# Professional Interoperability

WORKING WITH RESCUE TEAMS ON A JOB SITE INCIDENT



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## Fire Department Technical Rescue Teams



### Shoring

Calculable Forces

Redundant Safety Systems

Predictable System Strengths



### Confined Space

Bombproof Anchors

Redundant Safety Systems

Predictable Anchor Strengths



### High Angle Rescue

**Bombproof Anchors** 

Redundant Safety Systems

Predictable Anchor Strengths

## Why so much redundancy?



## Why so much redundancy?

- The National Fire Protection Association (NFPA) is committed to advocating consensus codes and standards and providing research and education for fire and related safety issues.
- ▶ NFPA 1670, Standard on Operations and Training for Technical Search and Rescue Incidents. The scope "shall identify and establish levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to rescuers" (1.1.1). This standard's requirements "shall apply to organizations that provide response to technical search and rescue incidents...." (1.1.2).

## Standards for Technical Rescue

- Currently, NFPA 1670 addresses seven rescue disciplines:
- structural collapse,
- rope rescue,
- confined space search and rescue,
- vehicle and machinery search and rescue,
- water search and rescue,
- wilderness search and rescue, and
- trench evacuation search and rescue.

## Standards for Technical Rescue

- ▶ NFPA 1006, Standard for Rescue Technician Professional Qualifications. NFPA 1006 addresses standards for rescue technician professional qualifications.
- ▶ NFPA 1983, Standard on Fire Service Life Safety Rope and Equipment for Emergency Services
- ▶ NFPA 1983 is used primarily by manufacturers for minimum design performance, testing, and certification requirements. This standard is not a "use" standard but a good reference to use for understanding the equipment used in the industry. NFPA 1983 identifies labeling, design and construction requirements, performance, and testing requirements for system components.

## Standards for Technical Rescue

- NFPA 1500: Standard on Fire Department Occupational Safety and Health Program
- Regional Operational Standards
- Training Standards and philosophies
- Cultural Attitude
- Influence of Industry

## Example OSHA Guidelines

California Code of Regulations, Title 8, Section 3270.1. Use of Rope Access Equipment

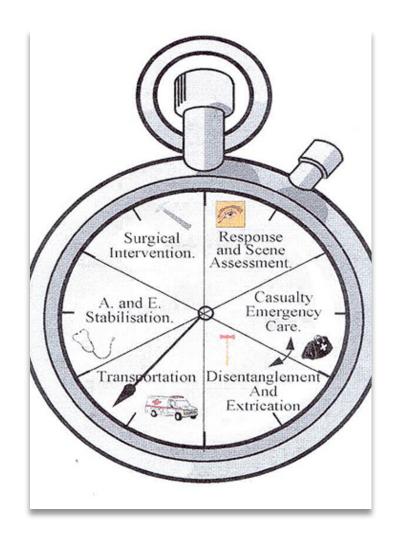
Subchapter 7. General Industry Safety Orders Group 1. General Physical Conditions and Structures Article 4. Access, Work Space, and Work Areas §3270.1. Use of Rope Access Equipment.

- (j) A safety, secondary, belay, or backup line, or other appropriate fall arrest device shall be used when the main line is the primary means of support, unless the employer can demonstrate that the second line or other fall arrest device would create a greater hazard or would otherwise be infeasible.
- (1) When a safety line is used in conjunction with the main line, each line shall be provided with a separate anchor, and shall be separately fixed to the employee's harness. This shall not prohibit both lines from being attached to a single harness attachment point.

## The Lost Message.

In the true sense of having redundant systems, each item in a system must be backed upstarting at the anchor continuing to the load. This is **strived** for when creating two-line systems. There may be times when it is not possible or practical to construct a perfectly redundant system.

# The Golden Hour



## Multiple Layers Of Disconnect

The average rescue time of a person in a tree where no access with an Aerial Device is present is 3.5 hours.



