TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 2: I.C.S. - Incident Command System
Subject: Command Procedures
Page 1 of 13 Section: 2-2-1
Effective Date: 07-01-95 Revised Date:

1.01 Purpose: Effective use of personnel and equipment at an emergency requires clear, decisive action on the part of the Incident Commander. This guideline identifies the process to set up Command and operate a Command Post. It fixes responsibility for the command function and its duties on one individual at any time during the operation.

1.02 Goal: Provide a Command Procedure to accomplish the following.

- Fix the responsibility for Command on one individual.

- Provide strong, direct, and visible Command as early as possible in the operation.

- Provide a framework for the activities and responsibilities assigned to Command.

- Provide a system for the orderly transfer of Command to later arriving senior officers.

1.03 Responsibility: The Incident Commander is responsible for the command functions at all times. As the identity of the Incident Commander changes, this responsibility shifts with the title. The term "Command" in this procedure refers jointly to both the person and the function.

A) Command is responsible for four basic fireground goals.

1) Provide for the safety and welfare of fire/emergency personnel.
2) Remove endangered occupants and treat the injured.
3) Stop the fire (or terminate the emergency).
4) Conserve property after fire control is achieved.

B) Command is responsible for the following functions as required by the circumstances of the situation.

1) Assume and confirm Command and take a effective position.

2) Rapidly evaluate the situation (size-up).
3) Initiate, maintain and control the communications process.
4) Identify the overall strategy, develop an attack plan and assign units.
5) Develop an effective fireground organization.
6) Provide continuing Command within the framework of operating guidelines.
7) Coordinate the transfer of Command, as required.
8) Request and assign additional resources as required.
9) Return companies to service and terminate Command.

All of these functions are the responsibility of Command, whether or not Command is transferred from one individual to another. The first five (5) functions must be addressed immediately from the initial assumption to Command.

1.04 Establishing Command: The first Fire Department unit to arrive at the scene shall assume Command. This unit remains in command until relieved by a ranking officer, or until the incident is terminated.

A) Initial Report: The person assuming Command shall transmit a brief radio report including.

1) Unit on the scene, confirming assumption of Command and location.
2) Building description (occupancy, size, arrangement, construction and address).
3) Obvious fire conditions.
4) Action taken (brief description).
5) Any obvious safety concerns.

B) Radio Designation: The radio designation "Command" will be used with a brief description of the incident location. This designation will not change through the duration of the incident.

(Example: "Post Road Command" "Dunns March Command")

1.05 Command Options:

A) When the first arriving officer is a command officer, efforts should automatically be directed towards establishing a Command Post and fulfilling the listed Command functions.

B) Establishing a Command Post in a vehicle equipped for this purpose is a priority at all working incidents. The location of Command in a vehicle provides.

1) Appropriate work space and lighting.
2) Communications equipment.
3) Map books, reference materials.
4) Limited isolation from distractions.

C) When Command is initially assumed by a line officer, that officer must decide on the proper commitment for arriving equipment. This assignment will fall into one of three general modes.

Nothing Showing Mode

These situations require investigation by the first arriving units. Normally, the officer will go to check the situation while using a portable radio to command the incident.

Fast Attack Mode

Situations which require immediate action to stabilize the incident. Examples include interior fires in residences, apartments or small commerical occupancies. These situations require that the officer quickly decide how to commit first arriving units. Where a fast interior attack is critical, use of the portable radio will permit involvement in the attack without neglecting Command responsibilities. This mode should not last more than a few moments, and will end with one of the following.

1) Situation is stabilized.
2) Command is passed to the next arriving line officer.
3) A command officer arrives and Command is transferred.
4) Situation is not stabilized and the officer must withdraw to the exterior to set up a Command Post.

Command Mode

Situations that require strong, visible command from the outset. Examples include large complex fire or rescue operations, or strong chance of fire extension. In such cases, the officer will initially assume a Command position and maintain that position

until relieved by a command officer. The tactical worksheet is used to assist in managing these situations.

D) The officer assuming Command has a choice of modes and degrees of personal involvement in the attack, but continues to be fully responsible for the tasks assigned to the Command function. In all cases, the initiative and judgement of the officer is important. The modes identified are not strict rules, but general guidelines to help the officer in planning appropriate actions.

1.06 Passing Command: In certain situations, it may be better for the first arriving line officer to "Pass Command" to the second arriving line officer or to a staff officer. This is indicated when the intitial commitment of the first station requires a full crew and the next arriving line or staff officer is on the scene or close behind. (Example: immediate rescue situation)

The first arriving officer will give an intitial "on-scene radio report" and advise that Command will be passed. The initial arriving line officer retains responsibility for Command until the next unit arrives and acknowledges the transfer.

1.07 Transfer of Command.

A) The first Fire Department unit to arrive on the scene shall assume and retain command until relieved by a ranking officer within the following guidelines.

1) The first arriving firefighter will automatically assume Command.

2) The first arriving line officer assumes Command if the incident has not been declared under control, and after transfer of command procedures have been completed.

3) Assumption of Command is discretionary for the Fire Chief.

The arrival of a ranking officer on the fireground does not mean Command has been transferred to that officer. Command is transferred only when the outlined steps have been completed.

B) Transfer of command will be regulated by the following.

1) The officer assuming Command will communicate with the person being relieved by radio or preferably face-to-face on arrival.

2) The person being relieved will brief the officer assuming Command indicating the following.
   a) General situation status.
      1) Fire location, extent, conditions.
      2) Effectiveness of control efforts.
      3) Safety considerations.
   b) Deployment and assignments of companies.
   c) Appraisal of need for additional resources.

3) The person being relieved should review the Tactical Work Sheet with the Command officer. This sheet provides the most effective framework for Command transfer as it outlines the location and status of resources in a standard form that should be well known to all members.

C) Command officers should eliminate all unnecessary radio traffic while responding unless such communications are required to be sure that Command functions are covered.

D) When an individual is effectively commanding a tactical situation, it may be desirable for that person to continue in an active command role. This individual is aware of the location and function of units and the general status of the situation. In these cases, the arriving command officer may assume a supportive role in the overall command function. Command will be considered transferred because the command officer is involved in the command process.

1.08 Command Structure: Command has the responsibility to develop an organizational structure to manage emergency operations. The development of this management structure should begin with initial tactical control measures and may continue through several phases, depending on the size and complexity of the particular situation. The goal must be to develop the command organization at a pace which stays ahead of or even with the tactical assignment of firefighting units.

To address the varied needs of emergencies, the command structure can be divided into six functional areas. The areas include:

Command

Staging

Operations

Planning

Logistics

Finance

Activate only those parts of the management system which are needed to support the emergency organization.

Command

Planning Logistics Operations Finance Staging

A) Command: The first functional area is Command which has overall responsibility for the incident. Command establishes the goals and objectives that all other resources will work to accomplish. Command will develop, implement, monitor, and modify the action plan which others will follow to control the incident. The remaining four functional areas are under the direction of Command. In addition, Command can create staff positions who report directly to Command.

Command

Staging

Information Officer

Liaison Officer

Safety Officer

1) Staging officer is responsible for control of all fire equipment on the scene. He/she will keep track of equipment available to command and dispatch on request/order from Command.

2) The Information Officer is responsible for formulation and release of incident information to the media and other appropriate agencies.

3) The Liaison Officer is the point of contact for assisting and coordinating outside agency representatives.

4) The Safety Officer is responsible for monitoring and assessing hazards or unsafe situations and developing measures for assuring personnel safety. The Safety Officer can take immediate steps to correct any unsafe act or remove personnel from immediate danger.

B) Operations Operations is the functional area responsible for all

tactical operations carried out to meet the goals and objectives

established by Command. The Operations Officer's role is to command and coordinate the efforts of the crews working directly on the fire or incident.

Command

Information

Liaison

Safety

Operations

1) Operations will supervise working units made up of resources that operate in a defined area or serve a specific function.

   Examples: Interior Sector, North Sector, Ventilation Sector.

Command

Operations

Sector Sector Sector

2) Span of Control: At most incidents, crews are assigned to a sector in numbers that maintain a span of control by the officer. At larger incidents where significant resources are available, task forces consisting of several companies can be assigned to a sector.

   If the number of sectors exceeds Operations span of control, branches can be established. A manageable number of sectors can

be assigned to each branch allowing the Operations Officer to regain span of control.

3) Staging: Staging is the function of assembling all incoming equipment and manpower. This equipment and manpower list is given to command for his/her deployment.

Command

Staging Operations

Sector Sector Sector

The Staging Area is located close to the incident, yet far enough away to prevent interference with emergency operations. When a staging area is set up, incoming units report to this area to await assignment until they are needed.

C) Planning: Planning is responsible for gathering and distributing information. The Planning Function may simply involve the use of the Tactical Worksheet to track situation and resource status.

Command may choose to assign one or more people to activate the Planning function. Structural Engineers, Chemists or other technical advisors may be added to support the function.

Command should consider using Mutual Aid Chief Officers, Department Administrative Staff, or Fire Prevention Personnel to fill positions within the planning function.

Command

Information

Liaison

Safety

Staging Operations Planning

Situations Status

Resource Status

Documentation

Situation Status is the gathering of information regarding the incident itself.

Resource Status is the gathering of information on the resources currently at the incident, how they are being used, and how effectively they are being used.

Documentation involves logging the activity which occurs during an incident. This log can be invaluable when preparing the final report for the incident or in preparing a critique of the operation.

D) Logistics: This function is responsible for providing the facilities, services and supplies to support the response to an incident.

Command

Information

Liaison

Safety

Staging Operations Planning Logistics

Service Support

Rehab Feeding Fuel Repair

1) Logistics can be broken down into two major areas of responsibility.

a) Service Branch is responsible for REHAB and medical aid for emergency personnel, and for feeding the personnel at the incident.

b) Support Branch is responsible for providing supplies, facilities, fuel and maintenance.

E) Finance: This function is responsible for all financial aspects of the incident. The Finance function oversees personnel costs, costs of contractors or vendors, claims due to injuries and monitoring the legalities regarding to finance.

Command

Information

Liaison

Safety

Staging Operations Planning Logistics Finance

Time Unit
Procurement Unit
Claims
Cost Tracking

1) Finance can be broken down into areas of responsiblity.

Time Unit is responsible for personnel time recording.

Procurement Unit is responsible for maintaining contracted equipment time records, and financial matters involving vendors.

Claims is responsible for injury claims associated with the incident.

Cost Tracking is responsible for collecting all cost data related to

the incident.

1.09 Summary: At first glance the management system can appear to be somewhat complex and overpowering. To help simplify the system, we ask that the system be viewed in two ways.

A) View the functional areas (Command, Operations, etc.) as job descriptions. Command is responsible for all functions unless those jobs area delegated to others. The system provides a framework which Command can use to expand the system to the size of the incident.

B) We can also view the system as a toolbox filled with tools. Each tool represents a resource which Command has available should the need arise. Command only selects those tools which are needed to complete the job. Positions within the management system are only filled when they will assist Command in meeting incident goals - not just to build a better organizational chart.

C) The benefits of using a management system include.

1) It works at any type of emergency no matter how large, small or complex.

2) It provides for unity of command - one person in charge with clear line of authority and responsibility.

3) Clear lines of communication are established.

4) Freelance operations are eliminated or minimized.

5) Incidents involving multiple agencies or jurisdictions can be dealt with through improved coordination and communication.

6) The system can be expanded in a modular fashion as the incident expands or as additional resources become available.

7) More effective use of resources.

8) Personnel safety can be enhanced.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 3: I.C.S. - Command Function
Subject: Safety Officer
Page 1 of 1 Section: 2-3-1
Effective Date: 07-01-95 Revised Date:

1.01 Purpose. To define the basic functions and activity of the Safety Officer position.

1.02 Goal. To describe the command staff position for Safety. To provide a method for assigning safety supervision to a person within the command staff.

1.03 Responsibility.

A) Monitor and assess safety hazards and unsafe situations.

B) Suggest measures to reduce risk to personnel.

C) Inform Command of safety problems and potential hazards.

1.04 When to activate position. The Safety Officer is assigned when the size and complexity of the incident prevents Command from personally supervising the function. This function can be expanded by adding personnel who will report to the Safety Officer.

1.05 Authority to Bybass Chain of Command. The Safety Officer can bypass the chain of command when it is necessary to correct unsafe acts. Command must be immediately informed of these corrective actions.

1.06 Reference. NFPA Standard 1501 Fire Department Safety Officer, 1987 Edition will be the reference used to guide the actions of the safety staff position.

1.07 Radio Designation. The plain-language term, "Safety" will designate the safety staff function.

1.08 Chief Training/Safety Officer. Refer to Section 1-3-5 for additional job description information.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 3: I.C.S. - Command Function
Subject: Information Officer
 Section: 2-3-2
Effective Date: 07-01-95 Revised Date:

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2.01 Purpose. To define the basic functions and activity of the Information staff position.

2.02 Goal. To provide public information by establishing and maintaining a positive relationship with the news media.

2.03 Responsibility. Command is responsible for public information at a fire department operation. Command can delegate management of this information to a person who will serve as incident Information Officer.

2.04 When to activate position. The Information Officer is assigned when the size or complexity of the incident prevents Command from personally supervising the function. Assigning an information officer will relieve Command of dealing directly with the media during critical stages of the incident. This function is expanded, when needed, by adding personnel who will report to the Information Officer.

2.05 Guideline.

A) The Information Officer will select a position that is visible and accessible to arriving media representatives. This position will serve as the place where the media can meet to receive incident information. The position should provide the Information Officer ready access to the Command Post without disrupting Command Post activity.

B) The person assigned as Information Officer will use a media worksheet to gather basic incident information.

C) If possible, add anything to the basic information that will enhance the story of the situation. This information should include a description of hazards encountered. Another example is an exceptional effort made by an individual or group of members. The goal is to provide a clear,

concise story for the public.

D) Do not be afraid to talk to reporters. They will report the facts as you give them. Tell them everything you can, but be sure everything you tell them is correct.

E) If possible, a personal interview with Command is encouraged. Grouping media representatives for a briefing will permit Command to best use the available time.

F) While information is collected, reporters may request information. Give them what is available, but emphasize that this information is tentative. If these requests hinder the gathering of information, consider these alternatives:

1) Tell reporters to gather in one place. State that you will return shortly with more information.

2) Request additional manpower from Command and stay with the reporters.

3) Tell the reporters to get pictures and video footage without interfering with operations while you gather information. Be sure to point out hazardous areas. Arrange to meet them shortly at a designated location for your briefing.

4) If reporters have deadlines to meet, get their telephone numbers, and telephone the facts to them as soon as possible.

G) **Names of persons injured or deceased are not released until the next of kin are notified**. Notifications are usually handled by Law Enforcement.

H) The Information Officer or other staff may provide an orientation tour for media representatives. These tours are approved by Command and coordinated with the Operations Officer. The Information Officer is responsible for requiring media personnel to wear proper protective clothing when in hazardous areas.

I) If media personnel create a safety problem, or hinder operations, they should be requested to move in a positive manner. AVOID CONFRONTATIONS. The policy of the Department is to cooperate

with the media.

2.06 Media Deadlines. It is important to consider media deadlines. Newsrooms should be given information before deadlines whenever possible.

2.07 Media Worksheet.

A) Media worksheets are found in Command Post.

B) The media is interested in the number of units that respond to the emergency, not the unit designations. They are also interested in total firefighter figures.

Example: 4 Engines + 1 Rescue = 5 units and 20 firefighters.

C) Tell the media what the first unit found on arrival, and the action taken.

Example: "Engine 21 arrived on the scene and found the house well involved with fire. Engine 21 directed a quick attack to the interior and ordered firefighters to conduct search and rescue."

D) If there are injuries, compile the full name, age, extent of injuries and where taken for treatment. If there is a fatality, omit the extent of injury. In all cases -- do not release names until the next of kin have been notified.

E) Note specific hazards.

F) Note specific accomplishments, such as rescues, good salvage work, etc.

G) Note information concerning private protection.

Examples: "Fire was controlled by the sprinkler system." "A smoke detector would have provided earlier warning."

H) Use word descriptions for damage -- not dollar figures.

Examples: "Minor fire damage." "Moderate smoke damage."

MEDIA WORKSHEET

1) Time of Alarm.....and.....Total time on scene.

2) Location

3) Owner/Occupant/Business

4) Description of Incident

5) Number of Units and Members On-Scene

6) Injuries or Casualties
(Name -- Address -- Age -- Disposition)
(Do not release names.)

7) Damage Description
(Major/Minor Fire Damage)
(Major/Minor Smoke Damage)
(Major/Minor Fire Control Damage)
(Description of Property Conservation Action Taken)

8) Special Circumstances
(Rescue -- Need for Smoke Detector -- etc.)

2.08 Public Information Officer. Refer to Section 1-3-9 for additional job description information.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 3: I.C.S. - Command Function
Subject: Liaison Officer
Page 1 of 1 Section: 2-3-3
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3.01 Purpose. To define the basic functions and activity of the Liaison staff position.

3.02 Goal. To describe the command staff position for Liaison Officer. To coordinate the actions of assisting agencies through a person assigned to command staff.

3.03 Responsibility.

A) Provide a point of contact for assisting or coordinating agencies.

B) Provide lines of authority, responsibility and communication for assisting or coordinating agencies.

C) Provide for the safety of personnel of assisting or coordinating agencies.

3.04 When to activate position. The Liaison Officer is assigned when the size or complexity of the incident prevents Command from personally supervising the function. This function can be expanded by the addition of personnel who will report to the Liaison officer.

3.05 Agency Representatives. The representatives with whom Liaison interacts need to have decision making authority since delay of "going through channels" may have a negative effect on the needed coordination.

3.06 Reporting Point. Liaison must select a place for agencies to report, work, and to communicate with each other.

3.07 Radio Designation. The plain-language term, "Liaison" will designate this staff

function. Whenever possible, face-to-face communications should be used in place of radios.

4.01 Purpose. To provide standard initial placement of responding apparatus, personnel and equipment prior to assignment at incidents.

4.02 Goals. Effective staging procedures will:

A) Prevent excessive congestion at the scene.
B) Provide time for Command to evaluate conditions prior to assigning units.
C) Place apparatus in an uncommitted location close to the immediate scene to permit effective assignment by Command.
D) Reduce radio traffic during the critical initial stages of emergency operations.
E) Permit Command to formulate and implement a plan without undue confusion and pressure.

4.03 Level I - Staging. Level I staging will automatically apply to all multiple unit responses unless otherwise ordered by Command. Level I Staging involves the following:

A) The first arriving Engine Company will respond directly to the scene and will operate to best advantage.

B) The first arriving Tanker Company will respond directly to the scene and will place themselves to best advantage.

C) The first arriving Rescue/EMS unit will go directly to the scene and place their apparatus in a location that will provide maximum access for medical/rescue support. The location should not impede the movement

of other units.

D) All other units will stage in their direction of travel, approximately one block from the scene, on the incident side of the road, until assigned by Command.

E) Staged units will, in normal response situations, report company designation, standing by and their direction.

F) An acknowledgement is necessary from Dispatch. Staged companies will stay off the air until orders are received from Command. If it becomes apparent Command has forgottern the company is in a staged position, the company officer shall contact Command and advise him of their standby status.

Staging procedures attempt to reduce routine radio traffic, but in no way should reduce effective communications or the initiative of officers to communicate. If staged companies observe critical tactical needs, they will advise Command of such conditions and their actions.

4.04 Level II - Staging. Level II Staging is used when an on-scene reserve of companies is required. Companies are placed in a Staging Area at a location designated by Command.

A) When Command announces "Level II Staging",

1) All companies shall report to and remain in the staging area until assigned.

2) All companies already in Level I staging will remain in position unless instructed otherwise.

3) When going to Level II Staging, Command will give an approximate location for the Staging Area.

B) The Staging Area should be away from the Command Post and the emergency scene. This area must have adequate space for the assembly and safe movement of apparatus.

C) When calling for additional resources, Command should consider Level II Staging at the time of the call. This is better than calling for Level II Staging while units are enroute. The additional units

will be directed to the Staging Area.

D) Command may designate a Staging Officer who will be responsible for staging activities listed below. In the absence of this assignment, the first officer to arrive at the Staging Area will automatically become the Staging Officer and will notify command via radio.

STAGING WILL REPORT TO COMMAND.

E) The radio designation for the Staging Officer will be "Staging". All responding companies will stay off the air, respond directly to the Staging Area, and report in person to the Staging Officer. They will standby their unit with crew intact.

F) When directed by Command, the Staging Officer will verbally assign companies, telling them where and to whom to report. The responding unit may then communicate directly with operations by radio.

G) Staging will give Command periodic reports of available companies in Staging. Command will use this information when requesting additional resources.

H) The Staging Officer is responsible for the following functions:

1) Coordinate with Law Enforcement to block streets, intersections and other access required for the Staging Area.

2) Ensure that all apparatus is parked in an appropriate manner.

3) Maintain a log of companies available in the Staging Area and inventory all specialized equipment that might be required at the scene.

4) Progress reports to Command indicating number and type of units available.

5) Assume a position that is visible and accessible to incoming and staged companies. This will be accomplished by leaving warning lights operating.

6) In some cases, the Staging Officer may have to indicate best direction of response and routing for responding companies into

the Staging Area.

l) At some incidents, such as a major medical emergency, it may be necessary to designate a parking area for used apparatus near to the incident scene. This would be necessary when the Staging Area is too far from the incident to permit hand carrying needed equipment to the incident site. In such cases, the Staging Officer shall designate the parking area and instruct each company of its location before they leave Staging. The parking area should be close enough to the incident

site to allow easy transfer of needed equipment to the scene. The parking area should in no way impede necessary access for ambulances or other units to the incident area.

5.01 Goal. To provide a pool of personnel and equipment near an area of operations.

5.02 Resource Staging - General.

A) Command must identify the need to set up a Resource Staging Area. An officer and adequate personnel must be assigned to operate this sector.

B) The Resource Staging should be close to the area of operations, but in a safe location. (For High-Rise operations, the Resource Staging is normally set up two floors below the fire floor.)

1) Command may designate the location of the Resource Staging or direct the Resource Officer to find and announce the location.

2) The Resource Staging must be large enough to meet the forseeable storage needs.

C) The Resource Officer should identify the types of equipment and supplies needed by operating sectors. These items can include:

1) SCBA cylinders.
2) Hose and nozzles.
3) Forcible entry tools.
4) Lighting equipment.
5) Replacement portable radios.

6) Salvage equipment.

D) The Resource Officer coordinates the moving of equipment and supplies from Staging to the Resource Staging. (In a High-Rise building this involves working with Entry Control Officer.).

E) Personnel can be directed to standby in the Resource Staging. Companies reporting to the Resource Staging must stay intact as a unit. Command will call Resource to assign available companies to areas of operation.

6.01 Goal. To provide a guideline for Triage/Treatment sector activities.

6.02 Description of Function: The triage/treatment sector's responsibility is to triage and begin initial treatment of the victims. Victims should be stabilized and continually monitored until they are transported to a medical facility. Separate areas should be maintained for high, moderate, and low priority cases. The treatment group will advise the Transportation Sector Officer of transportation needs and which victims should be removed first.

