Orientation and Evaluation of the Incident Command System (ICS)
While the military may have a different view of the Incident Command System (ICS) as a relatively recent innovation in emergency response, the Cole Report that follows sets out to do a 25 year evaluation of ICS by California practitioners. The principal investigator links the inception of ICS to the response of seven agencies to the “disastrous 1970 wildfire season in California.” (Cole 207) It is a standard academic research project and should enable professionals in the field to participate in a post-facto evaluation of their own. The ICS questionnaire in Appendix A used to gather the data and the rationale for her findings are included. Students should read the document carefully, complete the items in Appendix A and do a class compilation to determine agreement or disagreement with the list of strengths and weaknesses.

Before reading the Cole Report, a copy of the self-paced ICS orientation provides an understanding of terminology and procedure. The document is one in a series developed by the National Wildfire Coordinating Group (NWCG). Other modules available from NWCG include: Principles and Features of ICS, Incident Facilities, Incident Resources and ICS Common Responsibilities.

Sustained ICS emerged as a post 9/11 issue for FDNY. While extraordinarily well trained and prepared for the “ordinary” emergency in New York City, maintaining command over a sustained period of time is truly “extraordinary.” Typically a fire or a street response begins and ends before the next tour comes on duty. Even multiple-alarms rarely extend beyond 8 or 12 hours. Firefighters perform their function, assure that the fire is out or that victims receive appropriate medical service and turn the “clean-up” over to police and other emergency medical personnel. With increased terrorism on the horizon, expertise of the agencies accustomed to sustained incidents such as forest fire, earthquake and other natural disasters led to increased ICS training.

Format changes have been made to facilitate reproduction. While these research projects have been selected as outstanding, other NFA EFOP and APA format, style, and procedural issues may exist.

INCIDENT COMMAND SYSTEM

NATIONAL TRAINING CURRICULUM

ICS ORIENTATION

CERTIFICATION STATEMENT on behalf of the

NATIONAL WILDFIRE COORDINATING GROUP

The following training material attains the standards prescribed for courses developed under the interagency curriculum established and coordinated by the National Wildfire Coordinating Group. The instruction is certified for interagency use and is known as: ICS Orientation

Description of the Performance Based System

The Wildland Fire Qualifications System is a “performance based” qualifications system. In this system, the primary criteria for qualification is individual performance as observed by an evaluator using approved standards. This system differs from previous wildland fire qualifications systems which
have been “training based.” Training based systems use the completion of training courses or a passing score on an examination as a primary criteria for qualification.

A performance based system has two advantages over a training based system:

- Qualification is based upon real performance, as measured on the job, versus perceived performance, as measured by an examination or classroom activities.
- Personnel who have learned skills from sources outside wildfire suppression, such as agency specific training programs or training and work in prescribed fire, structural fire, law enforcement, search and rescue, etc., may not be required to complete specific courses in order to qualify in a wildfire position.

1. The components of the wildland fire qualifications system are as follows:
   a. Position Task Books (PTB) contain all critical tasks which are required to perform the job. PTB’s have been designed in a format which will allow documentation of a trainee's ability to perform each task. Successful completion of all tasks required of the position, as determined by an evaluator, will be the basis for recommending certification.

   IMPORTANT NOTE: Training requirements include completion of all required training courses prior to obtaining a PTB. Use of the suggested training courses or job aids is recommended to prepare the employee to perform in the position.

   b. Training courses and job aids provide the specific skills and knowledge required to perform tasks as prescribed in the P113.

   c. Agency Certification is issued in the form of an incident qualification card certifying that the individual is qualified to perform in a specified position.

2. Responsibilities

   The local office is responsible for selecting trainees, proper use of task books, and certification of trainees, see the Task Book Administrators Guide 330-1 for further information.

PREFACE

This module is one of seventeen modules which comprise the Incident Command System (ICS) National Training Curriculum. The entire curriculum has been developed by an interagency steering group and a contract consultant. The curriculum was sponsored by the National Wildfire Coordinating Group, and development was directed and supported by the National Interagency Fire Center, Division of Training. The Steering Group was represented by several application areas (Search & Rescue, Law Enforcement, Structural Fire, Wildfire, etc.) which guided the work of the contractor in the development of this package.
Orientation and Evaluation of the Incident Command System (ICS)

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STUDENT INFORMATION

INTRODUCTION TO REFERENCE TEXT
ICS Orientation is designed to help you learn the principles of the Incident Command System and to briefly acquaint you with the basic ICS structure and terminology.

The majority of the reference text is to be used as a note-taking guide, but other practical information and exercises are included that replicate situations you may encounter in any incident. Many are applicable in planning and conducting planned events as well.

To measure how well you received and retained this information, there will be a final examination covering all the course material.

We hope you will have a good learning experience which helps you accomplish your job more effectively.

COURSE DESCRIPTION
ICS Orientation is intended for personnel assigned to an incident or event who have a minimum requirement for understanding ICS. This module reviews the ICS organization, basic terminology, and common responsibilities. It will provide enough information about the Incident Command System to enable you to work in a support role at an incident or event, or to support an incident from an off-site location.

This module may also be used as a pre-course study program by personnel who will be continuing their training with additional modules.

TARGET AUDIENCE
This is an orientation for entry-level personnel assisting at an incident or event, persons working in support roles, and off-incident personnel who require a minimum of ICS orientation.

SUGGESTED PREREQUISITE MODULES
This is the first of seventeen modules of the ICS National Training Curriculum. No prerequisites are necessary.

There are other ICS National Training Curriculum materials which will help you understand this course material more easily. You may wish to obtain copies of the following documents:

ICS Development Paper
ICS Glossary
ICS Forms Manual
ICS Position Descriptions & Responsibilities

Contact the person assigned to administer and assist you with completing this self-paced instruction for help in acquiring copies of the documents listed above.
INSTRUCTIONAL OBJECTIVES
At the conclusion of this self-study module, you should be able to do the following:

1. List the five major organizational activities within the Incident Command System and explain their primary functions.
2. Give the titles, and explain the duties of Command and General Staff members.
3. Match organizational units to appropriate Operations, Planning, Logistics, or Finance Sections.
4. Match supervisory titles with appropriate levels within the organization.
5. Describe the terms used to name major incident facilities, and state the function of each.
6. Describe what an Incident Action Plan is and how it is used at an incident.
7. Describe how span of control functions within the incident organization and in the use of resources.
8. Describe the common responsibilities (general instructions) associated with incident or event assignments.
9. Describe several applications for the use of ICS.

DELIVERY METHOD
This module is self paced.

For successful completion of this course, you must receive a minimum of 70% average score on the final exam.

A self-study examination is located at the back of the module.

DURATION
This module can be completed in two-to-four hours of self-paced study time.

EVALUATION
An evaluation summary questionnaire is included in Appendix A. It is to be completed and returned to the person assigned to administer and assist you with the completion of the course.
ICS ORIENTATION

I. Introduction

The Incident Command System is used to manage an emergency incident or a non-emergency event. It can be used equally well for both small and large situations.

The system has considerable internal flexibility. It can grow or shrink to meet differing needs. This makes it a very cost-effective and efficient management system. The system can be applied to a wide variety of emergency and non-emergency situations. Listed below are some examples of the kinds of incidents and events that can use the ICS:
Orientation and Evaluation of the Incident Command System (ICS)

Figure 1–2. Application for the Use of The Incident Command System

- Fires, HAZMAT, and multicasualty incidents
- Multijurisdiction and multi-agency disasters
- Wide-area search and rescue missions
- Pest eradication programs
- Oil spill response and recovery incidents
- Single and multi-agency law enforcement incidents
- Air, rail, water, or ground transportation accidents
- Planned events; e.g., celebrations, parades, concerts
- Private sector emergency management programs
- State or local major natural hazards management

ICS has a number of features which will be covered in this module. Major areas to be covered include:

- ICS Organization
- Incident Facilities
- The Incident Action Plan
- Span of Control
- Common Responsibilities
- Applications

II. ICS Organization

Every incident or event has certain major management activities or actions that must be performed. Even if the event is very small, and only one or two people are involved, these activities will still always apply to some degree.

The organization of the Incident Command System is built around five major management activities. These are depicted in Figure 1-3.

Figure 1–3. Incident Command System Major Activities

**COMMAND**
SETS OBJECTIVES AND PRIORITIES, HAS OVERALL RESPONSIBILITY AT THE INCIDENT OR EVENT

**OPERATIONS**
CONDUCTS TACTICAL OPERATIONS TO CARRY OUT THE PLAN, DEVELOPS THE TACTICAL OBJECTIVES, ORGANIZATION, AND DIRECTS ALL RESOURCES
These five major management activities are the foundation upon which the ICS organization develops. They apply whether you are handling a routine emergency, organizing for a major event, or managing a major response to a disaster.

On small incidents, these major activities may all be managed by one person, the Incident Commander (IC). Large incidents usually require that they be set up as separate Sections within the organization as shown in Figure 1-4 below.

Each of the primary ICS Sections may be sub-divided as needed. The ICS organization has the capability to expand or contract to meet the needs of the incident.

A basic ICS operating guideline is that the person at the top of the organization is responsible until the authority is delegated to another person. Thus, on smaller situations where additional persons are not required, the Incident Commander will directly manage all aspects of the incident organization.

Now we will look at each of the major functional entities of the ICS organization starting with the Incident Commander and the Command Staff.
A. Incident Commander and the Command Staff

Incident Commander

The Incident Commander is the person in charge at the incident, and must be fully qualified to manage the incident. As incidents grow in size or become more complex, a more highly qualified Incident Commander may be assigned by the responsible jurisdiction or agency. The Incident Commander may have one or more deputies from the same agency or from other agencies or jurisdictions. Deputies must always be as qualified as the person for whom they work.

The Incident Commander may assign personnel for both a Command Staff and a General Staff. The Command Staff provides Information, Safety, and Liaison services for the entire organization. The General Staff are assigned major functional authority for Operations, Planning, Logistics, and Finance/Administration.

Initially, assigning tactical resources and overseeing operations will be under the direct supervision of the Incident Commander. As incidents grow, the Incident Commander may delegate authority for performance of certain activities to others as required.

Taking over command at an incident always requires that there be a full briefing for the incoming Incident Commander, and notification that a change in command is taking place.

