

“Moving Beyond ICS Training & Certification— Application of ICS in Day-to-Day Operations”

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Introduction

By now, local government employees working in public works, water, wastewater, power and related community service activities should know that ICS has something to do with the Incident Command System. In fact, the vast majority of employees providing these critical community services have already been trained and certified at some level in both the Incident Command System (ICS) and the National Incident Management System (NIMS). The ICS and NIMS are not static, but are dynamic and evolving.

Attending ICS training and getting a certificate to hang on the wall is nice, but the real test is how ICS concepts and principles are being applied in day-to-day operations. If your organization waits until that normal/routine emergency becomes a crisis situation to start thinking about ICS, it may be too late. One ICS principle that all safety professionals certainly embrace is that “the safety of responders is the top priority.” The safety community has a unique opportunity with ICS in taking safety programs to new levels.

ICS Boot Camp

For those who have not yet completed ICS training at the 100 and 200 levels, this section provides a brief overview of basic concepts and principles. This ICS Boot Camp is not intended to prepare you for successfully passing a FEMA certification online exam but as only an introduction. If you have already completed 100 and 200 level ICS training, you can skip ahead to Moving Beyond ICS.

ICS was first developed in the 1970’s after a number of problems were experienced when several hundred city, county, state and federal fire fighting agencies responded to a series of major wild fires in southern California. Problems in communications and coordination made it nearly impossible to get the right resource to the right place at the right time.

You will likely find that procedures now being used in your organization for taking care of day-to-day incidents and problems are similar to ICS. A person with a small crew or team is assigned to “fix the problem.” The application of ICS starts with the discovery of the problem or incident.

How many job titles do you use in your organization such as director, manager, supervisor, foreman, superintendent, senior technician or operator, just to name a few? Multiply this by all

the different job titles used in local, state and federal governmental agencies and departments and you have thousands of different job titles. ICS provides common terminology for job titles to help reduce confusion between a person's position on an incident and his/her day-to-day position.

ICS organizational structure is simple and flexible. It is composed of a Command Staff and General Staff. The Command Staff includes the Incident Commander and when needed a Public Information Officer (PIO), Liaison Officer and Safety Officer. General Staff positions include the following: Operations Section Chief; Planning Section Chief; Logistics Section Chief; and the Finance / Administrative Section Chief. ¹ Figure 1 provides an example of the basic ICS organizational structure.

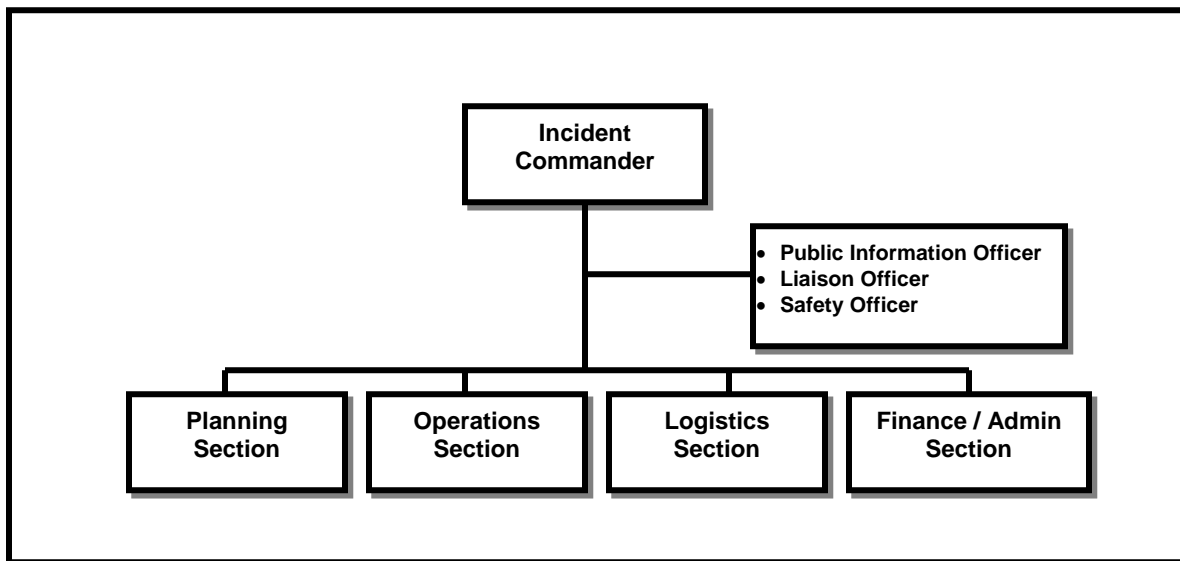


Figure 1. Basic ICS Organizational Structure.