# KEEP CALM ONLY **3.5 HOURS** TO GO

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## Tree Care Industry Accident Reports

Reported Accidents in 2016: Injuries - 54 Fatalities - 67

Tree Care Professionals: Injuries - 15 Fatalities - 18 Civilian: Injuries - 31 Fatalities - 30

Job Related: Injuries - 2 Fatalities - 10 Unknown: Injuries - 4 Fatalities - 7

Reported Accidents in May 2016: Injuries - 4 Fatalities - 7

Click here to read our disclaimer

Did we miss something? Submit an Accident Report

#### **Recent Accidents**



Accidents Fatality

Teenager dies after becoming entangled in stump grinder



Man dies after being run over by a logging truck

🖰 May 13, 2016 🌘 Comments



Man dead after trimming trees in his back yard

🖰 May 10, 2016 🌘 Comments



Elderly Man Struck By Falling Tree in Clinton



Man hospitalized after

#### Advertisement

#### **Accident Calendar**

#### May 2016

S	M	Т	W	Т	F	S	
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	
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22	23	24	25	26	27	28	
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# The Team Capability and Incident Management Work so.....

## Where is the Disconnect?













## Lessons Learned via Post Incident Analysis

- Gear Purchase
- Incident Management Training
- Rescue Technician Training
- Establish Relationship With City Forestry Department
- Limitations of Current Gear and Equipment
- It Can and Will Happen In Our Backyard

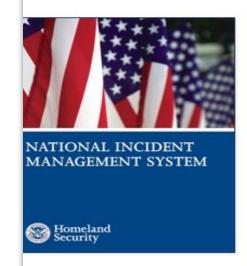
## Positive Industry Involvement

What can we do to save the lives of our coworkers?

## Education

Understanding
Policies and
Procedures of
Emergency
Responders.

- Where do we fit in to the system when 911 arrives?
- How can we do the greatest good during the rescue?
- How will our initial impression effect our involvement within the operation?
- Who do we talk to?
- ▶ Who is in charge?



### NIMS Overview

What ? . . . NIMS provides a consistent nationwide template . . .

Who? . . . to enable Federal, State, tribal, and local governments, the private sector, and nongovernmental organizations to work together . . .

How? . . . to prepare for, prevent, respond to, recover from, and mitigate the effects of incidents regardless of cause, size, location, or complexity . . .

Why? . . . in order to reduce the loss of life and property, and harm to the environment.

### National Incident Management System

February 28, 2003 President Bush issued Homeland Security Presidential Directive 5 (HSPD 5) (The White House, 2003). HSPD 5 directs all Federal agencies to take specific steps for planning and incident management

## Incident Command System

The Incident Command System (ICS) is a standardized approach to the command, control, and coordination of emergency response[1] providing a common hierarchy within which responders from multiple agencies can be effective.

ICS was initially developed to address problems of inter-agency responses to wildfires in California and Arizona but is now a component of the National Incident Management System (NIMS)[2] in the US, where it has evolved into use in All-Hazards situations, ranging from active shootings to HazMat scenes.[3] In addition, ICS has acted as a pattern for similar approaches internationally.[4]