Command Staff

In addition to the primary incident response activities of Operations, Planning, Logistics, and Finance/Administration, the Incident Commander has responsibility for several other important services. Depending on the size and type of incident or event, it may be necessary to designate personnel to handle these additional activities.

Persons filling these positions are designated as the Command Staff and are called Officers. The Command Staff is shown in Figure 1-5. There is only one Command Staff position for each of these functions. The Command Staff does not have deputies. However, each of these positions may have one or more assistants if necessary. On large incidents or events, it is not uncommon to see several assistants working under Command Staff Officers.
Figure 1-5  ICS Command Staff

- Information Officer—The information officer will be the point of contact for the media, or other organizations seeking information directly from the incident or event. Although several agencies may assign personnel to an incident or event as Information Officers, there will only be one Incident Information Officer. Others will serve as assistants.

- Safety Officer—This individual monitors safety conditions and develops measures for assuring the safety of all assigned personnel.

- Liaison Officer—On larger incidents or events, representatives from other agencies (usually called Agency Representatives) may be assigned to the incident to coordinate their agency’s involvement. The Liaison Officer will be their primary contact.

B. The General Staff

The people who perform the four major activities of Operations, Logistics, Planning, and Finance/Administration are designated as the General Staff.

Figure 1-6  ICS General Staff

THE INCIDENT COMMAND SYSTEM GENERAL STAFF
- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Finance/Administration Section Chief
Each of the General Staff may have a deputy or more than one if necessary. The role of the deputy position is flexible. The deputy can work with the primary position, work in a relief capacity, or be assigned specific tasks. Deputies should always be as qualified as the person for whom they work.

In large events, especially where multiple agencies or jurisdictions are involved, the use of deputies from other agencies can greatly increase interagency coordination.

At the Section level, the person in charge will be designated as a Chief. For example, in the Logistics Section, the person in charge will always be called the Logistics Section Chief.

Within the ICS organization, there are a number of organizational elements which can be activated as necessary. Each of the major Sections has the ability to expand internally to meet the needs of the situation.

Let's start with the Operations Section of the ICS organization.

1. Operations Section

   The Incident Commander will determine the need for a separate Operations Section at an incident or event. Until Operations is established as a separate Section, the IC will have direct control of tactical resources.

   When activating an Operations Section, the IC will assign an individual as the Operations Section Chief. The Operations Section Chief will develop and manage the Operations Section to accomplish the incident objectives.

   There is only one Operations Section Chief for each operational period. That person is normally (but not always) from the jurisdiction or agency which has the greatest involvement either in terms of resources assigned or area of concern. The Operations Section Chief may have deputies from the same agency, or from other agencies or jurisdictions. Using deputies from other agencies often helps in the coordination of actions.

   Within the Operations Section, two additional levels of organization can be used as necessary. These are Divisions and/or Groups, and Branches.

   **Divisions**

   The Operations organization usually develops from the bottom up. This is due to the need to expand supervision as more and more resources are applied. For example, the Incident Commander or the Operations Section Chief on an incident may initially work with only a few single resources. This is shown in Figure 1-7.
As more resources are added to the incident, another layer of organization may be needed within the Operations Section to maintain proper span of control (see page 21). Normally, this will be done at the Division or Group level as shown in Figure 1-8.

The goal is to keep the organization as simple and as streamlined as possible, and not to overextend the span of control.

A Division is established to divide an incident geographically. How that will be done will be determined by the needs of the incident. Divisions covering an area on the ground are usually labeled by letters of the alphabet. Within a building, divisions are often designated by floor numbers. The important thing to remember about ICS divisions is that they describe some geographical area related to incident operations.

Groups

Groups are established to describe functional areas of operation. The kind of group to be established will be determined by the needs of an incident. For example, in an earthquake incident with widespread structural damage, search and rescue activity would be organized geographically, using divisions.

A specialized resource team using dogs or electronic equipment in an earthquake, or a salvage group in a maritime incident may be designated as functional groups. Groups will work wherever they are needed, and will not be assigned to any single division.
Divisions and Groups can be used together on an incident. Divisions and Groups are at an equal level in the organization. One does not supervise the other. When a functional group is working within a division on a special assignment, division and group supervisors must closely coordinate their activities. Division and group supervisors always report to the Incident Commander unless the Operations Section Chief and/or Branch Director have been established. Deputies are not used at the Division and Group level.

**Branches**

On some incidents, it may be necessary to establish another level of organization within the Operations Section called Branches.

There are generally three reasons to use Branches on an incident or an event:

- **Span of Control** (see page 21)—If the number of Division and Groups exceeds the recommended Span of Control, another level of management is necessary. Span of Control will be discussed in more detail later in this module.

- **Need for a Functional Branch Structure**—Some kinds of incidents have multiple disciplines involved, e.g., police, fire, search and rescue, and medical, that may create the need to set up incident operations around a functional branch structure.

- **Multijurisdictional Incidents**—In some incidents it may be better to organize the incident around jurisdictional lines. In these situations, Branches may be set up to reflect differences in the agencies involved. For example, in flooding, earthquake, or wildfire incidents, federal, county, and city property all could be simultaneously affected. One way of organizing operations in these kinds of incidents is to designate a separate Branch for each of the agencies involved.

Various kinds of Branch alignments are shown in Figure 1-9 below.

**Figure 1-9 Options for Establishing Branches Within ICS**

*Geographic Branches*  
Operations Section Chief

Branch 1  
Division A

Branch 2  
Division B

*Functional Branches*  
Operations Section Chief

Medical  
Search  
Security
Each branch that is activated will have a Branch Director. Deputies may be used at the Branch level.

There are two other parts of the Operations Section that you may need to understand.

**Air Operations**

If established separately at an incident, Air Operations will be activated at the Branch level within the Operations Section. Usually this is done on incidents which may have complex needs for the use of aircraft in both tactical and logistical operations.

**Staging Areas**

Staging Areas may be established wherever necessary to temporarily locate resources awaiting assignment. Staging Areas and the resources within them will always be under the control of the Operations Section Chief. Staging Areas will be discussed later under incident facilities.

**Summary**

There is no one “best” way to organize an incident. The organization should develop to meet the functions required. The characteristics of the incident and the management needs of the Incident Commander will determine what organization elements should be established. The incident organization may change over time to reflect the various phases of the incident.

2. Planning Section

**Figure 1-10 Planning Section**
Briefly stated, the major activities of the Planning Section are to:

- Collect, evaluate, and display information about the incident.
- Develop Incident Action Plans for each operational period, conduct long-range planning, and develop plans for demobilization at the end of the incident.
- Maintain resource status on all equipment and personnel assigned to the incident.
- Maintain incident documentation.

The Planning Section is also the initial place of check-in for any Technical Specialists assigned to the incident. Depending on their assignment, Technical Specialists may work within the Planning Section, or be reassigned to other incident areas.

Several Planning Section Units may be established. Duties of each Unit are covered in other modules. Not all of the Units may be required, and they will be activated based upon need. Planning Section Units are shown in Figure 1-10.

3. Logistics Section

**Figure 1-11  Branches and Units in the Logistics Section**

The Logistics Section is responsible for all of the services and support needs of an incident, including obtaining and maintaining essential personnel, facilities, equipment, and supplies.

The Incident Commander will determine the need to establish a Logistics Section on the incident. This is usually determined by the size of the incident, complexity of support, and how long the incident may last. Once the IC determines that there is a need to establish a separate Logistics function, an individual will be assigned as the Logistics Section Chief.

Six functional units can be established within the Logistics Section. If necessary, a two-branch structure can be used to facilitate span of control.
The titles of the units are self descriptive. Detailed duties of each unit are covered in other modules. Not all of the units may be required, and they will be established based upon need. Branches and Units in the Logistics Section are shown in Figure 1-11.

4. Finance/Administration Section

**Figure 1-12  Finance/Administration Section Units**

- Time Unit
- Procurement Unit
- Compensation/Claims Unit
- Cost Unit

The IC will determine if there is a need for a Finance/Administration Section, and designate an individual to perform that role. If no Finance Section is established, the IC will perform all finance functions. The Finance/Administration Section is set up for any incident that may require on-site financial management. More and more, larger incidents are using a Finance/Administration Section to monitor costs.

Smaller incidents may also require certain Finance/Administration functions. For example, the Incident Commander may establish one or more units of the Finance/Administration Section for such things as procuring special equipment, contracting with a vendor, or for making cost estimates of alternative strategies.

The Finance Section may establish four units as necessary. Duties of each unit are covered in other modules. Not all of the units may be required, and they will be established based upon need.

Finance/Administration Section Units are shown in Figure 1-12.

C. Organization Terminology

At each level in the ICS organization, individuals with primary responsibility positions have distinctive titles, as shown in Figure 1-13.
D. Incident Facilities

Facilities will be established depending on the kind and complexity of the incident or event. It is important to know and understand the names and functions of the principal ICS facilities. Not all of those listed below will necessarily be used.

Each of the facilities is briefly described below:

- **Incident Command Post (ICP)**—The location from which the Incident Commander oversees all incident operations. There is only one ICP for each incident or event. Every incident or event must have some form of an Incident Command Post.

- **Staging Areas**—Locations at which resources are kept while awaiting incident assignment. Most large incidents will have a Stag-
ing Area, and some incidents may have several. Staging Areas will
be managed by a Staging Area Manager who reports to the Oper-
ations Section Chief or to the Incident Commander if an Opera-
tions Section has not been established.

- **Base**—The location at the incident at which primary service and
support activities are performed. Not all incidents will have a
Base. There will only be one Base for each incident.

- **Camps**—Incident locations where resources may be kept to sup-
port incident operations. Camps differ from Staging Areas in that
essential support operations are done at Camps, and resources
at Camps are not always immediately available for use. Not all
incidents will have Camps.

- **Helibase**—A location in and around an incident area at which
helicopters may be parked, maintained, fueled, and equipped for
incident operations. Very large incidents may require more than
one Helibase.

- **Helispots**—Helispots are temporary locations where heli-
copters can land and load and off-load personnel, equipment, and
supplies. Large incidents may have several Helispots.

E. Incident Action Plan

Every incident *must* have an oral or written action plan. The purpose
of the plan is to provide all incident supervisory personnel with direc-
tion for future actions. Action plans which include the measurable tac-
tical operations to be achieved are always prepared around a time-
frame called an Operational Period.

