



ANN ARBOR FIRE DEPARTMENT

Standard Operating Procedures – 3.13 Situation Evaluation



COMMAND FUNCTION #3 – SITUATION EVALUATION

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I. COMMAND FUNCTION #3 – SITUATION EVALUATION

The information-management phase, known as size-up, involves the systematic, yet rapid and deliberate consideration of all the incident's critical incident factors. This standard size-up approach must begin at the very start of every incident operation. This insures that we will develop a rational incident strategy and corresponding action plan based on the current conditions.

Standard conditions are identified as the incident's critical factors. We must identify the incident's critical factors before taking any action. Our initial size-up produces the information that becomes the basis for the incident strategy and the corresponding incident action plan (IAP). Investing a small amount of time evaluating the critical factors is extremely important to both beginning and on-going command and operational success, as well as firefighter safety.

The current, accurate and relevant information the IC obtains at the front end of the event will generally provide the informational foundation for effective initial and on-going action. This systematic evaluation process continually produces standard, safe, well-managed incident outcomes.

The strategic decision-making model gives the entire organization an evaluation/action system that takes the mystery out of initial emergency operations. This model conforms the decision-making process into a standard sequence: First we identify the incident's significant critical factors, and then we base all actions on our evaluation of those factors. By continually evaluating those factors, we keep the plan current and the workers safe.

Information management presents complex challenges during most working incident operations. Information must be quickly received, processed, interpreted and acted upon. In some case, certain factors can be observed from the command post, while others can only be determined from different locations inside and outside of the structure/incident area. Obtaining critical information requires the IC to develop, refine and practice a standard system of incident-intelligence management that is applied to actual on-line incident operations.

A. Previous experience

Previous experiences and lessons learned are major incident-management resources and offer a practical way to evaluate where the incident is now and anticipate where it is heading. If we have seen the actual conditions in the past and developed an action plan to meet and match those conditions, we can anticipate the outcome of those actions if we were to apply them again (been there, done that).



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A major decision-making capability involves quickly accessing the memory files that, over time, get loaded into a responder's brain when they encounter actual incident situations. A seasoned IC will relate past experiences to present conditions in order to evaluate where the incident is and anticipate which way the incident is headed.

B. Visual observation

Visual observation and inspection are one of the most important ways we gain information. This information form requires a critical, perceptive eye and is the most common way the IC gathers information during initial and ongoing incident evaluation.

While en-route, the IC should observe the weather conditions (wind speed and direction) and the horizon for any smoke or fire conditions.

As the IC approaches the scene, they should take a route that shows 3 sides of the structure, or when possible, completely circle the incident (later arriving Command Officers). A drive-around can reveal a great deal of information, such as the layout of the incident area; access or obstruction issues; the extent and severity of the incident problem(s); potential structural failures; or rescue situations.

An important note on visual information as a size-up tool: Whatever the IC sees from the command post trumps what all others see and report (e.g. interior reports of "We're getting it!" when the IC can see a 10-foot fireball coming from the roofline).

C. Recon information

Information the IC cannot gather visually from their fast-action or command-post position is typically acquired from personnel assigned to standard geographic and functional positions. Information can come from SDGs dealing with specific problems and locations who then transmit their information reports to the IC. It also can come from other sources, such as owners/occupants, technical representatives, other agencies, law enforcement or media video feeds.

When the IC assigns companies and SDGs to key operating positions, they must report back regarding the conditions in their assigned areas. With this information, the IC builds a strategic picture of what is happening around the entire incident site. The IC uses this "big picture" to keep the strategy and attack plans current and to keep all hazard-zone workers connected.

The IC is responsible for understanding the overall situation, incident resources, and organizational and operational statuses. SDG officers concentrate on information that supports tactical operations, integration and coordination. Companies must deal with the details required for direct task-level effectiveness. Simply, the level of required information (details) gets cut into smaller pieces as it moves toward the task level.



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D. Pre-planning information

Pre-incident planning arms the IC and the response team with facts and details almost impossible to acquire during an actual event. This is because pre-incident planning is conducted in ideal situations, during the daytime under non-emergency conditions. By physically visiting these tactically significant occupancies during these information-gathering visits, we increase the awareness and knowledge of responders who might have to operate at (and in) these locations under critical conditions.

- E. Even though the task-level workers operating at an incident aren't in the position to review the actual plan during an event, they retain the familiarity gained during the preplanning process. An IC working in the command position is generally in the best position to look at, manipulate and manage the plans, and they can relay pertinent information to the decentralized operating SDGs and companies.