As an incident becomes worse, sections in the General Staff may be further divided into branches, divisions, groups, units, teams and task forces. This provides a span of control for every supervisory position that generally ranges from three to seven.

All ICS positions do not need to be filled for every incident. A basic principle of ICS is “every incident, no matter how small or insignificant, must have an Incident Commander (IC).” ² This is especially true for what is often referred to as “routine or minor” day-to-day problems and incidents.

Another basic ICS principal is that every incident must have a verbal or written Incident Action Plan (IAP). The IAP provides broad guidance for assessing and fixing the problem. An example of a verbal IAP that a supervisor (IC) might provide his or her team is provided in Figure Two.

¹ Molino, Louis. *Emergency Incident Management Systems: Fundamentals and Applications*. Wiley and Sons, Inc., 2006.

² Canton, Lucien. *Emergency Management: Concepts and Strategies for Effective Programs*. Wiley and Sons, Inc., 2006.

IAP Provides Same Message to All Responders

- **Make safety your top priority – follow all safety procedures; there are no exceptions.**
- **Determine just how big and bad the problem is.**
- **Isolate and contain the problem.**
- **Report the incident as needed needed.**

Figure 2. Example of a Verbal IAP for a Utility Crew.

The first and foremost objective in responding to any incident is to keep response crews safe by using proper protective equipment and adhering to established safe work practices. Saving a few minutes by taking chances in responding to a minor emergency may result in a major crisis with loss of limb and life. The Incident Commander is responsible for crew safety. For larger emergencies, the Incident Commander may identify a person to act as the Safety Officer for the incident. The “Safety Officer” may be another senior supervisor or a safety professional. Remember that all incidents must have a verbal or written IAP with safety of responders as top priority.

A constant challenge for many safety professionals is the reporting of near miss accidents and incidents. By developing a culture in which basic concepts and principles of ICS are applied to routine day-to-day emergency situations (i.e. small chemical spills, minor repairs, minor injuries, or equipment damage) identification and reporting of near miss incidents will be easier.

The application of ICS starts with the discovery of the incident. As mentioned in ICS Boot Camp, every incident, no matter how small, must have an Incident Commander, and every incident must have a verbal or written Incident Action Plan. The first person that discovers a normal or routine emergency situation, such as a fire in a wastebasket, needs to think ICS and what the Incident Action Plan (IAP) should be.

In the wastebasket fire example, the first person discovering the incident begins applying ICS by thinking, “I need to keep myself safe – close the door to isolate the fire – notify 911 – alert others in the area – notify my supervisor - if safe to do so use a fire extinguisher – if not safe get to a safe area, and brief the first trained and qualified responders that arrive.”

The same type of ICS thinking can be applied by any employee responding to a routine problem or incident. The initial crew supervisor acting as the Incident Commander provides a verbal IAP briefing to crew members. “Safety is our top priority. Isolate and size up the problem. Fix the problem if we can. Request more help if we need it.”

If the incident starts getting bigger and as more crews and resources arrive, command will likely be transferred to a more experienced person after being briefed by the initial crew supervisor who was the initial Incident Commander. If traffic safety and public safety become a problem, ICS concepts can be applied to quickly expand and organize all the people and resources from other agencies (such as, police, fire, power, and others) that will soon be arriving.

ICS provides the foundation for the National Incident Management System (NIMS). The NIMS is a core set of principles and guidelines for coordinating regional, state, federal and private sector response to large disasters and other incidents beyond the capability of local and

state resources. This Boot Camp version of ICS was not intended to prepare you for successfully passing a FEMA certification online exam. If you are interested in FEMA certification in ICS and other emergency management subject the following Website provides free online training and certification: <http://training.fema.gov/IS/crslist.asp>.

Moving Beyond ICS

In San Antonio, Texas, the City / County Emergency Operations Center (EOC) coordinates ICS related training for public sector employees, as well as volunteer agencies and members of the private business sector. So far, the EOC has provided ICS training and certification to more than 5,000 public and private sector employees, and volunteer disaster support workers in non-profit organizations. More than 5,000 have also been provided NIMS 700 level training and certification. Several thousand senior level supervisors and key staff have also been provided training and certification at the 300 and 400 ICS level.