Operational Periods can be of various lengths, but should be no longer
than twenty-four hours. Twelve-hour Operational Periods are common
on many large incidents. It is not unusual, however, to have much shorter
Operational Periods covering, for example, two- or four-hour time peri-
dods. The length of an Operational Period will be based on the needs of
the incident, and these can change over the course of the incident.

The planning for an Operational Period must be done far enough in
advance to ensure that requested resources are available when the
Operational Period begins.

Large incidents, which involve a partial or full activation of the ICS
organization, should have a written Incident Action Plan. Incidents
extending through an Operational Period should also have a written
Incident Action Plan to ensure continuity due to personnel changes.
The decision to have a written action plan will be made by the Inci-
dent Commander.
Several forms have been developed to help in preparing the Incident Action Plan. These are shown in Figure 1-15. They will be discussed in other modules.

**Figure 1-15  Forms Commonly Used in Incident Action Plan**

Essential elements in any written or oral Incident Action Plan are:

- **Statement of Objectives**—Appropriate to the overall incident.
- **Organization**—Describes what parts of the ICS organization will be in place for each Operational Period.
- **Assignments to Accomplish the Objectives**—These are normally prepared for each Division or Group and include the strategy, tactics, and resources to be used.
- **Supporting Material**—Examples can include a map of the incident, communications plan, medical plan, traffic plan, etc.

The Incident Action Plan must be made known to all incident supervisory personnel. This can be done through briefings, by distributing a written plan prior to the start of the Operational Period, or by both methods.

**F. Span of Control**

Span of Control means how many organizational elements may be directly managed by another person. Maintaining adequate Span of Control throughout the ICS organization is very important. Effective Span of Control may vary from three to seven, and a ratio of one to five reporting elements is recommended. If the number of reporting elements falls outside of those ranges, expansion or consolidation of the organization may be necessary. There will be exceptions, for
example in some applications specially trained hand crews may utilize a larger Span of Control.

**Figure 1-16 Recommended ICS Span of Control Guideline**

![Maintain span of control at 1 to 5](image)

**G. Common Responsibilities**

There are certain common responsibilities or instructions associated with an incident assignment that everyone assigned to an incident should follow. Following these simple guidelines will make your job easier and result in a more effective operation.

1. Receive your incident assignment from your organization. This should include, at a minimum, a reporting location and time, likely length of assignment, brief description of assignment, route information, and a designated communications link if necessary. Different agencies may have additional requirements.

2. Bring any specialized supplies or equipment required for your job. Be sure you have adequate personal supplies to last you for the expected stay.

3. Upon arrival, follow the Check-in procedure for the incident. Check-in locations may be found at:
   - Incident Command Post (at the Resources Unit)
   - Staging Areas
   - Base or Camps
   - Helibases
   - Division or Group Supervisors (for direct assignments)

4. Radio communications on an incident should use clear text, that is, *no* radio codes. Refer to incident facilities by the incident name, for example, Rossmoor Command Post, or 42nd Street Staging Area. Refer to personnel by ICS title, for example, Division C not numeric code or name.

5. Obtain a briefing from your immediate supervisor. Be sure you understand your assignment.
6. Acquire necessary work materials, locate, and set up your work station.

7. Organize and brief any subordinates assigned to you.

8. Brief your relief at the end of each Operational Period and, as necessary, at the time you are demobilized from the incident.

9. Complete required forms and reports and give them to your supervisor or to the Documentation Unit before you leave.

10. Demobilize according to plan.

III. Conclusion

The information you have learned through this short self-study module will provide you with enough general background to understand the principles and primary organizational elements of the ICS.

You are encouraged to expand your understanding of the ICS by taking other modules or courses.

Please complete the self-study examination starting on the next page.

Module 1—ICS Orientation Test

After you have completed your self-paced study of this module, answer the following questions:

1. Name the five major activities around which the ICS is organized.

2. The General Staff consists of:

3. Name the three major activities of the Command Staff.

4. The Incident Commander may have one or more deputies from the same agency or from other agencies or jurisdictions.
5. Deputies must always be as qualified as the person for whom they work.
   ________ True
   ________ False

6. Deputies may be used at which of the following levels of the ICS organization? (check all that apply)
   ________ Unit
   ________ Section
   ________ Command Staff
   ________ Divisions/Groups
   ________ Branch

7. For each of the organizational elements listed below on the left, designate the number for the appropriate ICS title.
   Branch _____________ 1. Leader
   Section _____________ 2. Officer
   Division _____________ 3. Supervisor
   Command Staff _____________ 4. Chief
   Group _____________ 5. Director
   ________ 6. Manager

8. Groups and Divisions are at the same organizational level.
   ________ True
   ________ False

9. List the principal facilities which may be located at an incident.

10. Groups have __________________________ responsibility.
    Divisions have __________________________ responsibility.
11. The decision to have a written Incident Action Plan is made by:

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<tr>
<th></th>
<th>Operations Section Chief</th>
<th>Incident Commander</th>
<th>Planning Section Chief</th>
<th>Safety Officer</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th></th>
<th>List of total resources assigned to incident</th>
<th>Objectives</th>
<th>List of agencies involved</th>
<th>Assignments</th>
<th>Supporting plans and material</th>
<th>Organization</th>
<th>Technical Specialist locations</th>
</tr>
</thead>
</table>

13. Check-in at an incident takes place at: (check all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Staging Areas</th>
<th>Base or Camps</th>
<th>Safety Officer</th>
<th>Procurement Unit</th>
<th>Helibases</th>
<th>Division or Group Supervisors (for direct assignments)</th>
</tr>
</thead>
</table>

14. Operational Periods are how long?

<table>
<thead>
<tr>
<th></th>
<th>One hour</th>
<th>Two hours</th>
<th>Not over twenty-four hours</th>
<th>Twelve hours</th>
<th>No fixed length</th>
</tr>
</thead>
</table>

15. Air operations if activated at an incident will be at what organizational level?

<table>
<thead>
<tr>
<th></th>
<th>Division</th>
<th>Unit</th>
<th>Section</th>
<th>Branch</th>
</tr>
</thead>
</table>
16. Span of control at an incident may vary within what range?

- One to five
- Three to seven
- One to three

17. Listed below are the names of various organizational elements found within the ICS organization. Place the letter of the element on the row adjacent to the appropriate ICS Section.

Operations Section = O
Planning Section = P
Logistics Section = L
Finance/Admin. Section = F

<table>
<thead>
<tr>
<th>Element</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Unit</td>
<td>a.</td>
</tr>
<tr>
<td>Branch</td>
<td>b.</td>
</tr>
<tr>
<td>Food Unit</td>
<td>c.</td>
</tr>
<tr>
<td>Resources Unit</td>
<td>d.</td>
</tr>
<tr>
<td>Communications Unit</td>
<td>e.</td>
</tr>
<tr>
<td>Technical Specialists</td>
<td>f.</td>
</tr>
<tr>
<td>Division</td>
<td>g.</td>
</tr>
<tr>
<td>Documentation Unit</td>
<td>h.</td>
</tr>
<tr>
<td>Facilities Unit</td>
<td>i.</td>
</tr>
<tr>
<td>Compensation/Claims Unit</td>
<td>j.</td>
</tr>
<tr>
<td>Air Operations</td>
<td>k.</td>
</tr>
<tr>
<td>Ground Support Unit</td>
<td>l.</td>
</tr>
<tr>
<td>Staging Areas</td>
<td>m.</td>
</tr>
<tr>
<td>Situation Unit</td>
<td>n.</td>
</tr>
<tr>
<td>Time Unit</td>
<td>o.</td>
</tr>
<tr>
<td>Medical Unit</td>
<td>p.</td>
</tr>
<tr>
<td>Procurement Unit</td>
<td>q.</td>
</tr>
<tr>
<td>Demobilization Unit</td>
<td>r.</td>
</tr>
<tr>
<td>Group</td>
<td>s.</td>
</tr>
<tr>
<td>Supply</td>
<td>t.</td>
</tr>
</tbody>
</table>
18. Name five applications for the use of ICS.

19. Which of the following are general responsibilities associated with an assignment to an incident? (check all that apply)

- Use clear text in all radio communications at an incident.
- Know the names of all Command and General Staff.
- Bring any specialized supplies or equipment required for your job.
- Organize and brief any subordinates assigned to you.
- Prepare an information release for your agency.
- Upon arrival, follow the Check-in procedure for the incident.
- Report directly to a Staging Area.
- Obtain a briefing from your immediate supervisor.
- Ensure that all personnel assigned to you are from the same agency/jurisdiction.
- Demobilize according to plan.
- Attend all planning meetings.
- Brief your relief at the end of each Operational Period.
- Hold a strategy meeting with personnel from your agency.
- Complete required forms and reports and give them to your supervisor or to the Documentation Unit before you leave.
- Acquire necessary work materials, locate, and set up your work station.

20. Name the appropriate ICS organizational element that if activated directs the activities below.

- Responsible for Staging Areas.
- Provide support and services to meet incident needs.
- Set objectives and priorities.
- Collects and evaluates information, maintain status.
Appendix A  Evaluation Summary Questionnaire

Course Number and Title ________________________________
Date and Location ______________________________________
Lead Instructor _________________________________________
Telephone Number ______________________________________
Instructors ____________________________________________
______________________________________________________

1. Did instructors meet the required instructor prerequisites? Were course instructional and performance objectives achieved?
   ______________________________________________________

2. Were any modifications made to the published course package? If so, describe modifications and why they were needed.
   ______________________________________________________

3. List any specific problems with course materials identified by the students related to content, exercises, visual aids, tests, delivery methods, etc., during their evaluation of the course.
   ______________________________________________________
   ______________________________________________________

4. List any specific problems with course materials identified by the instructor or cadre related to the content, exercises, visual aids, delivery methods, etc., of the course.
   ______________________________________________________
   ______________________________________________________

5. List any other comments or recommendations about the course.
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

6. Please sign and date below to indicate that you have completed this questionnaire.
   ______________________________________________________
   ______________________________________________________

Signature: ____________________________________________
Date: ________________________________________________
Orientation and Evaluation of the Incident Command System (ICS)

5. What recommendations can you offer that would improve the ability to learn and/or teach the objectives of this course?

