



# SATERN NET GUIDE

This manual has been compiled for the use of the members of  
**The Salvation Army Team Emergency Radio Net.**

It is hoped that the information contained in the guide will enhance the  
Salvation Army Disaster Response.

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# INTRODUCTION

The SATERN manual was originally conceived and produced in 1989 by Arthur Evans and Major Patrick McPherson (SK). This manual has weathered the test of time but in recent years the advent of the Internet, new communications formats and standardization of Emergency Agency forms requires an update of this manual. Although much of the material remains unchanged it is now grouped by general procedures and mode specific instructions. The advent of electronic mail will allow quick dispersal of updated and new information to all registered users.

The introduction of the Narrow Band Emergency Messaging System (NBEMS) will allow large amounts of complex text to be relayed, error free, in the Incident Command System (ICS) format that has become standardized by most agencies. The ICS-213 (as adapted to amateur radio) should be used to supplement or replace the ARRL Radiogram and allow served agencies to instantly recognize the message format.

Each section will have generalized information on how to adapt your station to these modes and procedures.

This manual is produced with the assumption that all other systems have failed and that amateur radio is the only functioning communications. In all probability these procedures will supplement existing overloaded services but preparation for the worst is desirable.

Please advise us at [saternmanual@can.salvationarmy.org](mailto:saternmanual@can.salvationarmy.org) of any errors or omissions.

Your support in keeping this manual current and relevant is greatly appreciated.

73 Steve Lenaghan VE5SR [ve5sr@arrl.net](mailto:ve5sr@arrl.net)

DRAFT

# STATEMENT OF PURPOSE

**The Salvation Army** has by inclination and tradition strived to provide service at the point of greatest need in time of disaster. Numerous services are available to alleviate suffering, meet physical needs and provide spiritual counseling and support.

The purpose of the **Salvation Army Team Emergency Radio Network (SATERN)** is to acquire and train personnel skilled in emergency communications and message handling, who will support Salvation Army operations in local, regional and international disaster situations.

Our fervent hope and prayer is that our congregate service may indeed help mitigate the trauma and impede the potential of widespread tragedy that is implicit in disaster.

*Major Patrick E. McPherson  
October 1, 1989*

# SCOPE OF SALVATION ARMY SERVICES

**The Salvation Army** is an international religious and charitable organization committed to the ministry of disaster relief and the mitigation of suffering caused by tragedy. It is the largest private welfare organization in the world and has a structure that effectively copes with the challenges initiated by a disaster.

The root resilience of the system is completely determined by a network of skilled, trained and committed volunteers. The network is geared to be available at a moment's notice in emergency situations whenever they are needed.

## **AFFIRMATIVE ACTION:**

All SATERN endeavors shall be without discrimination in any form, specifically in regard to race, religion, creed or sex.

## **TYPES OF SERVICES**

### **General Emergency Services.**

- Feeding (mass and individual)
- Housing (mass and individual)
- Clothing distribution
- Spiritual ministry
- Communications
- Follow up services (hospital, home visitation and correspondence).

### **Other Emergency Services:**

- Registration and identification
- Casework
- Furniture and bedding
- Household needs
- Personal services
- Clean-up
- Provision of cleaning supplies
- Lost and found service
- Search and rescue

# SALVATION ARMY STRUCTURE

The Salvation Army is an international entity whose headquarters are based in London, England. It is divided into territories throughout the world. Generally speaking, a territory is a country. The exception of this is the United States, which has four territories (Eastern, Central, Southern and Western). The international leader of the Army is the General, and each territory has a Commissioner as its executive officer. Each Territory also is an incorporated entity.

In the unique situation of the United States, there is a National Headquarters with a Commissioner as National Commander who oversees the Territories in the United States.

The Territories are divided into Divisions. In the U.S.A. these are basically statewide areas, but some are combinations of states. For example: Heartland Division of the Central is comprised of Central Illinois and Eastern Iowa, with Divisional Headquarters in Peoria, IL. In the Western Territory there is one state that includes more than one Division (California). The Southern California Division is comprised of about the lower third of the state only, yet it is one of the larger Divisions in number of Corps. Each Division is administered by a Divisional Commander.

The Divisions are comprised of the various cities in the region, or as in the case of a large metropolis like Chicago, even the sectors of the city. In these sectors or cities, the Corps is responsible for Salvation Army service or ministry. There is also a unit in smaller towns of the Division called **The Service Extension Units** made up of a board of local volunteers who disseminate Salvation Army welfare. The Division is the governing body for the Service Unit.

The Corps is commanded by a Commanding Officer whose responsibility is that of a minister who pastors the Church or Corps and administers all of the social programs of the Army which includes disaster response. From the Corps emanate the basic programs of the Army for which the structure was created.

In some cities there are other social ministries which are departmentalized in the Territorial Headquarters. These are basically institutional programs such as drug and alcohol rehabilitation programs, etc. While they are not specifically a part of the Corps program they have substantially supported the Corps in disaster and other emergency response.

Each Corps is responsible for emergency response. The only exceptions to this occur in a large metropolis where the Divisional Headquarters is resident and they have undertaken the responsibility. The Corps in those areas still support that effort but simply do not administrate it.

In Kansas City MO., the headquarters of the Missouri-Kansas Division (MO-KAN), a large highly sophisticated SAC (*Salvation Army Communications*) TEAM provides a diverse and high quality response for the metropolitan area. Their team has developed text-book emergency responses that have become classics in the annals of disaster relief. In Chicago, IL a similar team handles the entire city. It is administrated by a Disaster Services Coordinator who represents the Division in Salvation Arms' response.

Basically speaking, the Corps administers the disaster relief program for its locale, the Commanding Officer has at his disposal a number of local volunteers which may include several from the emergency sector, and definitely includes the lay leadership of the Corps, advisory personnel, professional staff, and employees. Each Commanding Officer develops the type of team which he feels best will serve his command within the parameters of Salvation Army guidelines, and you will discover a certain diversity in the Corps response.

Even though the maintenance of the Service Extension Units is the Divisions' responsibility, the Corps is responsible for response within those areas, although the Division will assist where needed. A good example involves the Elkader, IA tornado in which the Dubuque and Waterloo, IA teams responded. Dubuque was responsible for a six county area and Waterloo, a like amount. Elkader was on the edge of their prescribed responsibilities, and due to the extremity of the disaster they assisted even though it was approximately 60 miles away from them. Elkader is a Service Unit town.

