procedural safeguards approved by the Secretary of the Army and determined to be necessary per safety studies and reviews. Safety controls ensure maximum safety of chemical agents throughout the life of the chemical weapon. Controls will be consistent with operational requirements.

Safety Objectives
Criteria for comparing and judging measures for adequacy. Safety objectives incorporate the safest measures consistent with operational requirements.

Sample Data Collection (SDC)
A method for obtaining information on the performance and maintainability of an item of equipment. Data are obtained directly from observations made in the field. An effort is made to see that the sample from which feedback is obtained represents the total population.

Sarin
ISOGropyl methylphosphonofluoridate; it is a non-persistent organophosphate nerve agent also known as GB. Its chemical formula is C4H10FO2P. It is a colorless liquid or vapor with almost no odor in its pure state. Symptoms include pupil constriction, blurred or dimmed vision, pain in eyeballs; chest tightness, difficulty in breathing; sweating, salivation, increased bronchial secretions, bradycardia, hypotension, vomiting and diarrhea, bronchoconstriction, and urinary and fecal incontinence.

Screening and Signaling Smokes
Compounds that produce an obscuring smoke when burned, hydrolyzed, or atomized; they are used to limit observation and to reduce the effectiveness of aimed fire. Signaling smokes are similar to screening smokes, except that signaling smokes generally are colored and are used for visual communication. The standard colors are green, red, violet, and yellow.

Self-Aid
Administration of a chemical agent antidote to one-self upon experiencing early symptoms of chemical agent poisoning.

Service Response Force (SRF)
A Department of the Army-level emergency response organization, commanded by a general officer, capable of performing and sustaining the CAIRA mission. This force consists of a staff and specialized teams from various agencies and organizations involved in the response to and recovery

from a chemical accident/incident.

Service Response Force Commander (SRFC)
A general officer of the Army with chemical background who has been dispatched by Headquarters, Army Materiel Command, to the scene of a chemical accident or incident. Upon arrival, the SRFC assumes responsibility for all operations at the accident scene and commands all emergency forces.

Severe Effects
Effects for the nerve agents that include systemic effects such as vomiting, involuntary urination and / or defecation, tremors, collapse, or convulsions. Note that dosages producing these effects may not be significantly different from dosages producing lethality.

Shipboard Chemical Agent Point Detection System (CAPDS)
A fixed system capable of detecting nerve agents in vapor form using a baffle tube ionization spectrometer. This CAPDS obtains a sample of external air, ionizes airborne vapor molecules, and collects them on a charged plate after eliminating lighter molecules via the baffle structure. The system is installed in an upper superstructure level and provides ships with the capability to detect nerve agents. It will be activated when ships enter high threat areas and during operation in littoral waterways. The system is installed on most surface combatant's ships.

Simulant
A chemical that appears and acts like an agent.

Slope
The Probit or Bliss Slope of the graph of the Probit of the response vs. the log of the dose.

Slope Factor
A plausible, upper bound estimate of the probability of a response-per-unit intake of a chemical over a lifetime. The slope factor is used to estimate an upper bound probability of an individual developing cancer as a result of a lifetime of exposure to a particular level of a potential carcinogen.

Smoke
Solid or liquid particles 0.3 to 0.5 □□in diameter. A suspension of particles in a gaseous medium. A substance used in warfare for screening purposes.

Soman
The chemical Pinacolyl methyl phosphorofluoridate, methyl-1, 2, 2-trimethylpropyl ester. It is a nerve agent known as GD; its chemical formula is (CH3)3CCH(CH3) OPF(O)CH3. It is a colorless liquid with a fruity or camphor odor. It undergoes "aging" very quickly, rendering oxime therapy useless and making poisoning with this agent more difficult to treat. Symptoms include pupil constriction, blurred and dimmed vision, pain in eyeballs; chest tightness, difficulty in breathing; sweating, salivation, increased bronchial secretions, bradycardia, hypotension, vomiting and diarrhea, bronchoconstriction, and urinary and fecal incontinence.

Source Emissions
All intentional, uncontrolled releases of nerve agents GA, GB, GD, and VX to include stack emissions.

Standard Glove
All gloves covered by a military specification for example, toxicological agent protective and glove set glove.

Stockpile
Bulk chemicals and chemical munitions.

Sulfur Mustard

A blister agent also known as H (or HD) for distilled mustard. Bis(2-chloroethyl) sulfide. The chemical formula is C4H8Cl2S. It presents both a respiratory and percutaneous hazard, forcing military personnel to don not only gas masks but also protective overgarments. They are persistent and present long-term hazards, further hindering victims by forcing them to decontaminate.

Super Tropical Bleach (STB)
A mixture of calcium oxide and bleaching powder used as a decontaminating agent.

TBis[2-(2-chloroethylthio) ethyl] ether.
The chemical formula is C8H16Cl2OS2. T is a sulfur, oxygen and chlorine compound similar in structure to HD. When T is added to HD, the resulting mixture has enhanced physiological and physical effects, making it a more effective chemical warfare agent.

Tabun
Ethyl N, N-dimethylphosphoramidocyanidate. This is a non-persistent organophosphate nerve agent also known as GA. Its chemical formula is C5H11N2O2P.

Tear Gas
Chemical compound that causes a flow of tears and irritation of the skin. It is widely used for training, riot control, and situations where long-term incapacitation is unacceptable.

Technical Escort
Individuals technically qualified and properly equipped to accompany designated materiel that requires a high degree to safety and security during shipment.

Temporary Exclusion Area
The area immediately surrounding chemical agent material that has been removed from its secure container, storage structure, storage area, or other authorized storage configuration.

Toxic Chemical
Any chemical that through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions, or elsewhere.

Toxicity Data
a. Quantal Data: Specifies the number of animals affected as a function of dose rate (e.g., mg/kg/day) for a single type of effect. The number of animals with tumors or that die from a chemical exposure is an example. Quantal data are often reported as an incidence (percent response) and, thus, can be used to construct a dose-response curve.
b. Continuous Data: Represents the change in some measured value of a biological indicator (e.g., organ weights, triglyceride levels in the liver, and serum enzyme measurements) as a function of dose rate. Continuous data can be used to construct a dose-effect curve.
c. Graded Data: Specifies the form of severity of adverse effects as a function of dose rate without reference to the number of animals affected or to a continuous measure of one parameter. Graded data often are presented as categories (liver necrosis, lung lesions) or as judgments of severity. Fatty infiltration of the liver, single-cell liver necrosis, and liver necrosis are examples of sequence of severity judgments. Graded data can be used to construct a dose severity curve.