__________________________________________________________
__________________________________________________________

Please use additional pages as needed to complete your comments, then return to:

National Interagency Fire Center
Division of Fire and Aviation Training
Branch of Training Standards and Technology
3833 So. Development Avenue
Boise, Idaho 83705

THE INCIDENT COMMAND SYSTEM:
A 25-YEAR EVALUATION BY CALIFORNIA PRACTITIONERS

EXECUTIVE PLANNING

By: Dana Cole, Assistant Chief California Department of Forestry and Fire Protection St. Helena, California

Format changes have been made to facilitate reproduction. While these research projects have been selected as outstanding, other NFA EFOP and APA format, style, and procedural issues may exist.

An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

February 2000

ABSTRACT

Few innovations in recent years have had more impact on emergency services than the introduction and widespread adoption of the Incident Command System (ICS) for managing emergencies of all types. The problem addressed by this research is that, despite the emergence of ICS as the world's leading management system for the command, control, and coordination of emergency scenes, there has never been a comprehensive performance evaluation of the system.

The purpose of this research project was to provide the beginnings of a such an evaluation of ICS at the end of its first quarter-century of use in California. To accomplish this a system performance audit was conducted using information provided by Command and General Staff members of California's 17 standing major incident teams, most of whom have used ICS since its very inception in California in the 1970s.

An evaluative research methodology was applied using an approach called a “SWOT” analysis (the acronym standing for strengths, weaknesses, opportunities, and threats) to answer the following questions:
1. What are the primary strengths of ICS?

2. What are the primary weaknesses of ICS?

3. What strategic opportunities and threats are suggested by the analysis of ICS strengths and weaknesses?

To conduct the evaluation a 21-item survey instrument was distributed via electronic mail to 206 current and past Command and General Staff members of California’s major incident teams, which consist of representatives from local, state, and federal government agencies. Respondents rated 16 attributes of ICS on a 10-point scale. A 60 percent response rate allowed for rigorous statistical analysis of the results. A rank order listing of the attribute ratings is presented in Table 2, but perhaps the most significant result was that none of the ICS attributes received a mean rating in the lower half of the 10-point scale. Thus, statistically speaking, none of the ICS attributes was considered an absolute weakness by the sample population. Even the lowest-rated attribute, with a mean rating of 6.23, was rated significantly greater (at the 95 percent confidence level) than the statistical midpoint of the 10-point scale used.

Using statistical confidence intervals, the author stratified the 16 attributes into three mutually-exclusive tiers of statistical significance. The highest rated of these, or “first tier strengths,” represent the essence of what California’s veteran ICS practitioners most value about the system, which the author describes as predetermined internal alignment. The second and third tier attributes were also evaluated, and “opportunity targets” for improving ICS were identified, primarily in the area of improving the system’s external alignment with non-ICS users.

Based on the performance evaluation by California’s veteran ICS practitioners, the author offers three recommendations for improving the Incident Command System. The first of these is to establish a formalized national systems management process. Second, develop a strategy for promoting ICS as the standardized model for emergency management. And third, institutionalize an ongoing national systems evaluation process.
INTRODUCTION

One of the most significant trends to occur in the emergency services field during the last quarter of the twentieth century has been the widespread adoption of the Incident Command System (ICS) as “the model tool for the command, control, and coordination of resources and personnel at the scene of emergencies” (Federal Emergency Management Agency [FEMA], 1992).

The ICS was initially developed by a group of seven fire agencies who came together in the aftermath of the disastrous 1970 wildfire season in California. This coalition took the name Firefighting Resources of Southern California Organized for Potential Emergencies, or FIRESCOPE. Chartered by the U.S Congress in 1972, the FIRESCOPE coalition was charged with a national mandate to develop a system for multi-agency
coordination of complex emergencies that exceeded the capabilities of any single jurisdiction (FEMA, 1987).

As one of the original seven FIRESCOPE cooperators, the California Department of Forestry and Fire Protection (CDF) has participated in the development of ICS since the very beginning. CDF was among the first agencies to test the earliest versions of ICS, and to adopt ICS as the standard system for managing emergencies of all types.

Since 1987 CDF has continuously staffed a cadre of on-call Major Incident Command Teams. These teams, which also include representatives from local government, are available year-round to respond to the most complex and difficult incidents—typically those that exceed the management capability of single jurisdictions. Over the past 12 years these teams have managed hundreds of major incidents, including not only large wildfires but also high-rise fires, floods, earthquakes, multi-casualty incidents, hazardous materials accidents, search and rescue operations, and more. They have been sent to dozens of states across the U.S., as well as to other countries.

Within CDF there is no longer any doubt about the adaptability and effectiveness of ICS for managing emergencies. The majority of CDF’s employees have never known another system for managing emergencies, and although ICS was originally developed for use on major emergency incidents, the system has proven so adaptable that its principles have become integrated into most facets of CDF’s day-to-day emergency management activities. ICS is also being used increasingly as a management system for planned non-emergency events, such as major conferences and training exercises, and for coordinating long-term capital improvement projects.

From the birthplace of ICS in California to the National Fire Academy (NFA) and FEMA, the consensus among long-time practitioners seems to be that “ICS works.” In all my years as a member of a Major Incident Command Team, and in all my research and review of the literature, I have not yet heard a single suggestion that ICS should be abandoned. But neither have I heard anyone claim that ICS is perfect.

The specific problem that this research is meant to address is that, despite the widespread adoption of ICS, there has never been a comprehensive strategic evaluation of the system. The purpose of this research project is to provide the beginnings of a such an evaluation of the Incident Command System at the end of its first quarter-century of use in California. To accomplish this a system performance audit was conducted using information provided by some of the most experienced practitioners of ICS: current command and general staff members of California’s 17 standing Major Incident Teams. The target sample population represents some of California’s most seasoned fire and emergency professionals, many of whom have used ICS since its very inception, and in some cases, participated in the system’s design and development.
An evaluative research methodology was used to answer the following questions:

1. What are the primary strengths of ICS?
2. What are the primary weaknesses of ICS?
3. What strategic opportunities and threats are suggested by the analysis of ICS strengths and weaknesses?

BACKGROUND AND SIGNIFICANCE

California's wildfire problem has grown steadily throughout the twentieth century. By 1970 the problem had grown so severe that a series of devastating wildfires in late September completely overwhelmed the state's wildfire protection system. Several weeks of unrelenting Santa Ana winds had resulted in wildfires that raged from the Oakland Hills in the northern part of the state to the Mexican border, 400 miles to the south. Never before had so many fires, affecting so many communities, ignited in such a short period of time. And never before had the state's firefighting resources at all levels of government been spread so thin for such a sustained period. One fire alone, the Laguna Fire in San Diego County, had personnel and equipment committed from more than 70 fire departments.

By late September dozens of uncontrolled fires were simultaneously spreading across the Los Angeles Basin with no regard to jurisdiction—from national forests to unincorporated state watershed lands and regional parks, across county boundaries, and into the City of Los Angeles. Wildfires jumped freeways and roared through suburban housing developments. In the bedroom community of Chatsworth, for example, dozens of homes burned to the ground, none of them more than 5 years old. In all, 885 homes were destroyed and 16 people killed. The economic loss was approximately $233 million (FEMA, 1987).

But the numbers do not tell the story of the total chaos that enveloped the dozens of emergency services agencies that responded to these fast moving, erratic wildfires. A primary reason for the confusion was the sheer number of agencies involved, each with its own jurisdictional mandate. This resulted in a "stovepipe" management mentality in which each jurisdictional unit had its own vertical structure of policies and protocols, communications and feedback. In hindsight, responding departments recognized that the emphasis on vertical flow inhibited the sharing and coordination of information between jurisdictions. This meant that as fires burned across and out of one jurisdiction to another, individual jurisdictions were often "flying blind" and forced to improvise management response with no clear organization of authority between departments, no predetermined rules for collective decision-making, and no coordination of even the most basic communications.

The lack of unifying concepts and systems thinking resulted in unprecedented operational problems. Fire engines from the north part of the state
would pass engines from the south on Interstate 5, each dispatched to fires hundreds of miles away when they could have been dispatched closer to home. Confusion reigned over the nomenclature for equipment, lack of compatibility of communication frequencies and “ten-codes,” and disparate command and span-of-control management approaches used by the dozens of responding agencies. At times even the most experienced firefighters were forced to throw up their hands in the spiraling chaos that crashed the public fire protection system in California during September of 1970. While there were plenty of examples of heroic and effective firefighting, these were accomplished mostly on a freelance or ad hoc basis. Coordination was often impossible (FEMA, 1987).

The FIRESCOPE program rose out of the ashes of this multi-jurisdiction debacle when representatives from the initial seven cooperating fire agencies came together in mutual frustration. Working with consultants from the Rand Corporation and the aerospace industry, who brought with them the latest concepts in the burgeoning field of “systems theory” (Lilienfeld, 1978), the FIRESCOPE partners began to develop improved procedures for utilizing and coordinating firefighting resources. This included the development of a new systems approach to overcoming the complexities of emergency management. In the early 1970s this new “Incident Command System” represented one of the first practical applications of modern systems thinking to the organizational management of complex and dynamic operational problems. The key to this systems approach was the recognition that “the fire problem and potential solutions must be addressed as a single entity consisting of the sum of all subsystems and their interrelationships” (Maloney and Potter, 1974).

By 1980 this evolving standardized emergency management system had taken root in California, and in 1982 it became a cornerstone of the National Interagency Incident Management System. A year later FEMA’s NFA adopted and began teaching ICS, which it recognizes as “the model tool” for emergency management (FEMA, 1992).

But ICS is far from perfect. As is the case with any rapidly growing technology, the adoption of ICS by new user groups is rarely painless or seamless. For example, few fire departments have escaped the “growing pains” that inevitably accompany the initial integration of ICS into traditional operational environments (Wenger, et al., 1990). For non-fire agencies, the transition to ICS has proven even more difficult. Law enforcement agencies, for example, have often been reluctant to “play by ICS rules” (Ullman, 1998). And when it comes to integrating non-government agencies and the private sector into incident operations and management, the challenges to using ICS can be even greater (Kincaid, 1997).

One of the problems often encountered when introducing ICS to new users is the difficulty in communicating key concepts and procedures that were developed primarily for emergency fire response to cooperators who may not have a fire background, or who may not even be emergency respon
ders at all. This can necessitate a virtual translation of terminology, principles, and working relationships to those cooperators who have little or no experience with ICS.