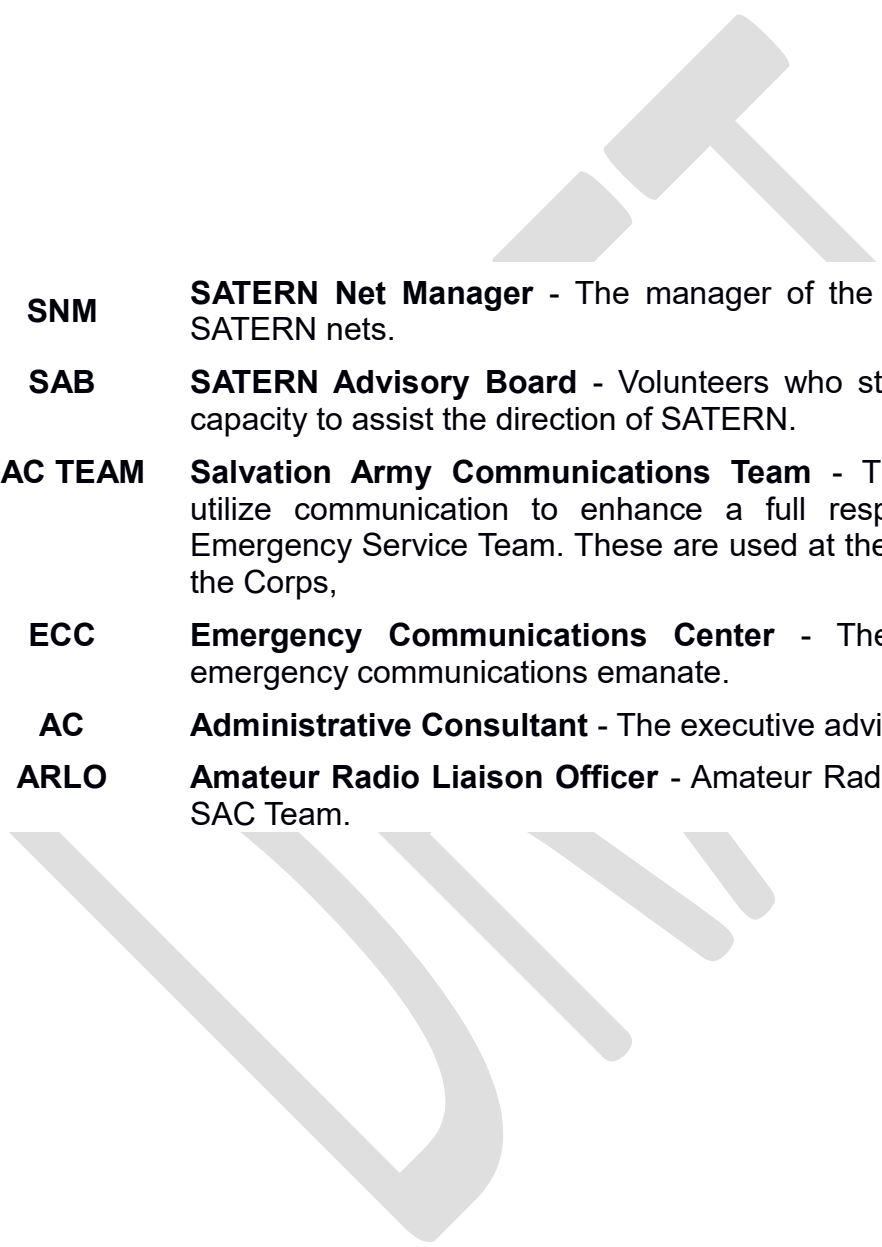
You will discover that there is a resiliency to the Army that no other private disaster agency has. Primarily, there is a worldwide organization to support a local disaster. When hurricane Gilbert struck Jamaica, the Jamaican Territory did not have to stand alone. The Territories of the United States provided a large, dynamic response which very effectively used amateur radio and its other resources. In fact the fledgling SATERN net provided support for the endeavor. The Southern Territory was assigned responsibility for the undertaking and brilliantly responded. They sent in their own team of amateurs and emergency relief personnel to aid the Salvation Army's undertakings there.

The Army has such a vast and detailed structure that there is nearby help available virtually any place in the world.



# SALVATION ARMY TERMINOLOGY

<b>CORPS</b>	The root unit of The Salvation Army from which the entire spiritual and social program of the area emanates.
<b>CO</b>	<b>Commanding Officer</b> - The representative of Salvation Army authority in a given area, Commander of the local Corps, responsible for disaster response in that area
<b>DIVISION</b>	A grouping of several Corps. (e.g., The Heartland Division is comprised of 29 Corps throughout Central Illinois and Eastern Iowa.) Common acronym - DHQ (Divisional Headquarters).
<b>DC</b>	<b>Divisional Commander</b> - The commander of a given Division and responsible for disaster response throughout the Division.
<b>DDC</b>	<b>Divisional Disaster Services Coordinator</b> - The Divisional Commander's representative, specifically in regard to Disaster Services coordination.
<b>TERRITORY</b>	A group of Divisions - Common Acronym - THQ (Territorial Headquarters).
<b>TC</b>	Territorial Commander - The commander of a given territory and responsible for disaster response for that area.
<b>COMMUNITY RELATIONS SECRETARY</b>	This is the territorial department head for public relations and disaster response. He represents the Territorial Commander in disaster coordination.
<b>SERVICE EXTENSION UNIT</b>	This is an area that does not have the resources to support a Corps, but has a local board of Salvation Army volunteers that disburse services to the needy. It is a Divisional entity.
<b>SATERN</b>	<b>Salvation Army Team Emergency Radio Network</b> – Amateur Radio Volunteers for The Salvation Army who regularly meet and train for disaster response, specifically in the area of emergency communication and traffic handling.
<b>SAROF</b>	<b>Salvationist Amateur Radio Operators Fellowship</b> - An informal fellowship net created by the late Colonel Carl Lindstrom (W9JSF) for officers, soldiers, adherents and volunteers of The Salvation Army.
<b>SC</b>	<b>SATERN Coordinator</b> - The representative of the international Salvation Army to SATERN.

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- SNM**     **SATERN Net Manager** - The manager of the national and territorial SATERN nets.
- SAB**     **SATERN Advisory Board** - Volunteers who stand by in an advisory capacity to assist the direction of SATERN.
- SAC TEAM**     **Salvation Army Communications Team** - These are entities that utilize communication to enhance a full response Salvation Army Emergency Service Team. These are used at the Divisional level and in the Corps,
- ECC**     **Emergency Communications Center** - The Center from which emergency communications emanate.
- AC**     **Administrative Consultant** - The executive advisor to SATERN.
- ARLO**     **Amateur Radio Liaison Officer** - Amateur Radio Representative on a SAC Team.

# SATERN EMERGENCY RESPONSIBILITIES

There are three primary areas in which SATERN can function in disasters to assist The Salvation Army. They are:

- (1) The provision of local communication.
- (2) The provision of regional communication.
- (3) The provision of international communication.

## LOCAL COMMUNICATION

On the local level SATERN should provide primary communication from the disaster site to command personnel and to Salvation Army Headquarters. SATERN should also effect communication between Salvation Army mobile stations. Relay stations should be operated where necessary. A team of relief personnel should be standing by for placement in later shifts.

Here are some actual scenarios illustrating the value of local communications to Salvation Army disaster response. The communication is basic but served in dynamic fashion.

On Palm Sunday, April, 1988 in Springfield, IL the local Salvation Army commander was asked to station an emergency canteen on the scene of a hostage crisis to provide nourishment and other emergency relief to the police, government authorities, ambulance crews, emergency volunteers and family members of the victims. Salvation Army crews were well aided by Dale Petit (WD9HQC), a SATERN member, who coordinated communication via two meter radio between the Commanding Officer's vehicle, the Emergency Canteen at the hostage site and ECC at the Salvation Army Corps building. The crisis lasted forty-plus hours and the amateurs enabled the Army to quickly and efficiently respond to the emergency's' needs. They helped save time, energy and money and provided manpower to expedite the task.

In Dubuque, IA, Bud Nesler (KBØQL) was on the scene of the Clark College fire, a million dollar disaster that burned down a dormitory. It was the worst disaster Dubuque had seen in decades. The Dubuque SAC TEAM was the first volunteer team to arrive on the site and the last to leave a day later. The Salvation Army provided relief to the volunteer and professional people on the scene and provided necessary supplies to the eighteen nuns who resided in the dormitory. Bud delivered logistical information via his two meter HT, regarding the position of the team, to the Commanding Officer who was arriving at the scene. He effectively helped place the team in the best position. It seemed like a very small matter but it was very viable help that effected a quicker and more efficient Salvation Army response.

In Rapid City, SD in June of 1972 a devastating flood poured through the area. Major Bill Medley (KØRZM), the Commanding Officer of the Rapid City Corps, a ham and SAROF member, lost his life attempting to save a baby from imminent danger when the earthen dam above him burst. The Salvation Army immediately launched an all-out effort to provide relief for the stricken city. This included flying emergency canteens and personnel from all over the territory. The Army wrote a stellar page in the annuals of disaster response as it threw its entire weight into the effort, but an item that impeded our efficiency was that the different teams used anything from CB to business band communications, and they couldn't talk to each other to expedite the work. The use of local amateur communication by our people would have solved that problem.

## REGIONAL COMMUNICATIONS

On a regional disaster SATERN should establish a field station to effect communication from the disaster site to a Divisional Headquarters or Corps center that has been named the disaster control point. This station's primary function is to apprise Salvation Army personnel of details regarding the disaster and receive instructions from command for field response. The initial station may be mobile but every attempt should be made to erect a station type of antenna at the site.

Local communications should also be established among the ancillary cells to connect the field command to shelter, clothing, feeding, medical, government and worksites etc. (probably via two meters).

A Health and Welfare system should be set up, given the need, on a secondary priority basis.

In an emergency where extensive data transfer is required, effort should be made to establish a station dedicated to digital communications (Amtor, NBEMS, RTTY, Packet, etc.)

SATERN stations throughout the region should assist in relay and traffic handling to support the effort.