Toxicity Value
A numerical expression of a substance's dose-response relationship that is used in risk assessments. The most common toxicity values used in Superfund program risk assessments are reference doses (for non-carcinogenic effects) and slope factors (for carcinogenic effects).

Toxicological Effects
a. Additive: Situation in which the combined effect of two chemicals is equal to the sum of the effect of each agent given alone (e.g., 2+3=5).

b. Synergistic: Situation in which the combined effect of two chemicals is much greater than the sum of the effect of each agent given alone (e.g., 2+3=20).
c. Potentiation: Situation in which one substance does not have a toxic effect, but when it is added to another chemical, it makes the latter much more toxic (e.g., 0+3=10).
d. Antagonism: Situation in which two chemicals given together interfere with each other's actions or one interferes with the action of the other chemical (e.g., 4+6=8, 4+0=1, 4+4=0).

Training Agent and Compounds
An agent authorized for use in training to enhance proficiency for operating in a chemical environment.

Unitary Chemical Munitions
Munitions designed to contain a single-component chemical agent for release on a target.

Urticant
Category of blister agents with a disagreeable, penetrating odor, causing an immediate severe burning sensation, intense pain and a feeling of numbness.

U.S. Army Nuclear and Chemical Agency (USANCA)
The mission of USANCA is to provide expert technical support and assistance to all Army elements worldwide and to other U.S. Government and NATO agencies engaged in NBC programs.

Vesicant
Causing blisters or vesicles.

Vesicating Agent
Agent that acts on the eyes and lungs and blisters the skin.

Vesication
The process of blistering.

Vomiting Agent
Compound that produces a strong pepperlike irritation in the upper respiratory tract, with irritation of the eyes and tearing; causes violent, uncontrollable sneezing, cough, nausea, vomiting, and general discomfort. Effects last from 30 minutes to several hours.

XM21 Remote Sensing Chemical Agent Alarm (RSCAAL)
A passive infrared device used to detect and identify chemical agent clouds. It can perform reconnaissance and point or area surveillance missions.

Section 6 – Related Documents

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CUMBERLAND COUNTY
EMERGENCY OPERATIONS PLAN

GLOSSARY - BIOTERRORISM

Biological Threat - the intentional use of Biological Threat Agents as weapons designed to kill or injure humans, animals, plants, or to damage equipment.

Biological Threat Agents - Living organisms or the materials derived from them that cause deterioration of material. Biological Threat Agents may be used as liquids, droplets, slurry, aerosols, or dry powders.

Bacteria - Single cell organisms that multiply by cell division and that can cause disease in humans, plants, and animals.

Etiological Agents - Living microorganisms, or toxins, which organisms may cause human disease.

Anthrax - An infectious, usually fatal disease of warm-blooded animals, especially cattle and sheep, caused by the bacillus anthracis bacteria. The spores are very resistant in the environment and may survive decades in certain soil conditions. Spores are dormant forms of a bacterium that produces the toxin.

Toxins - Toxin substance of natural origin produced by an animal, plant, or microbe. They differ from chemical substances in that they are not man made. Toxins may include Botulism, Ricin and Mycotoxins.

Cumberland County Emergency Services will function as the ***coordinating agency*** for the following agencies involved in a potential Bio-Terrorism Incident:

- Law Enforcement - Cumberland County Sheriff's Office, Local Municipal Police Departments, State/Federal Law Enforcement Agencies.
- Health Agencies - Cumberland County Health Dept., Blue Ridge Health Care, NC Dept. of Health & Human Services, Cumberland County Emergency Medical Services.
- Please refer to the Cumberland County Health Department Bio-Terrorism Appendix to reference Cumberland County Emergency Services responsibilities as addressed in the plan.

Biological Threat Agent Incidents

Objectives

- Remove people from harm's way
- Assess situation
- Be cognizant of secondary devices
- Secure the perimeter, set up operations areas, and establish hazard control zones (i.e. hot, warm, cold)
- Control and identify agents involved
- Rescue, consider decontamination, triage, treat, and transport victims
- Stabilize incident

- Avoid additional contamination
- Secure evidence and treat as a crime scene

On-Scene General Assessment

In assessing the situation, you should consider:

- Evacuating persons from the potential at-risk areas to minimize potential exposure
- Number of apparent victims
- Weather conditions, wind direction, atmospheric conditions, and time of day
- Plume direction (vapor / cloud movement)
- Types of injuries and symptoms presented (potentially none if recent biological incident)
- Information from witnesses (what they saw and heard)
- Exact location of the incident
- Nature of agent and type of exposure
- A safe access route and staging area
- Isolating area and deny entry

Additionally, Ensure First Responders (AWARE)

- **A**pproach scene from upwind/upgrade
- **W**ear at least respiratory protection immediately
- **A**lert other First Responders of potentially dangerous conditions
- **R**estrict entry to the area
- **E**valuate victims' signs and symptoms and alert others
- Observe Possible Indicators of a Biological Threat Agent:
- Unusual dead and / or dying animals (note this will not occur in the early stages of an incident)
- Unusual casualties
- Unusual liquid, spray, powder or vapor

Hazard Assessment

Types

- Bacteria (e.g. anthrax, plague)
- Virus (e.g. smallpox, viral hemorrhagic fevers)
- Toxins (e.g. ricin, botulism)
- *Bacteria and Virus types are living organisms. They:*
  - Enter the body via inhalation, ingestion, or breaks in the skin
  - Grow and reproduce
  - Can be contagious and cause an epidemic
- *Toxins are not living organisms. They:*
  - Enter the body the same as pathogens

- Are not contagious

- *Characteristics:*
  - Requires a dispersing device typically for aerosol generation
  - Non-volatile
  - Is not absorbed through intact skin
  - More toxic by weight than chemical agents and industrial chemicals
  - Poses a possible inhalation hazard
  - Have a delayed effect ranging from several hours, to days, or weeks
  - Are invisible to our senses

Response Strategy

Personal Protective equipment, decontamination, and/or prophylaxis treatment should not be required unless hazards or risk are indicated. Routine Law Enforcement investigation (similar to a bomb threat):

- Persons in the at-risk areas should be evacuated immediately and evaluated by medical/public health professionals as appropriate.
- Treat as a crime scene.
- Information gathering at the scene (threat assessment to determine credibility).
- Screen package / envelope by Bomb Squad to ensure no dispersal mechanism / device inside.
- Double bag the envelope and place in a suitable container like an evidence paint can.
- Control the material as evidence with documentation of chain of custody and follow the FBI plan for laboratory analysis through the local FBI office.
- Search to confirm no substance or additional package/envelope is present.
- Assess the building ventilation system to rule out forced entry and tampering.
- An inspection of the buildings ventilation system may be warranted based on the assessment.
- Attention should be focused on appliances or devices foreign to the surroundings.