II. CRITICAL FACTORS

Virtually every incident factor has a related set of consequences ranging from minor to fatal. This is what makes critical factors critical. A major function of IC information management is to identify the factors with the most severe consequences and then concentrate on reducing, stabilizing, eliminating or avoiding the possible outcomes of those critical factors. This requires the IC to develop a standard approach of sorting and prioritizing critical factors.

The IC needs a simple system to deal with all basic incident information. Critical factors offer such a system. There eight basic critical factor categories:

A. Critical Factor Category – Building

- Size—area and height
- Interior arrangement/access (lobbies, stairs, halls, elevators)
- Construction type—ability to resist fire effect
- Age
- Condition—faults/weaknesses
- Value
- Interior compartmentation/separation
- Interior arrangement / Basement profile
- Vertical—horizontal openings, shafts, channels
- Outside openings/access—doors and windows/degree of security
- Utility characteristics (hazards/controls)
- Concealed spaces/attack characteristics
- Effect the fire has had on the structure (at this point)
- Time projection on continuing fire effect on building
- How much of the building is left to burn?

B. Critical Factor Category – Occupancy

- Specific occupancy type group (business, mercantile, public assembly, institutional, hazardous, industrial, storage, school)
- Value characteristics associated with occupancy
- Fire load (size, nature)



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- Status (open, closed, occupied, vacant, abandoned, under construction)
 - Occupancy—associated characteristics/hazards
 - Type of contents (based on occupancy)
 - Time—as it affects occupancy use
 - Property conservation profile/susceptibility of contents to damage/need for salvage
- C. Critical Factor Category – Arrangement
- Access, arrangement, and distance of external exposures
 - Combustibility of exposures
 - Access, arrangement and nature of internal exposures
 - Severity and urgency of exposures (fire effect)
 - Value of exposures
 - Most dangerous direction—avenue of spread
 - Time estimate of fire effect on exposures (internal and external)
 - Barriers or obstruction to operations
 - Capability/limitations on apparatus movement and use
 - Multiple buildings
- D. Critical Factor Category – Life Safety
- Location of occupants (in relation to the fire)
 - Number of occupants
 - Condition of occupants (by virtue of fire exposure)
 - Incapacities of occupants
 - Commitment required for search and rescue (firefighters, equipment, and command)
 - Fire control required for search and rescue
 - EMS needs
 - Time estimate of fire effect on victims
 - Exposure/control of spectators
 - Hazards to fire personnel
 - Access rescue forces have to victim
 - Characteristics of escape routes/avenues of escape (type, safety, fire conditions, etc.)
- E. Critical Factor Category – Fire
- Size
 - Extent (percent of structure involved)
 - Location
 - Stage (inception to flashover)
 - Direction of travel (most dangerous)
 - Avenue of travel
 - Time of involvement
 - Type and amount of material involved—
structure/interior/finish/contents/everything
 - Product of combustion liberation (smoke, heat, flame, gas, etc.)
 - What is perimeter of fire?
 - How widespread is the fire area?



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- Fire access—ability to operate directly on fire
- F. Critical Factor Category – Resource
 - Staffing and equipment on scene
 - Staffing and equipment responding
 - Staffing and equipment available in reserve
 - Estimate of response time for personnel and equipment
 - Condition of responders and equipment
 - Capability and willingness of personnel
 - Ability of responders to fit into an IMS
 - Number and location of hydrants
 - Supplemental water sources
 - Adequacy of water supply
 - Built-in private fire protection, e.g., sprinkler, standpipe, alarms, protected spaces, smoke removal.
- G. Critical Factor Category – Action
 - Effect current action is having
 - Things that need to be done
 - Stage of operation (rescue, fire control, property conservation, customer stabilization)
 - Effect of the command function—is command established and working?
 - Is there an effective organization?
 - Has the IC forecasted effectively?
 - Is the incident in the proper Strategy with the corresponding IAP?
 - Tactical priority questions: Are victims okay? Is fire out? Is loss stopped?
 - What is the worst thing that can happen?
 - Are operating positions effective?
 - Are there enough resources? (Personnel, apparatus/equipment, logistics/support, command, water, SCBA air)
 - Are troops operating safely?
 - Is there a safety plan/organization (On-Deck, tactical supervision, etc) in place that can react in case someone gets in to trouble?
 - Situation status: from out of, to under control
- H. Critical Factor Category – Special Circumstances
 - Time of day/night
 - Day of week
 - Season
 - Special hazards by virtue of holidays and special events
 - Weather, e.g., wind, rain, snow, heat, cold, humidity, visibility
 - Social unrest

III. MANAGING CRITICAL FACTORS

The incident critical factors are the basic items an IC must consider when evaluating tactical situations. They constitute a checklist of major elements associated with size-up, decision-making, initiating operations, and review and revision. It is important for the entire team to agree upon what the critical incident factors are, as well as the standard organizational reaction to those factors.