6.03 Responsibilities: When this function is activated, the Triage/Treatment Sector will be responsible for the following.

A) Determine the resources needed to perform triage/treatment and advise Command[8].

B) Identify and establish suitable treatment areas for high, moderate, and low priority victims. Locate these areas near an easily accessible pick-up point for transport. Advise Command of these areas.

C) Maintain an accurate count of patients and where they were transported.

D) Assign and coordinate resources to provide suitable treatment for victims.

E) Triage arriving victims and continually evaluate their condition.

F) Determine transportation priorities. It may be possible to separate the

slightly injured persons who are able to walk and locate them in an area easily accessible to buses or similar forms of transportation.

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[8] These activities will be coordinated with EMS personnel, who are responsible for direct care of the patient. However, conditions can exist (fire/explosion hazards, multi-casualty, etc.) where the department personnel are assigned to complete these tasks.

G) Report progress to Command.

H) Coordinate with other groups.

7.01 Goal. To provide a guideline for Transportation sector activities.

7.02 Description of Function. The transportation sector is responsible for taking stabilized victims to appropriate medical facilities. Coordination with the triage/treatment group is essential for the transportation group to do its job properly.

7.03 Reponsibilities. When this function is activated, the Transportation Sector will be responsible for the following:

A) Detemine transportation needs and the availability of ambulances and other methods of transportation.[9]

B) Report resource needs and progress to Command.

C) Identify ambulance staging and loading areas. If applicable, determine helicopter landing zones.

D) Obtain the patient handling capabilities of the medical facilities that are to receive the patients.

E) Determine the specific entry and exit locations from the triage/treatment area. Coordinate the order of patient transportation and medical facility allocation with the triage/treatment group.

F) Establish a method of transporting walking wounded.

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[9] These activities will be coordinated with EMS personnel, who are responsible for direct care of the patient. However, conditions can exist where department personnel are assigned to complete these tasks.

1.01 Goal. To control access to a building or hazardous area. To account for persons entering and exiting a building or hazardous area.

1.02 Incident Entry Control - General.

A) Incident Entry Control provides an entrance/exit where personnel will enter the building or hazardous area.

B) Incident Entry Control limits entry to those persons authorized by Command.

1) Persons with specific assignments.
2) Persons with required protective clothing.

C) Incident Entry Control will collect 1 (one) I.D. Tag from each firefighter as he/she enters area and will return it to each firefighter as he/she exits the building or area.

1.03 Establishing Incident Entry Control.

A) Buildings - General.

1) When possible, use the ground floor area outside of building to set up Incident Entry Control.

2) At the start of operations, a designated firefighter should be left in the entry area to set up Incident Entry Control.

3) A company should be assigned as quickly as possible, with resources added as needed.

4) All personnel entering the building must report to Incident Entry Control before reporting to their assignments. All firefighters must leave one I. D. Tag with the Entry Control Officer.

5) Civilians entering the building will be accompanied by a firefighter with a portable radio.

B) Buildings - High Rise. In addition to the actions listed in A.

1) Obtain, identify and distribute keys from Lock Box. (Keys for elevator must remain with Incident Entry Control.)

2) Take control of all elevators and return to ground using Emergency Control Feature.

3) Control access to stairways.

4) Identify stairways to be used by firefighting forces.

5) Direct occupants leaving stairways to safe areas. Prevent re-entry of occupants. Control alternate access points to the building.

6) Take control of alarm and communications systems.

7) Coordinate equipment and manpower movement between Staging and Resource.

8) Stockpile equipment at entry for transportation to Resource.

9) Establish Stairway Support if needed. Assign personnel to every other floor landing to relay equipment up the stairs. (These personnel should have protective clothing and SCBA available nearby, but work without coat and SCBA when conditions permit.)

C) Hazardous Materials Incident.

1) Mark hazard areas with fire line or hazard zone tape.

2) Request adequate assistance to maintain the perimeter.

3) Select an entrance/exit point and inform Command of the location.

4) Record names, the time, and assignment of persons entering and leaving the controlled area.

2.01 Purpose. There will be situations when we must evacuate an area of the jurisdiction. These situations include hazardous material emergencies, potential explosions, floods, major fires or similar incidents. An evacuation of anything more than a single structure requires a coordinated effort between Fire and Law Enforcement. It requires a definite plan and a method of reporting progress.

2.02 Goal. Conduct evacuations without unnecessary duplication of effort.

2.03 Guideline.

A) Identification of Evacuation Area. When an area evacuation is needed because of a fire, explosion, or toxic material hazard, the limits of the evacuation area will be determined by Fire Department Command in consultation with the Law Enforcement Supervisor.

1) The action taken will depend upon the available resources, the degree of risk, and the type of evacuation selected.

2) Types of area evacuations.

a) Relocation to shelters. Citizens are directed to relocate outside of a designated area. Citizens may use their own vehicles, or transported using buses.
b) Protection-in-place. Citizens are directed to close all

windows and doors and shut-down heating/air conditioning equipment which draws in outside air. This method of protection may be selected when an air-borne hazard (smoke,vapor) would present a greater risk if citizens were asked to relocate.

3) Law Enforcement will be responsible for securing the perimeter of the evacuation area, including traffic and pedestrian control.

4) The Fire Department will be responsible for assessing the degree of danger, the need for evacuation and the safety of personnel operating within the evacuation zone.

B) Organizing the Evacuation. When the evacuation area and its perimeter is established, prepare a plan to affect the desired evacuation. The plan will depend on the resources available (Fire, Law Enforcement, other agencies), the type of hazard and type of evacuation.

1) Establish a joint Command Post for Fire and Law Enforcement. Use maps and aerial photographs of the area to make assignments, track progress and avoid duplication or omissions. If it is not practical to have the Law Enforcement and Fire Command Posts together, liaison must be established.

2) Assign units or companies to evacuate specific objectives (a building, a block, a street, etc.) and report completion.

3) Activate sector officers to supervise operations.

4) Advise personnel if evacuees are to be directed to particular Evacuation Centers.

5) Provide patrol cars and companies with information to be used within the evacuation message. Use evacuation guidesheets to prepare message . (See 2.04)

6) Use P.A. function on Electronic Sirens to alert citizens and door-to-door individual notification. Make noise and attract attention if situation is urgent.

7) Start with areas in most immediate danger first. Assign priorities by degree of risk.

C) Public Information. Any evacuation will require and benefit from clear, concise public information actions. A Public Information Officer must be assigned to communicate with radio and television stations as quickly as possible to explain exactly what the situation is, and what affected people should do.

1) Township Base and the Communications Center must be informed of the situation to answer calls which can be expected from people wanting to verify information.

D) Evacuation Centers. Select a location where evacuees can be directed. These centers should be located within a school, church or public facility. This center should be located and identified as quickly as possible.

When a long-term evacuation (more than 2-3 hours) is expected, contact the Red Cross to set-up a temporary shelter.

Command must have direct communications with the Evacuation Centers.

2.04 Evacuation Announcements -- Using Law Enforcement or Fire Vehicles. When an evacuation is ordered, Law Enforcement and Fire Vehicles can be used to deliver evacuation messages.

Evacuation procedure:

1) Obtain evacuation information from Command.
2) Vehicles will operate in teams of two.
3) Vehicles will turn air-conditioning to MAXIMUM. (This will reduce exposure to outside air.)
4) The first vehicle will cruise the affected area at approximately 10 mph with warning lights and siren operating. Make noise!
5) The second vehicle will follow 50 yards behind the first.
6) The second vehicle will make the following announcement using vehicle PA system.

Evacuation announcement:

"This is an emergency. All residents are advised to evacuate the area immediately. Evacuation centers are located at _____
_____
If you do not have transportation, buses will stop at the following intersections: _____
_____
Persons needing assistance can call _____.

A) Format for Relocation Announcement:

Evacuation Announcement - RELOCATION

"This is an emergency. An evacuation in the _____
_____ has been ordered because of a hazardous condition arising from _____
_____
The area to be evacuated is bounded

on the North by _____

on the South by_____

on the East by _____

on the West by_____

Residents are to leave this area immediately. Residents who can not stay with relatives or friends outside of the affected area are directed to go to the Evacuation Center at _____ where you will be assisted by the American Red Cross.

Residents who can not provide their own transportation are asked to walk to the following intersections:

_____

_____

Buses will meet residents at these locations to provide transportation.

Persons needing assistance are directed to call _____ and arrangements will be made to assist you."

B) Format for Protection-in-Place Announcement

Evacuation Announcement - Protection-in-Place

"This is an emergency. A hazardous condition arising from

_____

_____

now affects _____.

The affected area is bounded

on the North by_____

on the South by_____

on the East by_____

on the West by_____

Residents are asked to stay indoors. Close all doors and windows. Turn off furnaces and air-conditioning which will bring outside air into the building. Continue to listen to this station for further information.

C) The Protection-In-Place announcement can also be used by vehicles when this type of public protection is selected.

3.01 Goal. Provide a standard system for building evacuation.

3.02 Guideline.

A) Establish a plan. Plan the evacuation and make assignments. Request status reports from sectors and record progress.

B) Evacuate persons in greatest danger first. In a fire, the people in greatest danger are those in the immediate area and those above.

C) Assign specific areas for evacuation. Assign sectors according to priorities, to specific areas, or floors to evacuate and report when completed.

D) Identify safe evacuation routes. An evacuation is intended to remove occupants from a hazard.

1) Move occupants to safe areas along indentified safe paths.
2) Sectors may be assigned to keep the evacuation path safe (protective handlines, ventilation, etc.).
3) Use normal means of egress first (halls, stairs, etc.).

4) Aerial ladders, ground ladders are secondary means of egress.

E) Identify evacuation stairs. In multi-story buildings, it may be necessary to designate one stairway for evacuation while another is used for firefighting operations.

F) Evacuate to a safe location. Move people to a location out of danger, but no further than is practical. (Example: In a high-rise building two or three floors below the fire is usually adequate.) Attempting to move people too far tends to complicate the situation.

G) Mark rooms or suites after evacuation. When evacuating a building with rooms or suites, mark doors to areas which have been evacuated to avoid duplication of effort.

H) Use alarm and communication systems. These systems are designed to warn people of the need to evacuate. Use these in conjunction with evacuation teams when the need to evacuate is urgent. (If the situation is not urgent, face-to-face contact is less distressing than alarm bells.)

I) Avoid panic. Members must consciously work to reduce anxiety of occupants and avoid panic. Explain what the problem is and what needs to be done as accurately as the situation permits.

J) Assign sufficient resources to evacuation. Rapid evacuation of a building may require a major commitment of sectors. The commitment may be sufficient to provide for walking evacuees and those needing physical assistance. Never leave evacuated occupants unattended.

K) Do not evacuate unnecessarily. If conditions do not present a hazard, evacuation may be unnecessary. Send personnel to evaluate conditions and judge the need for evacuation if the need is not obvious.

4.01 Purpose. To provide a guideline for Roof sector activity.

4.02 Goal. To permit safe and effective roof operations at structure fires.

4.03 Description of Function. Roof operations are designed to support interior firefighting. Personnel operate on the roof to ventilate, to check fire conditions and structural safety, and to determine the shape and arrangement of structures. The loss of roof integrity is a primary reason to change from offensive to defensive operations.

4.04 Guideline.

A) A Roof sector should be set up by the first team to reach the roof. The first personnel reaching the roof must quickly check conditions to assure the roof is structurally sound before trying to work on it. The degree and extent of any signs of weakness must be considered before committing personnel above a fire.

B) The initial Roof Sector Officer shall make a report to Command, as quickly as possible, describing:

- Roof construction (flat, peaked, bowstring, etc.)
- Structural conditions
- Visible smoke and fire conditions and extent
- Presence of a ceiling
- Locations of firewalls and significant arrangement details
- Locations of any heavy objects or equipment which could pose a danger of collapse
- Proposed actions

This information should be updated as conditions develop or as more information is collected.

C) When conditions show an obvious need for vertical ventilation, Roof Sector shall coordinate the opening of vent holes with Command and Interior Sectors.

D) The Roof Sector should try to open vent holes over the fire area.

E) The Roof Sector will report to Command when ventilation has been accomplished.

F) Without an obvious need for vertical ventilation, Roof Sector shall coordinate opening inspection holes with Command to determine the need for vent holes.

G) After ventilation is complete, exit roof as soon as possible.

4.05 Safety.

A) The Roof Sector Officer is responsible for providing an alternate means of egress from the roof. Anticipate the loss of the safe path to the initial access ladder and the alternate should be at a remote point.

B) The Roof Sector Officer must monitor the radio. Radio contact must be maintained over the noise of power tools and equipment.

C) The Roof Sector Officer has the responsibility to provide for protective hose lines where needed. Protective hose lines are for the protection of personnel and to stop fire spread on a roof surface only. Hose lines MUST NOT be directed into vent holes.

D) Roof ladders shall be used for operations on any roof top where slope presents a safety concern. Further, these ladders shall be used anytime there is a possible weakness in the roof covering. A roof ladder should be used to bridge over suspected week areas.

E) All Roof Sector personnel must wear full protective clothing and must use SCBA when operating over a fire area. Face pieces must always be in place when opening vent holes.

F) Aerial ladders should be used for roof access whenever possible to provide stability and strength in case of structural collapse.

G) If, at any time structural conditions become questionable, Command must check the safety of both Roof Sector and Interior personnel. Personnel must not work on a roof which is structurally questionable.

H) Roof Sector personnel shall work within the following safety guidelines.

1) Ladder near corners. Avoid involved fire areas and electrical lines.
2) Test or "sound" the roof before walking on it.
3) Set up a safe path from ladders to operating areas by probing and sounding.
4) Personnel shall not wander on roofs away from safe paths.
5) Additional crews shall not walk onto roof without signal from Roof Sector Officer.

4.06 Completion of Assignment. When the necessary roof operations are completed, personnel should report readiness for reassignment.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 4: I.C.S. - Operations Function
Subject: Extrication
Page 1 of 2 Section: 2-4-5
Effective Date: 07-01-95 Revised Date:

5.01 Goal. To provide a guideline for Extrication Sector activities.

5.02 Description of Function. The Extrication Sector is used in multi-patient incidents and in situations which require physical extrication of trapped victims. The Extrication Sector is responsible for locating, removing and transporting patients to appropriate treatment areas.

5.03 Responsibilities. When this function is activated, the Extrication Sector Officer will be responsible for the following:

A) Determine the location, number and condition of patients.[7]

B) Determine whether triage will be conducted "on site" or at a Treatment Area.

C) Evaluate resources needed for extrication of trapped patients and removal of patients to the Treatment Area.

D) Communicate resource requirements to Command.

E) Allocate assigned resources.

F) Supervise assigned companies.

G) Establish an Assembly Area for patients with minor injuries (Priority 3) to await delayed transportation.

H) Report progress to Command and advise when all patients have been removed.

I) Coordinate with other sectors as required.

---

[7] These activities will be coordinated with EMS personnel, who are responsible for direct care of the patient. However, conditions can exist (fire/explosion hazards, multi-casualty, etc.) where the Extrication Officer and crew members may be required to make the intial assessments.

5.04 Guidelines.

A) The Extrication Officer should assign personnel to help size-up the situation.

1) Count the number of patients.
2) Determine extrication requirements.

B) A commitment of one sector per five (5) victims is the guideline when numerous patients are involved.

C) The Extrication Officer should locate in a readily visible location. This position must be accessible to arriving units with a view of the scene.

D) Face to Face communications should be used within this group.

E) Walking patients should be removed from the action circle as soon as possible. Personnel should place these persons in a safe area where they will wait for transportation.

F) If the patients are spread out over a large area, sectors should be

assigned to a specific area or group of patients. Sectors must detemine the immedite needs of these persons and request assistance as needed.

G) The Extrication personnel will assist moving patients under the direction of EMS personnel.

H) Trapped patients requiring prolonged extrication should be triaged by EMS personnel and treated as needed.

I) The Extrication Officer is responsible for safety within the action circle.

J) If the incident site involves a large area, it may be necessary to create more than one Extrication Sector. In such cases, the site will be divided geographically with Extrication Sectors assigned as needed.

1.01 Goal. Provide a description of the activities which are part of the Planning Function.

1.02 Planning Function - General.

A) The planning section is responsible for collecting, evaluating and distributing tactical information about an incident.

B) Information is maintained on the current and forecasted situation, and on the status of resources assigned to the incident.

C) The section can be assigned to prepare written action plans for large incidents.

1.03 Unit Responsibilities. As an incident increases in size and complexity, the amount of work required of the Planning Function will increase. The function

can be divided into units to provide the needed attention to detail. As with all parts of an incident command system, we activate only those units which are required by incident needs.

A) Resources Unit. The resources unit has the responsibility to maintain current status on all resources (location, condition, assignment).

B) Situation Unit. The situation unit collects, and organizes current and forecasted information concerning the incident. The unit may be requested to prepare diagrams or maps to show the status of the incident.

C) Documentation Unit. The documentation unit is responsible for preparing an accurate record of the incident. This record can be used for legal, analytical, and historical purposes.

D) Demobilization Unit. The demobilization unit prepares a plan for the orderly release of resources from an incident.

1) Make arrangements for C.I.S.M. Team if required.

E) Technical Specialists.

1) If the services of a specialist are needed for only a short time period, that person should be assigned to work with the situation unit.

2) If the expertise is required on a long range basis, it is advisable to establish a separate unit in the planning section.

3) The situation may also indicate that the techinal specialist be assigned to other parts of the organization. (Example - LP Gas Specialist assigned to Operations.)

4) The incident will dictate the needs for technical specialists. Examples include:

a) Fire Behavior Specialist.
b) Meteorologist.
c) Environmental Impact Specialist.
d) Resource Use and Cost Specialist.
e) Flood Control Specialist.
f) Water Use Specialist.

g) Toxic Substance Specialist.
h) Fuels and Flammables Specialist.
i) Structural Engineer.
j) Nuclear Radiation Specialist.
k) Training Specialist.

2.01 Goal. To provide a method for tracking resources, unit assignments, and organizational development during emergencies.

2.02 Tactical Worksheet.

A) Tracking assignments and the organization of an incident can be a significant problem for command. The tactical worksheet provides a system which allows Command to write and record important activities.

B) The tactical worksheet is used to record the following items:

1) Unit status - responding, staged, assigned.
2) Benchmark of completion and times.
3) Diagram of fire area or occupancy.

4) Activity checklist - assignments, rescue, fire control, etc.
5) Organization structure.

C) The tactical worksheet is the basic record for incident information.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 5: I.C.S. - Planning Function
Subject: Command Status Board
 Section: 2-5-3
Effective Date: 07-01-95 Revised Date:

3.01 Goal. To provide a guideline for using the Command Status Board.

3.02 Command Status Board.

A) The Command Status Board is designed to help the Incident Commander manage resources in a safe and efficient manner. The status board is used to track resources, situation status and the incident management structure.

B) Applications.

1) Incident Management.

a) Fire.
b) Police.
c) Medical.
d) Hazardous Materials.
e) Natural Hazard Incidents.

2) Training.

a) Live fire training.
b) Pre-incident planning.
c) Incident scenarios.
d) Apparatus/resource placement.

3) Post Incident Critiques.

3.03 Resource Section. This section provides an area for tracking the status of resources. Erasable markers are used to label Engine, Ladders, Squads, EMS Units or any resource which has responded to the incident. This method of resource tracking permits the Incident Commander to determine at a glance:

1) What resources are assigned to the operation?
2) Where are the resources assigned?
3) What resources are available in staging?

4) How many personnel are currently working the incident?
5) What resources are available for another incident?

3.04 Situation Status Section. This section provides a drawn layout to diagram a structure fire. Labels 1 - 4 are used to identify building sides and A - D are used to identify locations within the building.

3.05 Strategic Goals/Organization Section.

This section is used to record Strategic Goals assigned and completed such as:

- Primary Search
- Secondary Search
- Exposure Protection
- Fire Control
- Standpipe/Sprinkler
- Ventilation
- Utilities

- Salvage
- Overhaul
- Water Supply
- Rescue

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 6: I.C.S. - Logistics Function
Subject: Welfare
 Section: 2-6-1
Effective Date: 07-01-95 Revised Date:

1.01 Goal. Provide for the welfare of citizens affected by fire or other incidents.

1.02 Welfare - General.

A) It is common for victims of a fire to need assistance with temporary housing, clothing, food and other necessities.

B) It is important to provide both physical and emotional support to victims, their relatives and friends. This need is particularly important at incidents involving injury or death.

C) Department personnel must attempt to provide for these needs in a

compassionate and supportive manner.

1.03 Welfare - Action.

A) At any incident where individuals or families are displaced from their dwelling, Command will determine the need for temporary shelter, clothing and other assistance.

B) A member should be assigned to serve as Welfare Officer.

C) Contact the American Red Cross through the Base. This notification should be made as soon as possible. Request an estimated time of arrival for Red Cross representatives.

D) The American Red Cross will contact Command on arrival at the scene. In most cases, the welfare of the individuals can be assumed by the Red Cross at that time. If needed, the Welfare Officer will continue to assist as long as necessary.

2.01 Goal. To evaluate and assist personnel who may be suffering from the effects of sustained physical exertion during emergency operations.

2.02 Policy. No member will be required to continue emergency operations beyond safe levels of physical or mental endurance. This policy does not intend to diminish initial fire attack aggressiveness. The intent is to reduce the risk of injury resulting from extended field operations under adverse conditions.

2.03 Function of Rehab Area. A Rehab Area will provide a designated place where members assemble to receive:

A) A physical assessment.

B) Rest and refreshment.
C) Treatment for injuries.
D) Continual monitoring of physical condition.
E) Transportation for those requiring treatment at a hospital.

2.04 Guideline.

A) A Rehabilitation Area (Rehab) will be set up:

1) When a moderate to long working time is envisioned.
2) When personnel are working under adverse temperature or weather conditions.
3) When a moderate to large work force is indicated.
4) At any incident where Command finds it necessary.

B) Command should assign a person to supervise the Rehab Area.

1) Senior EMS Responder.
2) EMS Adminstrator.
3) Support Unit Operator.
4) Department or Mutual Aid Officer.

C) Designate a site for the Rehab Area.

1) Select area outside of fireground perimeter or hazard zone where protective clothing may be safely removed.
2) Area should allow good access for ambulances, support units, canteens, etc.
3) Select areas with shade or shelter.
   a) Provide shade during periods of excessive heat.
   b) Shelter with heat (buses?) during cold weather.

D) Rehab Area Resources.

1) Rehab supervisor.
2) Fluids (water, Gatorade), food (as needed).
3) Support Unit (breathing air).
4) EMS Unit.

5) Other resources requested by Rehab supervisor.

E) Organizing the Rehab Area.

1) Mark area used for Rehab Area. Use fire line tape if necessary.
2) If necessary, divide area to provide a treatment area adjacent to the rest and refreshment area.

2.05 Operation of Rehab Area.

A) Members reporting to the Rehab Area will report at the entrance/exit point where they will be assessed by EMS personnel.

B) Members will be assigned to either Rest and Refreshment or the Treatment Area as dictated by their physical condition.

C) Fluid replacement is a priority for all members.

D) EMS personnel will examine members directed to the Treatment Area.