Chemical Threat Agent Incidents

Objectives

- Remove people from harm's way
- Assess situation
- Be cognizant of secondary devices
- Secure the perimeter, set up operations areas, and establish hazard control zones (i.e. hot, warm, cold)
- Control and identify agents involved
- Rescue, consider decontamination, triage, treat, and transport victims
- Stabilize incident
- Avoid additional contamination
- Secure evidence and treat as a crime scene

On-Scene General Assessment

In assessing the situation, you should consider:

- Evacuating persons from the potential at-risk areas to minimize potential exposure
- Number of apparent victims
- Weather conditions, wind direction, atmospheric conditions, and time of day
- Plume direction (vapor / cloud movement)
- Types of injuries and symptoms presented (potentially none if recent biological incident)
- Information from witnesses (what they saw and heard)
- Exact location of the incident
- Nature of agent and type of exposure
- A safe access route and staging area
- Isolating area and deny entry

Additionally, Ensure First Responders (AWARE)

- **A**pproach scene from upwind/upgrade
- **W**ear at least respiratory protection immediately
- **A**lert other First Responders of potentially dangerous conditions
- **R**estrict entry to the area
- **E**valuate victims' signs and symptoms and alert others

Observe possible indicators of a Chemical Threat Agent:

- Unusual dead and / or dying animals (note this will not occur in the early stages of an incident)
- Unusual casualties
- Unusual liquid, spray, powder, or vapor
- Unusual devices/packages

Hazard Assessment

Characteristics

- Requires a dispersion device typically aerosol generation
- Requires making a weapon
- Can be found as a solid, liquid, or gas
- The less volatile the agent, the more persistent
- Clinical effects vary from immediate to hours
- *Effects of chemical agents are affected by:*
    - temperature
    - humidity
    - precipitation
    - wind speed
    - nature of terrain and buildings

- *Types*
  - Nerve Agents
  - Blister Agents
  - Blood Agents
  - Choking Agents

  Protective equipment or decontamination and prophylaxis treatment should not be required unless hazards or risks are indicated.
  - Law Enforcement response including local police and FBI
  - Consider whether full Fire Department response is needed unless suspicious material or device is present, or individuals are symptomatic
  - Consider whether full HazMat response is needed unless suspicious material or device is present, or individuals are symptomatic
  - Treat as a crime scene

Response Strategy

Personal Protective equipment, decontamination, and / or prophylaxis treatment should not be required unless hazards or risks are indicated. Routine Law Enforcement investigation (similar to a bomb threat).

- Persons in the at-risk areas should be evacuated immediately and evaluated by medical/public health professionals as appropriate.
- Treat as a crime scene.
- Information gathering at the scene (threat assessment to determine credibility).
- Screen package / envelope by Bomb Squad to ensure no dispersal mechanism / device inside.
- Double bag the envelope and place in a suitable container like an evidence paint can.
- Control the material as evidence with documentation of chain of custody and follow the FBI plan for laboratory analysis through the local FBI office.
- Search to confirm no substance or additional package / envelope is present.
- Assess the building ventilation system to rule out forced entry and tampering.
- An inspection of the building's ventilation system may be warranted based on the assessment.
- Attention should be focused on appliances or devices foreign to the surroundings.

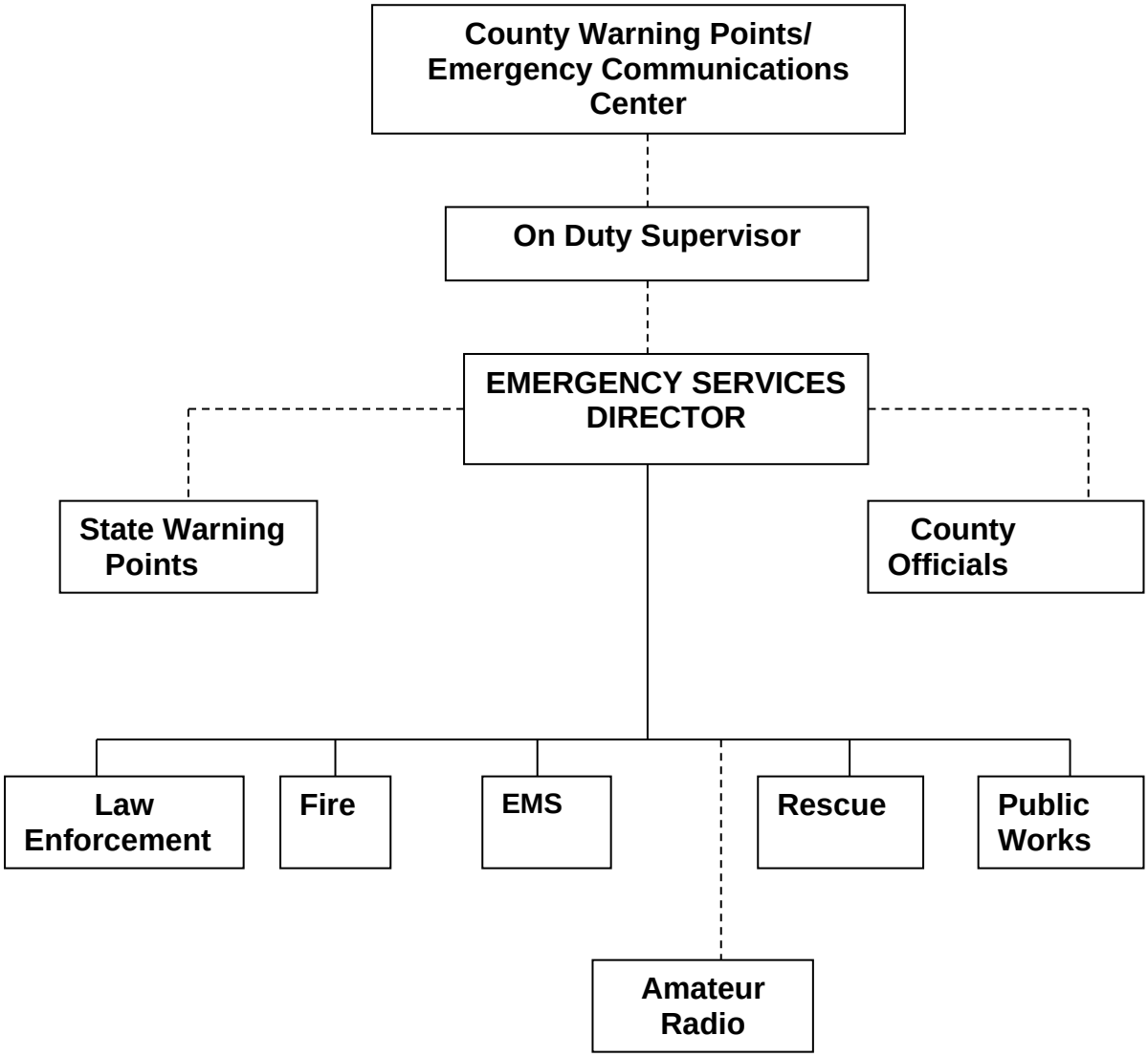
Please refer to On-Scene Commanders Field Guide for Responding to Biological / Chemical Threats.