Adopting ICS represents a monumental change to many potential users. Before they will undertake such a substantial effort they must be convinced that the effort is warranted. Certainly one major incentive for fire agencies is the adoption of ICS by the NFA as the national emergency management standard, but other potential users may require a more thorough assessment of the pros and cons of ICS before embracing it. The intent of this research paper is to provide the beginnings of such an assessment based on the experience CDF and its partner fire agencies in California.

The approach taken in this research has been influenced by both the Strategic Management of Change (SMOC) and the Executive Planning courses at the NFA. With respect to SMOC, there has been perhaps no more significant strategic change in the California fire service over the past 25 years than the universal adoption of ICS. And yet according to the NFA’s “Change Management Model,” which is the cornerstone for the SMOC course, if change is to be strategically managed it must not merely be planned and implemented, but also formally evaluated (FEMA, 1996). This research is an attempt to begin just such a systematic evaluation of ICS from the point of view of some of California’s most experienced practitioners.

The evaluation approach taken in this research is specifically linked to the Applied Strategic Planning Model presented in the Executive Planning course (Goodstein, et. al., 1992). This model calls for organizations to identify and evaluate the strategic lines of business used to fulfill their missions. In the private sector, for example, a strategic line of business for a bank might be real estate loans. For this research I treated incident management as a strategic line of business for my department.

In the Applied Strategic Planning Model a performance audit is conducted using employees to evaluate the lines of business in which they work. This activity is accomplished through a tool called a “SWOT” analysis (the acronym standing for strengths, weaknesses, opportunities, and threats). The three research questions presented in the “Introduction” of this paper are designed to collectively comprise a SWOT analysis of California’s experience with the Incident Command System.

**LITERATURE REVIEW**

In *The Fifth Discipline*, the required text for the Executive Planning course, author Peter Senge (1990) describes five “component technologies that are converging to innovate learning organizations” (p. 6). It is the fifth of these that ties them all together into an “ensemble of technologies that are critical to each others’ success” (p. 6). The fifth discipline of Senge’s title is *systems thinking*. According to Senge:

> Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing pat-
terns of change rather than static “snapshots.” It is a set of general principles—distilled over the course of the twentieth century, spanning fields as diverse as the physical and social sciences, engineering, and management...for seeing the “structures” that underlie complex situations (Senge, 1990, p. 68).

The Incident Command System may well be considered one of the longest-running experiments in applied systems thinking. It is a systems design-in-progress that has been applied to literally thousands of “complex situations” worldwide during the last quarter of the twentieth century. It is a framework not just for “seeing” the interrelationships and structures that underlie crises, but also for managing them.

ICS allows management of the underlying structures of crisis at two primary levels: conceptual and operational. At the conceptual level it represents an acknowledgment that complex crises usually transcend jurisdictional and functional boundaries, and thus can best be addressed systematically. At the operational level this translates to a coordinated approach to crisis by all responding entities utilizing a prearranged system of constituent principles that are consistent from one incident to another, regardless of type, geography, or jurisdictional involvement.

Before strengths and weaknesses could be identified it was necessary to identify the most important constituent parts of the whole system. Perhaps the most valuable resource in this regard was a unique monograph published in 1987, in which FEMA cited the Incident Command System as an “exemplary practice in emergency management” due largely to a set of “unifying operational principles” (FEMA, 1987, p. 20).

Several authors subsequently suggested additional management principles that are built into ICS. Ted Goldfarb, a 33-year veteran of the New York City Fire Department, noted the importance of a clear chain of command and unity of command (i.e., each person reports to and receives orders from only one boss). Another principle he describes is “parity of authority and responsibility,” by which he means “each person receives the necessary authority to fulfill given responsibilities to accomplish goals” (Goldfarb, 1997).

Flexibility and adaptability are ICS strengths that are frequently mentioned in the literature. For example, FEMA training materials point out that while the ICS concept was originally devised to address complex wildfire scenarios in California, it has subsequently proven flexible enough for managing any type of emergency, including floods, hurricanes, earthquakes, hazardous material releases, riots, and other natural and human-caused emergency incidents (FEMA, 1992). Lois McCoy, President of the National Institute for Urban Search and Rescue, describes how ICS became the “preferred choice” for rescue operations, especially in multi-agency and long-term emergencies. In the 1989 double-deck freeway collapse in Oakland during the Loma Prieta Earthquake, she points out, the Oakland Fire Depart-
ment (which had not used ICS previously) “asked the State of California for assistance in its command and control operation. A CDF overhead team...was successfully integrated into a tired and overextended local command, without friction and with satisfactory operations continuing under ICS Unified Command” (McCoy, 1990, p. 11).

The adaptability of ICS means that the system can accommodate not only a variety of incident types, but also a variety of incident sizes and operational environments. Since specific functions and organizational elements are activated only at the time and to the extent dictated by the operational requirements of a particular incident, the system can be custom-scaled to the needs at hand (Chase, 1980; Goldfarb, 1997). And because of its flexible design ICS “may be used in a variety of organizational structures, including single jurisdiction/single agency involvement, single jurisdiction with multi-agency involvement, and multi-jurisdiction/multi-agency involvement” (FEMA, 1992).

Kincaid (1997) documents the successful use of ICS in cooperation with the Walt Disney World Company in Buena Vista, Florida. Brewster (1990) touts ICS as a model for implementing broad community-wide planning efforts by providing a system for incorporating not just emergency responders, but “all community assets and missions into an on-scene management structure” (p. 9). Irwin (1990) echoes this sentiment, calling ICS an effective vehicle for “integrating different disciplines, agencies, and government levels” (p. 9).

But ICS has also been criticized for its failure to accommodate non-fire entities into its management structure. For example, one article makes the claim that the fire department orientation of ICS inhibits the interaction with other “relevant local and outside organizations” and that “the system is particularly weak in integrating the activities of relief and welfare agencies as well as being not receptive to the use of volunteers” (Wenger et al., 1990, p. 12). Other authors address some of the difficulties of integrating law enforcement into a multi-disciplinary approach to incident management (Rubin, 1997; Ullman, 1998).

Another attribute of ICS that is mentioned as a weakness by more than one author is the process for transferring command to more senior staff as incidents escalate, and vice-versa as they de-escalate. One author recounts an instance where a fire chief was issuing orders as an “advisor” on an incident for an hour and a half before taking over as Incident Commander (Goldfarb, 1997). Others describe command transitions as “blueprints for the loss of information and effective management” (Wenger et al., 1990, p. 12).

Another common criticism of ICS is that there are considerable differences in how the system is implemented from one agency to another, and from one region to another. According to one article, “For some departments the ICS simply means someone is ‘in charge’ of the disaster site” (Wenger et al., 1990, p. 9). McCoy (1990) suggests that FIRESCOPE funding for
the development of ICS expired before protocols could be completed for a “top level of the ICS system” that presumably could coordinate implementation nationally and reconcile agency and geographical inconsistencies (p. 11).

A final criticism of ICS noted in the literature is what is sometimes referred to as “mobilization overkill.” One article suggests that because ICS was developed originally to manage diffuse and spreading disaster impacts such as wildfires, it is not well designed to deal with incidents where impacts occur in limited areas. Without offering specific examples, the authors state that ICS can create “serious problems of convergence and congestion at the disaster site” (Wenger, et al., 1990, p. 9).

PROCEDURES
As a first step in evaluating the Incident Command System, a preliminary online literature review was conducted during the months of May through July of 1999. This was followed by an exhaustive onsite literature search at the National Emergency Training Center’s (NETC’s) Learning Resource Center (LRC) and at the publication center of the Emergency Management Institute (EMI) during two weeks in August of 1999. More than 50 published articles, monographs, and EFOP research papers were reviewed. Many of these documented the successful application of ICS principles, quite often in non-fire contexts, while a smaller number directed criticisms at ICS. Collectively, these writings provided a draft list of attributes to be evaluated as perceived strengths and/or weaknesses of ICS.

This draft list was distributed to a test group of 10 veteran ICS practitioners. Based on progressive input and discussions with this test group, the list was revised three times before it was finalized. Following a final draft review and discussion with this group, a comprehensive questionnaire was prepared for distribution (Appendix A). Questions 1 through 5 were designed to characterize the experience of the sample population. Question 6 was designed to evaluate a total of 16 attributes of the Incident Command System. Respondents were asked to rate these 16 attributes on a scale of 1 to 10 to indicate the relative weakness or strength of the attribute as a feature of ICS. To remove any order bias from the statistical analysis 16 versions of the questionnaire were distributed, each presenting the 16 items in a different order. Finally, respondents were invited to add their own comments about ICS.

The questionnaire was distributed by electronic mail to current and recent Command and General Staff members of the 17 major incident teams in California. These include 12 statewide Major Incident Command Teams comprised of representatives from state and local government, and the five federal Type 1 Major Incident Management Teams assigned to California. Questionnaires were sent to each Team’s Incident Commander, Command Staff (Information Officer, Liaison Officer, and Safety Officer), and General Staff (Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief). Questionnaires were
Orientation and Evaluation of the Incident Command System (ICS)

sent to about 50 veteran ICS practitioners who have “rotated off” team assignments, but who are still active and available for overhead assignments as needed. In total, 206 questionnaires were distributed.

This sample population was selected for its knowledge and expertise, and represents some of the most experienced practitioners of ICS anywhere. It is only after years of training, certification, and successful completion of ICS assignments at progressively higher levels of incident management responsibility that one can qualify for appointment to these teams at the Command and General Staff level. In CDF, for example, fewer than two percent of the department’s emergency response personnel are assigned to Major Incident Command Teams.

Electronic mail via the Internet (and CDF Intranet) proved to be a convenient vehicle for the distribution of the questionnaire, as respondents merely had to type their answers into the body of the message and use the “Reply to Sender” feature to return the completed questionnaire. In this manner, 40 completed questionnaires were returned on the first day alone. In all, 122 completed questionnaires were returned between November 15 and December 31, 1999. This represents a 60 percent response rate, and except for three questionnaires returned by Fax and one by postal mail, the entire sampling procedure was conducted online.