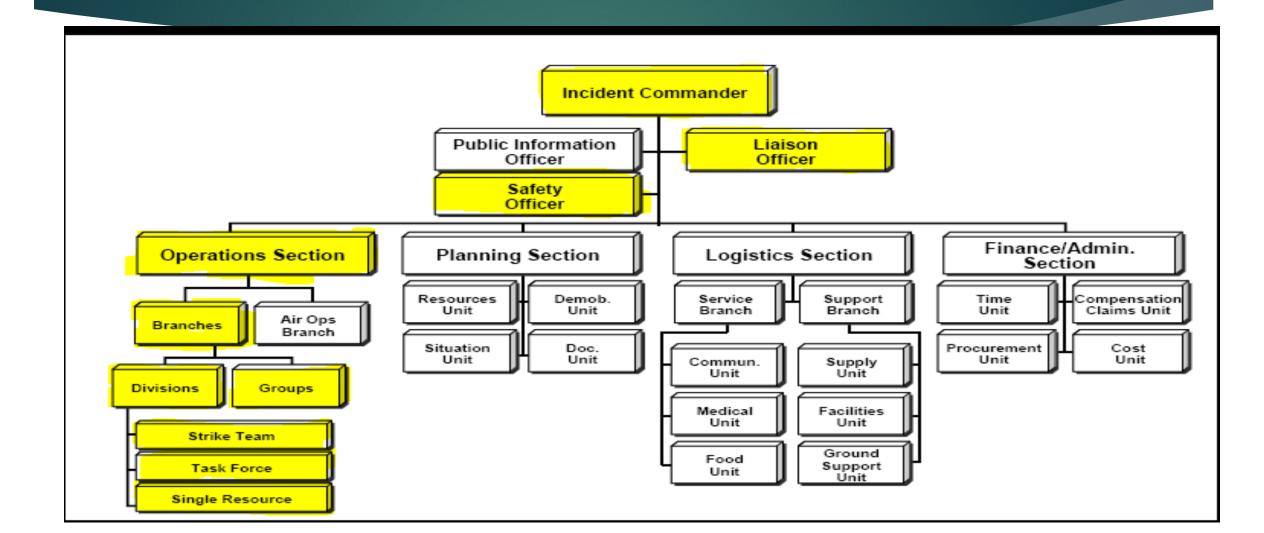
## ICS Key Concepts

- Unity of Command
- Common Terminology
- Management by Objective
- Flexible and Modular Organization
- Span of Control

## ICS Benefits

- One of the benefits of the ICS is that it allows a way to coordinate a set of organizations who may otherwise work together sporadically
- Incident Action Plans provide a coherent means of communicating the overall incident objectives for both operational and support activities.
- Central Leadership and Decision Making
- Linear flow of information.
- Everyone knows who they answer to and what they are responsible for.
- Organized and user friendly

## ICS Structure



### ICS Functional Positions

## ►Incident Commander

Single incident commander - Most incidents involve a single <u>incident</u> <u>commander</u>. In these incidents, a single person commands the incident response and is the decision-making final authority.





### ICS Positions

## ► Safety Officer

► The **Safety Officer** - (SO) function is to develop and recommend measures for assuring personnel safety, and to monitor and/or anticipate hazardous and unsafe situations. Only one SO will be assigned for each incident.

### ICS Positions

## Operations Section Chief

▶ Responsible for the management of all **operations** directly applicable to the primary mission. The OPS activates and supervises organization elements in accordance with the Incident Action Plan (IAP) and directs its execution.

## ICS Positions

- ▶ Additional positions depend entirely on the incident needs.
- Ex; Rigging, Haul Team, Rescue Team, Lockout Tag-out.
- Medical

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#### PHOENIX REGIONAL

#### TREE RESCUE OPERATIONS

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#### SCOPE

This procedure establishes a standard structure and guideline for all fire department personnel operating at incidents involving tree rescue operations. The procedure outlines responsibilities for first-responders, TRT units, Command Officers, and other fire department personnel responding to such incidents. All other Phoenix Fire Department procedures shall apply to tree rescue operations where applicable.

#### PURPOSE

The purpose of this procedure is to establish guidelines for the response of fire department personnel and equipment to tree rescue incidents. Because tree rescue operations present a significant danger to fire department personnel, the safe and effective management of these operations require special considerations. This procedure identifies some of the critical issues which must be included in managing these incidents.

#### TACTICAL CONSIDERATIONS

Due to the inherent dangers associated with these operations, the Phoenix Fire Department Risk Management Profile shall be applied to all tree rescue operations and shall be continuously re-assessed throughout the incident. A phased approach to tree rescue operations which include; Arrival, Pre-rescue operations, Rescue operations, and Termination, can be utilized to safely and effectively mitigate these high-risk / low-frequency events.

#### Phase I Arrival.

- I. ESTABLISH COMMAND
  - First arriving company officer shall assume Command and begin an immediate sizeup of the situation.
  - B. First arriving TRT unit that is staffed with a TRT Company Officer should be assigned Rescue Sector. The TRT Company Officer assigned as Rescue Sector should remain with his crew. Rescue Sector responsibilities include:
    - Assuming technical rescue operations control.
    - Identifying hazards and critical factors.
    - Developing a rescue plan and back-up plan.
    - Communicating with and directing TRT resources assigned to Rescue Sector.
    - Informing Command of conditions, actions, and needs during all phases of the rescue operation.
  - C. Designate a Safety Officer. Considerations for Safety Officer include:
    - · One of the Regional Special Operations qualified Safety Officers.
    - A Special Operations qualified Battalion Chief and/or FIT.
    - Any experienced TRT Company Officer assigned to the incident.

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- D. Following the transfer of Command to a Command Officer, a Technical Advisor should be assigned to join the Command Team at their location to assist in managing personnel and resources engaged in the technical aspects of the incident. The Technical Advisor is responsible for ensuring that the rescue plan developed by Rescue Sector and communicated to Command is a sound plan in terms of the safety and welfare of both victim(s) and rescuers. Considerations for the Technical Advisor include:
  - A Special Operations qualified Battalion Chief and/or FIT.
  - · One of the Regional Special Operations qualified Safety Officers.
  - · Any experienced TRT Company Officer assigned to the incident.