Reference: Hazardous Materials annex.

APPENDIX 1-1

(COMMUNICATIONS, NOTIFICATION, AND WARNING)

COMMUNICATIONS ORGANIZATIONAL STRUCTURE



_____ **COMMAND**

- - - - -- - - - COORDINATOR

APPENDIX 1-3

(COMMUNICATIONS, NOTIFICATION, AND WARNING)

PRIORITY FOR RESTORATION OF TELEPHONE SERVICE

1. Emergency Services {Communications}	911
2. Sheriff's Office	323-1500
3. Emergency Service (Phone Loops)	484-X422, 483-X749, 483-X299, 323-X105
4. Fayetteville Fire / Police (Phone Loops)	483-X429, 483-X524, 323-X047, 323-X079, 323-X155, 323-X168, 483-X576, 483-X880
5. Public Works Commission	483-1382
6. Cape Fear Valley Medical Center	609-4000
7. Highsmith-Rainey Hospital	609-1000
8. Emergency Services Department	321-6736
9. Hope Mills Police Department	425-4103
10. Spring Lake Police Department	436-0350
11. Department of Social Services	323-1540
12. American Red Cross	867-8151
13. Salvation Army	483-8119
14. N.C. National Guard	484-5133
15. Duke Energy	826-2687

APPENDIX 1-4

(COMMUNICATIONS, NOTIFICATION, AND WARNING)

EMERGENCY NOTIFICATION LIST

ORGANIZATION	PRIMARY TELEPHONE	SECONDARY RADIO
County Warning Point /	483-5467	KIV 436 154.250
Emergency Communications Center	483-2204	KTI 567 155.280
Emergency Services Director	321-6736	KAX 295 47.540
After Hours	483-5467	KAX 295 47.580
EM 1		155.250
EM 1		155.280
Area “4” Emergency Management Director	(252) 520-4923	
WPFZ		272 47.540
WPFZ		272 47.580
State Warning Point	1-800-662-7956 (919) 733-3861	
Chairman, County Board of Commissioners	678-7771	
County Manager	678-7723	
American Red Cross Liaison	867-8151	
Mayor, City of Fayetteville	433-1992	
After Hours	433-1914	
Mayor, Town of Hope Mills	424-4555	
After Hours	425-4103	
Mayor, Town of Spring Lake	436-0241	
After Hours	436-0350	
Mayor, Town of Stedman	323-1892	
Mayor, Town of Wade	485-3502	
Mayor, Town of Linden	980-0119	
Mayor, Town of Falcon	980-1355	
Mayor, Town of Godwin	980-1674	
After Hours	980-1674	

APPENDIX 2-1

(PUBLIC INFORMATION)

SAMPLE NEWS RELEASES

1. Sample News Release - Shelters opened for Natural or Technological Hazard
2. Sample Initial News Release Format
3. Sample News Release - Information for Stay Puts
4. Sample News Release - Disabled and Elderly
5. Sample News Release - Rumor Control
6. Sample News Release - Evacuation Plan
7. Sample News Release - Severe International Crisis

ATTACHMENT 2-A-1

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

SHELTERS OPENED FOR NATURAL OR TECHNOLOGICAL HAZARD

Contact: _____

Phone: _____ Date: _____

_____, Chairman of the County Commissioners announced today that due to _____ the Cumberland County Plan for Emergency Shelters will be implemented. Emergency Shelters are being established at _____, and _____. The shelters are being set up in coordination with the American Red Cross and the County Department of Social Services and will provide shelter and food for citizens.

Chairman _____ pointed out that although the shelters are being opened, space is limited and a visit to friends or relatives who have electrical power and heat would be a good idea. Also, he / she said that pets are not allowed in the shelters and should be left at the animal shelter, animal hospital, kennel or other safe places.

_____, Emergency Services Director for Cumberland County, said all persons coming to the shelter should bring bedding, special medicines and foods, (including foods for babies) and flashlights. If transportation is needed, call the Emergency Services Office at (910) 321-6736 and we will try to assist you in finding transportation.

NOTE: Radio and Television, please repeat release at 15-minute intervals.

ATTACHMENT 2-A-2

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

EMERGENCY PUBLIC INFORMATION

Contact: _____

Phone: _____ Date: _____

Governor _____ today directed evacuation to be implemented following the announcement of a national emergency by President _____.

Residents of _____ County will begin arriving in _____ County according to a spokesman for the _____ Office of Emergency Services.

The Governor said the evacuation plan will afford the maximum safety possible for those citizens asked to leave their homes and he assured them their property would be protected by law enforcement authorities.

County Officials asked that all residents of _____ County assist those coming into the communities in any way possible. He said they would be traveling via car and bus and would be registered and assigned to emergency shelters at the reception centers located in _____ County. He also noted that volunteers to serve as host families are needed. Anyone interested in serving in that role should contact the Office of Emergency Services located in the Law Enforcement Center, 131 Dick Street, Room 114, Fayetteville.

Governor _____ also urged all residents to conserve resources, particularly fuel. He said he could not predict the duration of the evacuation, but he assured everyone it would end as soon as possible.

All residents of _____ County should remain tuned to _____ for the duration of the crisis for current information.

ATTACHMENT 2-A-3

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

INFORMATION FOR "STAY PUTS"
Shelter in Place

Contact: _____

Phone: _____ Date: _____

Note: This should not be broadcast until after the evacuation phase is complete.

Those persons who have not relocated from the _____ hazard area is strongly urged to do so immediately. Preparations have been made to provide housing, food and other necessities in the reception areas.

Keep in mind that normal services in the hazard area will be severely curtailed. Essential supplies and services will be redirected to the host areas in

If you decide not to relocate to the host areas, there is certain important information that you will need to know. Life-sustaining services will be maintained at only a few locations within the hazard area. Their primary purpose is to allow key personnel that are operating within the area to maintain essentials. If you need assistance, go to one of these areas _____.