1) Determine need for transportation to hospital.
2) Reassign to Rest & Refreshment area or rejoin crew.

E) Sector officers are responsible to monitor the condition of crew members for signs of stress or fatique.

F) The Rehab supervisor will update Command with information concerning:

1) Firefighters in Rehab Area.
2) Firefighters available for reassignment.
3) Status of injured personnel.

G) The Rehab supervisor will release firefighters to specific assignments as directed by Command.

2.06 Heat Stress.

A) A significant change in the vital sign measurements can signify heat stress. Careful monitoring by a qualified person (i.e. EMT, nurse, etc.) will aid in reducing heat stress injuries.

B) Fluid replacement and rest periods are the most effective deterrent of heat stress. Proper fluid replacement cannot be gauged by thirst because the sense of thirst is satisfied before the proper amounts of fluids are ingested.

1) Water is highly recommended. Fruit juices and electrolyte replacement drinks (i. e. Gatorade) should be diluted 3:1. Water replacement is more important that the replacement of electrolytes.

2) Salt tablets are not suggested.

3.01 Goal. To provide support services at incidents involving special supply and maintenance needs.

3.02 Support Group. The responsibilities of the Support Group will depend on the type, size and complexity of the incident. These responsibilities can include.

A) Initial and continued evaluation of support needs.

B) Provision and resupply of expendable items, such as breathing air,

oxygen, medical supplies, foam concentrate, drinking water, food, etc.

C) Field refueling of vehicles.

D) Provide for the ongoing performance of vehicles and equipment.

E) Delivery of specialized and backup equipment to the scene.

F) Coordinate provision of specialized equipment or services from other fire departments or outside agencies.

4.01 Goal. Provide for the nutritional needs of department personnel.

4.02 Policy. When emergency operations extend over a period of time which will cause members to miss normally scheduled meals, the provision of food and drink should be considered. The underlying consideration must be the need to maintain the efficiency of members working at the emergency.

4.03 Determining Food and Drink Needed:

Allow at least one (1) hour for preparation and delivery to the scene.

7.01 Goal. Provide a description of the activities which are part of the ICS - Finance Function.

7.02 Finance Function - General.

A) The finance section is activated when the agency(s) who are involved have a specific need for tracking or managing finances.

B) In some cases where only one specific function is required (like cost

analysis) a position could be established as a technical specialist in the plans section.

C) When a finance section is needed, the following units may be established as the need requires.

7.03 Unit Responsibilities. The function can be divided into units to provide the needed attention to detail. As with all parts of an incident management system, we activate only those units which are required by incident needs. The finance section chief will determine the need for establishing specific finance units.

A) Time Unit.

1) Responsible for recording personnel time related to the incident.
2) Responsible for recording equipment time related to the incident.

B) Procurement Unit. Responsible for administering all financial matters relating to vendor contracts.

C) Compensation/Claims Unit.

1) Compensation-for-injury is responsible to see all forms required by worker's compensation programs and local agencies are completed. The person performing this activity is also responsible to maintain a file of injuries and illnesses associated with the incident and to insure that all witness statements are obtained in writing.

2) Claims is responsible for handling the investigation into all civil claims involving property associated with or involved in the incident. The unit will maintain logs on claims, obtain witness statements and document investigations.

D) Cost Unit. The cost unit is responsible for providing cost analysis data for the incident.

1) Identify equipment and personnel requiring payment.
2) Obtain and record all cost data.
3) Analyze and prepare estimates of incident costs.
4) Maintain accurate records of incident costs.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 8: Stategic Guidelines
Subject: Residential (1 & 2 Family)
Page 1 of 5 Section: 2-8-1
Effective Date: 07-01-95 Revised Date:

1.01 Purpose. To identify items concerning residential fires which impact on fire response strategy.

1.02 Goal. Develop response strategies which recognize hazards and conditions associated with 1 & 2 family, residential fires.

1.03 Residential Fires - General.

A) Residential fires account for about 70% of all fires, and about 80% of all fire deaths reported in the United States.

B) For this guideline, residential occupancies (1 & 2 family) are divided into three major types.

1) One-story house.
2) Two-story house.
3) Attached garage.

1.04 Special Problems.

A) Life Hazard.

1) Nighttime hours are most severe - greater chance occupants are at home, asleep and in need of rescue.
2) Regardless of time of day, conduct primary and secondary searches.
3) Life hazard in attached garage is minimal unless.
    a) Someone was in garage at the time of the fire.
    b) The garage lies under a portion of the house.
    c) An explosion or flash fire has occurred.

B) Construction.

1) Lightweight wood frame most common.
2) Truss supported roof - collapse potential.
3) Corridors and open doorways will permit rapid fire spread.
4) Fire rated assemblies (walls, etc.) may slow fire spread.

C) Contents.

1) Fire load will range from light to heavy.
2) Can include hazardous materials.
    a) gasoline.
    b) paints.
    c) pesticides/herbicides.
    d) gunpowder, etc.

D) Occupancy.

1) Average occupant load is 4 (1980 census).
2) Can include home-based business.

a) authorized and unauthorized (by zoning ordinance).
b) office most common, but can include storage of stock.

3) Has been uses to hide illegal activity.
a) clandestine drug laboratory.
b) potential risk to firefighters.

E) Hazards to Firefighters.

1) Improper building changes - collapse potential.
2) Contents - flammable, reactive or toxic hazard.

1.05 Strategic Considerations.

A) Pre-Planning.

1) Maintain map books and address lists.
2) Maintain computer-aided dispatch files.
a) handicapped persons.
b) home-based day care.
c) community based residential facilities.

B) Inter-Agency.

1) EMS responsible for triage, treatment and transportation of injured persons.
2) Sheriff's Department is responsible for traffic and crowd control.
3) Red Cross responsible for shelter and care of displaced persons (damaged homes, evacuated areas).

C) Command Function.

1) Activate only those functions and staff positions needed to manage the incident.
2) Management structure for 1 & 2 family residential fire may resemble the following.

Command

Law Enforcement | Staging | Operations | Safety | EMS

Sector As Needed | Sector As Needed | Sector As Needed

3) Safety - particular need with attached garage involvement.

a) Use of SCBA.
b) Decontamination of personnel.
c) Check water runoff.

D) Operations Function.

1) One-Story House.

a) Rescue is primary goal (primary & secondary search).
b) Ventilation - vertical if possible.
c) Fire Attack - from unburned side.
    1) Aggressive interior attack at seat of fire.
    2) Coordinate attack with ventilation.
d) Salvage - begin as soon as resources are available.

2) Two-Story House.

a) Rescue - second floor is serious problem because of upward travel of heat and smoke.
b) Ventilation.
    1) Start at top and work down.
    2) Pressurize building.
c) Fire Attack.
    1) Protect stairway.
    2) Attack from unburned side.
    3) Stop vertical fire spread.
    4) Coordinate with ventilation.

d) Salvage - similar to one-story, but if fire is on second floor:
    1) Assign personnel to salvage 1st floor.
    2) Arrange and cover furniture in center of room.
    3) Direct water out of structure (chutes, etc.).

3) Attached Garage.

a) Rescue.
    1) Minimal unless someone is in garage at time of fire.
    2) Must complete primary and secondary searches - entire building.
b) Ventilation - open area lends itself to forced ventilation.
c) Fire Attack - two strategies are available.
    1) Quick attack on main body of fire.
    2) Attack from unburned side (home interior).
    3) Whichever attack is used, it is critical to check for extension.
    4) Support garage door - expect spring failure from exposure to heat.
d) Salvage - expect minimal salvage in garage, but prompt salvage in house needed.

E) Logistics Function.

1) Establish REHAB area early.
    a) Breathing air supply.
    b) Medical monitoring of personnel.

F) Planning Function.

1) Use Tactical Worksheet to maintain situation and resource status.
2) Consider documenting fire scene using photographs.

G) Finance Function. It is unlikely that function will be needed.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 8: Strategic Guidelines
Subject: Commerical - Common Attic
Page 1 of 5 Section: 2-8-2
Effective Date: 07-01-95 Revised Date:

2.01 Purpose. To identify items concerning commercial occupancy fires which impact on fire response strategy.

2.02 Goal. Develop response strategies which recognize hazards and conditions associated with commercial occupancies which possess a common attic.

2.03 Commercial Occupancies - General.

A) Commercial occupancies will vary in appearance to project identity of the business. However, there are common fire problems which extend beyond color, shape or other outward appearance of the building.

B) Examples of occupancies which fall within this category include.

1) Retail stores.
2) One/ two story offices.
3) Strip malls.

2.04 Special Problems.

A) Common Attic. Space above two or more occupancies can be a common, undivided area.

1) Walls visible at floor level extend to just above ceiling.
2) Exterior appearance will not identify common attic.

B) Roof Construction.

1) Types of supporting system.
   a) Wood I-beam.
   b) Gusset plate connected, wooden truss.
   c) Open web.
2) Collapse potential with heavy fire involvement.

C) Ceilings.

1) Common components.
   a) T-bar framing.
   b) Tiles - little or no fire rating.
   c) Wire supports.
2) Can easily collapse after exposure to heat.
3) Firefighters can become entangled in collapse of metal framing.

D) Contents.

1) Expect large load of normal combustibles (paper, etc.).
2) Flammable liquids may be found in small containers (stock, processing fluids, etc.).
3) Compressed gases may be present.
    a) Anhydrous Ammonia (blue print processing).
    b) Carbon Dioxide (beverage dispensors).
4) Anticipate high toxic level in fire gases (example: fires involving pharmaceuticals).

E) Security Measures.

1) Door security - especially at rear of building can slow down access.
2) Illegal locks (key operated from inside) can create firefighter hazard.
3) Windowless side and rear walls - limits access and ventilation potential.

F) Improper Storage Practices.

1) Unstable high storage can fall during fire operations.
2) Stock may block exit passageways.
3) Combustible items stored too close to heat sources.

G) Personnel Practices.

1) Few businesses train personnel in proper action when fire occurs.
2) Personnel may attempt to control fire before calling fire department (delayed alarm potential).

2.05 Strategic Considerations.

A) Pre-Planning.

1) Identify occupancies having common attics/basements.
    a) Owner/property record.
    b) Computer-aided dispatch file.
2) Identify occupancies with special hazards.

a) Truss supported roof and truss supported ceiling and floor joists in multi-storied building.
b) Content hazards (compressed gases, etc.).

B) Inter-Agency.

1) EMS is responsible for triage, treatment and transportation of injured persons.
2) Law Enforcement is responsible for crowd control, traffic control, and security of salvaged contents and currency.
3) Regulatory agencies will be involved depending upon type of business.
    a) Taxation - liquor sales.
    b) Department of Agriculture - food sales.
    c) DNR - HAZ-MAT spill.

C) Command Function.

1) Activate only those functions and staff positions needed to manage the incident.
2) Management structure for fire within this type of occupancy may resemble the following.

Command

Staging Operations Safety EMS

Sector I Ventilation Sector 2

3) Safety.
    a) Roof, truss ceiling and floor joists collapse potential.
    b) Use of SCBA.
    c) Personnel contamination - building contents.
    d) Test for CO^2 before removing SCBA.

D) Operations Function.

1) Rescue Evacuation.
    a) Primary Search.
    b) Secondary Search.
    c) Evacuate all buildings that share the common attic.
2) Ventilation.
    a) Cut a hole above the seat of the fire as close as safety permits.
    b) Trench Cut/Strip Cut - In a long narrow structure with a common attic, cut an opening in the roof from outside wall to outside wall. This opening should be at least four (4) inches wide and well ahead of the fire. In some fires, a trench cut/strip cut may have to be made on both sides of the fire.
3) Fire Control - cut off fire - stop horizontal spread.
    a) Protect area of most value.
    b) Consider wind effect on fire spread.
    c) Quick aggressive attack at seat of fire.
    d) Pull ceilings to get into attic from below.
    e) Strip ventilate (isolate - trench cut).
    f) Push fire back into involved areas.
    g) Place exposure lines on opposite sides of attack.
4) Salvage.
    a) Start salvage operations in businesses that experienced the fire.
    b) Start salvage operations in the businesses to each side of the fire.
        1) Remove goods.
        2) Salvage covers.
        3) Floor runners.
        4) Plastic sheeting.
    c) Pressurize each business individually to reduce smoke damage.

E) <u>Logistics Function</u>.

1) Establish REHAB area early.
    a) Breathing air supply.
    b) Medical monitoring of personnel.
2) Supplies for salvage activity.

a) Covers, plastic, etc.
b) Plywood for securing windows, etc.

F) Planning Function.

1) Use tactical worksheet to maintain situation and resource status. Expand to tactical board as needed.

G) Finance Function. It is unlikely that function will be fully activated.

3.01 Purpose. To identify items concerning center hallway occupancy fires which impact on fire response strategy.

3.02 Goal. Develop response strategies which recognize hazards and conditions associated with center hallway occupancies.

3.03 Center Hallway Occupancies - General.

A) Buildings that are multiple-story that use a center hallway to access individual rooms, suites or apartments.

B) Examples of occupancies which fall within this category include.

1) Multi-family dwellings.
2) Professional offices.

3.04 Special Problems.

A) A small one-room fire in a center hallway building can cause serious problems for the occupants as soon as the smoke enters the common hallway.

B) The smoke in the hallway affects the people attempting to evacuate the building, creating potential for panic.

C) The occupants are forced to evacuate through a common hallway filled with smoke.

D) If the fire is unchecked, it will grow in size until it spreads into the hallway. Eventually, the hallway becomes the path of fire travel to adjoining apartments/suites.

E) If the fire doors are open in the hallways, hot air and gases will rise up the stair shafts until they reach the top floor.

F) With flames in the center hallway, firefighters will essentially be attacking a fire in a tunnel.

3.05 Strategic Considerations.

A) Pre-Planning.

1) Identify occupancies having common attics/basements.
    a) Owner/property record.
    b) Computer-aided dispatch file.
2) Identify occupancies with special hazards/problems.
    a) Truss supported roof and truss supported ceiling and floor joists in multi story-buildings.
    b) Storage practices of tenants.

B) Inter-Agency.

1) EMS responsible for triage, treatment and transportation of injured persons.
2) Law Enforcement is responsible for crowd control, traffic control, and security of salvaged contents and currency.
3) Red Cross responsible for shelter and care of displaced persons (damaged homes, evacuated areas).

C) Command Function.

1) Activate only those functions and staff positions needed to manage the incident.
2) Management structure for fire within this type of occupancy may resemble the following.

Command

Staging	Operations	Safety	EMS
Firefighting Equipment	Ventilation Operations	Interior Sector	

3) Safety.
    a) Roof, truss ceiling and floor joists collapse potential.
    b) Use of SCBA.
    c) Personnel contamination - building contents.

D) Operations Function.

1) Rescue/Evacuation. Consider rescue problem to be severe. Do not hesitate to call additional resources early.
    a) Primary search on the fire floor and above.
    b) Secondary search on the fire floor and below.
    c) Evacuate.
    d) Keep hallways open and safe.
2) Ventilation. Keep halls open and safe for evacuation if at all possible. Relieve smoke and heat by venting at the top of the building in coordination with fire attack.
    a) Consider roof ventilation.
    b) Check light wells over stair shafts.
    c) If conditions dictate, make center hallway cut.
    d) Pressurize building as soon as conditions permit.
    e) If fire is on top floor, vent the roof or trench cut.
3) Fire Attack Push the fire from the unburned side back to the involved side.
    a) Multiple hand lines will be needed.
    b) Side by side attack: one holds the hallway, while the other extinguishes the rooms.
    c) Bring hand lines into position.
        1) Up stairshafts.
        2) Through apartments/suites from unburned side.
    d) If fire is on the top floor.
        1) Check for attic fire.
        2) Pull ceilings.
        3) Coordinate attack and ventilation teams.
4) Salvage.
    a) Water chutes.
    b) Salvage covers.
    c) Floor runners.
    d) Plastic.
    e) Pressurize building.

E) Logistics Function.

1) Establish REHAB area early.

a) Breathing air supply.
b) Medical monitoring of personnel.

2) Supplies for salvage activity.
   a) Covers, plastic, etc.
   b) Plywood for securing windows, etc.

F) Planning Function.

1) Use tactical worksheet to maintain situation and resource status. Expand to tactical board as needed.

G) Finance Function. Full activation is unlikely.

4.01 Purpose. To identify items concerning large area buildings which affect fire response strategy.

4.02 Goal. Develop response strategies which recognize hazards and conditions associated within the exterior walls. For this guideline, large area buildings will include:

A) Warehouses.
B) Wholesale/retail sales display.
C) Manufacturing/processing plants.
D) Gymnasiums/exhibition halls.

4.04 Special Problems.

A) Roof Construction.

1) Flat roof most common.
2) Truss support is common design feature.
3) Steel deck (w/truss support) - often unprotected.
4) Anticipate sudden/dramatic roof failure with heavy fire involvement.

B) Walls.

1) New buildings - light weight metal sheeting.
2) Unprotected metal supports.
3) Few doors, windows.
4) Designed for ease of replacement - not collapse resistance.
5) Collapse can be sudden/dramatic.
6) Pre-fab concrete walls.

C) Water Supply.

1) Anticipate that needed fire flow will exceed water available for nearby hydrants.
2) Use relays, tandem pumping, etc. to increase available water.

3) May require multiple fill and dump sites for tanker shuttles.

4) Major factor in offensive/defensive decisions.

D) Fire Protection Features.

1) Fire division walls may be breached.
2) Fire doors may have been left or blocked open.
3) Water curtains used to protect walls or openings have not been effective.

E) Overhead Steel Doors.

1) Easily distorted by heat.
2) Security features slow down access.
3) Collapse potential following heating.

F) Inadequate Stream Penetration.

1) Fire streams may not reach deep into interior because of distance.
2) Few exterior openings present need to consider commitment of companies deep into interior (SAFETY CONCERN).

G) Sprinkler System.

1) System was designed for specific conditions - type of building, type of occupancy.
2) Change in conditions could produce fire beyond system capability.
3) Sprinkler must have water to work - check valves, pump into system.
4) Building collapse can damage sprinkler system.

H) Misuse of Building.

1) Example: former dairy barn now used for tire storage.
2) Contents at or exceeding floor loads.
3) Contents which can produce fire exceeding ability of original sprinkler system design.

I) Poor Warehousing Practices.

1) Contents stacked in manner which can easily collapse.
2) Mix of products - chemicals, flammable/combustible liquids - potential for reaction.

3) Mix of products can produce severe environmental problem from water runoff.

J) Access.

1) Security measures - building (systems, steel doors, etc.).
2) Security measures - property (fences, road barricades, etc.).
3) Large set back from roadway (green space).
4) Railroad access.

K) Ventilation.

1) Solid walls - little or no openings.
2) Roof construction of wood lamination, concrete materials.
3) Roof supported by trusses - early collapse potential.
4) Plastic roof panels can melt and lead to rapid fire development.
5) Back draft - although considered unusual for this type of building - potential still exists.
6) Collapsable panels and roofs designed for ventilation.

L) Radiant Heat.

1) Heat may even prevent approach to building perimeter.
2) Building and contents may produce temperatures in thousands of degrees.
3) Exposure problem may become acute.
4) Master stream use essential.
5) May result in fireground abandonment assuming secondary defensive positions.
6) Loss of equipment/apparatus is a possibility.
7) Impact on personnel can be severe.

M) Command/Control.

1) Distance - out-of-sight operations.
2) Knowledge of **TODAY'S** building interior arrangement and contents may be limited.
3) Visual factors may conceal developing problem deep within building.

N) Flying Brands (Embers).

1) Can be severe problem - especially when building is in area adjacent to buildings with combustible walls and roofs.
2) Will require commitment of personnel and resources.
3) Wind conditions can complicate problem.

4.05 Strategic Considerations.

A) Pre-Planning.

1) Review map books, aerial photos, owner property and CAD files, to verify access, exposure potential, etc.
2) Review resources listed for multiple alarms.
3) Identify special resources needed - heavy equipment, Haz-Mat Team, etc.
4) Review available water supplies.
5) Identify potential safety hazards.
6) Estimate fire flow.
7) Determine location of fire department connections (stand pipes).

B) Inter-Agency.

1) Anticipate need for traffic/crowd control (law enforcement).
2) Anticipate need to protect in place or for downwind evacuation (law enforcement).
3) Anticipate need for utility control (gas/electric utility).
4) Anticipate need for water utility support.
5) Assign Liaison Officer early.

C) Command Function.

1) Position command post upwind.
2) Determine direction and rate of fire spread.
3) Collect situation and resource status information.
4) Consider potential when determining resource needs.
5) Assign Safety Officer early.

D) Operations Function.

1) Rapid fire development/multiple operating positions.
    a) Rate of spread can overtake placement of companies.

b) Anticipate sudden roof/wall failures with heavy fire involvement.
c) Companies may be advanced too far toward center of building.
d) Consider immediate downwind brand patrol.

2) Reliable information is critical.
   a) Perimeter of fire and direction of fire spread.
   b) Number of exposures.
   c) Potential for further spread.
   d) Consider use of reconnaissance officer.
3) Mobility.
   a) Rate of spread could overrun companies.
   b) Companies should be aware of need to move quickly.
   c) Beware of relying on fire walls and separations.
4) Evacuation.
   a) Use non-fire personnel for evacuation.
   b) Select locations for injured and displaced persons.
5) Use of Resources.
   a) Do not commit all companies until extent of problem is determined.
   b) Maintain reserve force for contingencies.
6) Safety (personnel and apparatus).
   a) Potential for injuries to personnel is great.
      1) Collapse of roof, walls and ceilings.
      2) Radiant heat.
      3) Fatigue.
      4) Confusion.
      5) Inadequate water supply.
      6) Test atmosphere - CO^2
   b) Apparatus placement is important.
      1) Building collapse.
      2) Changing fire conditions.

E) <u>Logistics Function</u>.

1) Resources.
   a) Maintenance of reserve.
   b) Fatigue will be a factor.
   c) Relief companies required for extended operations.
2) Water Supply.
   a) Expect water supply to be taxed.

b) Increase or supplement existing supply.
    1) Assign water supply officer.
    2) Request maximum pumpage from utility.
    3) Emergency inter-connect with adjoining utility.
    4) Use of available static sources (swimming pools, etc.).

3) Maintenance/Support.
    a) Extended operations will require special support.
        1) Food.
        2) Fuel.
    b) Need for specialized equipment.
        1) Aircraft.
        2) Street barricades.
        3) Lighting equipment.

4) Communications.
    a) May require more than one tactical channel.
    b) Consider separate command channel.
    c) Use cellular and commercial telephone service.

F) Planning Function.

1) Strategy.
    a) Determine perimeter, amount of fire, and potential.
    b) Have a contingency plan.
    c) Pick spot to hold and control fire.

2) Reflex time.
    a) Large resource commitment takes time to arrive.
    b) Base plans on resources available on-scene.

3) Situation/Resource status.
    a) Immediate and accurate status display critical.
    b) Need reliable information.
    c) Cover all bases.
    d) DO NOT WASTE RESOURCES.

4) Documentation.
    a) Log of decisions considered to be minimum.

G) Finance Function.

1) Track costs of specialized equipment.

2) Track costs of supplies and services.