Two more scenarios:

Len Heath (WBØCRX), now a Salvation Army Team member, gave direction via two meter radio to Salvation Army Command personal on their way to the Elkader, IA disaster in the mid 1980's. The Dubuque, IA repeater auto-patch was used to assist in directing the relief operation and to relay instructions to SA Headquarters in Dubuque, some sixty miles away.

Also in the mid 1980's, the town of Barneveld, WI was virtually erased by a deadly tornado. The Wisconsin and upper Michigan Division of the Salvation Army, dispatched personnel and equipment to handle the formidable task of recovery, rebuilding and cleanup. Dave Raille, the Disaster Coordinator for that Division, mentioned at a Territorial Disaster Seminar in 1987 that there was no communication from anyone on the site to Divisional or Regional Headquarters. One low band portable or mobile station would have solved that problem.

SATERN can immediately impact greatly upon our emergency response by being available for local and regional disaster work. While it is primarily the responsibility of the local Commanding Officer to secure volunteers for his crew, it is our hope that we can point those amateurs in Corps areas to the local Corps and that they can be helpful in time of emergency.

Beyond that, on the Divisional and Territorial levels, when disaster occurs, we are in a position to direct our volunteers to the stricken area to assist.

## INTERNATIONAL COMMUNICATION

The commission of SATERN in international disaster follows a similar pattern of responsibility. Its job is to provide communications from the disaster site to Salvation Army Command, to effect a system of local communications that will enhance the opportunity for efficient relief operations, and to provide and assist the relaying of emergency traffic.

This is an area where virtually every SATERN member can help, just by being available to monitor, relay, and pass traffic. Some may go to a remote part of the world to set up a disaster communications station, but most will be back here providing the backbone of the support system, by passing the traffic and doing what they can,

In the recent past the Salvation Army disaster response has been highly accelerated by the use of amateur radio teams who have set up in remote disaster sites and passed emergency traffic back to the United States. The most notable were during the Mexico City earthquake and Hurricane Gilbert, which struck Jamaica. If you were involved in those, you realize firsthand how crucial this service is.

The scope of these disasters means that many stations must help to get the job done. If you are part of the team on the site, your role will be determined by the needs of the disaster and the criteria of Salvation Army response. If you are with the rest of the world supporting the effort, you will serve many agencies and individuals. Be sure and state that you are a SATERN member when you assist. You are part of a viable Salvation Army response whenever you give service, and you will help build the public's awareness of the service by so doing.

### **Before it happens:**

You can help us substantially before a disaster ever occurs by developing the tools you will need later, now. If you don't know how to net control or pass traffic, learn how.

The SATERN net is an excellent way to get comfortable and learn the ropes. If you have digital equipment, don't wait till Hurricane Hanna hits Haiti to learn how it operates...

Learn now. If your antennas need repairing, repair them now.

Make sure you have the batteries charged and the equipment ready! (And maybe dust the cobwebs off the old CW key!) It is impossible to forecast the specific necessities for any emergency.

The primary requirement is to have the flexibility and the commitment to get the job done. It won't be easy or automatic, but with your help it will happen.

## DISASTER/EMERGENCY - WHAT CAN WE EXPECT?

Lt. Dan Blackston, Chula Vista Police Department

The following list of seventy (70) "*things to expect*" is not offered as a prediction of doom. Although most of the items are negative, this is a realistic list of problem areas that we can expect to face in a disaster.

Recognizing that problems will appear and giving some thought to them prior to a disaster are steps towards overcoming them. Some of the areas require specific actions; some will diminish with time; some are inherent in disaster operations and must simply be accepted.

Although not every one of the 70 listed items will occur in every emergency, the majority will appear in most situations. You are encouraged to scan the list, determine which items are or may become your responsibility and determine how those items could best be handled or the problem reduced.

1. In an earthquake there may be violent ground shaking; it will seem to last much longer than it actually does.
2. Fires will occur, caused by electrical shorts, natural gas, fireplaces, stoves, etc.
3. Fires in collapsed buildings will be very difficult to control.
4. The extent of the disaster will be difficult to assess, though this will be necessary to assure proper commitment of resources.
5. Emergency equipment and field units will commit without being dispatched. There will be an air of urgency and more requests for aid than units available to send.
6. Communications will be inadequate; "holes" will appear in the system and air traffic will be incredibly heavy.
7. Trained personnel will become supervisors because they will be too invaluable to perform hands on tasks.
8. Responding mutual aid units will become lost; they will require maps and guides.
9. Water will be contaminated and unsafe for drinking. Tankers will be needed for firefighting and carrying for drinking water.
10. Citizens will volunteer, but their commitment will usually be short term.
11. There may be a multitude of hazardous materials incidents.
12. Aircraft will flood the area; law enforcement, fire, media, civilian, commercial and military aircraft will be a major concern.
13. The Command Post and/or EOC will be overrun with non-essential personnel; media, geologists, architects, engineers, representatives from other jurisdictions, etc.
14. Staging will be essential; the flow of personnel, equipment, and supplies will be overwhelming.

15. Although it is an EOC function, the Field Command Post will become the temporary seat of government.
16. Electric power will be interrupted or it will fail completely.
17. It will be difficult to shut off the gas; valves that are seldom, if ever used will be difficult to find, and may not work when they are found.
18. Phone service will be erratic or non-existent. Pay phones will be the most reliable.
19. The media will have the best communications available; be prepared to secure or impound their resources.
20. Fuel will not be available because there will be no electricity to run the pumps.
21. There will be an epidemic of flat tires; police, fire, and emergency medical vehicles will sustain a multitude of flat tires that will require repair in the field.
22. Fires will need to be investigated; mutual aid should include arson investigators.
23. The primary police department concern will be law enforcement; there will not be sufficient time or manpower to provide miscellaneous services.
24. It will be dark; there will not be enough generators or lights available.
25. Portable toilets will be in demand; there will be no place to go, and if a place is found there will be six photographers there to cover the event.
26. The perimeter will be difficult to control; citizens and media alike will offer good reasons why they should be allowed to enter the restricted area.
27. Search dogs will be needed early in the operation.
28. Documentation will be very important; there will be a multitude of requests for information later.
29. Riveted steel (oil and water storage) tanks may fail.
30. Streets will be impassable in some areas; it will be necessary to clear streets of rubble in order to conduct emergency operations.
31. The same buildings will be searched more than once unless they are clearly marked.
32. In earthquakes, there will be aftershocks; they will hamper emergency operations, create new fears among the citizenry and may cause more destruction than the original shock.
33. Many injured people will have to find their own way to treatment facilities.
34. Volunteer and reserve personnel may be slow to respond; they will put their own families' safety first.
35. On-duty public safety personnel will be concerned about their own families, and some may leave their posts to check on them.
36. Law enforcement and the media will clash; all media representatives should be referred to the Public Information Officer.

37. Very few citizens will utilize evacuation/mass care centers; they will prefer to stay with friends and relatives, or to camp out in their own yards.
38. Structural engineers will be needed to evaluate standing buildings for use as evacuation centers, command posts, information centers, first aid stations, etc.
39. The identification of workers and volunteers will be a problem; it will be difficult to determine who is working where and on what.
40. There will be rumors; people will be listening to their radios and must be given accurate information.
41. There will not be enough handie-talkies; batteries will soon go dead.
42. Many fire hydrants will be inaccessible (covered or destroyed by rubble) or inoperable.
43. Generators will run out of fuel; jerry cans of fuel must be obtained early to maintain generator powered lighting and communications.
44. Critical facilities will have to be self-sufficient; gas, lights, water and sewage may be out for days.
45. Emergency responders will require rest and must be relieved. Local personnel may be of value as guides for mutual aid responders, or as supervisors for volunteer crews.
46. Equipment will be lost, damaged or stolen, and may never be accounted for.
47. Someone will get the bill; record keeping and accounting procedures will be important.
48. Traditional non-emergency personnel will want to go home at 5 o'clock; all public employees must be made to realize that they are part of the emergency response team.
49. People will die and there is nothing that can be done about it. Non-public safety personnel will not understand why everyone cannot be saved. Priorities must be set to save the most lives possible.
50. Dead bodies should not be an initial concern. Rescuing the living should be the first priority.
51. If phones are working, the number of requests for service will be overwhelming. People will have to fend for themselves; it will be difficult for dispatchers to ignore these pleas for help.
52. Some field units will "disappear"; you will not be able to reach them.
53. There will be difficulties with hysterical citizens demanding immediate attention.
54. Representatives from public agencies throughout the United States and many foreign countries will want to come and observe the operation or offer assistance. They will be a significant problem.
55. Department heads (EOC) staff may not have a working knowledge of their assigned areas of responsibility and will "*play it by ear*".
56. Some citizens and media will question your decisions because they will not recognize that the safety of field responders is paramount.
57. There are no critically injured in a disaster; only those who are dead or alive.