ATTACHMENT 2-A-4

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

DISABLED AND ELDERLY

Contact: _____

Phone: _____ Date: _____

Many disabled and elderly persons who live at home may require assistance in order to relocate to the reception area. If neighbors or nearby relatives are unable to assist, please contact Cumberland County Department of Social Services, phone 323-1540.

ATTACHMENT 2-A-5

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

WHY ARE RELOCATEES COMING FROM _____?

Contact: _____

Phone: _____ Date: _____

The County will be hosting approximately _____ hazard area relocates from the _____ area of _____ if crisis evacuation is ordered.

The lower risk or host areas near _____ hazard areas will be hosting the key workers and their families. These "key workers" remain near the hazard area - but out of the "direct effects" of nuclear weapons - to continue essential services - e.g. police, fire, rescue, phone service, utilities and certain key industries. Key workers and their families and other hazard area residents have utilized all available spaces in the host area near the _____ area of _____. The remaining individuals and families, known as the general public, need protection from fallout that might occur.

This County and other North Carolina Counties were selected after extensive survey by federal engineers determined that a sufficient number of spaces exist in public buildings to accommodate the hazard area relocates. Their accommodations will be very basic with the most attention given to a place for sleeping and eating - not comfort.

Expected stay time for the relocates will be from one to two weeks. No persons will be assigned, unless requested by residents, to any private residence in the County for housing or meals.

ATTACHMENT 2-A-6

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

EVACUATION PLAN

Contact: _____

Phone: _____ Date: _____

The Governor has directed State and Local Emergency Services Personnel, County and City Officials and allied support services to begin preparation for possible implementation of the State and County Evacuation Plans.

The Governor's action was taken due to current tensions and advice by Federal Officials of the distinct possibility of an enemy attack on this nation.

Parts of _____, _____ Counties, have been designated as host areas for approximately _____ relocates from the Cumberland County hazard area. Host areas are considered to be safe from the direct effects of a nuclear weapon - heat and blast waves.

The Cumberland County Evacuation Plan spells out the details for moving all residents out of their hazard area into the various host areas for a period of seven to fourteen days. This plan also provides for a phased and orderly movement of people to be completed within three days. Movement of the hazard area residents would be initiated only by the Governor of North Carolina and only at the request of the President. Extensive planning has been completed by County Officials to prepare for this possibility.

ATTACHMENT 2-A-7

SAMPLE NEWS RELEASE

CUMBERLAND COUNTY

SEVERE INTERNATIONAL CRISIS

Contact: _____

Phone: _____ Date: _____

Because of the severe international crisis that now exists between the United States and our adversaries, a nuclear attack upon our country is a very real possibility. Should a nuclear attack occur, our country might experience extensive radioactive fallout-even though the nearest nuclear explosion may be several hundred miles away.

It is emphasized that should this occur, you will need to take calm, orderly, but immediate protective action. You should receive a newspaper copy of the In-Place Shelter Plan for your County. This publication lists the Shelter Cluster Headquarters available and advises you where to go and what to do. Determine now what protective measures you will take.

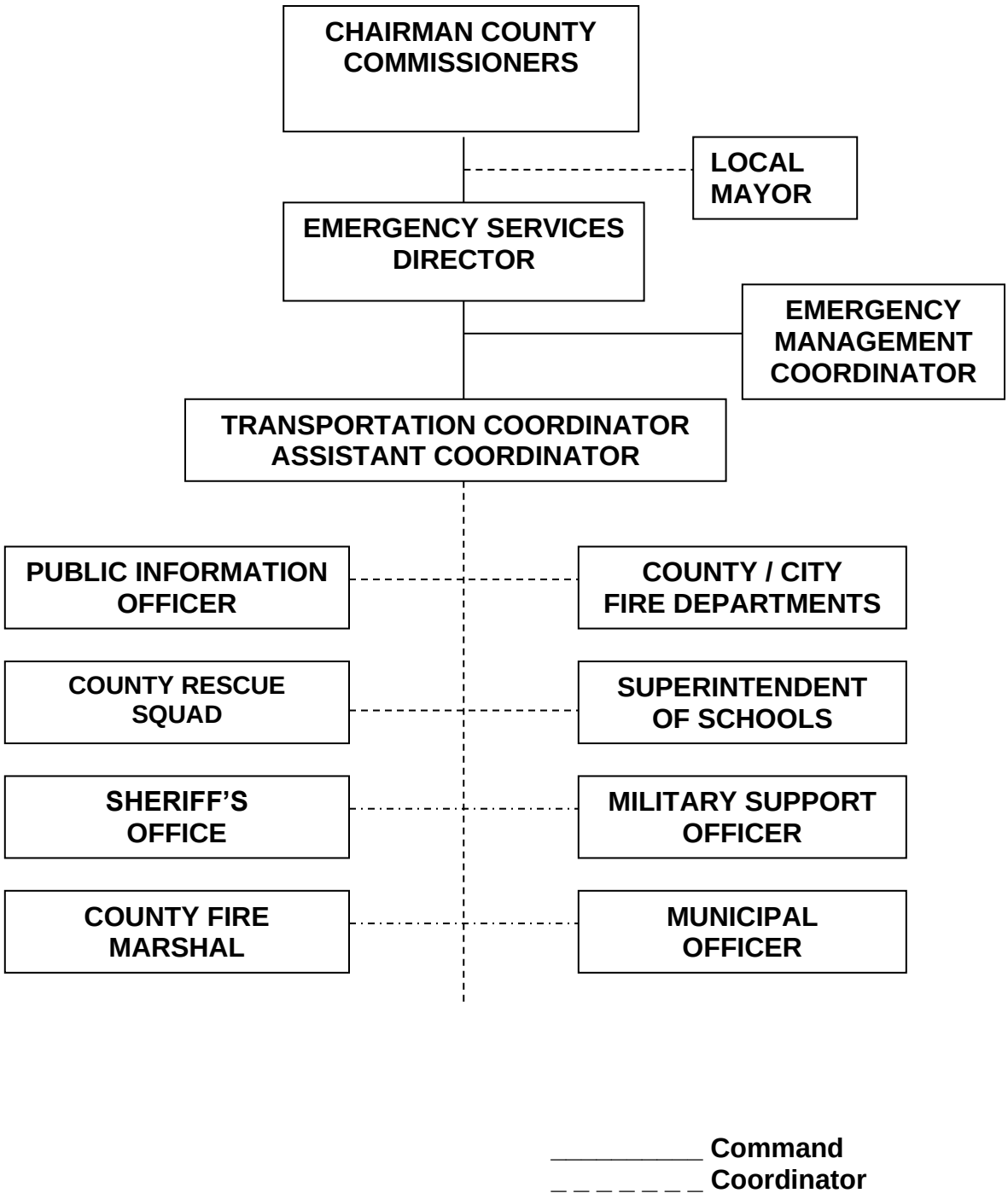
Remember, home basements usually can provide adequate fallout shelter if certain actions are taken to improve the protection your basement affords. How to improve your basement protection is also explained in the In-Place Shelter Plan for those that might prefer a home basement to a public shelter. As a safety measure, do as much as you can now.