5.01 Purpose. To identify items concerning Public Assembly occupancies which affect fire/emergency response strategy.

5.02 Goal. Develop response strategies which recognize hazards and conditions associated with Public Assembly occupancies.

5.03 Special Problems.

A) Public assembly occupancies pose a potential for high life loss.

B) Exits in public assembly are very critical because:

1) Occupants are not familiar with their location.
2) The lighting on the premises may be very poor.
3) The locations may not be readily apparent.
4) The exit markings may not be up to standards.
5) The reliability of exits may not be up to standard.

C) Overcrowding in places of assembly is a very common practice. When an occupancy becomes overcrowded, the exits become blocked by people.

D) The use of combustible furnishings and decorations will enable the fire to start to spread at a rate that the occupants cannot get to the exits fast enough. Further, with most fire-resistive fabrics or plastics, toxic products of combustion will be released.

E) Exits and passageways may be blocked by chairs, tables, portable bars, etc.

F) Exits may be locked.

G) People exiting a building create crowds which can block fire department access. **Fire department access should not interfere with the orderly evacuation of the occupants.**

H) Panic - "a fear-induced flight behavior which serves to reduce the escape possibility of the group as a whole." However, studies conducted following recent fires show litle evidence of panic during most fires. Instead people in these cases showed unselfish concern for the welfare of others, especially between common social groups.

I) Evacuation can be made difficult by:

1) Configuration of the premises.
2) Placement of chairs, tables, or other fixtures.
3) The location of the fire.
4) Obstruction of the exits.
5) Access.
6) Physical and mental condition of the occupants.

J) Employees may not have been trained to assist patrons in the event of fire.

K) The building may have been constructed to serve a purpose other than public assembly. (Example: barn converted for nightclub use.)

L) Vehicles to transport handicapped persons (persons confined to wheelchairs).

5.04 Strategic Considerations.

A) Pre-Planning.

1) Indentify and track places of public assembly.
    a) Code enforcement program.
    b) CAD, owner/property, map books.
2) Identify and monitor peak times of public assembly.
3) Identify special events.
    a) Festivals.
    b) Reduced admission rates to attract crowds.
4) Monitor perimeter activities which could affect response.
    a) Parking.
    b) Crowd control measures.
    c) Traffic routing.

B) Inter-Agency.

1) Expect need for traffic/crowd control (law enforcement).
2) Emergency Medical Service responsible for triage, treatment and transportation of injured.
3) Medical Examiner is responsible for collection, identification and disposition of the dead.

C) Command Function.

1) Need for very visible, strong command
2) Fill staff positions early - consider priority order of Liaison, Safety, Public Information.
3) Collect situation and resource status information.
4) Expand management system anticipating the potential problems.

D) Operations Function.

1) Anticipate need to address the following.
    a) Rescue.
        1) Access may be blocked by injured (or dead) persons.
        2) Secondary exits may require forcible entry.
    b) Fire Control.
        1) Quick strong attack on fire may save lives.
        2) Ventilation (especially roof) may relieve trapped occupants.
        3) Access may be blocked by evacuating occupants.
    c) Medical.
        1) Triage may be hampered by having victims located over large area.
        2) Treatment - expect multiple respiratory and burn problems.
        3) Transportation - do not overload any one hospital.
2) Conditions may indicate need for separate fire and medical branches.
3) Rotate personnel on regular basis. Direct unassigned personnel to Rehab or Resource area.
4) Consider de-briefing for all personnel.

E) Logistics Function.

1) Supplies.
    a) Anticipate supply shortages (long boards, casualty bags).
    b) Anticipate transport problems because of access.
2) Personnel support.
    a) Air for SCBA.
    b) Fluids and food.
    c) Sanitary facilities (prolonged incident).
    d) Shelter - weather extremes - hot or cold (buses?).
3) Need for specialized equipment.
    a) Lighting.
    b) Street barricades.
    c) Wreckers (clearing blocked streets).

F) Planning Function.

1) Situation status.
2) Resource status.
3) Documentation.
    a) Written log of activity.
    b) Photographic log.
        1) Operations.
        2) Location of injured, deceased.
4) Casualty log.
    a) Occupant count from management.
    b) List of employees.
    c) List of persons transported to hospitals.
        1) Ambulance transported.
        2) Private vehicle.

G) Finance Function.

1) Track cost of contracted equipment.
2) Track cost of supplies and services.

6.01 Purpose. To identify items concerning conflagrations which affect fire response strategy.

6.02 Goal. Develop response strategies which recognize hazards and conditions associated with conflagrations.

6.03 Conflagration Defined. The term conflagration is usually applied to fires that extend over considerable area and destroy many buildings. For this guideline, conflagrations will involve the following situations.

A) Fires involving deteriorated or abandoned buildings in congested areas. These fires usually spread in more than one direction before adequate resources are organized to bring them under control.

B) Fires involving residential buildings which spread beyond control because of combustible construction (wood wall and roof surfaces).

C) Brush fires that spread over a wide front and cause damage to, or destroy structures.

D) Explosion causing individual fires to ignite over a large area. (Example: Crash of large aircraft in built up area)

E) Multiple location fires caused by natural disaster evolving into one large fire.

6.04 Special Problems. Understanding the reasons why fires can develop into a conflagration will emphasize that the potential is found in all communities.

A) Exposures.

1) Most conflagrations involve a multitude of exposures.
2) Exposure problems do not suddenly appear. These situations have pre-existed or developed gradually.
    a) Closeness of structures.
    b) Combustible exteriors (primarily roofs).

c) Abandoned buildings.

3) Key factors that allow fire to spread to exposed buildings.
   a) Radiated heat.
   b) Convection.
   c) Flying brands.
   d) Wind conditions.

B) Rapid Fire Development.

1) Fire spreads quicker than ability of fire department to control it. (Indequate on-scene resources)
2) Multi-front situation.
   a) May spread simultaneously to more than one exposure or in more than one direction.
   b) Fire spreads in one direction but quickly involves large area (wind effect).
3) Delayed alarm and situation is out of hand upon arrival of first units.

C) Life Safety/Evacuation.

1) Safety of building occupants should be priority.
   a) Fire moves quickly.
   b) Buildings may collapse.
2) Evacuation may be required in immediate or extended area.
   a) Decision to combat or evacuate?
   b) Use non-fire personnel for evacuation if available.
3) Vacated buildings pose a security problem.
   a) Law enforcement responsibility.
   b) Establish liaison early.

D) Communications.

1) Often difficult because of rapidly developing situation and number of units involved.
2) Radio communication with mutual aid and support agencies is important.
3) Face to face contact often impossible because of fire perimeter.

E) Duration.

1) Size of fire or number of structures involved can mean long-term operation.

2) Final extinguishment and overhaul may require commitment of many hours or even days (need for relief, extensive use of mutual aid).

F) Water Supply.

1) Amount of firefighting activity can quickly diminish water supply.
    a) Multiple fire locations.
    b) Fully involved structures.
    c) Heavy stream appliances.
    d) Supply not based on conflagration conditions.
2) Water supply may be non-existent.
    a) New system not fully in service (new construction).
    b) System may have been disconnected (demolition).
    c) Rural operation with inadequate tanker shuttle operations.

G) Resources.

1) Large resource commitment needed in short time period.
    a) Need to get ahead of fire.
    b) Multiple operating positions.
    c) Potential for large fire perimeter.
2) Congestion problems are common.
    a) Many vehicles in confined area.
    b) Civilian traffic can complicate access problems.
3) Personnel relief requirements must be considered.
    a) Fatigue.
    b) Duration of incident.

H) Containment. Often difficult because of rate of spread or lack of access to structures.

1) Unable to get resources quickly.
2) Building collapse or volume of fire can complicate efforts.

7.05 Strategic Considerations.

A) Pre-Planning.

1) Situations or conditions that lead to conflagration are often obvious.
    a) Lack of adequate fire separations.

b) Combustible exteriors.
c) Inadequate water supplies.

2) Plans must consider maximum commitment of resources.
   a) Resource availability and response times (day/night).
   b) Supplemental water supply.
   c) Communications.

B) Inter-agency.

1) Support assistance will maximize use of fire personnel.
2) Request mutual aid promptly.
3) Coordination and communication with other agencies is essential.
   a) Common radio frequencies (FIRECOM, etc.).
   b) Early assignment of Liaison Officer.

C) Command Function.

1) Position command post upwind and use natural fire breaks.
2) Determine direction and rate of fire spread.
3) Collect (Immediately) situation and resource status information.
4) Consider potential when determining resource needs.

D) Operations Function.

1) Rapid fire development/multiple operating positions.
   a) Rate of spread can overtake placement of companies.
   b) Consider need to give up a few structures to save many.
   c) Consider immediate downwind brand (ember) patrol.

2) Reliable information is critical.
   a) Perimeter of fire and direction of fire spread.
   b) Number of exposures.
   c) Potential for further spread.
   d) Consider use of reconnaissance officer.

3) Mobility.
   a) Rate of spread may require hit-and-run tactics.
   b) Companies should be aware of need to move quickly.
   c) Critical in areas with combustible roofs and wind blown fire.

4) Rescue/Evacuation and medical emergency.

a) Could be major problem in inhabited area.
b) If available, use non-fire personnel for evacuation.
c) Select safe locations for injured and displaced persons.

5) Use of Resources.
    a) Do not commit all companies until extent of problem is determined.
    b) Maintain reserve force for contingencies.
    c) Consider use of task force organization.

6) Safety (personnel and apparatus).
    a) Potential for injuries to personnel is great.
        1) Collapsing buildngs.
        2) Radiant heat.
        3) Fatigue.
        4) Confusion.
        5) Inadequate water supply.
        6) Test atmosphere - CO^2.
    b) Apparatus placement is important.
        1) Building collapse.
        2) Changing fire conditions.

E) Logistics Function.

1) Resources.
    a) Maintain reserve.
    b) Fatigue will be a factor.
    c) Relief companies required for extended operations.

2) Water Supply.
    a) Common problem at most conflagration incidents.
    b) Increase or supplement existing supply.
        1) Assign water supply officer.
        2) Request maximum pumpage from utility.
        3) Emergency inter-connect with adjoining utility.
        4) Use of available static sources (swimming pools, etc.).

3) Maintainance/Support.
    a) Extended operations will require special support.
        1) Food.
        2) Fuel.
        3) Mechanical service and repair.

b) Need for specialized equipment.
    1) Aircraft.
    2) Street barricades.
    3) Lighting equipment.

    4) Excavation equipment.

4) Communications.
    a) May require more than one tactical channel.
    b) Consider separate command channel.
    c) Use cellular and commercial telephone service.

F) Planning Function.

1) Strategy.
    a) Determine perimeter, amount of fire, and potential.
    b) Have a contingency plan.
    c) Pick spot to hold and control fire.

2) Reflex Time.
    a) Large resource commitment takes time to arrive.
    b) Base plans on resources available on-scene.

3) Situation/Resources status.
    a) Immediate and accurate status display critical.
    b) Need reliable information.
    c) Plan ahead.
    d) Do not waste resources..

4) Documentation.
    a) Needed to support request for disaster assistance.
    b) Log of decisions considered to be minimum.

G) Finance Function.

1) Track cost of specialized equipment.

2) Track cost of supplies and services.

7.01 Purpose. To identify items concerning Brush Fires which affect fire response strategy.

7.02 Goal. Develop response strategies which recognize hazards and conditions associated with Brush Fires.

7.03 General.

A) Probably one of the most demanding and involved situations facing an incident commander.
B) Conditions can cause them to be extremely fast-moving and unpredictable.
C) Can stretch command and control capabilities to the limit.
D) Size of incident can range from incipent fire to major emergency.
E) Three of the most critical conditions are fuel, weather, and topography.

7.04 Special Problems.

A) Fuel.

1) Types.
    a) Ground Fuels (flash fuels).
        1) Example (grass).
        2) Ignites readily.
        3) Burns rapidly and nearly completely.
    b) Aerial Fuels.
        1) Example (trees).
        2) Separation increases air circulation.
        3) Rapid fire spread and large quantities of heat.
        4) "Crowning" may occur.
2) Distinction between ground fuels and aerial fuels.
    a) Not clear cut in many areas.

1) Variety of native plants.
2) Differences in burning characteristics.

b) Frequent brush fires equal flash fuels.

3) Arrangment and Volume.
   a) Volume of fuel detemines total heat output.
   b) Volume estimate = height and density.

   c) Estimate of total heat output important in planning control.
   d) Arrangement affects continuity of fire progression.
      1) Patchiness of fuel.
      2) Availability of oxygen.
      3) Exposure to preheating.
4) Fuel Moisture.
   a) In dead fuels largely determined by air humidity.
   b) Live fuels depend mostly on moisture in ground.
   c) Moist fuels can produce a severe fire.
5) Fuel Temperature.
   a) Ignition temperature 400-700 degrees F. (540 average).
   b) On very hot day surface temperature can be 150-160 degrees, or **25% of ignition temperature**.

B) <u>Weather</u>.

1) Probably the most dominant factor.
   a) Major weather conditions affecting entire area.
   b) Microclimate in fire area.
2) All weather conditions are interrelated (Example: Change in temperature will result in change in air movement and humidity.).
3) Temperature is important.
   a) Hot air rises, cold air sinks.
   b) High pressure areas force air toward low pressure.
   c) Affect on firefighters.
4) Air Movement.
   a) Air is a fluid and almost constantly moving.
      1) Hot air rises, cold air sinks.
      2) High pressure areas force air toward low pressure areas at surface.
      3) High pressure (air is sinking).
      4) Low pressure (air is rising).
   b) Air pressure.
      1) 15 mph wind = 1 psi.
      2) 30 mph wind = 4.5 psi.
      3) 60 mph wind = 18 psi.

4) Doubling rate of wind will quadruple (approx.) rate of fire spread.
5) Pushes flying brands (embers) and heat (spot fires).
6) Spot fires may occur in unexpected location.

c) Impact of air movement.
   1) Strong winds.
      a) Rapid fire spread.
      b) Spot fires likely.
   2) Stable air.
      a) Signs - poor visibility at low levels (smog/fog) stratus-type clouds, smoke columns drift apart.
      b) Predictable fire behavior.
   3) Unstable air.
      a) Signs - cumulus clouds, tall smoke columns, dust levels, wind gusts.
      b) Unpredictable fire behavior.
   4) Local air movement.
      a) Reverses at night.
      b) Large fires create own local wind pattern (air sucked inward).

C) <u>Topography</u>.

1) Exposures or aspect.
   a) North slopes have heavier growth, south slopes lighter growth.
   b) East slopes morning sun, west slopes afternoon sun.
   c) Impact: The North slopes usually burn hotter and faster; in midmorning, east slopes more ready to burn than west slopes.
2) Slope.
   a) Degree of slope effects fire spread (rising heat preheats fuel and air).
   b) With steep slope, the fire head will be narrower with greater chance of spotting.
   c) At crest, fire will normally meet upslope winds from other side (most likely place to stop and hold fire).
   d) Fire burns down hill slowly (valley bottom second-best place to stop and hold fire).
   e) Unless good fire break is set up, slope is poor place to stop fire.

D) Fire Behavior.

1) From small fire to major emergency - incident may be beyond control of fire department efforts.
    a) High winds.
    b) Heavy fuel load.

    c) Inaccessible location.
2) Effect on resource commitment.
    a) As perimeter grows so do resource needs.
    b) Creation of multi-location operations.
3) Effect on strategy.
    a) Changes in wind direction and velocity.
    b) Changes from day to night hours.
4) Effect on safety.
    a) Fishhooking.
    b) Spot fires cutting off escape routes.

E) Exposures.

1) Most brush fires equal few fire loss dollars unless they occur in areas where structures are located. Current trend has found development in wooded areas.
2) Site location, aesthetic emphasis and types of construction exaggerate the problem.
3) Wood roof and siding major problems.
4) Construction type and building materials must be considered when evaluating exposures.
5) Exposure protection should be a primary concern.
6) Difficulty in obtaining information on exposure problem.
    a) Strategic location of command post.
    b) Need input from line officers.
    c) Aircraft valuable in reviewing exposures.
7) Exposure protection is hit-and-run, fast moving operation.
    a) Resources are usually spread thin.
    b) Mobility is the key.
8) Multiple exposure/insufficient resources.
    a) What action will do most good?
    b) Ignoring slightly involved to attack well involved, **may result in TWO TOTAL LOSSES**.

F) Access.

1) Difficult access usually goes with the territory.
    a) Narrow road.
    b) Narrow driveways.
    c) Steep hills.
    d) Dead ends.
    e) Tree limbs hanging over narrow driveways.

    f) Sharp corners.
    g) No yard space for fire fighting equipment.
    h) Low, wet areas.
2) Incorrect reporting locations can cause shifts in original response patterns.
3) Civilian vehicular traffic can impede fire apparatus.
    a) Evacuation.
    b) Illegal or improper parking.
    c) Sightseers.
4) Roads blocked by fire apparatus.
    a) Laying supply lines.
    b) Failure to park off road.
5) Fires may start or extend into areas that are not accessible.
6) Inability to reach small fire is often prime cause for major emergency.

G) <u>Evacuation</u>.

1) Occasionally necessary.
    a) Structures lacking physical protection.
    b) Rate of spread overcomes resource potential.
2) Basic reasons for evacuation.
    a) Protect lives.
    b) Prevent panic.
    c) Control traffic.
    d) Provide access.
    e) Minimize suppression problems.
3) Decision should originate with fire department.
    a) Based on several factors.
        1) Magnitude of fire.
        2) Prediction of fire behavior.
        3) Potential for control.
    b) **ANTICIPATE!**
4) Evacuation should be law enforcement function.
    a) Suppression is primary fire department activity.
    b) Evacuation involvement will weaken firefighting ability.

5) Orderly evacuation **TAKES TIME!**
    a) **Do not** wait until fire is threatening structures.
    b) Plan ahead based on predicted behavior and potential.
6) In some situations, evacuation is not necessary.
    a) Structures protected by clearance and/or terrain.
    b) Occupants safe if they remain inside structure.
    c) Civilians can be helpful after fire sweeps by.

    d) If any doubt - **EVACUATE**.

H) Resource Requirements.

1) Major brush fire has great potential for large resource commitment.
    a) Size of fire area (perimeter).
    b) Rate of spread (wind, terrain).
    c) Exposure protection (number of structures).
    d) Duration (control time).
2) Resource needs are minimized if fire is held to smallest possible area.
    a) Early recognition of potential.
    b) Prompt requests for adequate help.
    c) Calling for just enough help **can be disastrous**.
        1) Sudden change in conditions.
        2) Reaction time delay.
3) Resources at a premium - use them wisely.
    a) MOBILITY is the key.
    b) Conditions can change rapidly.
    c) Lack of mobility increases resource commitments.
4) Strike team concept.
    a) Groups of companies (three to five).
    b) Commanded by company or chief officer.
    c) Operate as a quick attack unit.
    d) Can handle flank attack or exposure protection for multiple structures.
    e) Requires minimal radio communications.
5) Staging areas.
    a) Close to general fire area.
    b) Resource holding area prior to commitment.
    c) Facilitates making up strike teams.
    d) Reporting location after completion of assignment.
    e) Consider using parks, picnic areas, fire station or other municipal building (telephone capability).
    f) Use of staging area reduces radio communications.

1) Predesignated reporting location.
2) Assignments are given face-to-face.

I) Specialized Equipment.

1) Helicopters or aircraft..

a) Uses[13]
   1) Observation
   2) Personnel/equipment movement.
   3) Rescue/evacuation.
b) Observation.
   1) Quickly cover entire perimeter.
   2) Relay information to incident commander.
   3) Vital to strategic decisions.
c) Transporting.
   1) Moving attack teams, relief personnel.
   2) Reduces firefighter fatigue.
   3) Effective in delivering equipment.
d) Evacuation.
   1) Occasional sudden demand.
   2) Should not be considered primary evacuation tool.

J) Radio Communications.

1) Activity level and number of resources can create serious problems.
   a) Compounded by terrain and capability of portable radios.
   b) Can have detrimental effect on strategy development and action plan implementation.
2) Reducing Problems.
   a) Assign frequencies to functions (ie, command, tactical).
   b) Reduce number and length of messages.
   c) Face-to-face contact when possible.
   d) Cellular telephones.
3) Acknowledge messages.
   a) A message not acknowledged is a message not received.
   b) Receiver should repeat message.

K) Water Supply.

1) Critical at any fire incident.
   a) No practical substitute.

b) Without it we are out of business.

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[13] The uses listed for helicopters were based upon the capability of those aircraft available within the immediate region.

2) May be seriously deficient in brush areas.
    a) Nonexistent - must use tanker shuttle.
    b) Distance from hydrant too great for relay.
3) Must be used wisely.
    a) Fire Department operations.
        1) Wetting down is questionable.
        2) Attack conditions are critical.
            a) Lightest fuel load.
            b) Natural fire breaks.
            c) Coordinated effort.
    b) Civilians can complicate problem.
        1) Indiscriminate use of hoses, sprinkler systems, etc.
        2) Wetting down nonaffected areas.
4) Maximizing availability.
    a) System pressure can be increased.
    b) Relay with large diameter hose.
    c) Use of static sources (swimming pools, etc.).

L) Safety.

1) Command officers and safety considerations.
    a) Usually not in danger area but decision and orders may endanger subordinates.
    b) Must know safety rules, make sure subordinates know them and practice them.
2) Brush fires cause very little actual fire damage, however;
    a) Potential for high life loss is always present.
    b) No reason to put firefighter lives in jeopardy.
    c) Formal safety orders are a must.
        1) US Forest Service standard firefighting orders.
        2) Analysis of FF fatalities at Wildland Fires show at least one safety order was violated in every case.
3) Ten standard firefighting orders (FIRE ORDERS).
    F - Fight fire aggressively but provide for safety first.

I - Initiate all action based on current and expected fire behavior.
R - Recognize current weather conditions and obtain forecasts.
E - Ensure instructions are given and understood.

O - Obtain current information on incident status.
R - Remain in communication with crew members, your supervisor and adjoining resources.
D - Determine safety zones and escape routes.
E - Establish lookouts in potentially hazardous situations.
R - Retain control at all times.
S - Stay alert, keep calm, think clearly and act decisively.

4) Terrain and situation hazards. (Locating crews on a slope above a fire can be hazardous.)
    a) Preheating of fuel and rate of spread.
    b) Normal up-slope winds (daytime).
    c) Wait until fire reaches ridge before attacking.
5) Spot fires are one of the most hazardous conditions.
    a) Can cause fires to go in any direction at great intensity.
    b) Do not attack from above.
        1) Approach from downwind side.
        2) Attack from same level or lower.
    c) Do not ignore because of size of main fire.
6) Saddles are extremely dangerous locations.
    a) Venturi-type vacuum created by saddles.
    b) Fire will burn rapidly, may spot over ridge.
    c) Can burn rapidly by adjoining ridges.
7) Ridges are logical places to stop and hold upslope fire.
    a) Do not stand in front unless small.
    b) Wait at side until fire crests, then ATTACK.
    c) If trapped, far side of ridge is safest.
8) Placing apparatus.
    a) Note safe areas when moving in.
        1) Wide areas in road.
        2) Sparse growth areas.
        3) Natural and man made barriers.
    b) Always position apparatus for quick exit.
    c) Do not park in obvious hazard area.

d) Keep roads open.
    1) Park off pavement.
    2) Do not block road with hoselines.
e) Watch for falling embers.
f) Possibility of apparatus exhaust starting fires.