58. Handicapped and disabled persons will probably die unless personal family and friends can care for them and maintain life-support systems.
59. Management will not be familiar with field response procedures, and may attempt to change standard operating procedures.
60. Emergency responders (public safety and medical alike) will not be adequately trained to respond efficiently.
61. There will be initial chaos; supplies, materials and equipment needed, will not be readily available.
62. There will be a general lack of necessary information; coordinators will want to wait for damage casualty assessment information to establish priorities.
63. Emergency equipment will not be able to reach some locations because of traffic jams. Tow trucks will be at a premium. Parked or abandoned vehicles will block streets, and emergency responders will be the worst offenders.
64. Even though there will not be enough people to initially deal with emergencies, many available personnel will never be identified and never used. After the initial shock there will be too many volunteers.
65. General information will be offered in response to specific questions because field units cannot verify the requested information.
66. Individual public safety officers will be asked to do the work of squads or companies; they will have to recruit volunteers on the spot to provide assistance to their efforts.
67. The message flow to, from, and within the EOC and Field Command Post will break down and become inefficient and unmanageable.
68. There will be an overcritical desire to "verify" all incoming information. If it is received from a field unit, it should be considered as verified.
69. Some EOC and Command Post personnel will become overloaded; some will not be able to cope with the volume of activity and information they have to deal with, and some will not be able to cope with the noise and distractions.
70. Things will go better -- some time after they have become considerably worse.



# **SATERN NET CONTROL HANDBOOK**

# A Guide to Emergency Net Operations

*From material by Brad Pioveson W9FX National Training Coordinator*

## INTRODUCTION

We hams have a very rich history of providing public service communications. In fact, our collective public service efforts provide the FCC with a reason to provide us with the continued opportunity to use the valuable frequencies upon which we operate. Without amateur radio operators' public service efforts, ham radio would, quite simply, cease to exist.

Emergency situations occur every day in every community, in every county, in every state, and in every nation. As used in this document, the term *emergency* refers to an unplanned event, series of events, or other circumstance which results in danger of or actual injury to people or property. At some point in our amateur careers, it's safe to say we have all either directly participated in or monitored others who were actively involved in emergency communications. SATERN's 1998 Hurricane Mitch experience which featured 19 consecutive days of 20 meter network operations is a prime example of amateur radio emergency communications (ECOM).

The Hurricane Mitch operation was noteworthy for a number of reasons, not the least of which was the successful petition of the FCC to declare a segment of the 20 meter band to be for emergency communications only - a SATERN first. SATERN received a lot of exposure and publicity from those 19 days of operations. After the ECOM net was secured, those stations who had acted as net control stations during that period were polled by Harry, W9IB, to obtain comments and suggestions for improvement of our operations. Shortly thereafter, the position of SATERN National Training Coordinator was created. This document was developed in an effort to address some concerns that were voiced in the after action survey and to improve SATERN's members' ability to provide ECOM.

Sections of this chapter refer to voice procedures. Please refer to the CW or Digital sections for details specific to those modes.

# THE BASICS OF COMMUNICATIONS

Communications, by definition, is a two way process. Successful communications involves a sender of information and one or more receivers of that information. If either of these parties do not do their part in the communications process, their efforts will have been futile. Moreover, before the attempt to pass information takes place, we must determine exactly what it is we wish to transmit . . . and, . . . how to deliver it to the intended receiver. While that sounds pretty simple, the most effective way to communicate information will involve clear, concise words and phraseology. Condensing your thoughts into those few clear and concise words often takes more than a bit of thought. Then, the method of transmission must be selected. On SATERN's voice nets, that choice would appear to be pretty straightforward. There are times and situations, however, that dictate that the information be sent in written form. Digital modes or CW, then, may be relied upon to provide those types of communications. Once the mode of transmission has been selected and the information sent, the onus now bears on the recipient. Did he or she not only receive the information correctly, but, was the message clearly understood? Was the message interpreted correctly? And, finally, there should be some sort of feedback system in place to ensure that the communication was in fact successful.

If any of these elements are missing from the two way communications process, we have not successfully conveyed information. How we perform these tasks and our collective attention to detail, then, define our success as communicators.

## **CONTROLLING THE NET**

Most nets fall into two main categories concerning the function of the Net Control Station: OPEN and DIRECTED Nets.

### **OPEN NETS**

During this Net, most any type of traffic and communications are permitted. Conversations are permitted on the frequency, provided that they break every so often to allow incident related traffic to pass. A Net Control may or may not be required for this type of net as circumstances dictate. Stations do not need to contact Net Control before making a directed call to another station, and incident related traffic may be handled on a point to point basis. A net may be declared OPEN if the incident has little incident related traffic, or if there is little need to direct individual stations with a Net Control Station. This net is considered to be informal in its approach.

### **DIRECTED NET**

This Net is created when the amount of <sup>DRAFT</sup> Stations on the frequency who wish to talk, or the amount of traffic to be handled, cannot be accomplished on a first come-first served basis. The chances of stations doubling over each other in an attempt to make contact may increase to the point where the frequency may become unusable. In a DIRECTED Net, the Net Control Station will determine who will use the frequency at a given time, acknowledging those stations first that may have incident related traffic. Conversations between stations are kept at a minimum, and tactical call signs are assigned by the Net Control to facilitate traffic handling. This net is considered formal in nature, and stations having non-incident related traffic may be asked to move to another frequency.

***All SATERN Nets are Directed Nets***

# GENERAL NET OPERATIONS

The purpose of an amateur radio network is to provide the net's members with the opportunity to exchange information, messages, and, in some cases, to provide practice for emergency communications (ECOM) situations. SATERN's 20 meter network operation meets all of these needs. In its most basic form, an amateur net consists of a net control station (NCS or NECOS) and net members.

Net operation may seem like a rather simple thing, but there can be more involved than just simply checking into a net and relating how cold it got in lower Podunk today. In emergency communications the proper procedures will expedite the orderly operation of the net.

When checking into a net, always give the net control's call sign, pause, drop the carrier and listen for a second, then give your call sign and indicate if you have traffic for the net. i.e., K9ABC (drop carrier) this is WØXYZ, traffic (or no traffic as the case might be). The reason for this is to prevent doubling, and prepare the NCS (Net Control Station) for a new check-in. Be explicit when checking in. If you have traffic, when the NCS asks you to list the traffic, just say "*One routine for St. Louis*", or whatever. Don't beat around the bush with comments. If you can handle traffic, take it. If you can't, don't waste time with dumb questions. Another good point to remember is only check in when the NCS asks for check-ins, unless an emergency situation exists. It is much less confusing to the NCS than when stations are jumping in helter-skelter in the middle of a conversation.

When you are involved in an actual emergency, the most help you can give is to be silent. Either check into the net and stand by, or just monitor the net frequency and be ready to help if you are needed. Time is wasted on emergency nets by useless check-ins and offers to take traffic for lower Podunk when there is none ~~offered~~. If there is traffic for your area, by all means jump in and offer to take it. If there is no traffic for the area that you are in, you will only waste time by using your microphone or keyer.

Don't try to help the NCS out with relays or advice ***unless he asks for help***. When we are in a roundtable type of net, no harm is done by remarks or general bantering, but in an actual emergency you may be doubling with someone who really needs help. When in doubt, don't.

Pay attention to the NCS. If he tells you to do something, do it. Don't argue with him. If you don't want to help, leave the net.

You should always have a pencil and paper handy to write down messages or instructions. The time to gather up materials is before the net, not when you have been directed to accept a message.

If you are going to leave the net and you are formally checked in, by all means let the NCS know that you are going, and when and if you will be back. None of us can spend 2 hours a day on frequency, although some of us come close. If the NCS knows that you are gone, he won't waste time looking for you. If you have a general idea when you can return to frequency, the NCS can hold traffic for your area until you return.