If you do not have a home basement, determine now to what Shelter Cluster Headquarters you are assigned, and what route you will take to reach the Shelter Cluster Headquarters.

APPENDIX 3-1

(EVACUATION AND REENTRY)

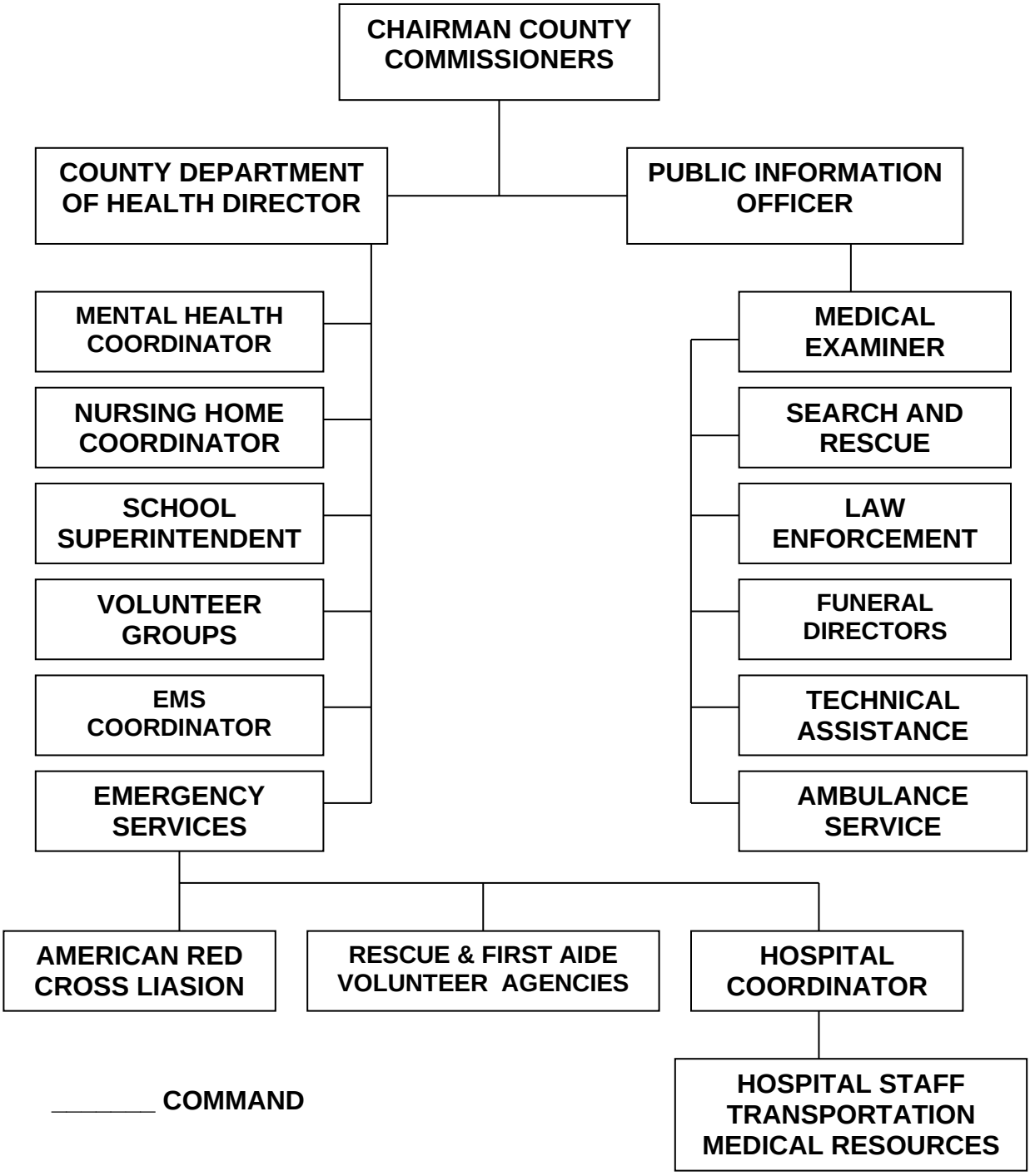
ORGANIZATIONAL STRUCTURE



APPENDIX 4-1

(EMERGENCY AND PUBLIC HEALTH SERVICES)