At the San Antonio Water System (SAWS) we decided to apply ICS concepts in day-to-day operations. When ICS training was first started, soon after 9-11, we found that twenty to thirty job titles were used in different departments to identify supervisory personnel (foreman, administrative foreman, operator, senior operator, technician I, technician II, technician III, senior technician and senior mechanic, to name a few). The number of different titles used made it difficult for personnel from different departments to quickly meld together in responding to more complex and larger incidents.

The application of basic ICS concepts has also helped in reporting incidents and near miss accidents. At SAWS, the IC has our operations center provide an email Situational Report (SitRpt) to key personnel, including the CEO, for all incidents no matter how small or routine they may be. The SitRpt is not intended as an analysis of the incident or used to fix blame; it is intended to provide early situational awareness. W SitRpt is issued for employee accidents and injuries, water main breaks, sewage overflows, mechanical breakdowns, chemical spills, power outages and other day-to-day incidents. Ninety-nine percent of our day-to-day incidents are considered as “normal or routine” with the supervisor acting as the IC.

Moving Beyond ICS

ICS in Day-to-day Operations:

In day-to-day operations utility repair crews responded to dozens of customer emergencies ranging from water main breaks and sewer overflows to water quality complaints. The ICS and NIMS awareness training was provided to the majority of our employees as early as 2002. Key supervisory staff have now been trained and certified at the 100 and 700 levels. No matter how small or minor an incident may be, the crew supervisor acting as the IC provides a verbal IAP to the responding crew prior to starting any work. Providing the verbal IAP helps to remind the crew supervisor that safety must be top priority. The poster shown in Figure 3 has helped to promote application of ICS.

Situational awareness is another ICS concept that SAWS has successfully implemented. Using the email SitRpt to provide concise “who-what-when-where” information, key staff are provided situational awareness on day-to-day routine incidents. As a routine incident starts to become worse, the SitRpt helps to keep top management aware of the pending problem. Keep in mind that the SitRpt is not intended to replace formal Incident and Accident Reports used in official reporting.

ICS Has Improved Security

Soon after 9-11, security at water utilities received national attention. Water security guidance documents from the Environmental Protection Agency (EPA) have underlined the importance of being able to rapidly detect and respond to possible water contamination incidents to determine the credibility of the threat within two to four hours of the incident. By applying ICS principles in responding to even minor security breaches, such as an open door or unlocked gate a diverse team of responders from different departments are able to quickly perform site characterization, determine if water quality is normal and make a decision if the breach in security poses a credible water contamination threat.

If you are not already familiar with EPA's guidance for responding to a water security incident you may want to take a few minutes to download the "Water Security Handbook." The sixty-page Handbook is a condensed version of EPA's Response Protocol Toolbox (RPT) and may be downloaded at: <http://cfpub.epa.gov/safewater/watersecurity/index.cfm>

ICS and the Big Pig Incident

Having a contractor inform you that a 90-inch plug has been lost in a sewer main can be the start of a bad day. A contractor repairing a large collection box where several large diameter sewer lines join to transfer flows to a single 90-inch main first reported the incident. A large expandable plug being used to block flows for bypassing the collection box had broken away and was lost somewhere in a 10-mile segment of the 90-inch main. If the plug expanded and blocked the line, millions of gallons of raw sewage would flood the country side.

Using ICS concepts and principles a response team was quickly assembled from a number of different departments to locate the missing plug that had now become a 90-inch Pipeline Pig. The Chief of Operations acting as the Incident Commander provided the following verbal IAP during an initial planning meeting:

- Make safety the top priority in locating the plug
- Monitor and check the 90-inch main for sewer overflows
- Locate and remove the plug from the collection system

Application of ICS made it possible to assign and coordinate the work of more than thirty employees from a number of different departments. The final ICS organizational structure even included a helicopter unit to conduct a fly-over to help identify any over flows along the ten mile length of the line. A member of our professional safety staff was assigned as safety officer for final removal of the plug from a bar-screen box that was more than 15 feet deep with flows of several million gallons an hour. The ICS made it easier to deal with a problem having potentially high consequences. The lost Big Pig was found and retrieved with no damage to infrastructure or personal injuries.