The Technical Advisor position within the Command Team should be filled prior to the implementation of any rescue plan proposed by Rescue Sector.

#### II. Size-Up

- A. Secure a witness or responsible party to assist in gathering information to determine exactly what happened. If no witnesses are present, Command may have to look for clues on the scene to determine what happened.
- B. Assess the immediate and potential hazards to the rescuers.
- Isolate immediate hazard area, secure the scene, and deny entry for all non-rescue personnel.
- D. Assess on-scene capabilities and determine the need for additional resources.

#### Phase II Pre-rescue Operations

It must be determined if this will be a RESCUE operation or a RECOVERY operation based on the survivability profile of the victim(s) which include factors such as the location and condition of the victim(s), and elapsed time since the accident occurred.

#### I. MAKE THE GENERAL AREA SAFE

- A. Establish a hazard zone perimeter 50 feet around the tree.
  - · Keep all non-essential rescue personnel out of the hazard zone.
  - Remove all non-essential civilian personnel at least 150 feet away from the tree.

#### II. MAKE THE RESCUE AREA SAFE

- A. Maintain awareness of all electrical lines in the vicinity.
- B. Watch for falling debris, branches, or tree skirt which can become particularly problematic during windy conditions.

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C. Identify any other hazards that are present and ensure they are secured and made safe.

#### Phase III Rescue Operations

Technical rescue operations shall be conducted under the direction of Rescue Sector by trained Technical Rescue Technicians.

#### I. RESCUE SECTOR

Rescue Sector responsibilities shall include the following:

- Ensure that all personnel operating in Rescue Sector are accounted for and wearing appropriate PPE.
- · Develop a rescue plan and a back-up plan.
- Ensure the plan and back-up plan, which include emergency procedures, are communicated to all personnel operating on the incident.

#### II. THE RESCUE PLAN

Rescue operations should be conducted with as little risk to the rescuers as necessary to affect the rescue. Low-risk operations may not always be possible but should be considered first. The order of rescue from low-risk to high-risk are:

#### A. Self-rescue.

If possible, talk the victim into self-rescue. Place a ground ladder or serial platform ladder under the victim and then coach the victim to climb down.

#### B. Aerial Platform Ladder Truck.

Rescue personnel should consider any hazards such as power lines hidden in the tree, the angle of the ladder, and the distance an aerial platform ladder needs to extend to reach the victim. When possible, consider removing obstacles that may be in the way of an aerial platform ladder truck.

#### C. Ground Ladders.

If it is not possible to reach the victim with an aerial platform ladder truck, ground ladders should be placed against the tree. The first ladder should go under the victim; the second ladder should go along side and slightly above the victim. Both ladders should be secured to the tree. A piece of webbing or small piece of rope works well for securing the ladder to the tree.

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#### D. Climb the Tree.

If serial platform ladder truck placement and ground ladder placement is not possible, the victim must be reached by climbing the tree. Tree climbing with approved equipment shall only be performed by trained TRT members. Rescue Sector shall assign two rescuers the task of climbing the tree and affecting the rescue. Consider that it may be necessary to remove fronds or branches from the tree to reach the victim and that tree climbing is a high-risk operation.

#### III. ASSESS THE VICTIM

When the rescuers reach the victim, a primary survey shall be completed and a determination as to the exact method of entrapment must be made. If the victim is conscious, rescuers should determine if the victim can assist in the rescue. If the victim is unconscious, the rescue must be completed quickly.

#### IV.RESCUE THE VICTIM

One rescuer should climb above and to the side of the victim and establish a point of attachment for a lowering system. At the same time, the other rescuer should climb to the victim and attach or "capture" the victim onto an approved rescue harness. On the ground, an approved and appropriate anchor and lowering system shall be established. Once the lowering system has been attached to the victim, the victim shall be disentangled from the tree, which may include cutting away any system the victim used to climb the tree, and lowered to the ground.

#### V. TREATMENT

- Complete a secondary survey on the victim.
- B. Provide for ALS level treatment and transportation to a hospital as

#### indicated. Phase IV Termination

- A. Ensure personnel accountability.
- B. Recover all tools and equipment used in the rescue/recovery. In cases of a fatality, consider leaving everything in place until the investigative process has been completed.
- C. Consider a Post Incident Critique (may be more appropriate at a later date).
- D. Return to service after returning all equipment to apparatus.