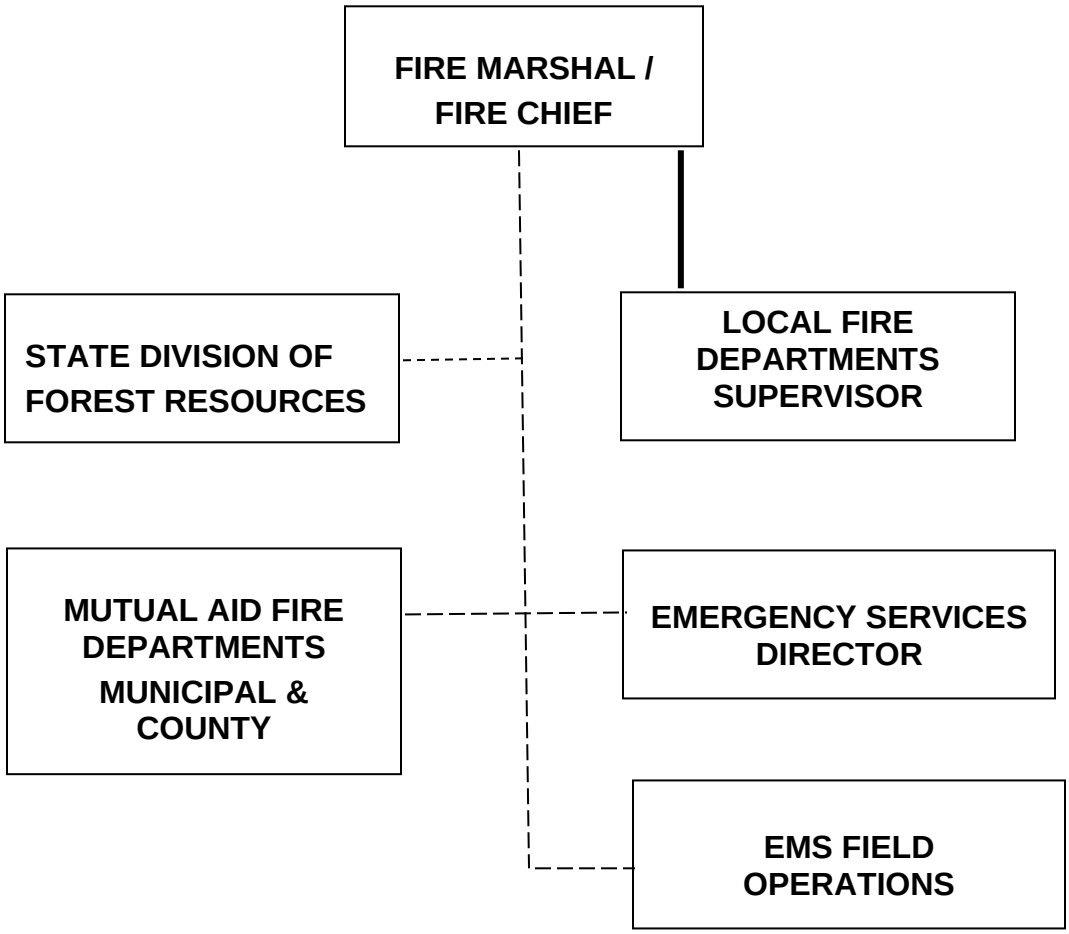
ORGANIZATIONAL STRUCTURE



APPENDIX 5-1

(FIRE AND RESCUE)

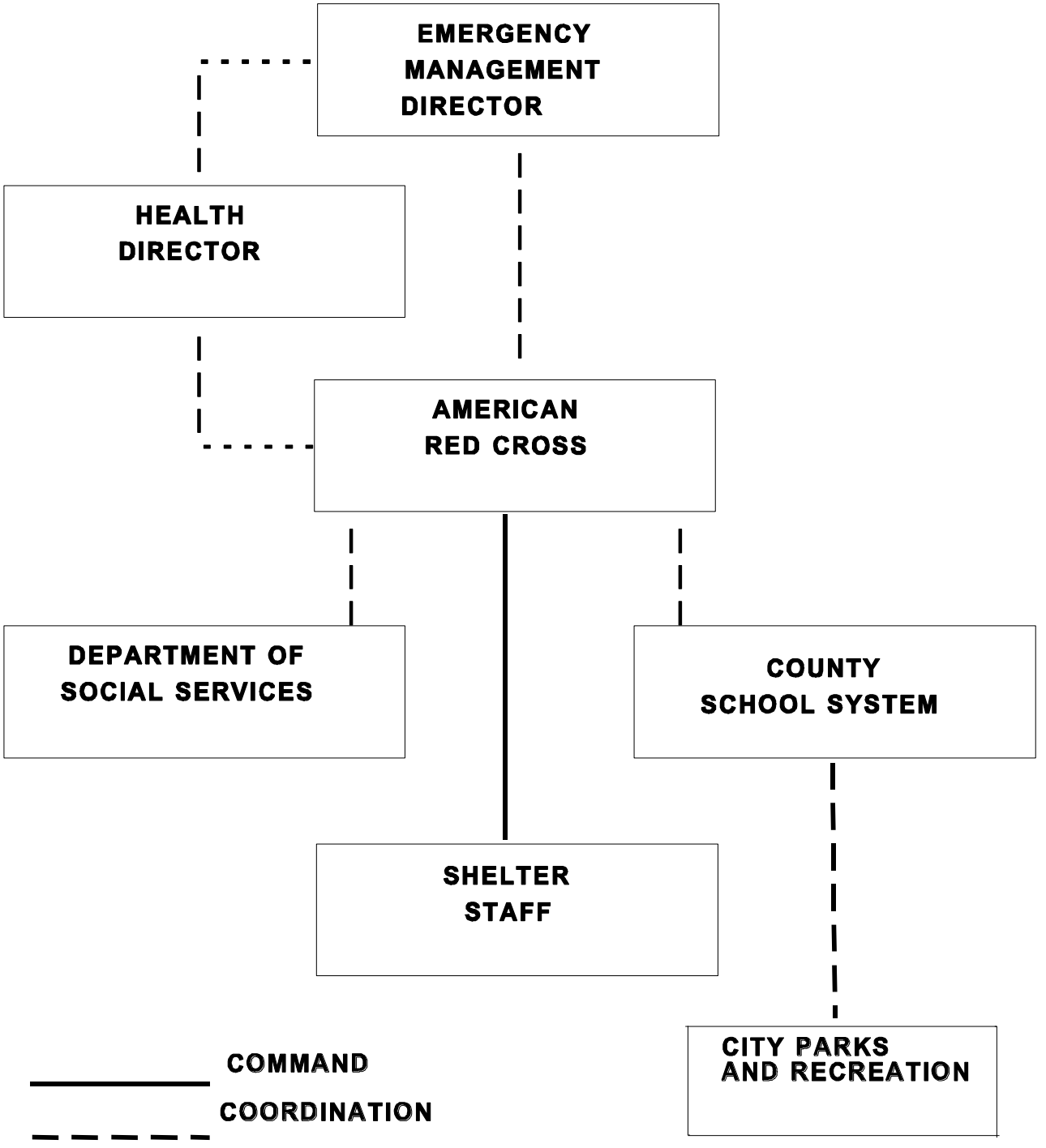
ORGANIZATIONAL STRUCTURE



APPENDIX 6-1

(SHELTER AND MASS CARE)

ORGANIZATIONAL STRUCTURE



APPENDIX 7-1

(HAZARDOUS MATERIALS)

CITY OF FAYETTEVILLE FIRE DEPARTMENT
STANDARD OPERATING PROCEDURE
HAZARDOUS MATERIALS, NUMBER 402
EFFECTIVE DATE: 8/1/91
APPROVED BY JOHN P. SMITH, CITY MANAGER

1.0 PURPOSE

This plan provides a basic philosophy and strategic plan for Hazardous Materials situations. All Fayetteville Fire Department Standard Operating Procedures, unless superseded by a specific part of this plan, remain in effect for Hazardous Materials incidents.