Most of the procedures used in emergency nets are the same that are used in traffic nets every day. Some of the best practice that you can get in net procedure is to check into your local NTS area net. You may or may not like traffic handling (everybody to their own taste), but the procedures are the same in the nets.

**The procedures in CW nets are about the same as in voice nets, but you should familiarize yourself with the Q-signals if you contemplate checking into CW nets.**

# NET CONTROL

There is nothing mysterious about net control. Being a good net control comes from having experience, and the only way to gain experience is to act as a net control station on an active net. In emergency operations all stations should be able to act as net control. You never know when you might be the only one around to handle the situation

The time to gain the experience to be an effective net control station (NCS is not in an emergency situation. There is enough to do then without having to learn how to handle a net as you go.)

The net control station has several duties. They include:       Opening the net.

- Listing any traffic for the net.
- Calling for and acknowledging check-ins.
- Distributing traffic.
- Identifying the net and requesting additional check-ins.
- Maintaining net discipline.
- Closing the net.

You should give the mechanical aspects of net control some thought before you actually start the net. You must be able to write and use the microphone at the same time. If you are right-handed this means you will have to manipulate the mike with your left hand. Be sure that there is enough room for writing at your operating position. If you are cramped for room, it makes for long nets. One good idea is to use a headset with a boom mike and a foot switch for PTT. That leaves the desk clear and both hands free. The type of form you use to keep track of the net will vary with the net. That is one phase that you will probably have to work out for yourself.

Be very cautious about using VOX (Voice Operated Transmit). PTT (Push to Talk) works better for net operation.

It is best to have a preamble, which states the purpose of the net. It is much easier to read printed text than it is to try to remember everything when you are calling a net. The mind seems to draw a blank in such situations.

Remember you are the net control. Don't let the net get out of hand. Keep a firm grip on the reins at all times. Stations bantering back and forth are very disruptive to a net. In a directed net, all communications go through the NCS. Keep it that way. It may not seem to hurt anything when we banter back and forth in a friendly roundtable type of net, but in an emergency situation

you may be covering up a station who needs help. In an actual emergency situation there may be large volumes of emergency and health and welfare traffic. Learn to differentiate between the two types and assign priorities to traffic. Depending on the scope of the emergency, routing traffic will be quite varied. A local type of emergency or disaster may generate just a few pieces of traffic, while a major disaster (such as hurricane Gilbert in Sept. '88) can generate thousands of pieces of traffic.

In a long term emergency, where a net will last for several hours or possibly days, an alternate NCS should be appointed. The alternate NCS (ALNCS) should keep the same log as the NCS and be aware of what is going on at all times. No one person can be at the microphone all of the time, and the NCS should plan for a relief NCS so as to keep the net functioning smoothly at all times.

Try to identify the net every ten minutes or more often. The FCC requires station identification at least once every ten minutes, and ID'ing the net and calling for check-ins is a good way to comply.

Try to keep as close to the frequency of the net as possible. No one owns a frequency, so it may not be possible to get right on the desired frequency because of QRM. If any discussion arises, the frequency of the NCS is the net frequency. The other station must tune to the NCS at all times. DRAFT

When the business or the need for the net is done, close the net. There is no need to hold a net just to use up time.

The discussion here has been mainly directed to voice nets, but the same procedures apply to CW or Digital nets. In CW nets you should have a good command of the Q signals and the CW operating signals. The same applies to Digital nets.

**In exceptional circumstances the FCC may designate a frequency for exclusive use.**



# INTRODUCTION

The purpose of this manual is to document HOW to serve as a Net Control Station. A special Set of skills is necessary to successfully operate an SATERN net and these will be discussed here. The different types of SATERN nets are introduced along with what traffic should take place on each. Techniques needed to control each of these nets will also be discussed.

## Net Control Basics:

One of the most essential parts of a traffic or emergency net is the character and skill of the Net Control Station (NCS). The NCS has coordinates all net activity and shapes the efficiency (or inefficiency) of net operation. The basic duties of the NCS are described below:

- 1 The NCS is in charge of the net while the net is in session. He/she is responsible for controlling who uses the frequency. This needs to be balanced with the fact that you are managing a group of volunteers constantly kept in mind! As NCS you will need to determine whether a tight or loose net discipline is required for the incident!
- 2 Net Control should have a commanding signal, i.e. everyone should be able to hear the NCS.
- 3 NCS must keep track of which resources<sup>DRAFT</sup> are on the net and who has cleared the channel. NCS is also responsible for knowing which type of traffic each net is handling at any time.
- 4 In large operations, if you are operating as NCS from home you will need to find an alternate NCS to serve as an alternate.
- 5 Keep a written record of the incident and a list of traffic for each station in a systematic manner. If the traffic is heavy you will become confused *if* an organized recording system is not used.
- 6 Make instructions clear and concise, using as few words as possible. When sending traffic, dictate the message as fast as you would write it down. This will set the proper rate. Try to remind the other stations on the net TACTFULLY of this same procedure. Break after every five words or so to allow stations time to write the message down. Request that stations ask you for fills in the text at the end of each paragraph.
- 7 Use tactical call signs on the net and enforce this rule with the other members of the net. Use of tactical call signs is perfectly legal as long as the FCC ID requirements are met, i.e. IDing every 10 minutes when using the channel.
- 8 Different nets handle different types of traffic. If a certain message is inappropriate for your net, direct the calling station to another net and frequency where the traffic may be better handled.

# NET CONTROL SKILLS

Oddly enough, the people who fit most easily into the role of Net Control are people who enjoy and do contesting well. Both activities involve coordinating several different stations on the same frequency. The contesteer running a pile-up will try to contact as many stations as possible in the least amount of time. A busy Net Control will attempt to move as much traffic as possible in the least amount of time.

Some of the tricks contesters use to get their rate up are applicable to operating emergency nets. Using these skills will minimize the number of times a station has to call to gain access to the frequency.

- 1 When asking for reports or soliciting traffic, the next thing you do is listen!
- 2 Take down as many calls as you can distinctly hear before acknowledging anyone.
- 3 Acknowledge all the stations that you heard and then yield the frequency over to a single station. When that station is finished, hand the frequency over to the next station you heard without soliciting more traffic. Follow this pattern until all of the calling stations you heard have made their calls. After you've completed your list, begin the same procedure once again.
- 4 Normally the other participants of the net will catch on quickly to this pattern. If they do not, take the time to explain it to them. When both sides of the operation are working together, the net will operate ~~more~~ more quickly and smoothly.

Contesters are known for being terse to the point of minimizing a contact to its barest essentials. They try to operate without wasting any motions. This pattern is worth emulating. As noted previously, give your directions to the net in a clear and concise manner. This will eliminate repeating instructions and thus avoid wasting net air time.

The ability to remain cool, calm, and collected is another attribute shared by a good NCS and a successful contesteer. There is no doubt that being NCS can be a pressure-cooker assignment and it is easy to become frustrated or angry. If you have a frustrating problem, then ask for help from other members of the net. Becoming angry doesn't solve the problem either! Probably the best way to avoid getting angry is a strong sense of humor! Humor can help defuse tense situations. It's contagious!

Like anything else being a good NCS requires practice. There are ample opportunities to practice these skills, both in contests and by taking NCS positions during weekly SATERN nets. Contact your local Emergency Coordinator; he/she will be GLAD to help you find opportunities!

# NET DISCIPLINE

In many ways your duties as a NCS can be equated to that of a traffic cop for the frequency. This analogy carries over to the duties of enforcing discipline on the net. Before we can discuss what that discipline is or how to apply it, we need to understand what to expect from the net members.

You should expect members of the net to:

- 1) Report to the Net Control Station promptly as they become available.
- 2) They should ask NCS permission before they use the frequency.
- 3) Answer promptly when called by NCS.
- 4) Use tactical call signs.
- 5) Follow the established net protocol.

All of the above sounds very good but the reality is that you are dealing with a volunteer organization whose members have a vast and divergent set of training/experience levels. This means that you cannot order net members to comply with your instructions, you can only ask them to cooperate with your needs.