M) Coldtrailing (Sparking Out)..

1) Same as overhaul.
    a) Be sure fire is out.
    b) Prevent rekindle.
2) Experience has shown that coldtrailing is often neglected.
3) Requires hand tools and hose lines.
4) Easier from top down. Best from bottom up.
    a) Better view from direction of fire travel.
    b) Closer eye contact with ground.
5) Do not forget spot fire locations.
6) Considerations.
    a) Follow edge of burn.
    b) Place all cut material in burned area.
    c) Trench below smoldering objects.
    d) Smoldering stumps plus wind equal sparks.

7.05 Strategic Considerations.

A) Pre-Planning.

1) Maintain map-books and aerial photographs.
2) Special emphasis given to maps/photos of marsh areas, and interface.
3) Review response assignments for brush incidents.
4) Plan for special equipment needs.

B) Inter-Agency.

1) Law enforcement will be lead agency for evacuation.
2) Department of Natural Resources (technical assistance).
3) Coordination and communcation will be critical.
    a) Common radio frequencies (FIRECOM, MARC, etc.)
    b) Early assignment of Liaison Officer.

C) Command Function.

1) Position command post upwind and use natural fire breaks.
2) Reliable information will be critical.
    a) Perimeter of fire and direction of fire spread.
    b) Number of exposures.
    c) Potential for further spread.

    d) Consider use of reconnaissance officer.
3) Consider potential when determining resource needs.
4) Organize considering potential for multi-front operation.
5) Communicate safety orders.

D) Operations Function.

1) Rapid fire development/multiple operating positions.
    a) Rate of spread can overtake placement of companies.
    b) Consider need to give up a few structures to save many.
    c) Consider immediate downwind patrol (spot fires).
2) Mobility.
    a) Rate of spread may require hit-and-run tactics.
    b) Companies must be aware of need to move quickly.
    c) Critical in areas with combustible roofs and wind blown fire.
3) Use of resources.
    a) Do not commit all companies until extent of problem is determined.
    b) Consider use of task force organization.
4) Exposure protection should be primary concern.

E) Logistics Function.

1) Resources.
    a) Maintain reserve.
    b) Fatigue will be a factor.
    c) Relief companies required for extended operations.
2) Water Supply.
    a) Set-up refill sites for Brush Units and Back-Packs.
    b) Use of available static sources (swimming pools, etc.).
3) Maintenance/Support.
    a) Extended operations will require special support.
        1) Food.

2) Fuel.
3) Mechanical service and repair.

b) Need for specialized equipment.

4) Communications.
   a) May require more than one tactical channel.
   b) Consider separate command channel.

F) Planning Function.

1) Situation status.
   a) Track perimeter, types of fuels, and potential.
   b) Monitor weather conditions (current forecast).
   c) Consider monitoring news stations (live reports).
2) Resource status.
   a) Accurate status display critical.
   b) Status critical to safety of working units.
3) Documentation.
   a) Log of decisions considered to be minimum.

G) Finance Function.

1) Track cost of specialized equipment.
2) Track cost of supplies and services.

8.01 Purpose. To identify items concerning railroad incidents which impact on fire response strategy.

8.02 Goal. Develop response strategies which recognize hazards and conditions associated with railroad incidents.

8.03 Special Problems.

A) Life Loss Potential.

1) Crew members and passengers.
2) Residents living near rail line.
3) Emergency personnel.
4) Bystanders.

B) Access.

1) Fields adjacent to rail lines.
2) Debris/damage following derailment or explosions.
3) Brush clogged right-of-ways.

C) Personnel Safety.

1) Possible explosions.
2) Hazardous materials.
3) Prolonged operations.

D) Water Supply.

1) 100% of operations will require tanker shuttle.
2) Expect needed fire flow to tax available water.

E) Hazardous Materials.

1) Identification may be a problem.
2) Waybill carried in engine.
3) Need for Haz-Mat team support.

4) Technical assistance needed.

F) Resources.

1) Railroad company technical/material resources.
2) Owners of rail cars/contents.
3) Need for large quantities of foam.
4) Specialized equipment (lighting, rail car moving equipment, etc.).

G) Multi-Jurisdictional.

1) Accident may extend over community boundary.
2) Railroad/regulatory authority.
3) Owners of rail car/contents.
4) Environmental protection agencies.
5) Expect need for multiple liaison positions.

H) Incident Command.

1) Fire Department responsible for inner-perimeter of incident.
2) Law Enforcement is responsible for outer-perimeter.
3) Liaison will be critical.
    a) Evacuation (if indicated).
    b) National Transportation Safety Board (NTSB).
    c) Environmental Protection Agency.
    d) DNR.

I) Public.

1) Crowds will hinder movement of emergency equipment and operations.
2) Crowds can be in danger if too close to spilled liquids or other hazards.
3) Crowds may abandon vehicles in traffic and walk to scene to

get better view - compounding traffic problems.

4) Use barrier tape to identify hazard areas. Law Enforcement is responsible for outer-perimeter.

8.04 Strategic Considerations.

A) Pre-Planning.

1) Maintain current contact list (telephone, etc.) for railroad companies.
2) Maintain map books.
3) Maintain command file of maps/aerial photos of railroad lines.
    a) One-half mile evacuation distance from track.
    b) Population estimates in one-half mile distance.
4) Monitor train lists to track types of materials being transported.
5) Monitor number of trains passing through area. Monitor schedules for time of regular trains.

B) Inter-Agency.

1) Fire department responsible for inner-perimeter.
2) Emergency Medical Service responsible for triage, treatment and transportation of the injured.
3) Law Enforcement is responsible for outer-perimeter.
4) Medical Examiner is responsible for collection, identification and disposition of the dead.
5) NTSB is responsible for accident investigation.
6) Red Cross is responsible for shelter and care of persons displaced by incident (damaged homes, evacuated areas).
7) DNR is responsible for environmental protection.

C) Command Function.

1) Need for visible, strong command.
2) Fill staff positions early - consider priority order of Liaison, Safety, Public Information.
3) Command post location must consider safety and possible long-term operation.
4) Collect situation and resource status information.
5) Consider reflex time to assemble and deploy resources.
6) Prepare written objectives to support prolonged operations.
7) Do not let guard down during clean-up operations.

D) Operations Function.

1) Anticipate need to address the following.
    a) Evacuation.
        1) Relocation
        2) Protect-in-place.
        3) Provide evacuation area guideline for Law Enforcement.

    b) Fire control.
        1) Limited water supply.
        2) Need for foam operations.
        3) Hazardous materials.
    c) Rescue.
        1) Access.
        2) Extrication.
    d) Medical.
        1) Triage.
        2) Treatment.
        3) Transportation.

2) Rotate personnel on regular basis.

E) Logistics Function.

1) Supplies.
    a) Anticipate supply shortages (foam concentrate, casualty bags, etc.).
        1) County FD resources.
        2) Private contractors.
    b) Anticipate transport problems because of access.
2) Need for specialized equipment.
    a) Lighting.
        1) FD lighting units.
        2) Construction lighting towers.
    b) Heavy equipment (lifting, excavation, etc.).
    c) Wreckers.
    d) Rescue Tools.
        1) Hydraulic spreaders, cutters and rams.
        2) Non-sparking equipment.
        3) Cutting torches.
3) Maintenance/Support.

a) Fuel/Fluids for vehicles and equipment.
b) Mechanical service and repair.
c) Consider calling for repair specialities (rescue tools, etc.).
d) Acetylene, oygen for torches, etc.

4) Personnel Support.
a) Food & fluids for many persons.
b) Sanitary facilities.
c) Shelter (weather extremes - hot and cold).

F) Planning Function.

1) Situation Status.
a) Use aerial photographs/maps to plot perimeter.
b) Monitor local television (views from live broadcast).
c) Video scene from helicopter view.
2) Resource Status.
3) Documentation.
a) Written log of activity.
b) Photographic log.
1) Operations.
2) Location of debris, injured, deceased.
4) Casualty log.
5) Responder log.
a) Exposure to hazardous materials.
b) Critical incident stress follow-up.

G) Finance Function.

1) Track cost of specialized equipment.
2) Track cost of contracted equipment (heavy equipment, buses, lighting, etc.)

9.01 Purpose. To identify items concerning aircraft accidents which impact on fire response strategy.

9.02 Goal. Develop response strategies which recognize hazards and conditions associated with aircraft accidents.

9.03 Aircraft Accident General.

A) Township Fire Department's Area lies within ten miles of the Chippewa Valley Regional Airport. The flight paths for this airport include the airspace over this area. This airport services private, commercial and military aircraft.

B) Department planning will emphasize hazards and conditions associated with an off-field accident.

1) The FAA and the NTSB anticipate the chance of passenger survival after an off-field crash to be 10% or less.

2) Because of the many variables (location of crash, structure involvement, etc.), off-field planning will be outlined using general terms.

C) Department resources may also be called to support an on-field operation. This support would most likely involve logistical support (mass casualty supplies, foam concentrate, etc.).

9.04 Special Problems.

A) Large Life-Loss Potential.

1) Passengers.
2) Persons on the ground.
3) Firefighters and other responders.

B) Large Injury Potential.

1) Passengers.
2) Persons on the ground.
3) Firefighters and other responders.

C) Fuel and Hazards.

1) Large commercial aircraft (747) can have up to 22,000 gallons of fuel on-board.
2) Common jet fuel has an ignition temperature of 464 degrees F. (JP 4 will flash at -10 degrees F.) (gasoline will flash at -45 degrees F.).
3) Ammunition aboard military aircraft.

D) Crash with Ignited Fuel.

1) May require large quanitities of foam - master stream application.
2) May lead to multiple structure fires - (example: crash in residential or commercial area).
3) Could produce severe brush fire.
4) Could produce conflagration conditions.

E) Crash with Unignited Fuel.

1) Severe flash and fire potential.
2) Spill must be secured with foam - and maintained. Need for large quantities of foam concentrate.
3) Need for non-sparking rescue tools.
4) No smoking.
5) Potential for surface and ground water contamination.

F) Remote Area (wooded areas, farm fields, marshes).

1) Control of access roads will be critical.
2) Heavy equipment may be needed to clear access path.
    a) Highway Departments (city, county, township).
    b) Private contractors.
3) Wreckers may be needed to remove stuck response vehicles, or remove vehicles blocking access.
4) Anticipate time delays in setting up operations.

5) Consider school bus transport of personnel (especially relief crews) leaving apparatus in staging areas.

G) Water Supply.

1) Large fire (aircraft fuel, structures) will tax water system capacity.
2) Traffic (ambulance, civilian) may hinder tanker shuttle.

H) Transportation of Injured.

1) Triage will be critical.
    a) Do not overload transportation with low priority patients.
    b) Patients must be routed to appropriate facility according to type/extent of injury and hospital capability/capacity.
2) As the distance to the hospital increases, the number of ambulances needed will increase.
3) Helicopter support is an advantage, but must be rigidly controlled.
    a) Landing zone must not risk patients or responders.
    b) Down-blast will scatter debris, triage tags, blankets.
    c) Noise will complicate communications.

I) Handling of the Dead.

1) Activity under direction of Medical Examiner.
2) Bodies and body parts will be flagged using survey flags.
3) Protect human remains - leave in position found.
4) All pieces of bodies are important to Medical Examiner; fingers being the most important for identification purposes.
5) For temporary storage of dead, a minimum of four refrigerated trucks will be needed.
    a) one for male.
    b) one for female.
    c) one for children.

d) area for examination/autopsy.

6) Cover signs of commercial trucks used for storing bodies.

J) Valuables.

1) Security must be provided.
2) Anticipate looting.
3) Medical Examiner is responsible for valuables of deceased.

K) Inter-Agency.

1) Anticipate over response; fire departments, EMS and law enforcement agencies responding without being requested.
2) Fire department is responsible for inner-perimeter of crash site.
3) Law Enforcement is responsible for outer-perimeter.
4) Liaison will be critical.
   a) Federal Aviation Administration (FAA).
   b) National Transportation Safety Board (NTSB)/
   c) Red Cross (and other welfare agencies).
   d) Airline company.
   e) Medical Examiner.
   f) Department of Natural Resources (environmental protection).
   g) Military.
   h) Emergency Government.

L) Multi-Jurisdictional.

1) Crash may occur on (or spread beyond) community boundary.
2) Command/control and strategy must adjust to phases of incident: impact, rescue and hazard control, body recovery, investigation, clean-up.

M) Public.

1) Expect that The Curious, The Morbid, The Looters will rush to the scene.
2) Crowds will hinder movement or emergency equipment and operations.
3) Crowds can be in danger if too close to spilled fuel or other hazards.
4) Crowds may abandon vehicles in traffic and walk to scene to get better view - compounding traffic problems.
5) Use barrier tape to identify hazard areas. Law Enforcement is

responsible for outer-perimeter.

N) Relatives.

1) Will be frantic with worry and grief.
2) Need central meeting point.
    a) Assign liaison to coordinate.
    b) Assign Chaplains.

O) Weather.

1) Aircraft accidents can happen in all types of weather.
2) Temperature extremes will affect survivors and responders.
3) Snow or rain will complicate access and movement of equipment.

P) Prolonged Operations.

1) Need for relief crews (continued fire/hazard control, body removal, support of clean-up).
2) Food and fluids needed for large crews.
3) Lighting (football field dimensions minimum) will be needed.
4) Fuel will be needed for vehicles/equipment.
5) Fatigue of responders will increase safety problem.
6) Toilet facilities (portable) must be provided.

Q) Psychological Impact on Response Personnel.

1) Direct all personnel to attend an exit de-briefing.
    a) Explain signs/symptoms of critical incident stress.
    b) Identify contact for support (telephone counseling source at minimum).
2) Limit inner-perimeter assignment of personnel to only those needed. Rotate often to remote Rehab or Staging areas.
3) Assign observer to detect signs/symptoms of personnel at scene (consider as assignment for Safety Officer).
4) Post incident support must be provided.

R) Media.

1) Providing accurate information in a timely fashion is a Command

concern.
2) Expect to be over-loaded by media requests for information.
3) Remember - if the information is not provided - it will be found somewhere, from someone.
4) Media personnel will also be affected by the incident - expect unexpected behavior.
5) One way to avoid "interference" is to provide a means for the media to complete their job.
    a) Regular updates.
    b) Guided tours of area.

9.05 Strategic Considerations.

A) Pre-Planning.

1) Review mutual aid assignments.
    a) Major fires/flammable liquid capability.
    b) Mass casualty capability.
2) Maintain map books and aerial photos.
    a) Access.
    b) Staging for many vehicles.
3) Review multi-mass casualty protocols.
    a) Training for personnel.
    b) Review EMS system capability.

B) Inter-Agency.

1) Fire department is responsible for inner-perimeter of crash site.
2) Emergency Medical Service is responsible for triage, treatment, and transportation of injured.
3) Law Enforcement is responsible for outer-perimeter of crash site.
4) Medical Examiner is responsible for collection, identification and disposition of the dead.
5) FAA, NTSB is responsible for crash investigation.
6) Red Cross is responsible for shelter and care of persons displaced by accident (damaged homes, evacuated areas).
7) DNR is responsible for environmental protection.

C) Command Function.

1) Need for very visible, strong command.
2) Fill staff positions early - consider priority order of Safety, Liaison,

Public Information.
3) Collect situation and resource status information.
4) Expand management system anticipating the potential problems.
5) Medical and EMS
    a) Triage.
    b) Treatment.
    c) Transportation.

D) Operations Function.

1) Anticipate need to address the following.
    a) Fire control.
    b) Rescue.
        1) Access.
        2) Extrication.
    c) Hazardous Materials.
2) Conditions may indicate need for separate fire/hazard, and medical branches.
3) Rotate personnel on regular basis. Remove unassigned personnel from inner-perimeter to Rehab or Staging area.
4) All personnel must go through exit de-briefing.
5) Decontamination if needed.

E) Logistics Function.

1) Supplies.
    a) Anticipate supply shortages (long boards, casualty bags, foam concentrate).
        1) County FD resources.
        2) Airport stockpiles.
        3) Private contractors.
    b) Anticipate transport problems because of access.
2) Personnel Support.
    a) Food and fluids for many persons.
    b) Sanitary facilities.
    c) Shelter (weather extremes - hot or cold).
3) Maintenance/Support.
    a) Fuel/Fluids for vehicles and equipment.

b) Mechanical service and repair.
c) Consider calling for repair specialists (rescue tools, etc.).

4) Need for specialized equipment.
a) Lighting.
1) FD lighting units.
2) Construction lighting towers.
b) Street barricades.
c) Excavation equipment.

d) Wreckers.
e) Rescue tools.
1) Hydraulic spreaders, cutters and rams.
2) Non-sparking equipment.

F) Planning Function.

1) Situation Status.
a) Perimeter of crash site.
b) Use aerial photographs to plot perimeter.
c) Monitor local television (views from live broadcasts).
2) Resource Status.
3) Documentation.
a) Written log of activity.
b) Photographic log.
1) Operations.
2) Location of debris, injured, deceased.
4) Casualty log.
a) Passenger/crew (airline, owner best source).
b) On-ground casualties.
5) Responder log.
a) Exposures to hazardous materials.
b) Critical incident stress follow-up.

G) Finance Function.

1) Track cost of supplies and services.
2) Track cost of contracted equipment.

10.01 Purpose. To identify items concerning hazardous materials incidents which affect fire response strategy.

10.02 Goal. Develop response strategies which recognize hazards and conditions present at hazardous materials incidents.

10.03 Hazardous Materials - Defined. A material or materials accidentally released from the original container and used in a manner not originally intended. Hazardous materials include materials that are unintentionally contaminated or mixed with other chemicals, or involved some outside reactive source such as heat, light, liquids, shock, or pressure.[14]

A) First Responder Awareness.

1) Action. Recognize problem. Identify (if possible). Notify more qualified responders.

2) Who. Law Enforcement. Some firefighters. Public works. Other field units.

B) First Responder Operations.

1) Action. Defensive skills. Contain spill (diking). Minimize harm (evacuation, water fog, protecting in place).

2) Who. Law Enforcement. Firefighters. Industrial spill team.

Emergency Medical Service.

C) Technician.

1) Action. Offensive operations. Plugging and patching. Controlling the spill and stopping release.

2) Who. Hazardous Materials Response Team.

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[14] Surviving the Hazardous Materials Incident. Emergency Resource, Inc. 1989.

D) Specialist.

1) Action. Similar to technician, but more product specific.

2) Who. Skill oriented basis. Industrial (Dupont, Dow, etc.)

E) Incident Commander.

1) Action. Any incident commander trained above the awareness level.

2) Who. Fire Chiefs. Duty Officers.

10.05 Hazardous Materials Incident Types. The type of incident determines the type of response or action. Township Fire Department's Area may experience the following types.

A) Railway. The most common reason for railway accidents is track failure or collision. Other common factors causing rail emergencies include human, signal, or mechanical errors. Problems can be magnified because of large quantities of materials involved and poor access to the emergency site.

B) Highway Accidents. The most common type of Haz-Mat incident.

C) Fixed Installation Accidents. These incidents can occur anywhere materials are manufactured, processed, used, transported or stored. Common causes of fixed installation accidents include:

1) Equipment failure.

2) Human error.
3) Accidental mixing of reactive products.
4) Product or tank overflow.
5) Physical damage to containers.
6) Exposure to fire, water or heat.

D) Pipeline Accident. These accidents occur as a result of mechanical failure and human error (digging prior to locating the pipe).

E) Container Failure. Generally, any material is safe in its container. Conditions which may cause the container to fail if it is involved in an accident include:

1) Container is filled beyond its capacity.
2) Poor quality control, causing contamination or impurity in the product.
3) Defective container.
4) Container fails from heat or direct flame impingement.
5) Gasket, valve stem, or connection failure.
6) Physical damage to the valve.
7) Container is damaged by flying debris from another container.
8) Mishandling or human error.

F) Aircraft Accidents.

10.06 Identification and Recognition. Hazardous materials must be properly identified before any action can be taken to control an incident. Failure to properly identify the hazardous materials will only increase the hazard.

A) Labels. Package labels are four inch square diamond symbols that are attached to the package being shipped. Every DOT classified Haz-Mat shipment must be marked with the appropriate label or labels, unless otherwise specified. Displaying the name of the material on the package is also required. In addition, when two or more warning labels are required, they must be displayed next to each other. Materials classified as Explosive A, Poison A, or radioactive or meet the definition of another hazard class, must be accurately labeled for each class.

B) Placards. Placards are 10 3/4 inch square diamond symbols applied to each side and end of a motor vehicle, rail car, freight container or portable tank container carrying hazardous materials. Refer to CFR 49, Transportation, Parts 100 - 177 for placarding guidelines.

C) NFPA 704 System. The National Fire Protection Association 704M system is designed for fixed facilities such as buildings, storage tanks, or individual rooms when additional hazardous materials identification is necessary. This system also uses a diamond symbol to identify the hazard. The diamond is divided in four differently colored sections, each identifiying a type of hazard. Each hazard poses a varying degree of danger and is rated on a scale of 0 to 4. The least hazardous is rated 0 and the most hazardous is 4.

D) Shipping Papers. DOT regulations require shipping papers to accompany the shipment of hazardous materials and wastes. When responding to a possible Haz-Mat call, check for: shipping papers, proper shipping name, type of packaging and total quantity.

1) Highway.

a) Title of shipping paper. Bill of lading.
b) Location. Cab of vehicle.
c) Responsible person. Driver.

(MSDS generally are available from driver in addition to bills of lading.)

2) Railway.

a) Title of shipping paper. Waybill consist.
b) Location. With conductor or engineer.
c) Responsible person. Conductor or engineer.

(STCC (Standard Transportation Commodity Code) number is used extensively on rail transportation shipping papers.)

3) Air.

a) Title of shipping paper. Air bill.
b) Location. Cockpit.
c) Responsible person. Pilot.

E) Material Safety Data Sheets. The MSDS is another source of Haz-Mat information that can be useful in recognition and identification of hazardous materials. Although no format for the MSDS is mandated, the following information must be provided on each sheet.

1) Material name.
2) Chemical formula.
3) Common synonyms.
4) Chemical family.
5) Manufacturers name.
6) Emergency number.
7) Hazardous ingredients.
8) Regulated exposure limits.
9) Physical data.
10) Fire and explosion data.
11) Health hazard data.
12) Reactivity data.
13) Spill or leak procedures.

14) Special protection information.
15) Special precautions.

F) Other Methods. The first responder can often gain valuable information from:

1) Bystanders or responsible parties.
2) Location of the incident.
3) Type of occupancy.
4) Type of container(s) involved.
5) Obvious chemical and physical characteristics.
6) Chemical or scientific name.
7) Manufacturer or trade name.

10.07 Information Resources. The following are valuable key resources.

A) Printed Resources.

1) Emergency Response Guidebook (Dept. of Transportation).
2) Emergency Action Guides (Association of American Railroads).
3) Fire Protection Guide on Hazardous Materials (National Fire Protection Association).