Hazardous Materials incidents encompass a wide variety of potential situations including fires, spills, transportation accidents, chemical reactions, explosions and similar events. Hazards involved may include toxicity, flammability, radiological hazards, corrosives, explosives, health hazards, chemical reactions and combinations of factors. This plan provides a general framework for handling a Hazardous Materials incident, but does not address the specific tactics or control measures for particular incidents.

Every field incident presents the potential for exposure to Hazardous Materials and the products of combustion of an ordinary fire may present severe hazards to personnel safety.

This procedure is specifically applicable to known Hazardous Materials incidents, but it does not reduce the need for appropriate safety precautions at every incident. The use of proper turnouts and SCBA whenever appropriate and the utilization of all Standard Operating Procedures on a continuing basis is the starting point for this plan.

2.0 SCOPE

This policy shall apply to all Fayetteville Fire Department personnel who respond to any hazardous materials incident.

3.0 PROCEDURE

3.1 Alarm

Dispatchers shall attempt to obtain any and all information from the person reporting a Hazardous Materials incident. The information shall, if possible, include material name and / or type, amount and size of container(s), problem (leak, spill, fire, etc.) and dangerous property of the materials. The dispatcher shall stay on the telephone with the caller to gain additional information after giving the call to the dispatcher.

3.1.2 Any additional information shall be relayed to responding units after dispatch.

3.1.3 If the call comes from a person with particular knowledge of the hazardous situation, have that person meet and direct the arriving units.

3.1.4 Dispatcher shall obtain the wind speed and direction from the Airport Tower and announce them to responding units.

3.1.5 The Dispatcher should attempt to anticipate the needs of any particular situation and be prepared for them.

3.2 First Arriving Unit

3.2.1 The first arriving officer shall establish Command and begin a size-up. The first unit must consciously avoid committing itself to a dangerous situation. When approaching, slow down or stop to assess any visible activity taking place. Evaluate effects of wind, topography, and location of the situation.

3.2.2 The Incident Commander shall advise ALL OTHER UNITS to stage until instructed to take specific action. Units must stage in a safe location, taking into account wind, spill flow, explosion potential and similar factors in any situation.

3.3 Size-up

3.3.1 The Incident Commander shall make a careful size-up before deciding on a commitment. It may be necessary to take immediate action to make a rescue or evacuate an area, but this shall be done with an awareness of the risk to Fire Department personnel, and taking advantage of available protective equipment.

3.3.2 The objective of the size-up is to identify the nature and severity of the immediate problem and gather sufficient information to formulate a valid action plan. A Hazardous Materials incident requires a more cautious and deliberate size-up than most fire situations.

3.3.3 Avoid premature commitment of companies and personnel to potentially hazardous locations. Proceed with caution in evaluating risks before formulating a plan and keep uncommitted companies at a safe distance.

3.3.4 Identify a hazardous area based on potential danger, taking into account materials involved, time of day, wind and weather conditions, location of the incident and degree of risk to unprotected personnel. Take immediate action to evacuate and / or rescue persons in critical danger if possible, providing for safety of rescuers. (See Evacuation).

3.3.5 The major problem in most cases is to identify the type of materials involved in a situation, and the hazards presented, before formulating a plan of action. Look for labels, markers, and shipping papers, refer to pre-fire plans, and ask personnel at the scene (plant management, responsible party, truck drivers, fire department specialist).Utilize reference materials carried on apparatus and Hazmat units.

3.4 Action Plan

3.4.1 Based on the initial size-up and any information available, Command shall formulate an action plan to deal with the situation.

3.4.1.1 Most Hazardous Materials are intended to be maintained in a safe condition for handling and use through confinement in a container or protective system. The emergency is usually related to the material escaping from the protective container or system and creating a hazard on the exterior. The strategic plan must include a method to get the hazardous material back into

a safe container, neutralize it, or allow it to dissipate safely. Any offensive action shall be accomplished by the Hazardous Materials Team only.

3.4.1.2 The specific action plan must identify the method of hazard control and identify the resources available and / or required to accomplish this goal. It may be necessary to select one resource or to adopt a "holding action" to wait for needed equipment or supplies provided by the Hazardous Materials Team.

The Hazardous Materials Response Team shall be assigned to any situation involving direct contact with Hazardous Materials or any offensive actions involving hazardous materials.

3.5 The Action Plan Must Provide For:

3.5.1 Safety of citizens
3.5.2 Safety of Firefighters
3.5.3 Evacuation of endangered area, if necessary
3.5.4 Control of situation
3.5.5 Stabilization of Hazardous Materials

3.6 Avoid committing personnel and equipment prematurely or "experimenting" with techniques and tactics. Many times it is necessary to evacuate and wait for special equipment or expert help.

3.7 Control of Hazardous Area

3.7.1 A hazardous material incident has two zones associated with the scene, similar to a fire. There are the HAZARD ZONE (warm and hot zones) and the EVACUATION ZONE (cold zone).

3.7.2 Hazard Zone

3.7.2.1 The Hazard Zone is the area in which personnel are potentially in immediate danger from the hazardous condition This is established by Command and controlled by the Fire Department. Access to this area shall be rigidly controlled and only personnel with proper protective equipment and an assigned activity will enter. All companies shall remain intact in designated staging areas until assigned. Haz-Mat personnel shall be assigned to monitor entry and exit of all personnel from the Hazard Zone. The Hazard Zone shall be geographically described to all responding units, if possible. (A Safety Officer shall be established to control access to the Hazard Zone and maintain an awareness of which personnel are working in the area.)

3.7.2.2 Responsibility for control of personnel in this zone includes not only Fire Department personnel, but any others who may wish to enter the Hazard Zone (Police, Press, Employees, Tow Truck Drivers, Ambulance Personnel, etc.). Command is responsible for everyone's safety.

3.7.3 Evacuation Zone

3.7.3.1 The Evacuation Zone is the larger area surrounding the Hazard Zone in which a lesser degree of risk to personnel exits. All civilians shall be removed from this area. The limits of this zone will be enforced by the Police Department based on distances and directions established in consultation with Command and the Haz Mat Team. The area to be evacuated depends

on the nature and amount of the material and type of risk it presents to unprotected personnel (toxic, explosive, etc.).

3.7.3.2 In all cases, the responsibility for safety of all potentially endangered citizens rests with Command.

3.8 Use of Non-Fire Department Personnel

3.8.1 In some cases, it may be advantageous to use non-Fire Department personnel to evaluate hazards and perform certain functions for which they would have particular experience or ability. When such personnel are outfitted with breathing apparatus, chemical suits, etc., they must be made aware of the functions, limitations and safety precautions necessary in their use. Fire Department Haz Mat personnel with the necessary protective equipment must closely monitor and accompany such personnel for safety.