Limitations
A generic comment that is sometimes made regarding ICS is that it is “the California system,” probably because ICS originated in California in the 1970s, and has been applied in California longer than anywhere else. One limitation of this study is that only California practitioners were surveyed. A benefit in using such a sample population lies in the sheer amount of ICS experience it represents: It’s not probable that a sample population this large, with this much experience using ICS during the system’s first 25 years, could be found anywhere else. And yet a limitation of using this sample population is that the results may be seen to exhibit a “California bias” or a “wildland bias.” As such, it is important to emphasize that this study does not purport to be a comprehensive analysis of ICS, but rather an evaluation from the point of view of the first generation of California practitioners.

A second limitation of this study pertains to the use of e-mail for sampling purposes. A handful of the target sample population could not be reached by e-mail, either because they had no e-mail address or because a correct one could not be located.

Definitions of Some Selected Terms
CDF: California Department of Forestry and Fire Protection

Command and General Staff: The Command Staff consists of the Information Officer, Safety Officer, and Liaison Officer; the General Staff con-
sists of the Operations Section Chief(s), Planning Section Chief, Logistics Section Chief, and Finance Section Chief. All of these incident management personnel report to the Incident Commander.

FIRESCOPE: Firefighting Resources of California Organized for Potential Emergencies.

ICS: Incident Command System

Line of business: Major category of activity pursued by an organization to fulfill its mission.

SWOT Analysis: A strategic analysis of an organization’s line of business based on an assessment of strengths, weaknesses, opportunities, and threats.

RESULTS

As illustrated in Table 1 the sample population represents a high level of career experience, both in the fire service (average 26.6 years) and using the Incident Command System (average 17.7 years). The 122 respondents to this research study also exhibit a great deal of executive-level ICS experience as indicated by the average of 6.5 years of Command/General Staff assignment on one of California’s major incident teams. In this capacity respondents have been assigned to an average of 14.5 major incidents, or just over two per year on average. For the purpose of this study “major incidents” were defined as those lasting for three or more consecutive operational periods. Major wildfires, floods, and earthquakes accounted for the majority of such incidents.

Table 1 Sample Population Characteristics

<table>
<thead>
<tr>
<th>EXPERIENCE</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Service</td>
<td>26.6</td>
</tr>
<tr>
<td>Using ICS</td>
<td>17.7</td>
</tr>
<tr>
<td>Member of Major Incident Team Staff</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Evaluation of ICS by Practitioners

To address the first two questions posed by this evaluative research study, the questionnaire directed the veteran practitioners to evaluate 16 attributes of ICS and rate them on a 10-point scale, with “1” indicating maximum weakness and “10” indicating maximum strength (see Question 6 in Appendix A). The results of this evaluation are summarized in Table 2, in which the 16 attributes are listed in rank order from highest to lowest mean rating.
Orientation and Evaluation of the Incident Command System (ICS)

Table 2  Rating of ICS Attributes (10-point scale)

<table>
<thead>
<tr>
<th>ATTRIBUTE BY RANK ORDER n = 122</th>
<th>Mean Rating</th>
<th>Standard Error</th>
<th>Statistical Significance (95% confidence)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Predefined hierarchy</td>
<td>8.80</td>
<td>0.105</td>
<td>A</td>
</tr>
<tr>
<td>2. Uniform terminology</td>
<td>8.73</td>
<td>0.115</td>
<td>A, B</td>
</tr>
<tr>
<td>3. Modular organization structure</td>
<td>8.70</td>
<td>0.113</td>
<td>A, B</td>
</tr>
<tr>
<td>4. Incident Action Plans</td>
<td>8.68</td>
<td>0.126</td>
<td>A, B</td>
</tr>
<tr>
<td>5. Span of control</td>
<td>8.42</td>
<td>0.140</td>
<td>B</td>
</tr>
<tr>
<td>6. Standardized forms</td>
<td>8.17</td>
<td>0.152</td>
<td>C</td>
</tr>
<tr>
<td>7. Delegation of authority</td>
<td>8.06</td>
<td>0.131</td>
<td>C</td>
</tr>
<tr>
<td>8. Cross-jurisdictional relations</td>
<td>7.78</td>
<td>0.154</td>
<td>C, D</td>
</tr>
<tr>
<td>9. Communications plan</td>
<td>7.73</td>
<td>0.158</td>
<td>D</td>
</tr>
<tr>
<td>10. Decision-making process</td>
<td>7.67</td>
<td>0.145</td>
<td>D</td>
</tr>
<tr>
<td>11. Transition of authority</td>
<td>7.50</td>
<td>0.196</td>
<td>D</td>
</tr>
<tr>
<td>12. Resource mobilization</td>
<td>7.27</td>
<td>0.183</td>
<td>E</td>
</tr>
<tr>
<td>13. Integration of non-fire agencies</td>
<td>6.84</td>
<td>0.189</td>
<td>F</td>
</tr>
<tr>
<td>14. Consistency of implementation</td>
<td>6.61</td>
<td>0.175</td>
<td>F, G</td>
</tr>
<tr>
<td>15. Integration of non-government</td>
<td>6.27</td>
<td>0.205</td>
<td>G</td>
</tr>
<tr>
<td>16. Agreement on system modifications</td>
<td>6.23</td>
<td>0.231</td>
<td>G</td>
</tr>
</tbody>
</table>

*Those attributes with the matching letters in Column 4 are not statistically different at the 95 percent confidence level. All others are. For example, Items 1-4 are not statistically different from one another (all have A's), nor are Items 2-5 (all have B's). But Item 1 is statistically different from Item 5.

Each ICS attribute was analyzed using mean, mode, standard deviation, coefficient of variance, and 95 percent confidence intervals (Wonnacott and Wonnacott, 1985). Modal tendency and coefficient of variance provided minimally useful information. The employment of confidence intervals, on the other hand, provided a useful measure of the range of actual...
population norms, which are illustrated by the letters in the last column of Table 2. Only those attributes with no matching letters in this column can be considered to have statistically different strength ratings at the 95 percent confidence level (indicated by “P=95 percent”). Thus, for example, the data shows with 95 percent confidence that the highest rated attribute (Predefined hierarchy) has a significantly higher strength rating than attributes 5 though 16. On the other hand, it cannot be said with 95 percent confidence that the differences in mean rating scores of attributes 1 through 4 are due to anything other than sampling error, as indicated by the “A” accompanying these attributes in column 4. All attributes denoted with an “A” can therefore be considered co-equal strengths at the 95 percent confidence level; likewise for each letter B through G.

Comparison of confidence intervals with the rank order of attributes allows for a more realistic interpretation of the data than by using rank order alone to evaluate strengths and weaknesses. Viewing the data in this manner suggests that ICS attributes should be placed in tiered groupings of roughly equal levels of significance rather than on an absolute scale of 1 through 16. These groupings are presented in the “Discussion” section of this paper.

Perhaps the most significant result is that none of the ICS attributes received a mean rating in the lower half of the 10-point scale, and thus the data does not support stratification of attributes as absolute strengths or weaknesses. In fact, statistically speaking, none of the ICS attributes is considered a weakness by the sample population. Even the lowest-rated attribute (Agreement on system modifications) with a mean rating of 6.23, is significantly greater (P=95 percent) than the presumed neutral value of 5.5, which is the statistical midpoint of the 10-point scale used.

An interesting observation can be made regarding the standard error (SE) values presented in Table 2. The highest rated attribute, Predefined hierarchy, also exhibits the lowest SE value (0.105), indicating a strong tendency toward unanimity in rating this attribute highly. Conversely, the lowest rated attribute, Agreement on system modifications, exhibits the highest SE value (0.231), which indicates a great deal of disparity in how this attribute was rated.

Finally, the third question posed by this evaluative research project pertains to the “opportunities and threats” suggested by the SWOT analysis approach described earlier (Goodstein, et. al., 1992). Due to the interpretive nature of this aspect of the analysis, “opportunities and threats” are presented in the “Discussion” section that follows.

DISCUSSION
The evident reluctance to assign “weakness” values to any of the 16 attributes indicates that even those attributes receiving the lowest mean ratings are not considered by the veteran ICS practitioners to be system “weaknesses” so much as the “weakest of the strengths.” By using the confidence interval codes from Table 2, the attributes can be clearly stratified into three
tiers of statistical significance: the “AB” tier, the “CD” tier, and the “EFG” tier. The three tiers are mutually exclusive in that the attributes in each have significantly different ratings than attributes in the other two tiers (P=95 percent). The terms assigned to these categories are first tier strengths, second tier strengths, and third tier strengths. The three tiers are summarized in Table 3 and will be discussed in turn.

Table 3 Tiered Groupings of ICS Attributes

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ICS ATTRIBUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Tier Strengths</td>
<td>Predefined hierarchy, uniform terminology, modular organization structure,</td>
</tr>
<tr>
<td>(A, B)*</td>
<td>Incident Action Plans, span of control</td>
</tr>
<tr>
<td>Second Tier Strengths</td>
<td>Standardized forms, delegation of authority, cross-jurisdictional relationships,</td>
</tr>
<tr>
<td>(C, D)*</td>
<td>communications plans, decision-making process, transition of authority</td>
</tr>
<tr>
<td>Third Tier Strengths</td>
<td>Resource mobilization, integration of non-fire agencies, consistency of</td>
</tr>
<tr>
<td>(E, F, G)*</td>
<td>implementation, integration of non-government, agreement on system modifications</td>
</tr>
</tbody>
</table>

*Letter codes indicate statistical significance at the 95 percent confidence level. They are taken from Table 2.

First Tier Strengths of ICS

These five highest-rated attributes constitute the essence of what makes ICS an effective management system in the eyes of California’s veteran practitioners. Using the specific wording from the questionnaire (attached as Appendix A), the five major strengths of ICS, in rank order, are:

1. Predefined hierarchy, including chain-of-command and delineated responsibilities for every position.
2. Uniform terminology for identifying resources and organizational functions.
3. Modular organizational structure that is expanded and contracted as needed.
4. Incident Action Plans that are updated for each operational period.
5. Manageable span-of-control.

Taken together, these five attributes constitute something that can be termed predetermined internal alignment: It is predetermined because due to these attributes the workers know the rules by which the system functions even before the incident begins. In CDF, this is true not just for Command and
General Staff, but for all personnel on an incident. Since ICS is incorporated into the most basic training, even the rookie firefighter knows the rules and operates in “ICS mode” on a routine basis. These rules seem to work best internally; that is, within the system, where all the workers know the terminology and roles. They know where their own specific responsibilities begin and end, and they have an understanding where they fit within the system’s span of control. And they are in alignment, which, according to Peter Senge, is a phenomenon that occurs “when a group of people function as a whole so that a commonality of direction emerges, and individuals’ energies harmonize” (Senge, 1990, p. 234).