B) Verbal Resources.

1) CHEMTREC. (1-800-424-9300)
2) National Response Center (USCG & EPA) (1-800-424-8802)
3) Dept. of Defense-Nuclear Accident Center (1-505-264-4667)

4) Center for Disease Control (1-404-639-3535)
5) Oil & Hazardous Material Technical Assistance Data System (OHM-TADA) (1-202-245-3045)
6) Agency for Toxic Substances and Disease Registry (ATSDR) (1-404-452-4100)
7) ACFX Rail Car Manufacturer (1-314-724-7850)
8) GATX Rail Car Manufacturer (1-312-621-6200)
9) UTLX Rail Car Manufacturer (1-312-431-3111)

C) Electronic Resources.

1) Owner-Property Data Base (Department Info. Mgmt. System).
2) Comm Center Time System.
3) CAMEO (Computer-Aided Management of Emergency Operations).

4) CHRIS (Chemical Hazards Response Information System).
5) Emergency/Haz-Mat Information System.

D) Waste Research and Reclamation.

1) Jim Hager Phone: 834-9624

10.09 Incident Management.

A) All incidents involving hazardous materials will be managed using the department's Incident Command System.

B) To assist in the development of a safe, effective response to a Haz-Mat incident, the following six part guideline is provided.

1) Hazard Identification. Recognize and identify the presence of a hazardous material.
2) Action Plan. Evaluate the situation by determining what you are going to do, immediate and long-term needs, and who is in charge.
3) Zoning. Control the risk by establishing a restricted zone, limited access zone, and support zone.
4) Managing the Incident. Establish the necessary incident command structure to handle the emergency.
5) Assistance. Determine additional resources needed including more fire companies, Haz-Mat response team, techical assistance, or private contractors.
6) Termination. Assess what is needed to conclude the incident such as clean-up, decontamination, physical exams, rehabilitation and

post-incident analysis.

C) Hazard specific guidelines are included within Section 2-1-9 of this manual.

10.09 Incident Level Criteria.

A) An incident involving Hazardous Materials will be grouped into one of three levels. The three levels are determined by the following criteria.

1) Extent of municipal, county, and state government involvement.
2) Extent of injuries and/or deaths.
3) Extent of civilian evacuation needed.
4) Availability and need of Haz-Mat Response Team.

5) Level of Technical expertise required to abate the incident.

B) Level I Incident. An incident which can be effectively managed and mitigated by first reponse personnel without a Haz-Mat response team or other special unit.

1) Spills that can be properly and effectively contained and/or abated by equipment and supplies immediately accessible to fire engine or ladder companies.
2) Leaks and ruptures that can be controlled using equipment and supplies immediately accessible to engine or ladder companies.
3) Fires involving toxic materials that can be extinguished and cleaned up with resources immediately available to engine or ladder companies.
4) Haz-Mat incidents not requiring civilian evacuation.
5) Haz-Mat incidents that can be contained and controlled using engine or ladder company resources.

C) Level II Incident. An incident requiring the special technical assistance of a Haz-Mat response team, industrial specialist, or government strike team.

1) Spills that can be properly and effectively contained and/or abated by specialized equipment and supplies immediately available to a Haz-Mat response team or other special unit.
2) Leaks and ruptures that can be controlled using specialized equipment and supplies immediately available to a Haz-Mat response team or other special unit.

3) Fires involving toxic and/or flammable materials that are permitted to burn for a controlled time period or are allowed to consume themselves.
4) Haz-Mat incidents that require civilian evacuation within the area of the agency that has primary jurisdiction.
5) Haz-Mat incidents where specialized technical information is required.
6) Haz-Mat incidents that can be contained and controlled using the available resources of a Haz-Mat response team or other specially trained unit.

D) Level III Incident. Major disaster.

1) Spills that cannot be properly and effectively contained and or abated by highly specialized equipment and supplies immediately accessible

to a Haz-Mat response team or special unit.
2) Leaks and ruptures that cannot be controlled using highly specialized equipment and supplies immediately available to a Haz-Mat response team.
3) Fires involving toxic materials that are allowed to burn because water is ineffective or dangerous; or because there is a threat of large container failure; or because a large explosion, detonation or BLEVE has occurred.
4) Haz-Mat incidents that require evacuation of civilians across jurisdictional boundaries.

10.10 Safety Zones. To reduce the danger to the public and emergency personnel, control zones will be established. Safety zones can be expanded or reduced depending on the situation. Zones should be clearly marked. Remember, a site control system needs to be established EARLY, and should be used to some degree in every haz-mat incident.

A) Restricted HOT Zone. The area represents danger to life or health and should be approached with extreme caution. Depending on the material involved, appropriate protective clothing and equipment is necessary to enter this zone. The size of the zone depends on the amount and properties of the material involved and location of the incident. The DOT Emergency Handbook is one source of information that can be used to determine the initial size of this zone.

B) Limited Access WARM Zone. This area is intended for site control directly outside the restricted HOT zone. It provides the forward access point to the restricted zone for the necessary support personnel and

equipment, escape routes, and decontamination stations. The limited access zone must be restricted to essential personnel only. All others must stay out of the limited access area unless needed for restricted zone support.

C) Support COLD Zone. This area is directly outside the limited access zone. This is the safe area for the incident commander, outside agencies involved in the incident, media, Red Cross, and medical personnel.

10.11 Assistance. Adequate resources are needed to deal with the complexities of hazardous materials. The following resources will make incident management more successful.

A) Dispatcher. Critical information provided by the dispatcher will be a key to a safe, effective response.

B) Department of Natural Resources.

1) DNR has statutory responsible for Haz-Mat spills.
2) Will provide assistance in arranging for clean-up.

C) Law Enforcement.

1) Many times the person who is first at the scene.
2) Critical information can be obtained from a trained first responder.
3) Law enforcement has been assigned the role of conducting evacuation. Area to be evacuated must be outlined for law enforcement.
4) Must explain SAFETY ZONES to law personnel.

D) City of Eau Claire - Hazardous Incidient Response Team.

1) Level A capability.
2) Response will include Hazardous Material Team and Chief Officer.

E) Private Technical Specialist.

1) Can provide specific technical advise.
2) Access through County or HIRT Team resource list.
3) Access through facility management or owner of product.

F) Private Contractor.

1) Waste Research and Reclamation.
2) Coordinate with DNR representative.

10.12 Termination. Terminating a hazardous materials incident requires careful consideration to detail. As a minimum, the following areas must be addressed.

A) Decontamination. Procedures to decontaminate anything leaving the restricted zone must prevent or reduce the transfer of contaminants by people and equipment. These procedures should include decontamination of:

1) Personnel and victims.
2) Protective equipment.

3) Monitoring equipment.
4) Clean-up equipment.

B) Rehabilitation. The welfare of personnel must not be overlooked. The following guideline is provided.

1) Provide a minimum 30 minute rest period for personnel who experience extreme physical exertion or emotional pressure.
2) Provide nutritional food and liquid supplements.
3) Have personnel evaluated by medical personnel for possible chemical exposure and physical exhaustion. Vital signs should be taken when they arrive at rehabilitation and as they are released for assignment.
4) Provide shower facilities and fresh clothing.
5) Evaluate personnel for signs of emotional distress.

C) Medical Screening. Medical exams and taking blood samples of personnel who were possibly exposed should be part of termination. Blood samples are often the only way to determine if personnel were exposed to the chemical(s) involved. Personnel should report any possible exposure to harmful substances.

D) Post-Incident Analysis. The post-incident analysis should be a positive learning experience. A responsible party from each agency should discuss what part the agency played, why it was done, and how it may be done more effectively in the future. If deficiencies are noted, it is imperative that

they be addressed prior to the next incident.

10.13 Strategic Considerations.

A) Pre-Planning.

1) Maintain listing of facilities using hazardous materials.
    a) Owner/Property System.
    b) Comm Center CAD.
    c) Map Book Entries.
2) Plans must consider maximum commitment of resources.
    a) Resource availability and response times (day/night).
    b) Supplemental water supply.
    c) Communications.
3) Maintain maps and aerial photographs.
    a) Haz-Mat transportation routes.

    b) Pipeline locations.
    c) Population estimates (exposure, evacuation areas).
    d) Storm sewer maps (runoff of spilled material).
    e) Sanitary system maps (infiltration).
    f) Water system maps (supply, risk to aquifer).
4) Conduct risk assessments.
    a) Traffic counts.
    b) Inventory of storage facilities.
    c) Monitor reporting facilities.

B) Inter-Agency.

1) Inform support agencies of SAFETY ZONES.
2) Request mutual aid promptly.
3) Coordination/communication with other agencies critical.
    a) Common radio frequencies (FIRECOM, MARC, etc.).
    b) Early assignment of Liaison Officer.

C) Command Function.

1) Position command post upwind, uphill, and upstream.
2) Determine wind direction and monitor.
3) Collect (immediately) situation and resource status information.
4) Consider potential when determining resource needs.
5) Consider activating OPERATIONS for Level III incidents.

D) Operations Function.

1) Skill level, protective clothing and product information will be key element to decisions.
2) Decon must be in place before any offensive operation begins.
3) Technical Assistance should be assigned to Haz-Mat Group.
4) Minimum number of personnel exposed is the goal.

E) Logistics Function.

1) Resources.
    a) Maintenance of reserve
    b) Fatigue will be a factor.
    c) Relief companies required for extended operations.

2) Water Supply.
    a) Assign water supply officer.
    b) Request maximum pumpage from utility.
    c) Emergency inter-connect with adjoining utility.
    d) Use of available static sources (swimming pools, etc.).

3) Maintenance/Support.
    a) Extended operations will require special support.
        1) Food/fluids (REMOTE FROM POTENTIAL CONTAMINATION).
        2) Fuel.
        3) Mechanical service and repair.
    b) Need for specialized equipment.
        1) Helicopter.
        2) Street barricades.
        3) Lighting equipment.
        4) Excavation equipment.

4) Support of Decontamination.
    a) Containers for "dirty" tools, clothing, etc.
    b) Supplies to prepare Decon solutions.
    c) Clothing for persons following Decon procedures.
    d) Shelter for persons passing through Decon.
        1) Sheltered area for Decon line.
        2) Vehicle marked "dirty" for transport to Decon line.

5) Communications.
    a) May require more than one tactical channel.
    b) Consider separate command channel.
    c) Use cellular and commercial telephone service.

F) Planning Function.

1) Strategy.
    a) Determine perimeter, forecast potential.
    b) Have a contingency plan.

2) Reflex Time.
    a) Large resource commitment takes time to arrive.
    b) Base plans on resources available on-scene.

3) Situation/Resource status.
    a) Immediate and accurate status display critical.
    b) Need reliable information.
    c) Obtain current and forecasted weather informatio

4) Documentation.
    a) Needed to support request for cost recovery and disaster assistance.
    b) Log of decisions considered minimum.

G) Finance Function.

1) Track costs of specialized equipment.
2) Track costs of supplies and services.
3) Track personnel costs.
    a) Compensation.
    b) Medical evaluations.

11.01 Purpose. To identify items concerning natural disasters which affect fire response strategy.

11.02 Goal. Develop response strategies which recognize the problems associated with natural disasters.

11.03 Natural Hazards.

A) The following types of natural hazards present a threat to the area.

1) Tornado (Windstorm).
2) Blizzard.
3) Extreme Cold (pro-longed).
4) Extreme Heat (pro-longed).
5) Snow/Ice.
6) Flooding.
7) Drought.
8) Landshift.
    a) earthquake.

b) earthslide.
c) erosion.

B) The degree of threat is measured by assessing the following:

1) How often does the hazard pose a threat?
2) What is the total population that could be seriously affected by the hazard?
3) What is the duration of impact to be expected from the hazard?
4) What is the intensity of impact to be expected from the hazard?
5) What is the scope of damage to be expected?
6) How predictable is the threat from the hazard?
7) How easy is it to reduce the effects of the hazard?

11.04 Special Problems.

A) Access.

1) Normal access routes may be blocked by debris.
2) Roads, bridges may be damaged beyond safe use.

B) Communications.

1) Communications equipment may be damaged by the event, making them unusable.
2) In disasters, what are thought to be communications "problems" are often coordination problems in disguise.
3) Communications may be overloaded by increased use.
    a) Survivors contacting or being contacted by relatives.
    b) Increased system use by responding agencies.

C) Resource Shortage.

1) Department resources may have been damaged.
2) Mutual aid resources may be commited to response in home communities.
3) Over-response of resources creates coordination problems.
    a) Persons and organizations arrive at the scene without have

been requested.
b) Multiple organizations independently request resources without informing the other organization.
c) Responsibility for tracking resources is not assigned.
d) It is not clear to arriving resources who is responsible for site coordination.

D) Size-up.

1) Type and extent of damage and the secondary threats (leaking gas, downed power lines) are not immediately apparent.
2) Initial actions may be started with vague and inaccurate information.
3) Disasters are "fluid" in nature with needs changing minute to minute.

E) Financial.

1) Natural disasters can require extensive amounts of personnel time and materials.

2) Expenses can easily exceed funds available within the Department's operating budget.
3) Tracking response expenses will be a critical function if the community applies for State or Federal disaster assistance.

F) Disruption.

1) Electrical outage.
2) Natural gas outage.
3) Telephone service outage.

G) Evacuation.

1) Panic is not a common problem in disasters; getting people to evacuate is.
2) Even if people have been convinced to evacuate, inhabitants may return while the threat is still present.
3) Why do people hesitate to evacuate?
   a) Not convinced that a risk actually exists.
   b) Wish to stay and protect their property.
   c) Wanting to assure the safety of other family members before leaving.

H) Large Loss Potential.

1) Property damage can vary from slight to complete; from localized to area wide.
2) Injuries can vary in severity and number.
3) Fatalities.

I) Complexity.

1) Fires (multiple locations, types, lack of resource).
2) Medical needs (number of injuries, type).
3) Adverse weather conditions.
4) Impact may create other hazards. (Example - LP Gas storage damaged during windstorm.)

J) Inter-Agency Operations.

1) Organizations are accustomed to operating autonomously and fail to change in a disaster.

2) Terminology and procedures may vary between organizations.
3) Hesitancy to depend on other organizations.
4) Persons (organizations) possessing information do not realize that another person (organization) needs it.

K) Safety of Personnel.

1) Size-up may not identify all potential safety hazards.
2) Urgency to act may lead to disregard for safety practices or use of protective clothing.
3) Command structure may not provide adequate supervision.

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L) Specialized Equipment/Supply Needs.

1) Heavy Equipment (lifting, debris removal).
2) Sand, sandbags and other expendibles.
3) Test instruments (toxicity, flammability, etc.).

M) Transportation of Injured.

1) Triage will be critical.
    a) Do not overload Transportation with low priority patients.
    b) Patients must be routed to appropriate facility according to type/extent of injury and hospital capability/capacity.

2) As the distance to the hospital increases, the number of ambulances needed will increase.
3) Helicopter support is an advantage, but must be rigidly controlled.
    a) Landing zone must not risk patients or responders.
    b) Down-blast will scatter debris, triage tags, blankets.
    c) Noise will complicate communications.

N) Handling of the Dead.

1) Activity under direction of Medical Examiner.
2) Mark location of bodies and body parts using survey flags.
3) Protect human remains - leave in position found.
4) All body pieces are important for identification process.
5) For temporary storage of dead, a minimum of four refrigerated trucks will be needed.
    a) one for male.
    b) one for female.
    c) one for children.

    d) area for examination/autopsy.
6) Cover signs of commercial trucks used for storing bodies.

O) Valuables.

1) Security must be provided.
2) Coroner is responsible for valuables of deceased.

P) Public.

1) Expect that The Curious, The Morbid, The Looters will rush to the scene.
2) Crowds will hinder movement of emergency equipment and operations.
3) Crowds can be in danger if too close.
4) Crowds may abandon vehicles in traffic and walk to scene to get better view - compounding traffic problems.
5) Use barrier tape to identify hazard areas.

Q) Relatives.

1) Will be frantic with worry and grief.
2) Need central meeting point.
    a) Assign liaison to coordinate.

b) Assign Chaplains.

3) Casualty and relocation lists will reduce problems.

R) Weather.

1) Temperature extremes will affect survivors and responders.
2) Snow or rain will complicate access and movement of equipment.

S) Prolonged Operations.

1) Need for relief crews (continued fire/hazard control, body removal, support of clean-up).
2) Food and fluids needed for large crews.
3) Lighting will be needed.
4) Fuel will be needed for vehicles/equipment.
5) Fatigue of responders will increase safety problem.
6) Toilet facilities (portable) must be provided.

T) Psychological Impact on Response Personnel.

1) Concern for own family/property.
   a) Provide information concerning status of families.
   b) Provide way for members to contact families.
   c) Provide shelter or meeting place for families to assemble.
2) Direct all personnel to attend an exit de-briefing.
   a) Explain signs/symptoms of critical incident stress.
   b) Identify contact for support (telephone counseling source at minimum.
3) Limit assignment of personnel to only those needed. Rotate often to remote Rehab or Staging areas.
4) Assign observer to detect signs/symptoms of personnel at scene (consider as assignment for Safety Officer).
5) Post-incident support must be provided.

U) Media.

1) Providing accurate information in a timely fashion is a Command concern.
2) Expect to be overloaded by media requests for information.
3) Remember - if the information is not provided - it will be found somewhere, from someone.

4) Media personnel will also be affected by the incident - expect unexpected behavior.
5) One way to avoid "interference" is to provide a means for media to complete their job.
    a) Regular updates.
    b) Guided tours of area.

11.05 Strategic Considerations.

A) Pre-Planning.

1) Review mutual aid assignments.
    a) Major fire/search and rescue capability.
    b) Mass casualty capability.
2) Maintain map books, aerial photos, full-size maps.
    a) Access.
    b) Staging for many vehicles.
    c) Maps of adjacent communities.
    d) Copies of city-wide map.

    e) Water, sewer, drainage systems.
3) Review multi-mass casualty protocols.
    a) Training for personnel.
    b) Review EMS system capability.

B) Inter-Agency.

1) Fire department is responsible for search, rescue and hazard control.
2) Emergency Medical Service is responsible for triage, treatment and transportation of injured.
3) Law Enforcement is responsible for impact site security, pedestrian and traffic control.
4) Medical Examiner is responsible for collection, identification and disposition of the dead.
5) Red Cross is responsible for shelter and care of persons displaced by accident (damaged homes, evacuated areas).
6) DNR is responsible for environmental protection.

C) Command Function.

1) Need for very visible, strong command.
2) Fill staff positions early - consider priority order of Liaison, Safety, Public Information.

3) Collect situation and resource status information.
4) Expand management system anticipating the potential problems.
5) Provide LEADERSHIP when hazard calls for FD to be lead agency.

D) Operations Function.

1) Reliable information is critical.
    a) Perimeter of impact area.
    b) Extent of damage/exposures.
    c) Number and type of injures; fatalities.
2) Anticipate need to address the following.
    a) Fire control.
    b) Rescue.
        1) Access.
        2) Extrication.
    c) Medical.
        1) Triage.
        2) Treatment.

        3) Transportation
    d) Hazardous Materials.
3) Conditions may indicate need for separate fire/hazard, and medical branches.
4) Rotate personnel on regular basis. Remove unassigned personnel from inner-perimeter to Rehab or Staging area.
5) All personnel must go through exit de-briefing.
6) Decontamination.

E) Logistics Function.

1) Supplies.
    a) Anticipate supply shortages (long boards, casualty bags, foam concentrate).
        1) County FD resources.
        2) Private contractors
    b) Anticipate transport problems because of access.
2) Personnel Support.
    a) Food and fluids for many persons.
    b) Sanitary facilities.
    c) Shelter (weather extremes - hot or cold).
3) Maintenance/Support.
    a) Fuel/fluids for vehicles and equipment.

b) Mechanical service and repair.
c) Consider calling for repair specialists (rescue tools, etc.).

4) Need for specialized equipment.
a) Lighting.
1) FD lighting units.
2) Construction lighting towers.
b) Street barricades.
c) Excavation equipment.
d) Wreckers.
e) Rescue tools.
1) Hydraulic spreaders, cutters and rams.
2) Non-sparking equipment.

F) Planning Function.

1) Situation Status.
a) Perimeter of area stricken.
b) Use aerial photographs to plot perimeter.

c) Monitor local television (views from live broadcasts).

2) Resource Status.
3) Documentation.
a) Written log of activity.
b) Photographic log.
1) Operations
2) Location of debris, injured, deceased.
4) Casualty log.
5) Responder log.
a) Exposure to hazardous materials.
b) Critical incident stress follow-up.

G) Finance Function.

1) Track cost of supplies from response agencies and private sources (foam concentrate, mass casualty supplies).
2) Track cost of contracted equipment (heavy equipment, buses, lighting, etc.).
3) Track personnel time.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Structure Fire
Page 1 of 3 Section: 2-9-1
Effective Date: 07-01-95 Revised Date:

1.01 Goal. To provide a guidline for decision making in response to structure fires.

1.02 Checklist.

A. The checklist is a starting point for making decisions in response to structure fires. Additional information can (and should) be obtained from the following:

1. Strategic Guidelines.
   a. Residential (2-8-l)
   b. Commercial-Common Attic (2-8-2)
   c. Center Hallway Occupancy (2-8-3)
   d. Large Area Buildings (2-8-4)
   e. Public Assembly (2-8-5)

f. High Rise (2-8-12)

2. Pre-Fire Plans.
3. Map Book.
4. Visual Factors.
5. Reconnaissance information.

STRUCTURE FIRE TACTICAL GUIDELINES

During Response

Check map book - hydrants, access, tanker fill-sites, etc.
Use tactical worksheet.

Upon Arrival

Make Initial Size-Up

Give On-Scene Report - Take Command
-building size - small, medium, large
-building height
-occupancy
-fire/smoke conditions - nothing showing, smoke showing, fire showing, working fire, fully involved

Consider Upgrading Assignment - Level II Staging

Report Command Post Location

Determine Nature and Extent of Emergency
-location of occupants (outside/inside - need for rescue)
-fire ground factors
-what is most likely to happen?

Formulate Action Plan -Prioritize needs
-Consider your options
-Address needs

Initial Action

Make Initial Assignments - Make Objectives Known:
-type of attack - offensive/defensive
-cut-off points
-early ventilation

Personnel Safety

Determine Resources Needed

Outside Assistance - traffic/crowd control, EMS, heavy equipment, etc.

Additional Action

Back-Up Initial Attack

Water Supply

Progress Reports

Update Plan

Early Salvage - Lighting - Rehab

2.01 Goal. To provide a guideline for response to chimney fires.

2.02 Chimney Fires. Any fire which is confined to the chimney, vents or connectors heating appliances.

A) When fire is suspected of, or does extend out of the chimney, vents or connectors, into any portion of the structure, **request a STRUCTURE FIRE response**.

2.03 Equipment for Chimney Fires.

A) Chimney Fire Kit.
1) Metal bucket.
2) Chimney chain.

3) Mirror.
4) Insulated gloves.
5) Safety goggles.

B) Bulk Dry Chemical.
1) Apply to source fire in stove or fireplace.
2) Placed in plastic bags and dropped down chimney.

C) Salvage Covers and Floor Runners.