Probably the best way to enlist the cooperation of the net is to explain what you are doing in a calm and straight-forward manner. Sometimes this involves supplying a small amount of real-time training. For example, a station may be using only his FCC call sign when a tactical call sign has been already established for that location. This can become easily confusing. This may be a problem of net discipline and/or a lack of training. The easiest way to deal with this is to ask the station to ~~use~~ use the tactical call sign in addition to his call. If he slips once in awhile, that's all right. If the station continues to use his call sign exclusively, then the best you can do is **to** address him by his tactical sign exclusively (hopefully he'll answer!) Eventually he'll catch on by your example.

The one thing you **NEVER** do is dress down someone over the air. This is not only counter-productive; it drives down the morale of the entire net. It is better to lead by example, and much more successful in our type of organization.

Another common problem is people attempting to pass traffic that your net does not handle normally. Give the station trying to pass the traffic directions to the proper frequency and net equipped to pass that traffic. Do this in a polite and civil manner.

**Control the tone of your voice**, making it as calm as possible. A higher pitch in the spoken voice may be detected by others, causing the level in their voices to rise, also. Emulate the professionals you hear, such as 911 emergency dispatchers and air traffic controllers. Use gentle sounds in a calm tone, and the members of the net will tend to remain calm as well.

**Take frequent breaks.** While you may not recognize the stress that being a NCS may bring on you, it will become apparent in your voice as your shift becomes longer. As the frustration level begins to build, turn the net over to an alternate and rest. A common way to determine whether it is time to take a break is to ask yourself if you need one. If you are asking the question, you probably need one. In any case, a NCS should not work more than two hours without standing down and turning the operation over to an alternate.

# NET CONTROL STATION RESPONSIBILITIES

A

As noted previously, the net control station (NCS) of a SATERN net is completely in charge of that net's operations. The NCS is responsible to see that traffic listed during the course of the net is handled in the most efficient manner possible. Additionally, the NCS is responsible to assign stations to net duties (more about those later) and to maintain firm control of the net during his or her tenure as NCS.

Every NCS should keep a written log of the net's activities. This is especially important during emergency network operations. Things can become pretty hectic during an actual emergency. Stations check into the net, leave the net, list traffic for other stations or individuals, leave messages for other net members, etc. Trying to keep up with all of these activities without a written (or computerized) log is, simply, impractical, and, in many cases, impossible. The NCS log should contain, at a minimum, the date and time the net commenced (or when the NCS took control of the net), the net's operating frequency, the stations checked into the net, a listing of traffic and by whom passed during the net, and when the net ceased operations (or the NCS was relieved by another NCS operator). Ideally, this log should be retained for a period of time after the emergency has abated. Review of the NCS logs by the NCS and/or senior managers can later be undertaken to further improve future net operations. And, having a written record of what happened on 'your watch' is always of value.

## IDENTIFYING THE NETWORK

As noted previously, all SATERN nets are DIRECTED NETS. As such, stations should only be recognized into the net when an invitation is extended to them. Before commencing operations, the NCS should equip him- or herself with a written "script" or "preamble". This script should be kept at the operating position so that every time the net needs to be identified, the NCS can simply read the script. From experience, I can tell you that having the information in front of you can avoid some very embarrassing moments. The script does not need to be poetic or high prose. A simple statement of what the net is about, why it's being held, and what you, as NCS are looking for (check ins, traffic, etc.) at this time will suffice. Here's what I used during the Hurricane Mitch/Honduras Operation - and I include this only as an example, not as a boilerplate script that should be copied by all:

*ALL STATIONS, THIS IS WHISKEY NINE FOXTROT X-RAY, NET CONTROL STATION FOR THE SALVATION ARMY TEAM EMERGENCY RADIO NETWORK, SATERN, EMERGENCY NET. THIS IS A DIRECTED NET ESTABLISHED TO HANDLE EMERGENCY AND PRIORITY TRAFFIC BOTH INTO AND OUT OF CENTRAL AMERICA IN THE WAKE OF HURRICANE MITCH. STATIONS WITH TRAFFIC FOR THIS NET, OVER.*

Note that this version of the script does not invite stations with general information or comments into the net. Only stations with traffic are being invited into the net. Had the NCS been interested, at that time, in opening the net to the general amateur population, they would have changed the last line to read:

*ADDITIONAL STATIONS WITH OR WITHOUT TRAFFIC FOR THIS NET, OVER.*

The NCS is perfectly within rights to ignore stations who attempt to check in at times when such have not been invited. Having said that, however, remember that the net should be identified - and additional stations invited to join the operation - at frequent intervals. A net ID/invitation should be transmitted by the NCS on approximately 5 minute intervals.

### **MANAGING THE MOVEMENT OF TRAFFIC**

Stations should list their traffic when checking into the net, i.e.,

*I LIST ONE EMERGENCY FOR TEGUCIGALPA HONDURAS. Or,*

*I LIST ONE PRIORITY CHICAGO ILLINOIS.*

Messages should be handled according to their precedence. Emergency precedence messages should always be handled first, followed by Priority precedence messages, and so on. It's up to the NCS to make sure that the messages listed on his/her net are handled properly. Again, in a directed net, the NCS directs the flow of information at all times. So, in order for a message to be transmitted, the NCS must give permission to the transmitting station and tell him or her to whom to transmit the message:

*NOVEMBER SIX WHISKEY X-RAY <sup>DRAFT</sup> TANGO THIS IS WHISKEY BRAVO NINE  
ROMEO ROMEO LIMA. CALL KILO NINE SIERRA TANGO PAPA AND PASS  
YOUR PRIORITY CHICAGO TRAFFIC. OUT.*

### **BREAKING INTO A NET**

There is only **one** occasion when a station should be allowed or attempt to break into a net, and that occasion arises when the station breaking into the net has higher precedence information or traffic than that which the net is currently handling.

**The use of the words BREAK or, BREAK, BREAK have no place in directed net operations.**

To break into a network, a station should transmit the callsign of the NCS followed by the prowords THIS IS and his or her callsign, followed with the proword OVER. Stations trying to "help" by providing relay of information should be discouraged from transmitting until and unless help is requested by the NCS.

## NCS REQUESTS A RELAY

Circumstances will arise when the NCS cannot hear a station. On those occasions, the NCS should invite stations to relay information to the net. This is done as follows:

*THIS IS WHISKEY WHISKEY NINE ECHO. MAY I HAVE A RELAY, PLEASE.  
OVER*

The NCS should choose one of the responding stations, recognize him or her, and ask that he or she relay the necessary information.

## RELAY BETWEEN STATIONS IN THE NET

Circumstances will arise when two stations, both checked into the net, need assistance in communicating as they cannot hear each other. On those occasions, the NCS may act as a relay station, or, may assign another, third station to handle those chores. Here are two examples:

*NOVEMBER FIVE FOXTROT MIKE, CALL KILO SEVEN JULIET ALPHA DELTA. RELAY HIS TRAFFIC TO HOTEL ROMEO EIGHT ROMEO CHARLIE PAPA. OUT*

or, the NCS chooses to handle the relay:

*KILO SEVEN JULIET ALPHA DELTA THIS IS WHISKEY NINE FOXTROT  
X-RAY. SEND YOUR TRAFFIC TO THIS STATION. I WILL RELAY. OVER*

## STATIONS WHO WANT TO "HELP"

Most amateur radio operators, in times of emergencies, truly want to be part of the "action." They want to help. Sadly, most have never been exposed to disciplined radio communications. Every emergency net I've ever heard or participated in has had offers of such help...Just wanted you to know that we're riding along...here if you need us...can relay if you need me..., etc. These folks are well meaning (and may be potential new members of SATERN!) but should be courteously and tactfully discouraged from transmitting unless asked to do so. The best way to handle these folks is to thank them for their offer of help, encourage them to monitor the frequency, and that you will call them if you need their assistance. Depending upon the net's traffic load and propagation, you may or may not, as NCS, want to log these operators' names and locations. And, occasionally, you may well find yourself in a situation where you do, in fact, call upon them to provide services as a relaying station. In any event, do not generate controversy by berating them or acting officious. And, do not ignore them. As a rule, until they are recognized, they will not go away. They will only tie up the net as they repeatedly attempt to check into the operation.

**Remember:** When you're operating in a SATERN net, you are representing the Salvation Army to the amateur and SWLing world. You want to leave a favorable impression with all concerned of both SATERN and the Salvation Army!