The predetermined features of the system ensure that workers can “hit the ground running” because they use common terminology and function within a common organizational structure and planning process; time and energy need not be wasted negotiating “who does what” and “who reports to who.” Since everyone within the system “speaks the same language and works from the same script” they are able to get immediately to the most important business at hand: managing the problem.

It is remarkable how rare this approach is outside the field of emergency services. ICS may in fact be one of the most advanced and well-practiced examples of applied systems thinking anywhere. Peter F. Drucker, who has been writing about management issues for more than 60 years and is considered by many to be the most important management thinker of the 20th century (Stone, 1998), recently proposed a set of principles he calls “Management’s New Paradigms for the 21st Century” (Drucker, 1999). Among the very first of these is the seemingly obvious principle that “Organizational Structure is Needed.” But as he explains, there are hundreds of versions of organizational structure; the key is to identify the specific one “that fits the task” (p. 16).

ICS is an excellent example of Drucker’s principle: The average practitioner represented by this research study—27 years in the fire service, 18 years using ICS—is someone who has spent most of a career helping to define and refine a specific organizational structure “that fits the task” of managing complex emergency incidents. Drucker has never written about ICS, but he may as well be referring to the system’s major strengths when he writes:

One hears a great deal today about “the end of hierarchy.” This is blatant nonsense…In a situation of common peril—And every institution is likely to encounter it sooner or later—survival of all depends on clear command. If the ship goes down, the captain does not call a meeting, the captain gives an order. And if the ship is to be saved, everyone must obey the order, must know exactly where to go and what to do… “Hierarchy,” and the unquestioning acceptance of it by everyone in the organization, is the only hope in a crisis (Drucker, 1999, p. 11).
Second Tier Strengths of ICS

The second tier of ICS strengths consists of six attributes that are rated significantly lower (P=95 percent) than those in the first tier strengths. Even so, it should be noted that these are still rated in the upper quartile of the 10-point scale, which can be interpreted as favorable endorsement by the sample population. Again, using the specific wording from the questionnaire and rankings from Table 2, the second tier strengths, in rank order, are:

6. Standardized forms are used for all incidents.
7. Ample flexibility and authority are given to staff for accomplishing objectives.
8. Cross-jurisdictional and cross-functional working relationships when ICS is used.
9. Communications plan that is coordinated among responding agencies.
10. Clear decision-making process.
11. Process for transitioning command authority from one level of government to another as incident complexity changes.

Whereas ICS is characterized by internal alignment as indicated by the first tier strengths, the system is not quite as strong in effecting external alignment; that is, alignment with forces outside the system structure itself. External forces include organizations that do not use ICS, as well as political, economic, social, environmental, legal, and cost implications that are not entirely within the system’s ability to manage (FEMA, 1999). It stands to reason that ICS may not be quite as effective in the external arena for the simple reason that external forces differ from incident to incident. And while these entities may be directly impacted by the incident it cannot be assumed they “know exactly where to go and what to do” (Drucker, 1990, p.11). Some of the biggest challenges occur with cooperators who may be unfamiliar with ICS or who may not be receptive to “playing by ICS rules,” a point that often appears in the literature. (See, for example, Wenger, et. al., 1990; Kincaid, 1997; Ullman, 1998).

And yet ICS does provide means for addressing these potentially problematic external issues, as evidenced by the favorable rating given to the attributes in this tier. While none of the second tier strengths deals exclusively with external forces, each has an external dimension. For example, the use of Standardized forms assures that all internal users are “on the same page.” But these same forms can have an external function as well, as when the ICS-204 (“Division Assignment List”) depicts assignments for law enforcement or relief agencies, or when an ICS-209 (“Incident Status Summary”) is provided to the media to show cost and loss information.

Other second tier strengths that are predominately external alignment issues include Cross-jurisdictional working relationships and the Process for tran-
sitioning of authority as incident complexity changes. These can become major external issues, especially in the politically-charged atmosphere of a rapidly escalating major disaster, where numerous jurisdictions can have overlapping authorities. Two other attributes in this tier, the Coordinated communications plan and the Clear decision-making process, must be aligned both internally and externally. The latter, for example, must be aligned internally through the operational planning process and documented in the Incident Action Plan, but the process must also be accessible to external forces, usually through a unified command structure.

In summary, the second tier strengths clearly contribute to the effectiveness of ICS, though there may be an unavoidable price to pay in the form of additional complications and workload over and above internal incident demands. It is likely that this somewhat reduced level of system control over these attributes resulted in the slightly lower ratings given by practitioners.

**Third Tier Strengths**

It is tempting to refer to this lowest-rated tier of attributes as “relative weaknesses,” or more accurately from a statistical point of view, as “the weakest of the strengths.” But neither of these terms captures the double-edged nature of these attributes. Each of them has positive aspects, as indicated by ratings that are statistically well above the 5.5 midpoint value. And yet there must be valid reasons these five attributes were rated significantly lower that the others. For this reason the author believes that the attributes below offer the best targets for improvement of ICS:

13. Effectiveness of integrating non-fire government agencies (e.g., law enforcement, public works) into ICS structure.
14. Consistency of implementation among various agencies.
15. Effectiveness of integrating non-government organizations (e.g., relief agencies, businesses, citizens) into ICS structure.
16. Agreement among agencies about who has authority to modify the ICS “rules of the game.”

All five of these attributes are mentioned prominently in the literature as potential problems with ICS. For example, if Resource mobilization is not handled effectively, then “overkill mobilization” can cause problems of “convergence and congestion” at the incident site (Wenger, et al., 1990, p. 9). Such a situation can result in further external problems if it is viewed by the public as a bureaucratic boondoggle and waste of tax dollars. But as an Oregon Emergency Management Coordinator points out, “Over mobilization is an implementation issue, and not one directly related to the ICS model itself” (Dimmick, 1990, p. 10). By this view resource mobilization under ICS may be considered a strength: admittedly not perfect,
but better than the free-for-all alternative that led to the formation of FIRESCOPE.

Two related attributes that are weakly endorsed by the sample population are Effectiveness of integration into ICS of both non-fire agencies and non-government organizations. But while ICS has been criticized because “the fire department is in ‘charge’ and there is little place for others” (Wenger, et al., 1990, p. 9), the sample population had very different reasons for withholding strong endorsement for the effectiveness of integrating others into the ICS structure. A number of comments were offered by respondents that echoed the observation by a representative of the Pennsylvania Emergency Management Agency that most “multi-organizational” coordination problems are “caused by inadequate training rather than flaws in the system,” and that regardless of its shortcomings, ICS is “better suited to the task than any of the other variations of command and control systems previously used” (Long, 1990, p. 9). Few would disagree, however, that the effective integration of non-fire agencies and non-government organizations is a major target for improvement.

Somewhat related to this is the attribute pertaining to Consistency of implementation among agencies, which can be a source of frustration for even the most experienced ICS practitioners. And while this can be a problematic external issue for ICS, practitioners muster lukewarm endorsement of this attribute, probably because they believe that, when it occurs, inconsistent implementation “is a result of inadequate jurisdictional attention to planning, training, and the procedural aspects of incident management” and not the fault of ICS itself (Irwin, 1990, p. 10).

Finally, the lowest-rated of the 16 ICS attributes is the Agreement among agencies who has authority to modify the “rules of the game.” This is a longstanding issue, and one that has been exacerbated by the rapid spread of ICS throughout and beyond the U.S. over the past 3 decades. The Incident Command System is a work in progress, and as adaptations and changes are made to suit local or agency-specific needs, there is no universally accepted governing authority or clearing house to offer resolution to conflicts and confusions that can arise. Terence Haney, a FIRESCOPE consultant who was involved in the original development of ICS, and later, in the transition of ICS into the National Interagency Incident Management System, focused on this issue in 1990 when he suggested the need for a “national system manager [to] oversee ICS multi-hazard applications, new developments, training, and orientation” (Haney, 1990, p. 12). This represents possibly the most significant improvement target for ICS, and will be discussed further in the “Recommendations” section.

“Opportunities and Threats”
The final research question pertains to identifying the primary opportunities and threats suggested by the practitioners’ evaluation of ICS, thus completing the “SWOT analysis” approach presented in the Executive Planning course (Goodstein, et al., 1992).
It is the author’s opinion that the primary opportunity suggested by this research is to leverage the system’s predetermined internal alignment features to provide organizational structure for managing much more than emergency incidents. To illustrate why this may be a natural evolution for ICS, consider how far this systems model has come since it was initially developed for the very specific purpose of managing complex wildfires. Certainly California wildfires provided plenty of opportunities to practice with early versions of the ICS model, but it soon became apparent that the system could work equally well for non-fire disasters, including earthquakes, floods, riots, and hazardous material incidents (FEMA, 1992). Meanwhile, departments like CDF found that it made sense to use this management tool not just for major disasters, but for everyday emergencies as well. Thanks to the system’s scalability—that is, its ability to be expanded or contracted as needed to fit the operational requirements of a particular incident—users found that virtually any incident, regardless of size, could be managed using ICS. In some fire departments ICS became more than a tool for managing extraordinary events; it became an everyday “line of business” (Goodstein, et al., 1992). For a department like CDF, ICS is used from the moment of initial dispatch to an incident. So, for example, if a fire is not controlled during initial attack and requires additional resources, ICS allows the system response to “scale up” and keep pace with the changing needs of an expanding incident without having to switch operational modes.

Peter Senge (1990) writes that one of the most common threats to systems thinking is “The almost total lack of meaningful ‘practice’ or ‘rehearsal’” (p. 258). He writes:

Imagine trying to build a great theater ensemble or a great symphony orchestra without rehearsal. Imagine a championship sports team without practice. In fact, the process by which such teams learn is through continual movement between practice and performance (Senge, 1990, p. 238).

Few systems models have undergone more “practice and performance” than ICS during the past 25 years. The system has been used thousands upon thousands of times; it has been tested, refined, and literally forged in the heat of repeated “trials by fire.” While not perfect, ICS is a proven structure for making people productive in working together to accomplish critical tasks during times of crisis.