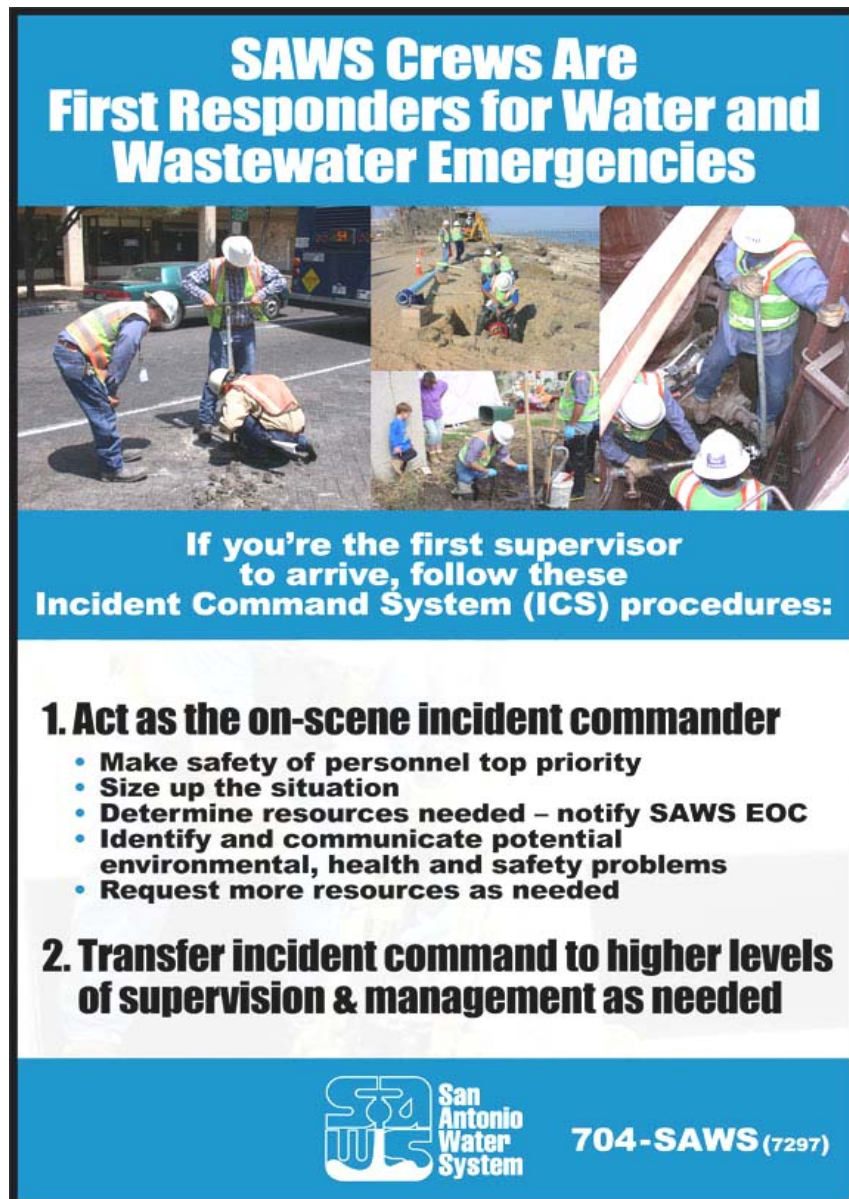


Figure 3. ICS Poster Used at SAWS.

ICS and the Maytag Repairman Syndrome

Many water utilities have excellent track records when it comes to chlorine safety. The vast majority have not experienced a reportable release or have had to call on their local Fire Department for Hazardous Material Response in twenty years or more. Because of their excellent history, these same utilities may experience what could be described as the “Maytag Repairman Syndrome” and tend to neglect conducting joint drills and exercises with local first responders.

The SAWS faced the Maytag Repairman Syndrome and started to neglect joint exercises with local first responders. With the introduction of ICS training at our Water Recycling Centers, joint

exercises with local first responders have become an annual event. This same approach is now being used by our Production Group. ICS training and application in day-to-day operations has helped us to avoid the Maytag Repairman Syndrome.

ICS Applied in Responding to Katrina and Rita

Just days after Hurricane Katrina devastated New Orleans and other coastal communities, the Texas Gulf Coast was being threatened by Hurricane Rita. Initially, landfall for Rita was expected to be west of Galveston, Texas. This meant that the San Antonio area could experience sustained winds of up to 50 miles per hour with extensive damage. Using ICS organizational concepts, damage prevention and assessments teams were quickly established across multiple departments within SAWS. Application of ICS made it easier to “batten down the hatches.” Rita decided to strike the coast east of Houston and spared San Antonio.