D) Blowers and Fans.

2.04 Size-Up.

A) Smoke.
1) Color - black indicates possible burning of creosote within chimney.
2) Amount - is smoke exiting chimney in amounts greater than expected from fire in stove or fireplace?
3) Location - is smoke exiting only from the chimney, or is building filling with smoke?

B) Are sparks and flames showing at top of chimney?

C) Examine building interior for entire length of the chimney.
1) Do wall surfaces feel hot? Is the paint discolored?
2) Are there any visible cracks or separations found on the chimney?

2.05 Occupant Safety.

A) If occupants have exited building before arrival, restrict reentry until interior survey finds that building is safe.

B) If occupants have remained in the building.
1) Request that they leave the building until fire is controlled.
2) Protect in place - monitor their location - be prepared to remove them from building if necessary.

C) Check condition of occupants:
1) Effects of smoke or carbon monoxide exposure.
2) Burns from attempts to control fire.
3) Effects of excitement.
4) Provide emergency care and request EMS response as needed.

2.06 Suppression.

A) Spread salvage covers and floor runners before starting fire control (fire is confined to chimney, vents or connectors).

B) Extinguish fire in stove or fireplace.
   1) Open damper.
   2) Apply bulk dry chemical on burning fuel.
   3) Close oxygen supply.
   4) Provide standby with pump can or portable extinguisher while crews control fire in chimney.

C) Control fire in chimney.
   1) If fire is small and contained - let it burn itself out.
   2) If fire spread danger exists.
      a) Drop bulk dry chemical in plastic bags into chimney.
      b) Apply small amount of water to hot fuel in stove or fireplace to produce steam. (With the damper open, the steam should rise up the chimney cooling the fire.)
      c) Use chimney chain to dislodge burning waste in chimney

2.07 Incident Clean-Up and Occupant Information.

A) Remove burned fuel from stove or fireplace.
   1) Use metal containers.

   2) Dispose burned fuel outside of structure in a safe location.

B) Recheck roof and structural areas next to chimney, vents or connectors.

C) Vent building of residual smoke using blowers.

D) Inform occupants of need for inspection, cleaning and repair of chimney **before** further use. [16]

2.08 Safety.

A) Laddering.
   1) Use roof ladders.
   2) Special call mutual aid Ladder Company if chimney position or height is beyond Engine Company ladders.

B) Use eye protection.

C) Test atmosphere, building can contain products of combustion (carbon monoxide). If indicated, use SCBA.

[16] Fire department use of a "chimney chain" is a fire control action. This action **is not** chimney cleaning. Chimney cleaning is best completed by a professional chimney sweep who will clean and inspect the chimney. Direct the resident's attention to the telephone directory where a listing of available chimney sweeps can be found.

3.01 Goal. To provide information concerning fire protection systems to help make accurate decisions and take proper action.

3.02 Fire Protection Systems.

A) Private fire protection includes various devices and equipment installed or located within or about a property to deal with the out-break of fire.

B) These devices can be either manually or automatically operated.

C) The purpose of private fire protection is to provide a means by which fires may be detected or attacked in their incipient phase and controlled until

public fire protection can arrive.

D) There are many types of private protection systems.

1) Automatic Fire Sprinker Systems.
2) Standpipe Systems.
3) Carbon Dioxide Systems.
4) Halogenated Agent Systems.
5) Dry Chemical Systems.
6) Foam Systems.
7) Fire Detection and Alarm Systems.

3.03 Automatic Fire Sprinkler Systems.

A) Description. Automatic sprinkler protection consists of a series of devices so arranged that the system will automatically distribute water to either extinguish a fire or hold it in check until firefighters arrive. Water is supplied to the sprinkler heads through a system of piping.

B) FD Operations and Sprinkler Systems. Fire response to buildings equipped with automatic sprinklers should include the following actions.

1) One of the first-due Engine Companies will pump into the sprinkler system fire department connection.
2) The Engine Company will REVERSE LAY two hoselines from the FD connection to the water source.
3) Assign a firefighter to check the control valves to be sure they are wide open. Where a fire pump is used, check to be sure it is operating and

valves are open. Open any closed valves. The firefighter will report conditions found to Command.

4) The pump operator will slowly develop recommended P.S.I. for the system at that location and maintain this pressure if possible.
5) Fire operations will follow Tactical Priorities.
6) Support the sprinkler systems within exposed buildings.
7) Protect unprotected areas or areas where sprinkler distribution might be blocked.
8) Do not rob the sprinkler system of the water supply by overtaxing the water system with other Engine Companies.
9) Avoid premature shutoff of a sprinkler system which has been in operation.
10) Keep Engine Company and hoselines attached to sprinkler system during overhaul and station a firefighter at the valve to reopen if necessary.
11) See that the sprinkler system is properly restored.[17]

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[17] It is the responsibility of the owner to restore an activated sprinkler system to ready status. This action, including the replacement of sprinkler heads, is normally carried out by maintenance personnel or a sprinkler contractor.

3.04 Standpipe Systems.

A) Description. Properly installed standpipe systems provide a quick and convenient means for operating fire streams on the various floors of buildings. If the system is the type which permits fire department pumpers to supply the interior network of pipes, the various hose stations function similar to discharge ports from a pumper.

B) Classes of Standpipe Systems.
1) Class I. For use by fire department personnel and those trained in handling heavy fire streams (2 1/2 inch hose).
2) Class II. For use primarily by the building occupants until the arrival of the fire department (1 1/2 inch hose).
3) Class III. For use by fire department personnel and those trained in handling heavy streams or by the building occupants (1 1/2 inch hose with connections for 2 1/2 inch hose).

C) FD Operations and Standpipe Systems.

1) One of the first-due Engine Companies will pump into the standpipe system fire department connection.
2) The Engine Company will REVERSE LAY two hoselines from the FD connection to the water source.
3) Pump discharge pressure will be dependent on:
    a) Friction loss in hose lay from pump to siamese.
    b) Friction loss in hose used on the fire floor.
    c) Nozzle pressure from the type of nozzle used.
    d) Quantity of water flowing from the nozzle.
    e) Back pressure from elevation (ground to fire floor).
    f) Friction loss in the standpipe.
4) Engine Companies assigned to work from standpipes will take the following equipment into the building.
    a) Standpipe hose pack (or 2 inch hose from crosslay).
    b) Nozzle.
    c) Gated wye (or apartment line).
    d) Wrenches (spanner, pipe, crescent).
    e) Forcible entry tools.
5) Before the Engine Company leaves the building lobby, review the building floor plan.

6) Use stairways to go to the floor below the fire floor. (Do not use elevators.) Connect to the standpipe on this floor and stretch the line to the floor **above the fire**. (It is much easier to bring the hose down the stairs than up, especially after it has been charged.
7) One firefighter must remain at the outlet valve to charge the line after it has been moved into operating position. This firefighter should watch for fire or heat developing behind the attack team and warn them before their position becomes untenable. This person will not proceed to assist them on the hoseline until certain they will not be entrapped.

3.05 Carbon Dioxide (CO_2) Systems.

A) Description. Carbon dioxide is a very effective extinguishing agent. When liquid carbon dioxide is discharged from a container, it immediately flashes to a mixture of vapor and fine dry ice particles. Extinguishment by application of carbon dioxide is based on removing the oxygen from the fire.

B) Advantages.
1) Effective for extinguishment of fires in open and closed tanks of flammable liquids.
2) Very effective for total flooding of areas containing electrical hazards or flammable liquids.
3) Halts active combustion of Class A fires.
4) Non-conductor of electricity.
5) Does not damage or leave residue on high-value contents such as records, or electrical machinery.

C) Disadvantages.

1) After the carbon dioxide dissipates, re-ignition can occur.
2) Generally, it will not extinguish a smoldering Class A fire.
3) Accomplishes little cooling (about one-tenth as effective as water).
4) Reduction in oxygen content can cause asphyxiation.
5) Discharge noise and limited visibility can cause panic.

D) FD Operations and Carbon Dioxide Systems.

1) Firefighters entering areas protected by a CO2 system must be protected by self-contained breathing apparatus. (It is assumed that the system has discharged before the arrival of the fire department.)
2) Operations will follow Tactical Priorities.
3) If fire still exists, it may have to be attacked with other extinguishing agents.
4) If the fire has been extinguished, it may be desirable to seal the area and allow the high concentration of carbon dioxide to remain. However, heavy smoke conditions may require immediate ventilation to reduce damage.
5) See that the system is properly restored.[18]

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[18] Carbon Dioxide Systems are restored to ready status by persons specifically trained for this work. The Department's responsibility is to assure that the owner/operator has the system restored according to NFPA Standards by a qualified person.

3.06 Halogenated Agent Systems.

A) Description. Halogenated agents work chemically to extinguish fire. They stop the combustion process itself by breaking the chemical chain reaction. Halogenated agents are used in both total flooding and local application systems. These systems require automatic detection and actuation. Agents are stored in containers as liquified compressed gases which are pressurized with nitrogen to provide rapid discharge.

B) FD Operations and Halogenated Systems.

1) Use SCBA when entering areas where halogenated systems have

discharged.[19]

2) When entry to the area is gained, search for and remove persons from the immediate and adjacent areas.
3) Operations will follow Tactical Priorities.
4) If fire still exists, it may have to be attacked with other extinguishing agents.
5) If the fire has been extinguished, it may be desirable to seal the area and allow the high concentration of halogenated agent to remain. However, heavy smoke conditions may require immediate ventilation to reduce damage.
6) See that the system is properly restored.[20]

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[19] Based on sources such as NFPA 12A Halogenated Extinguishing Systems of Halon 1301, there appears to be no need for concern regarding halogenated systems; however, products of decomposition after discharge of the agent present a more serious hazard. Tests have discovered that decomposition products such as hydrogen fluoride, hydrogen bromide and other carbonyl halides are toxic.

[20] Halogenated Agent Systems are restored to ready status by persons specifically trained for this work. The Department's responsibility is to assure that the owner/operator has the system restored according to NFPA Standards by a qualified person.

3.07 Dry Chemical Systems.

A) Description. A dry-chemical extinguishing agent is a mixture of fine powders which have been treated to be water repellent. They can be stored under pressure and discharged through piping or hoses. Dry chemical is primarily intended to combat fires involving liquids, gases, grease and electrical equipment. Dry chemical systems can be designed for either manual or automatic actuation.

B) FD Operations and Dry Chemical Systems.

1) Use SCBA in areas where dry chemical is suspended in the air.[21]
2) Dry chemical suspended in the air may seriously reduce visibility in the area.
3) Operations will follow Tactical Priorities.
4) If fire still exists, it may have to be attacked with other extinguishing agents.
5) Guard against re-ignition. (Although dry chemicals are good extinguishing agents, their ability to "cool" the material is not significant.)
6) Damage to contents can occur when water and multi-purpose agents combine into a sticky mass that requires extensive cleanup. Powder residue can damage delicate electrical equipment. Assist owner/ occupant within capabilities as part of Property Conservation.
7) See that the system is properly restored.[22]

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[21] Dry chemical powders are generally thought to be non-toxic, but persons who breathe in high concentrations may experience coughing and irritation of the respiratory tract.

[22] Dry Chemical Systems are restored to ready status by persons specifically trained for this work. The Department's responsibility is to assure that the owner/operator has the system restored according to NFPA Standards by a qualified person.

3.08 Foam Systems.

A) Description. Fixed foam systems are permanently mounted extinguishing systems provided to protect a specific hazard. They may be complete,

including automatic detection, activation and foam delivery, or simply be the piping for fire departments to attach foam equipment.

B) FD Operations and Foam Systems. Most systems of this type are specifically designed for the hazard and location being protected. As a result, specific actions taken to support these systems can vary from site to site. However, the following guidelines will apply to our operations.

1) Contact person responsible for system operation.
    a) Plant supervisor, etc.
    b) Person trained in system operation.
2) Determine if system is operating as designed.
    a) Are water supply valves fully opened?
    b) Is supply of foam concentrate flowing as designed?
3) Verify that correct foam agent is being used.
4) Verify that foam agent is being applied at the correct rate.
5) Before a system is augmented with other systems or agents, the compatibility of the agents must be examined.
6) Care must be taken when burning liquids have been allowed a long pre-burn. If the liquid is hotter than 212 degrees F, the application of the foam may result in a froth which increases the volume and size of the fire without helping to control the fire.
7) See that the system is properly restored.[23]

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[23] Foam Systems are restored to ready status by persons specifically trained for this work. The Department's responsibility is to assure that the owner/operator has the system restored according to NFPA Standards by a qualified person.

3.09 Fire Detection and Alarm Systems.

A) The purpose of a Fire Detection and Alarm System is to reduce loss of life and property. Where there is a need to automatically protect occupants of

a building from fire, an alarm system may provide one or more of the following.

1) Provide an evacuation alarm for building occupants.
2) Shutting down or reversing heating, ventilation and air conditioning systems for smoke control.
3) Closing smoke or fire-rated doors and dampers.
4) Pressuring stairwell for evacuation purposes.
5) Overriding control of elevators to prevent stops on fire floors.
6) Automatically returning elevators to ground level for fire department use.
7) Activating special fire suppression systems to extinguish or control the spread of fire.
8) Notifying the public fire department of an emergency condition, and providing information concerning fire location through devices such as annuciator panels.

B) <u>FD Operations and Fire Detection/Alarm Systems</u>. These systems are part of the notification process for the fire department. Therefore, fire department action primarily involves assuring that a system is restored to ready status following activation.

1) Attempt to determine the source of system activation (pull station, smoke detector, heat detector) before alarm system is reset.
2) Reset alarm system following directions found at main alarm panel.
3) If the system will not reset, take the following actions:
    a) Attempt to notify responsible party for building or system.
    b) Inform responsible party that the system requires repair service.
    c) Inform responsible party that the building occupants must be notified (unless immediate repairs can be completed).
4) Fire Department personnel do not maintain or repair fire alarm systems.
5) Report within incident report, the location of the detector or pull-station which caused the system activation.
    a) Indicate any problems observed with system (physically damaged parts, signs of corrosion, etc.)
    b) Fire Prevention personnel will conduct follow-up to determine system status based upon information included within incident report.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Brush Fire
 Section: 2-9-4
Effective Date: 07-01-95 Revised Date:

4.01 Goal. To provide a guideline for decision making in response to brush fires.

4.02 Checklist. A copy of the checklist is shown on the next page.

A) The checklist is a starting point for making decisions in response to brush fires.

4.03 Ten Standard Firefighting orders - Brush.

Keep informed on fire/weather conditions and forecasts.

Know what fire is doing at all times.

Base all actions on current and expected fire behavior.

Have escape routes for everyone and make them known.

Post a lookout when there is a possible danger.

Be alert, keep calm, think clearly, act decisively.

Maintain communications with your crew, your I.C. and adjoining crews.

Give clear instructions and be sure they are understood.

Maintain control of your personnel at all times.

Fight fires aggressively, but provide safety first.

BRUSH FIRE TACTICAL CHECKLIST

During Response

Check map book - access, water supply, exposures
Use tactical worksheet
Consider upgrading assignment
Consider weather conditions

Upon Arrival

Give On-Scene Report - take command

Report Command Post Location

Determine Likely Direction of Spread/Extent of Fire

Develop Plan

Determine Resources Needed
- -upgrading assignments
- -additional brush trucks, tankers
- -DNR Aircraft (for observation)
- -DNR Heavy Equipment

Initial Action

Make Initial Assignments - state objectives

Assign Sectors Early

Establish Cut-Off Points

Additional Action

Personnel Safety
- -closely monitor condition of firefighters
- -early REHAB

Update Plan

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Vehicle Fires
 Section: 2-9-5
Effective Date: 07-01-95 Revised Date:

5.01 Goal. To provide a guideline for response to vehicle fires.

5.02 Vehicle Fires - General.

A) A response of one Engine, Tanker, and Rescue Unit are assigned to vehicle fires.

B) When the incident involves the need for extrication, the Rescue Truck will respond before the Engine and the Tanker.

C) If hazardous materials are involved, consider need to upgrade the response.

D) If the vehicle is within or near a structure, consider need to upgrade the response.

E) A search for victims must be made of all vehicle compartments.
1) Passenger areas.
2) Cargo areas.
3) Trunks of passenger vehicles.

F) Chock the wheels of vehicles involved with fire to prevent movement.

5.03 Hazards to Personnel.

A) Toxic fumes are generated by burning vehicles. **Use SCBA**.

B) Hazardous materials.
1) Cargo in trucks.
2) Flammable/combustible liquids in fuel tanks.
3) Alternative fuels (LP, Compressed Natural Gas, LNG).
4) Contents of vehicles (gasoline can in trunk).

C) Explosive action of vehicle parts (overpressure rupture).
1) Hydraulic shock absorbers and bumpers.

2) Hydraulic systems.
3) Brake systems.

4) Drive shafts.
5) Rear door cylinders on hatch-back autos.
6) Fuel tanks.

D) Electrical shock (vehicle contacting downed power lines).

5.04 Positioning Apparatus.

A) If possible, park **uphill** and **upwind** at least **75 feet** from burning vehicle.

B) Angle the Engine to protect personnel from on-coming traffic.

C) Use traffic cones and flares to guide traffic away from fire area.

D) Coordinate traffic control with police.

5.05 Vehicle Fire with Trapped Victims.

A) Goal is to cut off the fire from the victim(s).

B) If spilled fuel is under the vehicle, direct narrow fog pattern under vehicle. This action will sweep fuel from under the vehicle.

C) Direct wide fog pattern into window to cool the vehicle interior.

D) Provide protection and cooling as rescuers remove victims from the vehicle.

5.06 Fire Involving Engine Compartment.

A) Hood Open.
1) Attack with short bursts from a dry-chemical extinguisher from side of vehicle.
2) Direct narrow fog pattern from side of vehicle.

B) Hood Closed.
1) Do not open hood completely - the hood is limiting the oxygen supply to the fire.
2) Open hood a few inches and direct dry-chemical agent or water stream into compartment.

3) If hood will not open, direct agent or water stream through vehicle grill.

Caution: Vehicle Bumpers Can React With Explosive Force

5.07 Fire Involving Passenger Compartment.

A) Position hoseline or extinguisher before opening closed vehicle.

B) Open door slowly - fire could flash.

C) Always search for victims.

D) Use narrow fog pattern.

5.08 Fire Involving Cargo Area or Trunk.

A) Attempt to identify material(s) carried within cargo areas.
1) Information from driver (statements, bill of lading).
2) Markings on vehicle (placards, company name on vehicle, alternative fuel stickers).

B) Position hoselines or entinguishers before opening closed compartment.

Caution: Truck cargo areas can have volume equal to some structures. The potential for backdraft or flashover exists!

C) Always search for victims.

5.09 Leaking Fuel Tanks.

A) Attempt to stop leak by plugging hole.

B) Attempt to stop leaking fuel line by closing valve or crimping fuel line.

C) Prevent ignition of fuel vapors by applying foam blanket on surface of spilled fuel.

D) Prevent spilled fuels or liquids from entering storm or sanitary sewers with the use of absorbing or containment materials. Any spillage should be reported to DNR through Base.

5.10 Overhaul.

A) Delay extensive overhaul until investigator or Officer in Charge has had the opportunity to examine vehicle for origin and cause.

B) Strip smoldering interior finishes and complete entinguishment using water.

C) Dashboard fires may require removal of the unit to complete extinguishment.

D) Disconnect or cut negative cable from vehicle battery.

E) Avoid contamination of personnel when overhauling contents. Seek technical assistance if personnel are exposed to hazardous materials.

F) Contain water run-off if it contains flammable liquids or other contaminants.

5.11 Terminating the Incident.

A) Obtain information for incident report.
1) Vehicle license number and year.
2) Make, model and year of manufacture.
3) Vehicle identification number.
4) Owner name, street address, city, state, zip code and telephone number.
5) Operator at time of fire (Name, etc.)
6) Insurance company or agent.

B) Offer assistance to owner/operator in obtaining towing service if requested.

C) Offer assistance to police to restore roadway to normal traffic conditions.

D) Thoroughly clean equipment (especially protective clothing) which may have contacted flammable liquids or other substances.

TOWNSHIP FIRE DEPARTMENT
CHAPTER: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Confined Space Operations
 Section: 2-9-6
Effective Date: 07-01-95 Revised Date:

6.0l Goal. Provide guidelines for confined space operations.

6.02 Confined Space Operations. Incidents which require personnel to enter confined spaces present a serious safety problem. Safe operations require special precautions and strict supervision.

A) Confined spaces include tunnels, pipes, tanks, and any other location where ventilation and access are restricted by the configuration of the space.

B) Confined spaces may include basement areas of buildings.

C) Confined space incidents may involve injured persons, persons asphyxiated or overcome by toxic substances, cave-ins or fires occurring within the space.

6.03 Guideline.

A) Operations within confined spaces must be approached with extreme caution.

B) Operations must avoid premature commitment to unknown risks.

C) Determine nature of emergency (find a responsible witness).
1) Number of victims.
2) Time of collapse.
3) Depth, width and length of collapse/space.
4) Potential of further collapse.
5) Are other hazards present?

D) Evaluate atmosphere of confined space.
1) Assume an unsafe atmosphere until tests show it is safe.
2) Use test instruments to determine.

a) Oxygen level.
b) Flammability.
c) Toxicity.

3) Request test assistance.
    a) Hazardous Incident Response Team
    b) Utilities.

D) Develop action plan.

1) Provide scene control.
    a) Establish hazard area.
        1) Mark with tape.
        2) Notify personnel of area.
    b) Entrance control.
        1) Control access at entrance/exit point.
        2) Record names, assignments, entry times, SCBA pressure of entry teams.
        3) Prevent overcrowding at entrance to confined space.
    c) Traffic control.
        1) Stop traffic within 300 foot radius (cave-ins).
        2) Coordinate with law enforcement.
    d) Reduce vibration (possible cause of cave-in).
        1) Turn off all running machinery.
        2) Including F.D. vehicles.
        3) Restrict walking near confined space.
    e) Safety officer.
        1) Evaluate risks.
        2) Enforce safety requirements.
        3) Judge safety of operation.

2) Provide adequate support.
    a) Provide 2:1 ratio of personnel outside of space to support entry teams.
    b) Standby rescue team with 1:1 ratio to entry team.
    c) Treatment group with BLS or greater capability.

3) Ventilation.
    a) When possible, provide fresh air using positive pressure ventilation.

b) Equipment **taken inside** confined space **MUST BE EXPLOSION PROOF**.

C) When venting area containing flammable vapors, consider concentration in relation to flammable limits.

4) Entry teams.
   a) Personnel entering a confined space **must not** travel beyond point that provides sufficient air reserve to return and exit safely (with at least 5 minute safety margin).
   b) Time available for operations is based on air supply.
   c) Time in monitored by Entry Control Officer..
   d) Lifelines will be used by entry teams.

E) Additional Action
   1) Monitor progress and re-evaluate plan.
   2) Consider need for decontamination.
   3) Provide medical screening.

7.01 Goal. Provide guidelines for the safe management of trench rescue operations.

7.02 Trench Rescue Operations. Trench rescue operations present significant dangers to personnel. Management of these incidents may involve complex actions involving shoring, hand tools, earth moving equipment and other special resources.