But remove the crisis nature of the task, and the basic advantages of predetermined internal alignment still apply. The same principles that make this systems model so effective for managing emergencies can also be applied as a system for managing planned non-emergency events and complex projects. For example, ICS has been used successfully by CDF and others to implement numerous major conferences and training exercises, and to assist in managing such planned events as the 1984 Olympics in

One of the primary reasons that the ICS model works so well is that it is continually “practiced and performed,” in the words of Peter Senge (1990, p. 238), and as such, has become an effective, systematic way of operating for departments like CDF. It has evolved from being a management tool for merely responding to disaster, to one that also offers great opportunity as a proactive management tool for strategic planning and project implementation. This is consistent with Drucker’s (1999) recommendation to focus on opportunities by “exploiting success” (p. 82). In this view, if an organization develops a management structure that “fits” the key task of the organization, it may make sense to expand the use of that structure so that it becomes the organization’s predominant management paradigm.

Given organizations’ natural resistance to change, such an approach is not likely to be free of problems. But as Drucker (1999) writes, the key to exploiting success is “to starve the problems and feed the opportunities” (p. 82). The results of this research point to the problems that collectively pose the single biggest threat to the effective use of ICS: external misalignment.

The potential problems that can lead to external misalignment are suggested by the third tier strengths. Specifically, implementation failures of these attributes can result in “ICS horror stories” that can damage the system’s credibility among entire communities or user groups. Such failures can occur on incidents characterized by inefficient or wasteful resource mobilization, insensitivity or inadequate attention to the integration of non-fire or non-government entities, uncoordinated decision making processes, confusion regarding agency responsibilities, or anything else that might give the impression of a “bureaucracy run amok.” Any of these problems have the potential to threaten the system’s integrity whenever ICS is used with uninitiated external entities.

In the author’s experience, however, most often such entities become “ICS converts” when they experience how well the system works for managing even the most complex and chaotic incidents. The key at such times is to “starve” the threat of external misalignment by “feeding the opportunity” to build trust among the various entities that are thrust together in times of crisis. When chaos proliferates in times of emergency there is great incentive to put aside differences and pull together. ICS offers the structure within which to do that.

RECOMMENDATIONS

Based on the performance evaluation by California’s veteran ICS practitioners, the author offers three recommendations for improving the Incident Command System.

1. Establish a multi-disciplinary national systems management process to ensure the integrity and consistency of implementation of ICS.
The adoption of ICS has spread rapidly and extensively. It is no longer used solely by the fire service, but also by agencies in law enforcement, health care, and public works, among others. The U.S. Coast Guard now uses ICS for environmental responses and search and rescue operations, and the U.S. Department of Energy is adopting ICS for use in responding to nuclear emergencies. As the use of ICS expands throughout the fire service and beyond, to a wide range of disciplines, new users often “customize” ICS to fit their particular needs. While ICS is designed to be adaptable, unilateral changes can potentially compromise the general set of principles that underlie the system. This can lead to conflict and confusion when disparate entities are brought together on major incidents.

The proposed systems management process would most appropriately be coordinated by FEMA and include an oversight board with representation from the various geographical regions and ICS user groups. These should include representatives from a full spectrum of disciplines, including the fire service, law enforcement, medical and health services, public and private utilities, environmental protection, relief organizations, the National Guard, and others as deemed appropriate. One model for this approach is provided by California’s Standardized Emergency Management System (State of California, 1995).

A multi-disciplinary national oversight board is long overdue and necessary for providing ongoing policy guidance and direction if ICS is to be an effective national system standard for managing emergencies. A primary function of this board would be to act as a clearinghouse for reviewing and arbitrating any unresolved issues of system standards, compliance, implementation, operation, and training.

2. **Develop a strategy for promoting ICS as the standardized model for emergency incident management.**

Whereas the preceding recommendation pertains to the quality control of the system itself, the second recommendation pertains to the alignment between the system and “the rest of the world.” Whenever ICS is deployed there is an inevitable systems interface between those who are indoctrinated to function within the parameters of the system (ICS users) and those who are not. It is simply a given that the system will have to interact with non-system users, including the myriad agencies, volunteer, and relief organizations that are not indoctrinated to ICS, as well as the general public, the media, and others. This issue of external alignment is further complicated by the fact that it is often impossible to anticipate in advance who these non-system users will be. Major incidents vary widely in their scope and impacts, and it is not always possible to know beforehand what agencies and which personnel will be thrust together, nor the nature of the crises they will confront.

FEMA has begun to address this through its disaster planning and response process. The challenge—and the opportunity—is to do a better job of pro-
moting the generic function-based ICS organization model as the national standard implementation tool for FEMA’s function-oriented disaster planning and response process. This will require coordination and leadership at the federal level to ensure standardized national guidelines and cross-disciplinary training, a role that would seem to fall most logically to FEMA, which is already providing ICS curriculum and training for fire management through its National Fire Academy. Alignment with non-fire disciplines will not occur easily, however, unless an expanded multi-disciplinary training curriculum is developed to promote ICS as the universal inter-entity management model.

3. Institutionalize an ongoing systems evaluation process.

Earlier in this paper the observation was made that the overwhelming sentiment among veteran practitioners is that “ICS works.” Perhaps the best evidence of this is the system’s rapid and widespread adoption over the past 25 years.

And yet how do we know what works and what doesn’t, and what improvements need to be made? As new disciplines adopt the ICS approach, how do we know what adaptations need to be made to make ICS a truly universal system for emergency management? Is such a universal system even practical? And how do we know which problems encountered by ICS users are system problems, and thus need to be addressed through further refinement or redesign, and which of these problems are inherent in the chaotic nature of emergency management?

These and many other questions have no easy answers, but one thing seems evident: they need to be addressed systematically by those familiar with the system. ICS has been developed and applied methodically over the years, but a missing ingredient to this methodology has been a systematic evaluation. Such an evaluation is long overdue.

The Incident Command System cannot afford to “fly blind” into a new century of emergency management. It is not a perfect system and it is not a panacea. But in the author’s opinion, too much progress has been made to even consider starting over. In fact, the biggest problem confronting ICS at the dawn of the twenty-first century may be a “surfeit of success,” which has resulted in so many adaptations and innovations that the system threatens to take on an unwieldy life of its own. Without systematic, ongoing evaluation in conjunction with the other recommendations for managing and promoting ICS as a universal model, the opportunity may be missed to institutionalize positive changes and necessary modifications that will ensure the continuance of ICS as “the model tool” for emergency management.
REFERENCES


**Appendix A**

**ICS Questionnaire (should take no more than 10 minutes)**

I am doing a research project for the National Fire Academy that evaluates the Incident Command System from the point of view of veteran ICS practitioners. If you would like your input included in this research, please complete the survey below.

Just type in your answer after each question. When you’re done, REPLY to dana_cole@fire.ca.gov.

Thanks in advance for your participation.
Dana Cole, CDF. 
(707) 963-3601 ext. 108 
email: dana_cole@fire.ca.gov

**Directions:**
Type the appropriate number after each question.

1. How many years of experience do you have in the fire service?
2. How many years of experience do you have using the Incident Command System? (approximate if you’re not sure)
3. How many years of experience do you have as a member of a major incident command/management team? (if none, enter “0”)
4. In your career, approximately how many incidents with duration of 3 or more consecutive operational periods have you been assigned to as a team member at the Command & General Staff level?
5. How many of these incidents were non-emergencies (conference, project, etc)?
6. Please read the following scenario and then rate the listed features of ICS.

**SCENARIO:** Imagine that you are contacted by a health care administrator with whom you have worked on a major disaster. She saw ICS applied and is considering adopting an ICS approach for managing major medical emergencies at her company’s hospitals. She knows you have years of experience working with ICS, and she wants to discuss your perception of its weaknesses and strengths.

**Directions:**
Rate each of items A-P below on a scale of 1 to 10 to indicate its relative WEAKNESS or STRENGTH as a feature of ICS. (For example, a score of 2 is a more significant weakness than a score of 3; an 8 indicates a more significant strength than a 7)

Remember, there are no right or wrong answers. I am just looking for your honest opinion.

1  2  3  4  5  6  7  8  9  10
WEAKNESS  STRENGTH

A. Uniform terminology for identifying resources and organizational functions.
B. Resource mobilization effectiveness.
C. Modular organization structure that is expanded or contracted as needed.
D. Consistency of implementation among various agencies.
E. Communications plan that is coordinated among responding agencies.
F. Incident Action Plans that are updated for each operational
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period. G. Agreement among agencies about who has authority to modify the ICS “rules of the game.”

H. Manageable span-of-control.

I. Clear decision-making process. J. Cross-jurisdictional and cross-functional working relationships when ICS is used. K. Standardized forms used for all incidents.

L. Predefined hierarchy, including chain-of-command and delineated responsibilities for every position.

M. Ample flexibility and authority are given to staff for accomplishing incident objectives.

N. Process for transitioning command authority from one level of government to another as incident complexity changes.

O. Effectiveness of integrating non-fire government agencies (e.g., law enforcement, public works) into ICS structure.

P. Effectiveness of integrating non-government organizations (e.g., relief organizations, private citizens, and businesses) into ICS structure.

THANK YOU! Please feel free to add any comments below.

Both the ICS Orientation and the 25-Year Evaluation detail the ICS construct. Obviously it is not a perfect system but becomes more significant as future threats involve interagency cooperation. Anyone in the field knows full well that the history of relationships when more than one service responds has not been a rosy one in this country. Popular literature draws plot lines around local police distrusting federal agencies; fire and police rescue companies competing for control and other emergency responders shut out of the inner circles. The romantic harmony of the televised “Third Watch” is much more fiction than fact. In a later chapter, students will read about a police and fire encounter that nearly led to the loss of a diver whose mask caught on a police grappling hook. Not a tale told proudly.
Chapter 1 Endnotes

1 The original seven “Partner Agencies” are: California Department of Forestry and Fire Protection, California Office of Emergency Services, Los Angeles City Fire Department, Los Angeles County Fire Department, Santa Barbara County Fire Department, Ventura County Fire Department and the U.S. Forest Service.

2 In 1986, the word “Southern” was dropped from the acronym when FIRESCOPE was formally established as a statewide program.

3 In California, teams comprised of representatives from state and local government go by the name Major Incident Command Teams. Federal teams are termed Major Incident Management Teams. For purposes of this paper, the generic term Major Incident Teams is used.