Within a few hours of Rita’s landfall, SAWS received a request to provide mutual aid support to the City of Bay St. Louis, Mississippi. The existing ICS organizational structure that had been established for Damage Assessment Teams for Hurricane Rita was quickly focused on deployment of a water utility repair team. Within twenty-four hours of receiving the call for help, a twenty-one person Water Utility Repair Team departed San Antonio. Once the SAWS Team arrived in Mississippi, it was able to join an existing ICS Task Force element at a base support camp located at the Stennis Space Center. Application of ICS made it possible for the SAWS Team to report to an established Base Support Camp providing food, shelter and even laundry service. The Team spent the next three weeks repairing hundreds of water service main breaks, allowing residents to begin the recovery process. Without the application of ICS concepts and principles, this deployment would not have been possible.

Chasing Hurricane Ike

The summer of 2008 will long be remembered along the Texas Gulf Coast. First it was Hurricane Dolly, then Hurricane Gustav, then came Ike. During Dolly, a SAWS Pump Team was deployed to McAllen, Texas to join a Public Works Task Force for dewatering low lying housing areas that had been flooded. The Public Works Task Force was composed of teams representing water, wastewater and public works department personnel from several different Texas communities. The SAWS Team was divided in to two shifts for twenty-four hour round-the-clock operations. Application of ICS made it possible for the SAWS Team Leader to communicate and to coordinate work with public work crews from other departments and agencies throughout Texas.

Hurricane Ike has been described as the fourth costliest hurricane to affect the U.S. after Hurricanes Katrina (2005), Andrew (1992) and Wilma (2005).³ What started out as a small tropical depression off the west coast of Africa on August 28, 2008 made landfall along the north end of Galveston Island, Texas on September 13 as a Category II Hurricane named Ike. After making landfall, Ike continued inland producing hurricane force wind gusts in the Ohio Valley on September 14th, and even producing power outages as far north as Quebec, Canada.

As soon as Hurricane Ike hit the coast, Texas Taskforce Ike consisting of first responder search and rescues units and Public Works Response Teams from McAllen, Texas departed staging areas in San Antonio and traveled to Galveston Island. McAllen water and wastewater crews were able to immediately begin emergency repairs making it possible to maintain fire flow for the Emergency Operations Center and other critical facilities being used by emergency responders.

³ Berg, Robbie. Tropical Cyclone Report Hurricane Ike. National Weather Service. January 23, 2009.

Water utility repair teams from San Antonio were deployed to Galveston Island on September 19, 2008 to replace crews from McAllen, Texas. During the replacement transition ICS briefings made it possible to continue working on established priorities. Daily ICS briefings identified high priority repairs for restoring fire flow and other essential water services for returning residents. San Antonio teams continued to make emergency repairs for water and wastewater infrastructure for the next twenty-one days.

One ICS position that we have found to be as important as the IC is the position of Team Leader. This position is a lot further down the ICS organizational chart, but as an incident becomes big and bad and additional resources are needed, a Team Leader familiar with ICS will be critical in getting the right resource to the right place at the right time. A Team Leader trained in ICS also knows that safety is the top priority and an Incident Action Plan is essential for providing provide broad guidance and objectives for coordinating the work to be done. It is note worthy that, while making water utility system repairs in what could be described as high hazard work environments that reportable injuries have been kept to zero.

ICS Applied to Continuity of Business Planning

In the past it has been common for private businesses to view ICS as something only for fire and police, and other first responders.⁴ Corporate level business continuity and disaster recovery plans have not typically included ICS concepts and principles and have not been linked to the National Incident Management System (NIMS). In many cases, business emergency plans require activation by Executive Management. Without a pre-defined ICS structure the use of internal resources from different corporate departments and groups can lead to delays in response resulting in longer recovery time and higher restoration cost. Without a defined ICS process, private business may not be able to effectively manage communications, resources and changes as a minor incident becomes worse.⁵

Recent NIMS guidance has focused on establishing private sector partnerships and in linking corporate emergency plans to local, state and federal planning through the National Response Framework. If ICS is still an unfamiliar acronym in your organization, it won't be for long.

As NIMS and the National Response Framework continue to evolve you can expect local, state and federal agencies to train all employees in ICS. You can also expect more private businesses and corporations to provide employees ICS related training and to integrate ICS into their existing business continuity planning efforts.

With out a doubt, ICS is here to stay. You may have passed the written exam and have your ICS certifications hanging on the wall, but, your real test is how you apply what you've have learned to that next routine incident. Best of all, the application of ICS concepts and principals in day-to-day operations can help meet the challenges faced by every safety professional in the reporting of near miss accidents and incidents.

⁴ Koch, Reinhard and C. Marks. "Prepare of the Next Wave of BC Planning." *Disaster Recovery Journal*, Fall 2006.

⁵ Laz, Peter. "NIMS/ICS in a Private Sector Company." *Disaster Recovery Journal*. Summer 2006.