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#### ADDITIONAL CONSIDERATIONS

#### I. COMMAND STRUCTURE

- A. The first arriving unit shall assume Command of the incident. This unit shall remain in Command until Command is transferred to improve the quality of the Command organization. A Command Team shall be assembled to include, at a minimum, a Chief Officer and a Technical Advisor.
- B. Considerations for the Technical Advisor include:
  - A Special Operations qualified Battalion Chief and/or FIT.
  - · One of the Regional Special Operations qualified Safety Officers.
  - · Any experienced TRT Company Officer assigned to the incident.
- C. The first arriving TRT unit that is staffed with a TRT Company Officer should be assigned Rescue Sector. Rescue Sector shall communicate directly with TRT units assigned to the various functions within Rescue Sector and shall keep Command informed during all phases of the rescue operation.
- D. Considerations for Safety Officer include:
  - · One of the Regional Special Operations qualified Safety Officers.
  - · A Special Operations qualified Battalion Chief and/or FIT.
  - · Any experienced TRT Company Officer assigned to the incident.
- E. Treatment Sector should be assigned to any ALS company assigned to the incident.

#### II. OTHER CONSIDERATIONS

- Consider the effects of inclement weather on the hazard profile, the victim(s), and the resource
- B. Tree rescue incidents attract the news media; consider assigning a P.I.O.

Where do we fit into the system?

TECHNICAL ADVISOR
SUBJECT MATTER EXPERT
RESPONSIBLE PARTY

#### Incorporating Citizen "Experts"

- Liability
- Malpractice Insurance
- Vetting Qualifications and Expertise
- Public agency officials may be reluctant to accept high-level management advice because they may not be comfortable with the source's objectivity or expertise.
- Private-sector assets do not have the liability immunity for public management that is enjoyed by public officials when acting within their established capacity. This may create a reluctance to engage in public decision-making without reliable assurance that they will not incur unacceptable legal risk.

#### Developing a Relationship between Assets

- Establish Contact with local response teams.
- Create an event for mutual understanding and familiarity.
- Liaison for joint training evolutions.
- Be a resource in your area of expertise.
- Provide incentive for mutual training.
- Understand restrictions based on liability and policies and procedures.
- Sell your ideas with as much data driven research as possible.



### Incident Actions

- First Arriving 911 Unit conducts a "Size up"
- Determines Situation
- Establishes Command
- Evaluates Needs for Additional Resources
- Begins Incident Action Plan
- Establishes Safety "Zones"
- Evaluates Scene Safety

- Assign one representative/Technical Advisor to provide information to initial arriving unit.
- Report to initial Incident Commander. Usually rides in the right front seat of apparatus. Usually either a white or red helmet.
- Establish a line of communication and be the single point of contact.

- **S**: Situation
- Number of victims
- Events of Accident: Fall, Struck by, Electrocution, Medical, Cut

#### • <u>T:</u> Tree Condition

- Type of Work Conducted: Hazardous Removal, Pruning
- Tree Health and Structural Concerns
- Overview of Hazardous Tree and Preclimb Inspection

- A: Actions Taken
- Attempted Rescue
- Medical Care Rendered
- Electricity Secured
- Instructions for Self Rescue
- Rescuer Aloft

- <u>T:</u> Technical Information
- Climbing System
- Tie In Points
- Rigging Points
- Rope Identification
- Loads other than Victim on Ropes

- <u>S:</u> Patient Specifics
- Age
- Medical History
- Medications
- Allergies
- Drug or Alcohol Use
- Emergency Contact Information
- Responsible Party Information

#### Conclusion and Discussion

- The key to success is a mutual understanding of each others procedures, abilities and limitations.
- Have a complete understanding of how the system works and how to integrate into the command structure.
- Recognize the operational procedures taken and respect the requirement to approach situations with different operational techniques.
- Understand the responsibility for the scene, the liability involved, and the laws that govern incident management and scene control.







#### Conclusion and Discussion

- Get out and foster relationships.
- Train together.
- Assist with purchase specifications and recommendations.
- Follow up with team leaders and provide feedback.
- Continue to sell your "product" with updates and data driven examples.
- Consider local industry events with multiple agencies.
- Keep up with information sharing.

#### Conclusion and Discussion