# HANDLING INTERFERENCE

It is important to note that while the SATERN net has operated for a considerable length of time on the same frequency, SATERN has no more right to "claim" any frequency than any other amateur operator. We - all amateur operators - share our frequency spectrum on a Federally mandated, non-interfering basis. Our net operations are important to us but may be of little or no consequence to other users of the amateur bands. All net members should strive to achieve peaceful coexistence with other amateur band users - and, during normal net operations, be willing to move the net a few kHz, if necessary, to avoid interfering with other amateur stations.

On most occasions, other amateurs will respect the net's operation and steer away from - if not clear of the net. There are occasions, however, when unintentional and, sadly, intentional interference to the net will occur. The best way to handle unintentional interference is for the NCS or a station appointed by the NCS to establish communications with the interfering station, explain the situation, and politely request that they change frequencies. In most cases, that's all that's required. If the station, however, refuses to move, do not engage in an on the air argument. Such activities reflect poorly on all concerned, including SATERN. The net can be moved, too - something which the NCS will need to keep in mind when these unpleasant situations crop up. If the interference is unidentified and obviously intentional, the interfering station should be completely ignored by all net members. No comments regarding the interference should be made. In most cases, lacking the ego stoking complaints, jammers will simply go away - probably to find someone else to annoy.

If, as happened during the post-Hurricane Mitch operation, the FCC has declared a portion of an amateur band to be for emergency communications only and if the SATERN net is engaged in those emergency communications, interference, is handled a bit differently. As a rule, the FCC declares a center frequency and the range of frequencies 3 kHz above and below the center frequency to be off limits for non emergency use. Not all amateur operators receive W1AW/ARRL bulletins and will not be aware of the FCC's declaration. On those occasions when stations not engaged in emergency communications engage in transmitting within the emergency subband, the NCS (or a designated representative of the net) should politely and tactfully inform the interfering station of the FCC's declaration and ask them to move their operations out of the emergency communications subband. If deliberate interference or belligerent operators are encountered, the NCS should immediately contact one of the SATERN Net Coordinators who will take the appropriate actions to initiate FCC enforcement.

In any event, no member of a SATERN net should ever engage in any on the air verbal battles with other operators.

# EMERGENCY MONITORING

This is where we talk about the Eyes and Ears phenomenon. Every member of an emergency team is singularly valuable in regard to reporting the occurrence of disaster. They should consider themselves ultimately responsible for this. We each have a sphere of information that no one else has. We all monitor the ham bands, read our local newspapers, listen to the local radio news, perhaps monitor the local public service bands via a scanner, or even come upon an event that may be important for the Army to know about. You may even enhance our response by your relay of the information.

In one town the Salvation Army officer returned from a meeting some 180 miles away from his responsibility. It was very late and he went straight to bed. At about the same time a tornado smashed through a town many miles away from his. One of his local volunteers heard the report on the news but dismissed it as unimportant because it was far away. At 7:30 the next morning the officer finally learned from another source about the tragedy. The Army provided a major contribution to the feeding of hundreds who were without water or food, but we could have been on the scene sooner if someone had not dismissed the report as out of his realm of territory.

In Pekin, IL, Iola Cooling, the food service officer for the local SAC Team, heard a rumbling at about 4:15 in the morning. She turned on her monitor and discovered that a Commonwealth Edison fossil fuel plant had exploded. She called the commanding officer of the Pekin Corps, and the Salvation Army was the first relief organization on the site of the explosion, coordinating all of the relief work for the entire community. Iola could have turned over in bed, but she pursued it and initiated the response by her call.

Herb Scarpelli (WK9O), during the SATERN net, heard about a school bus accident in Dubuque, IA, in which 12 children were injured. He relayed the phone numbers of the Salvation Army to the local Dubuque operator and when the Army was called, they were able to determine an appropriate response to deal with the tragedy. They were not aware of the accident before the call came in from SATERN.

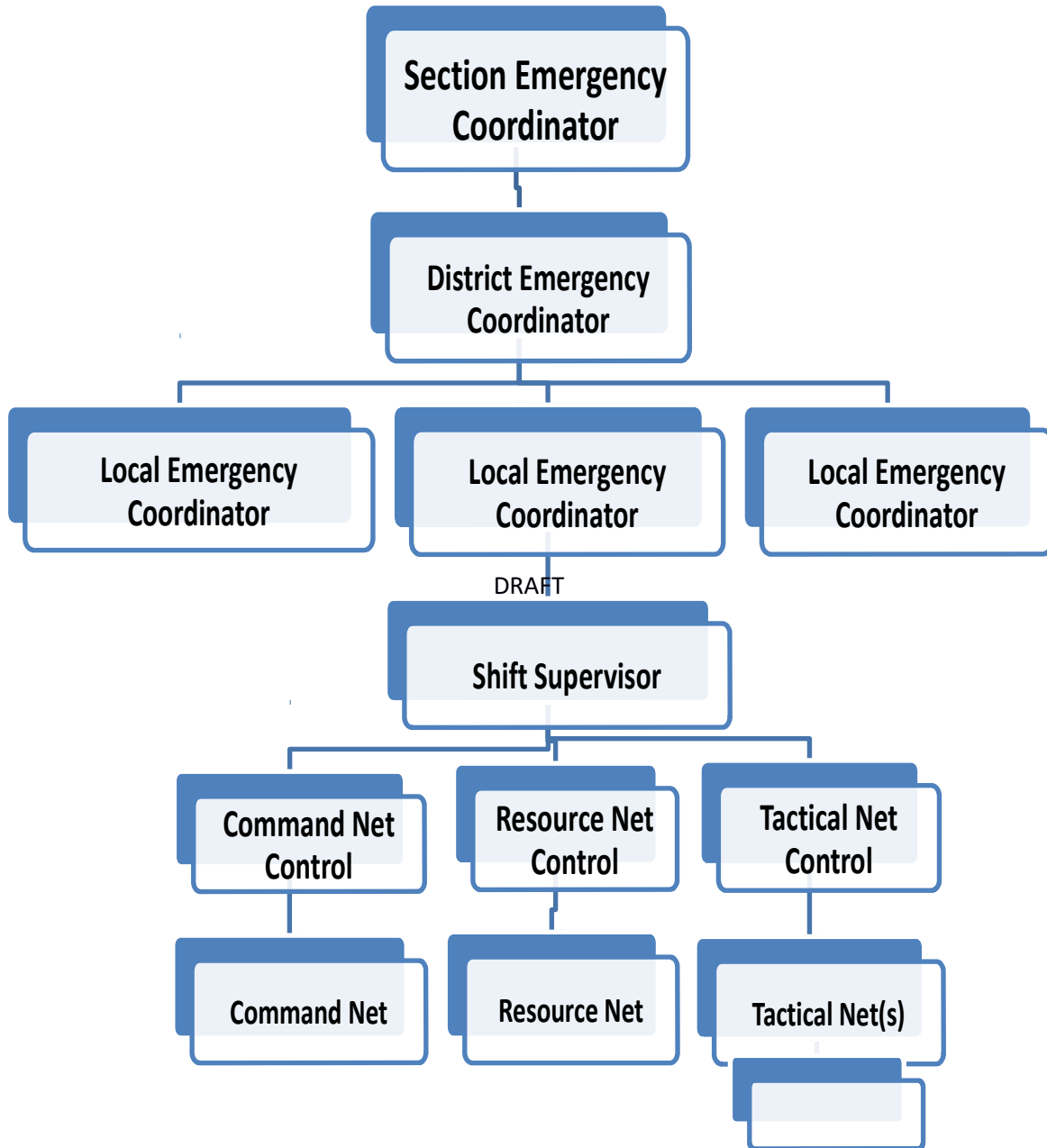
## SOME GENERAL GUIDELINES:

- (1) Nothing is too insignificant - Let us decide.
- (2) When reporting include:
  - (A) Type of emergency
  - (B) Time and date of occurrence
  - (C) Location
  - (D) Responders thus far (fire, police, civil defense, etc.)
  - (E) Any other pertinent data

***Remember, you are the eyes and ears of The Salvation Army, and the Army's response is based on your response***



# TYPICAL SATERN ORGANIZATION



# TYPES OF SECTION NETS

There are three types of nets which might be set up during an SATERN event. These are the TACTICAL NET, RESOURCE NET, and the COMMAND NET.

Which net, or whether all three evolve during an event is strictly a function of the size of the event?