A) General.
1) Cave-ins and collapses generally occur because unstable soil conditions combine with improper or inadequate shoring.
2) Most fatal trench accidents occur in trenches less than 12 feet deep and 6 feet wide.
3) The potential for additional collapse is a primary hazard to personnel.
4) Actions taken must consider both rescue potential and risk to rescue personnel.

B) Types of Trenches.
1) Hand dug for irrigation pipe.
2) Machine dug for sewer, water pipe.
3) Situations which require trench rescue techniques, but do not involve earth trench (gravel/sand piles, grain).

C) Shoring/Sheeting Equipment.
1) Plywood sheeting (1 1/4" thickness minimum).
2) Timber shoring.
3) Screw jacks.
4) Hydraulic shoring (best when walls are vertical).

D) Power Tools and Miscellaneous Supplies.

1) Chain saw.
2) Shovels.
3) Pry bars, wrecking bars.
4) Sledge hammers.
5) Measuring tapes and rope.
6) Salvage covers.
7) Flood lights (illumination & heat).
8) Ventilation blowers.

7.03 Guidline.

A) Scene Assessment.
1) What has collapsed?
2) Where has cave-in occurred?
3) How many people are trapped?
4) When did it happen? How long have they been trapped?
5) Are other hazards present?

B) Develop action plan.

1) Provide scene control.
a) Establish hazard area.
1) Mark with tape.
2) Notify personnel of area.
b) Entrance control.
1) Control access.
2) Maintain count of personnel in hazard zone.
3) Prevent overcrowding at entrance to trench.
c) Traffic control.
1) Stop traffic within 300 foot radius (cave-ins).
2) Vehicles not needed at the site are to park at least 100 feet away from trench.
3) Coordinate with law enforcement.
d) Reduce vibration (possible cause of cave-in).
1) Turn off all running machinery.
2) Including F.D. vehicles.
3) Restrict walking near confined space.

2) Safety Officer.
a) Evaluate risks.
b) Enforce safety requirements.
c) Judge safety of operations.

3) Extrication Officer.
    a) Responsible for digging and shoring operations.
    b) Takes advantage of qualified techical assistance when available (example: on-scene contractors).
    c) Detemine resource needs.
        1) Shoring materials.
        2) Earth moving equipment.

4) Provide adequate support.
    a) Provide 2:1 ratio of personnel outside of trench to support extrication teams.
    b) Standby rescue team with 1:1 ratio to extrication team.
    c) Treatment group with ALS capability.
    d) Materials, shoring, jacks and rescue equipment.
    e) Sump or mud pumps as necessary (local contractors).
    f) Lifting equipment, cranes, aerial apparatus, etc.

5) Access.
    a) Soil near edge of trench may be unstable.
    b) Ladders to provide access into and out of trench to be placed on both sides, at not more than 6 foot intervals.

6) Extrication teams.
    a) Protect personnel with appropriate shoring.
    b) Limit number of personnel to those who can operate safely within the trench.
    c) Digging must serve a purpose. Random earth movement can lead to further collapse.
    d) Trench rescue is exhausting. Rotate personnel at first sign of fatigue.

7) Ventilation.
    a) When possible, provide fresh air using positive pressure ventilation.
    b) Equipment **taken inside** trench (confined space) **MUST BE EXPLOSION PROOF**.
    c) Consider need for heat within trench (flood lights?).

8) Victim Removal.
    a) Locate victim and secure airway.
    b) Use shoring and sheeting to protect victim.
    c) Prevent secondary cave-ins.

d) Package victim for removal (cervical collar, backboard, KED).
e) Stokes basket or rope sling with backboard.

F) Additional Action.
1) Monitor progress and re-evaluate plan.
2) Assemble reserve personnel in Resource Area.
3) Provide Rehab & medical screening, debriefing.
4) Consider need for decontamination (sewers).
5) Safe removal of shoring and other support equipment.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Vehicle Rescue
Page 1 of 4 Section: 2-9-8
Effective Date: 07-01-95 Revised Date:

8.01 Goal. Provide guidelines for vehicle rescue operations.

8.02 Guideline.

A) Command Considerations.

1) Inner and Outer Circle Surveys.
   a) Identify hazards (scene safety).
   b) Locate all patients and those affected by the incident.
   c) Detemine the extent of the patient's entrapment.
   d) Triage.
   e) Develop mental picture of how the incident occurred.
   f) Anticipate any needs and provide for them.

2) Take Action.
   a) Call for resources.
   b) Develop an action plan.
   c) Clearly inform team members how the patient(s) will be extricated.
   d) Assign tasks.

3) While Working.
   a) Keep the action circle clear.
   b) Provide adequate lighting.
   c) Re-evaluate resources.
   d) Plan ahead.
   e) Maintain simultaneous functions.

f) Keep planning ahead.

B) Extrication Problem Solving.

1) Command must categorize problems, detemine their severity and develop solutions.
2) Develop alternative solutions to each of the above.
3) Be prepared to move to another tactic if actions fail.

C) Vehicles Up-Right.

1) Head-on.
   a) While vehicles may be up-right, they may have separated creating "two" individual incidents.
   b) It may be necessary to "split" the tools.
   c) Perform staggered, yet simultanious functions until additional resources arrive.
   d) Organize incident site as necessary.

2) T-Bone.
   a) Also know as a "broadside" accident.
   b) Especially difficult if a larger vehicle hits a smaller vehicle folding the wreckage down onto the patient.
   c) Solutions may include pulling the wreckage off the patient. (Remember to secure the vehicle to keep it from sliding when the pulling begins.)
   d) Other solutions include:
      1) Third-door conversion.
      2) Dash lift.
      3) Complete removal of the side of the vehicle.

3) Vehicle vs. Immovable Objects.
   a) Vehicles may end up in any position.
   b) Stabilization may not be necessary or may be very difficult.
   c) Remember the hazards of power lines.

4) Vehicle Underrides.
   a) When a small vehicle ends up underneath a larger one.
   b) Benchmarks include:
      1) Indentify the load.
      2) Stabilize the vehicle.
      3) Access the patient.

4) Consider lowering the smaller vehicle.
5) Lift the larger vehicle - crib as you go.
6) Separate the vehicles.
7) Extricate the patient.

D) Vehicles on their Side.

1) Stabilization.
    a) Build a cradle for the car to rest on.

    b) Lock the cradle in place.
    c) Continue to monitor stabilization efforts.
    d) Stay low. Don't climb on the car. Maintain a lower center of gravity.
    e) Fuel will probably leak. ALWAYS have charged hand-line in position.

2) Vehicle Nose Down.
    a) Roof is intact and the car is usually leaning forward towards the engine compartment.
    b) Solution usually involves cribbing the high side with access/ removal through the doors.

3) "Pancake"
    a) Roof is crushed leaving little access to the patient.
    b) Stabilization needed. Door removal used in most cases.
    c) Cutting hole in floor is ineffective - especially with smaller cars. Hole can be used for inspection of problem.
    d) If the vehicle has to be lifted, lift from the most substantial point possible, preferably the firewall.

E) Multi-Vehicle Accidents.

1) Key to success is planning and use of Command System.

2) Call for resources prior to needing them.

3) Consider need for supplies/equipment.
    a) Lifting equipment.
    b) Multi-casualty supplies.

4) Staging.
    a) 1 or 2 blocks from the scene. (parking lot, roadway)
    b) Assign staging supervisor.
    c) Maintain status of staged equipment.

F) Hazardous Materials.

1) Identify BEFORE entering scene if possible.
    a) Use field glasses.
    b) Review manifest.

    c) Review bill of lading.
    d) Interview driver.

2) Take action based on hazards presented by product.

9.01 Goal. Provide guidelines for school bus rescue operations.

9.02 Guideline.

A) Command.

1) Expect distractions.
2) Incident will require large number of rescuers.
3) Size-Up.
    a) Inner-circle survey.
    b) Outer-circle survey.
    c) Interior survey and **PATIENT COUNT**.
4) Organize the scene, assign supervision.
5) Plan for many patients. Call adequate resources.
6) Begin triage immediately.
7) Search for walk-off patients.
8) Consider need for Command Staff.
    a) Public Information.
    b) Safety.
    c) Liaison.

B) Scene Safety.

1) Electrical System.
    a) Shut off master switch.

b) Shut off ignition switch.
c) Access batteries.
1) Outside battery compartment.
2) Under hood.
3) Disconnect negative side first. Isolate cable.

2) Fuel System.
a) Determine type of fuel.
b) Locate tanks and check for leaks.
c) Control spilled fuel as needed.

3) Fire Protection.
a) Position hand-lines.
b) Control vapors from spilled fuel.

4) Traffic Control.
a) Coordinate with law enforcement.
b) Use vehicle as barrier between traffic and work area.

C) Stabilization.

1) Initial Stabilization. Chock wheels while making circle surveys. Use 4 x 4's.

2) Sustained Stabilization.
a) Place box cribs in at least three locations, near front and rear.
b) DO NOT FLATTEN TIRES.
c) Use wedges to tighten box cribs.
d) Bus on side must be stabilized.
e) Tie off bus where appropriate.

D) Initial Access.

1) Front Service Door.
a) Mechanical Arm.
1) Try hand operation.
2) Break glass and open with pike pole.
b) Pneumatic Door.
1) Emergency release located above door.
2) Main control at instrument panel.

c) Latched Door.
1) Small latch at center of door.
2) Break glass and open door.
d) Glass in Door. Designed for rescuer access.

2) Rear or Side Door.
a) Single point latch.
1) Try normal operation.
2) Break glass and try inside.
3) Pry with hydraulics.
4) Remove with cutting tool.
b) Three point latch. (same steps as above)

3) Glass.
a) Tempered side and rear.
b) Laminated front.
c) Rubber mounted gasket.
d) Clean out all glass.

E) Disentanglement.

1) The concept is to "dig a tunnel".

2) Establish a "flow" route for tools and rescuers to enter and patients to exit.

3) Enlarge existing openings, or create new openings.

4) Enlarging Doors.
a) Front Door. Front door is not big enough to remove a patient on a long board.
1) Cut away panels.
2) Cut away rivets and remove.
3) Tape sharp edges.
b) Rear Door.
1) Open rear door with hydraulic spreader.
a) Remove all adjacent glass.
b) Start low and roll latch out.
2) Remove rear door.
a) Pry off with spreader.
b) Cut away hinge with air chisel.

5) Enlarging Rear Door Opening.
    a) Cut out all window posts.
    b) Cut at each window opening (low and outside).
    c) Pry out rub rails (cut with hydraulic shears).
    d) Remove reflectors and tail lights.
    e) Use reciprocating saw to cut away panel.

6) Enlarging Window Openings.
    a) Remove glass and frame from two windows.
    b) Cut post between windows.
    c) Avoid using tools which produce spark or flame.

7) Opening the Side Wall.
    a) Side wall contains both rub-rails and collision beams.
    b) Remove adjacent seats.
        1) Spread up and away with hydraulic spreader.
        2) Cut away with hydraulic shears or reciprocating saw.
        3) Break away bolts with wrench.
        4) Cover or remove debris.
    c) Making side wall opening (folded down).
        1) Cut top of center post.
        2) Make relief cut to center frame member at floor level.
        3) Make side wall cuts and fold panel down.
    d) Making side wall opening (removed).
        1) Cut away top of center post and then cut away panel as desired. (Consider stopping at seat level to avoid collision beam.)
        2) Cover all sharp edges.

8) Bus On Its Side:
    a) Use windshield and rear doors as initial access and egress points when possible.
    b) A "sunroof" type of opening is possible.

F) Patient Care/Removal.

1) Start with the patient closest to the point of impact when possible.

2) Interior rescuers must inform Command of number and condition of

patients.

3) Prioritize patients - TRIAGE.

TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: SUGGESTED OPERATING GUIDELINES

Part 9: Tactical Checklist
Subject: Tornado/ Windstorm
Page 1 of 3 Section: 2-9-10
Effective Date: 07-01-95 Revised Date:

10.01 Goal. Provide guidelines for operations during and after tornados or severe windstorms.

10.02 Guideline. This guideline will outline the tasks completed during the four stages of this type of emergency; Preparatory Period, Tornado Watch Period, Tornado Alert and Tornado Strike Period. Note: Tornado warning periods are usually short duration (3-15 minutes), therefore, preparation should begin prior to tornado seasons.

A) Preparatory Period.

1) Review and update disaster plans with other local, county and state agencies.
2) Review mutual aid agreements to determine available resources, updating as needed.
3) Review these guidelines as part of the department training program.
4) Inventory resources and their locations. Example: Regular and auxiliary manpower, public and private equipment, supplies and replacement parts (especially vehicle tires because of damage resulting from broken glass.)
5) Review sites used by Tornado Spotters. Post primary and secondary sites for Tornado Spotters.

B) Tornado Watch Period.

1) Department personnel will be notified of any tornado or severe thunderstorm "watch" by an announcement made over the department paging system.
2) All units on assignment (inspection, training, etc.) at the time of the "watch" announcement are to be notified and advised to return to quarters.
3) Prepare for water, food, and electrical shortages.
4) Check emergency electrical generating systems.
5) Prepare for possible breakdown of communications.
6) Be sure fuel requirements will be met.
    a) Vehicle fuel tanks full.
    b) Portable gasoline-powered equipment tanks full.

    c) Check operation of chain and circular saws.
7) Assign Spotters to selected sites within city. (See Item E for details.)

C) Tornado Warning.

1) Department personnel will be notified of any tornado or severe thunderstorm "warning" by an announcement over the department paging system.
2) Response to Alert:
    a) If at home - make preparations for family to take shelter. Respond to station if present weather conditions permit safe travel.
    b) If at station - be prepared to take shelter.

D) Tornado Strike Period.

1) Department personnel will take shelter and remain in that location until danger has passed.
2) Department personnel will respond to quarters if conditions permit safe travel.
3) Department personnel will report damage to equipment and injuries to the officer-in-charge.
4) Fire department units will respond to incidents requiring search, rescue, and fire operations as assigned by the officer-in-charge.
5) All units will report damaged areas and extent of damage to the

officer-in-charge or designated command post.

6) Personnel are to watch for looters and report incidents to police.
7) Assist in shutting off utilities and clearing roads (clear priority roads first).
8) Supply food to personnel as needed.
9) Supply fuel to fire department units as needed.
10) Continue operations until all hazards are under control and all areas have been searched for victims.
11) Establish duty crews to rotate personnel from on-scene work to rest areas.
12) Take inventory of department equipment to detemine damaged or missing items.
13) Report losses to Chief and Board of Directors.

E) Skywarn Spotters.

1) Assign spotters if conditions or information (National Weather Service, TV) indicate a threat.
2) Assign spotters to primary and secondary locations as manpower permits.
3) Use Fire Department frequency for routine communications with base.
4) Report severe weather directly to BASE using Fire Department Frequency.
5) What to report.
    a) Funnel cloud, Tornado, Hail, Destructive winds.
    b) Position of storm.
    c) Direction of movement.
6) Be prepared to seek shelter.

11.02 Goal. Provide guidelines for fire department operations during winter storms or blizzards.

11.03 Guideline. This guideline will outline the tasks completed during the four stages of this type of emergency: Pre-Storm Season Preparation; Storm Warning Period; Storm Period and Thawing Period.

A) Pre-Storm Season Preparation.

1) Provide local media with winter storm fire safety tips, winter automobile travel considerations, etc.
2) Determine availability of equipment such as four-wheel drive vehicles, snowmobiles, etc. Sources include other local agencies and private citizens. Obtain written agreement for the emergency use of this equipment.
3) Inventory snow tires, chains, shovels, anti-freeze, oil and gasoline, and stock as necessary.
4) Check telephone numbers and addresses of persons included in number 2 above.

5) Check with Emergency Medical Service concerning the operation of snow-emergency rescue and medical teams.
6) Check with Water Utility concerning maintenance and snow removal plans for hydrants.

B) Storm Warning Period. Implement the following actions as needed.

1) Review signs and symptoms of frostbite and exposure with department personnel.
2) Encourage plenty of rest.
3) Have personnel prepare their personal affairs (make sure family has heating oil, gas, food that is stocked, automobiles winterized).
4) Place sand, snow shovels, extra de-icing fluid on apparatus.
5) Check all marking and warning lights on apparatus.
6) Add moisture evaporative to mixture in fuel tanks.
7) Check air brake systems to detect any moisture buildup and eliminate as needed.

8) Arrange for sleeping accommodations for Fire and EMS personnel.
9) Arrange for the feeding of personnel in quarters.

C) Storm Period.

1) Upon declaration of a snow-emergency, notify department personnel.
2) Obtain official information on highway and street closings, and pass information on to the personnel.
3) Rotate personnel from emergency scenes to lessen fatigue, tension, and flare-ups of tempers.
4) Obtain four-wheel drive vehicles and snowmobiles as needed.
5) Arrange for snowplow response to all scenes. Verify radio communications capability.
6) Consider assigning an engine company to respond to any EMS request within the area.
7) Staff station with personnel if needed, use minimum response requirements as a guideline. Establish rotating shifts for the period of the snow emergency.
8) Issue public assistance requests for clearing hydrants.
9) Place sleds/toboggans on apparatus or other vehicles for use with stokes litter.
10) Obtain police approval for use of snowmobiles on streets.
11) Be alert for excess snow accumulation and possible collapse of roofs. Caution citizens of hazards associated with clearing roofs.

12) Department vehicles will be driven with headlights on at all times.
13) Check for drifts against exit doors. Pay particular attention to residential occupancies, commercial locations and other places of public assembly that remain in operation.
14) Check for blocked fire lanes, plowed-over post indicator valves, and and stand-pipe connections.
15) Check tire pressure (tire pressure decreases with cold weather).
16) Drain condensation from air brake system at beginning of cold weather and check periodically.

D) Thawing Period.

1) Check availability of portable pumps.
2) Review procedures and precautions involving flooding, water rescue and ice rescue.
3) Determine decontamination procedures for equipment and personnel.

12.01 Goal. To establish a working guideline for operations, before, during, and after a dairy barn fire.

12.02 Guideline. This guideline will outline the tasks completed during the three stages of this type of emergency; Preplan Period, Fire Period, Salvage and Overhaul Period.

A) Preplan Period.

1) Preplan all farms in the response area.
   a) A sketch of the farm building layout.
   b) Normal wind direction.
   c) Space available for emergency equipment.
   d) Location of overhead electrical wires and shut off switches.
   e) Location of other fuel sources (gasoline, propane, diesel fuel, fuel oil, etc.)
   f) Location of water sources

g) Exposures.
h) How cattle are tied in barn.
    1) Calves in pens.
    2) Bull in a pen.
    3) Horses.
i) Size of barn and exposures.

2) Contractor's.
    a) Electrical
        1) A response during and after the fire needs to be confirmed.
    b) Earthmoving Contractors (to remove hay).
        1) Backhoe.
        2) Crane with clam bucket.
        3) Dozer - Bobcats - Endloader.
        4) Contact is needed for response during and after the fire.

B) Fire Period.

1. Establish Command Post.

2. Size Up Fire Situation.
    a) Amount of equipment needed.
    b) Call mutual aid.
    c) Set up proper size attack lines.

3. Fire Attack.
    a) Protect exposures with minumum amount of water.
    b) Layout attack lines with enough fire flow to put out fire. (Length x width x height divided by 100 equal gallons per minute flow to control fire.)
    c) Protect exposures until this flow can be reached.
    d) When this flow can be reached, the fire can be attacked. The water must be put on or into the burning area. Do not wash the building.
    e) Two 1 - 1/2" handlines proceed into the cattle portion of the barn. Once they are in the doorway, they stop and control all fire extending down into this portion of the barn. All ceiling joist pockets along both sides of the barn. Hay loft

doors should be closed. Any cattle left in barn should be be removed if possible.

f) One 1 - 1/2" handline must be manned in the barn yard to protect the two 1 - 1/2" handlines in the building. Their job is to put out any fire which might endanger the waterflow to the entrance crew.

C) Salvage and Overhaul Period.

1) When fire in hay loft is knocked down, a crane with clam bucket, backhoe, bobcat, or whatever is available may be needed to remove the smoldering hay from the barn. A dozer endloader is needed to remove the smoldering hay to a safe location where it can burn out.

2) The hayloft floor must be swept clean and any holes patched.

3) A final check must be made to be sure fire is out.

4) Under freezing conditions, water collected in cement block type construction must be drained by breaking a hole in the block at the lowest point.

Glossary of Abbreviations

ACFX - ACF Industries (Cars are owned by this company. It does not indicate what is in the car.)
AFFF - Aqueous Film-Forming Foam
ALS - Advanced Life Support
ATSDR - Agency for Toxic Substance and Disease Registry
BASE - Township Fire Department Dispatch Center
BLEVE - Boiling Liquid Expanding Vapor Explosion
BOARD - Board of Directors of Township Fire Department, Inc.
CAD - Computer Aided Design
CAMEO - Computer Aided Management of Emergency Operations
CDL - Commercial Driver's License
CFR - Crash, Fire, Rescue
CHRIS - Chemical Hazards Information System
CISM - Critical Incident Stress Management
CO - Carbon Monoxide
Comm Center - Eau Claire County Communication Center
CP - Command Post
CTH - County Trunk Highway
Department - Township Fire Department
DNR - Department of Natural Resources
DOT - Department of Transportation
e.g. - for example

EMS - Emergency Medical Services
EOD - Explosive Ordnance Disposal
EPA - Environmental Protection Agency
EVOC - Emergency Vehicle Operators Course
FAA - Federal Aviation Agency
FD - Fire Department
FF - Firefighter
FIRE COMM - Fire Communications
Fire Department - Township Fire Department
GATX - General American Transportation Company (Car is owned by this company. It does not indicate what is in the car.)
GPM - Gallons per minute
HAZ MAT - Hazardous Material
HBV - Hepatitus B Virus
HIRT - Hazardous Material Response Team
HIV - Human Immunodeficiency Virus
HMRT - Hazardous Material Response Team
IC - Incident Command
ID - Identification
i.e. - that is
IFSTA - International Fire Service Training Association
ILHR - Department of Industry, Labor and Human Relations

Glossary of Abbreviations (Cont'd.)

JP4 - Jet propulsion grade 4 fuel
LDH - Large diameter hose
LP - Liquid propane
MABA - Mutual Aid Box Alarm
MARC - Mutual Aid Radio Channel
MSA - Mine Safety Appliance Company
MSDS - Material Safety Data Sheet
MSHA - Mine Safety and Health Administration
NFPA - National Fire Protection Association
NIOSH - National Institute for Occupational Safety and Health
NTSB - National Transportation Safety Board
OHM-TADA - Oil and Hazardous Material Technical Assistance Data System
OSHA - Occupational Safety and Health Administration
PASS - Personal Alert Safety System
PO - Purchase Order
PPM - Parts per million
PSI - Pounds per square inch
REHAB - Rehabilitation
RX - Receive
SCBA - Self-Contained Breathing Apparatus
SOG - Standard Operating Guidelines

STCC - Standard Transportation Commodity Code
TFD - Township Fire Department
TX - Transmit
USCG - United States Coast Guard
UTLX - Union Tank Car Leasing (Car is owned by this company. It does not indicate what is in the car.)