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Command deals with these incident factors through a systematic management process that:

- Includes a rapid overall evaluation
- Sorts the critical factors in order of priority
- Seeks more information about each of those factors
- Focus on the major factors effecting the incident (fire)
- Quickly and properly react to visual observation and CAN reports

Critical incident factors represent an array of items that remain dynamic throughout the event. Therefore, the relative importance of each factor changes over time. Command must deal continuously with these changes and base decisions on current information relating to the most important factor.

The effective IC does not stick with the initial plan of action after conditions change—for better or for worse. Successful incident operations require the IC to revise the IAP as needed by constantly reconsidering the incident’s major critical factors based on feedback from the information forms.

When IC#1 (company officer) chooses the offensive strategy and the fast-attack mode, they make their initial size-up from an exterior position. The IC sees the effect the incident problem is having outside the hazard zone. The fast attacking IC then moves to the interior and begins collecting information about how the incident problem is affecting the inside of the structure. These conditions, such as the problem location and the amount of smoke and heat, are utilized in the decision-making process to assign subsequent arriving units.

When an IC is operating in a strategic command position, they usually have a good view of the incident scene. As the IC assigns units to the different operational positions around the inside and outside of the incident scene, they will receive size-up information in the form of progress/CAN reports from these different positions. The IC must consider these reports along with what they are actually seeing. Whatever the IC sees, trumps all other reports.

IV. CONSIDER FIXED FACTORS – MANAGE VARIABLE FACTORS

Fixed factors pertain to the things that cannot be change, such as the way a building sits on a piece of property, the occupancy type or the distance of an exposure. These fixed factors present certain realities that the IC must plug into their incident action plan. If something that normally takes three minutes is going to take twenty minutes because of a fixed factor, the IC must react, plan and manage accordingly

Fixed Factors

- Building
- Occupancy Type
- Arrangement
- Special Circumstances

Variable factors are things the IC can change. If a building is full of smoke, the IC can order ventilation. If the building is heavily secured, a ladder company can force entry. Engine crews manage the fire by applying a sufficient amount of water to extinguishing it. When we do not (or cannot) control the variable factors, we should be in safe locations, away from the factors that may harm us.



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Variable Factors

- Life
- Fire
- Resource
- Action

V. CRITICAL UNKNOWNNS

During most critical incident situations, command must develop an initial action plan based only on the critical factors they can see at the beginning of operations. Most of the time, the initial information is very incomplete. The ability to identify the “knowns” and the “unknowns” emerges when the IC uses the standard inventory of the critical factors. The IC must:

- Quickly size up what they know and what they do not know
- Identify and address critical “unknowns” during incident operations
- Some unknowns must be addressed immediately, especially in situations that involve firefighter safety and survival, before the problem can even be engaged (such as basement fires)
- Some forecasted critical unknowns are so critical that they may drive the initial or current Strategy choice.

VI. QUICKLY IDENTIFY & REACT TO SAFETY “RED FLAGS”

Red flags are pieces of information that we must address because they can end up injuring or killing us. The IC must always take a pessimistic approach when sizing-up, assuming the worst until determining otherwise.

A red flag will not necessarily change the overall incident strategy or incident action plan, but it must be identified and addressed by the IC and the rest of the hazard zone team. This is a big part of how the IC ensures everyone goes home when the event is over. Some examples of red flags include:

- Fire in the attic space
- Fire in a basement
- Operating above a fire (basements, floor above the fire)
- Zero visibility
- Encountering high heat
- Reports of, “We can’t find the fire”, beyond the normal discovery time
- More than one (1) request to back up an attack position
- Reports that state “fire control,” but you can still see active fire conditions from the command post
- Victim(s) located
- Wind-driven fires
- Smoke/fire showing from cracks in walls.

VII. STRUCTURE & TIME INFORMATION AROUND THE TACTICAL PRIORITIES

Tactical priorities provide a job list for incident operations; they are the reason our customers call us. For structural firefighting, these tactical priorities include search/rescue, fire control, property conservation and customer stabilization.



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Effective incident communications focus on completing the tactical priorities (within the parameters of the critical incident factors and firefighter safety). This approach requires a simple, standard communications game plan (SOP) for the entire organization.

VIII. CONTINUALLY RECONSIDER CONDITIONS; STAY CURRENT & STAY CONNECTED TO RESOURCES

The IC develops their strategy and the IAP based on the initial size-up of the incident's critical factors. These critical factors are very dynamic; they are either getting better, or they are getting worse, but they never stay the same. The current and forecasted incident conditions must drive the strategy, the IAP and our risk-management plan.