## TACTICAL NET

The Tactical Net is the front line net during an incident. This type of net is typically used by a single city to manage amateur radio operations within that city's boundaries. There may be several tactical nets for a single operation depending on the volume of traffic.

Types of traffic which might exist on this net could be anything from traffic handling to coordination of SATERN efforts to recruiting. When an event goes beyond the boundaries of a single city/agency to the point where mutual aid is necessary, it becomes necessary to create the next type of net, the Resource Net.

As an added note, when other agencies establish their own nets they are also considered tactical nets. Each such tactical resource should have someone monitoring the main Command Net so that they can respond to Agency to Agency requests.

## RESOURCE NET

A Resource Net is primarily used to recruit resources (both operators and equipment) in support of mutual aid operations. The Resource Net evolves as a natural outgrowth of the size of the response. The Resource Net is also used as a check-in point before an assigned responder leaves for their assignment. As the size of an incident increases and more SATERN jurisdictions become involved in the incident, a 'Command Net' may become necessary.

## COMMAND NET

The Command Net allows the SATERN leadership to communicate with each other to resolve amateur radio operations-related problems. This is also the net which would be used to allow cities to talk to each other. It is conceivable that this net could become cluttered with a high volume of traffic; it may be necessary to create further tactical nets to allow this traffic to flow efficiently.

# TACTICAL NET OPERATIONS

First, let's talk about the type of traffic that can be expected to be encountered on a typical SATERN tactical net. Tactical nets are where the real work gets done. This might be anything from requesting portable toilets to helping a physician give medical instructions to a paramedic in the field. A tactical net is used for moving information and coordinating field unit activities.

Normally a NCS for a tactical net should NOT be located at the center of the incident. This is so he can concentrate on handling the net. A good example would be a city tactical NCS. This NCS should not be located at the Emergency Operations Center if at all possible. If the NCS is located there he/she is required to not only control the net, but also be a member of a net!

Whether your NCS is located at the center of attention or not, it is suggested that you have a second operator who is in a position to transcribe incoming traffic. This keeps your hands free to operate the radio AND take notes as necessary to keep the net moving. An operating position that allows adequate writing area as well as good access to the radio's controls is also important. Also, if operating in close proximity to other important operations consider using headphones to prevent distracting others.

If you find yourself as both NCS and a central hub on the net you may have to also handle incident traffic. (These comments actually apply for ANY busy station on the net). If this is the case, recruit a second operator to position with you. In such a setup you will operate the radio and send any originated traffic, while the second operator will transcribe any traffic aimed at your location as it arrives. This keeps your hands free to operate the radio.

When traffic is passed on a tactical net it must have the following information included:

- 1 The exact title/address of the addressee from the sender. This is EXTREMELY important to guarantee the accurate, prompt delivery of the message.
- 2 Make the message short and concise when originating the message. This applies if you are the person determining the content of the message. If you are handed a written message to send, DON'T modify it. Send the message as it is handed to you. It is not important that you understand the message content, the addressee will.
- 3 The message should have an exact title of the sender so that if any return traffic is required, the addressee will know who should receive the traffic.
- 4 Number and time stamp the messages as they are sent. This will allow you to reference the messages more easily.

**Please use standardized message form, either ICS-213R or ARRL Radiogram**

## COMMAND & CONTROL AND TACTICAL NETS

These terms come directly from military communications manuals. The military command and control net is a network where the bulk of business is conducted, i.e., the primary network operation. Tactical nets may be established on other frequencies and stations assigned to them to handle point-to-point communications and/or meet a specific need. In SATERN's terms, our command and control net would be the primary network operation on 14.265 MHz. If the traffic load is so heavy as to create a backlog of messages waiting to be passed, the NCS may direct two or more stations to move to a different frequency and establish a secondary, or "tactical" net for the purposes of moving some of the backlog of traffic. If the creation of a tactical net is accomplished, the NCS should name one of the stations remaining on the primary frequency to be a LIAISON station. This station should be informed that he or she may be called upon to take messages from the primary, or command and control, net to (one of) the tactical networks. Until told to leave the primary net frequency, the LIAISON station should remain on the primary net frequency. Here's how the assignment is accomplished:

*WHISKEY SEVEN LIMA X-RAY ROMEO, THIS IS WHISKEY NINE  
FOXTROT X-RAY. YOU ARE ASSIGNED AS A LIAISON STATION. REMAIN  
ON THIS FREQUENCY UNLESS OTHERWISE DIRECTED. OVER*

DRAFT

And, when the time comes for the need for a LIAISON station to move to another net:

WHISKEY SEVEN LIMA X-RAY ROMEO, THIS IS WHISKEY NINE  
FOXTROT X-RAY. SECURE OPERATIONS ON THIS FREQUENCY. MOVE  
TO FIGURES ONE FOUR TWO FIVE FIVE KILOHERTZ. INFORM THE NET  
CONTROL STATION OF THAT NET THAT THIS NET IS SECURING  
OPERATIONS IN FIGURES THREE ZERO MINUTES. REPORT BACK INTO  
THIS NET UPON COMPLETION OF YOUR COMMUNICATIONS. OUT

Tactical networks can be of great benefit to an NCS, especially in circumstances where a heavy traffic load of health and welfare traffic is being listed. The NCS, in this circumstance, would be well advised to establish a tactical net for the purpose of gathering the outbound messages. Another tactical net (or digital operation) might be established, then, to send the gathered messages on to the disaster site.

# RESOURCE NET

A Resource Net is primarily used to recruit resources (both operators and equipment) in support of mutual aid operations. The Resource Net evolves as a natural outgrowth of the size of the response. The Resource Net is also used as a check-in point before an assigned responder leaves for their assignment. As the size of an incident increases and more SATERN jurisdictions become involved in the incident, a 'Command Net' may become necessary.

## RESOURCE NET CONTROL OPERATOR RESPONSIBILITIES

- Determine locations to be staffed
- Determine staffing requirements at each location
- Determine appropriate shift lengths
- Begin initial staffing worksheet
- Make frequent announcements on the Resource Net requesting volunteers for open staffing requirements
- Obtain call, full name and phone number for each volunteer <sup>DRAFT</sup> (use ICS 211p-AR form attached)
- Advise volunteers of location, shift and talk-in frequency
- State any special requirements (mobiles, hand helds, bands used, other equipment, foul weather gear, etc.)
- Keep locations advised of staffing progress via appropriate tactical nets
- Accept changes in staffing requirements and make adjustments to worksheets and volunteer announcements
- Regularly review staffing progress with the shift supervisor

# RESOURCE NET CONTROL OPERATOR CHECKLIST

(for Repeater use)

1. LISTEN to the local area RESOURCE frequency \_\_\_\_\_. Ask if there is a net control station present. If you receive no answer, then YOU ARE IT! Net Control should be your only task. Declare a Directed Net. (If there is a Net Control Station, follow his/her directions). Only give MAJOR damage and injury reports unless otherwise requested). If the RESOURCE repeater is down, go on the output on simplex and begin the Net, or move to a working repeater. If you move, have someone monitor the downed repeater's output to help direct others to the working frequency. If you are the RESOURCE NET CONTROL, go on to #2.
2. START A LOG. Note the time, date and what you did.
3. Take reports only of life-threatening damage or injury (not 'I see smoke in the distance'; not 'my house is OK', and delay the passing of any Health and Welfare traffic, (for the moment). Concentrate on the big picture. Find out where damage is greatest so that resources can be concentrated there. Be flexible!
4. Have all amateurs check-in on their local City Simplex frequency. (SEE SECTION FREQUENCY LIST). If there are no EC's or AEC's for a particular frequency to take check-in's, ask for a volunteer. Make certain that you have appointed an alternate net control. Ask all amateurs to stand-by on RESOURCE after checking in on City Simplex and be ready for possible assignment. DRAFT
5. Ask for volunteers to contact area repeaters, to make a survey of systems still in service. Have those volunteers inform all amateurs of the RESOURCE frequency. Log any systems that are down. Post a monitor on the NATIONAL ALERTING FREQUENCY, 145.695 Simplex. Form teams of volunteers to repair downed repeater systems.
6. Staff County Communications, local Emergency Operations Centers and other emergency locations as appropriate. Ask for volunteers for each location. If possible, dispatch at least two amateurs to each site. Fill out an INCIDENT ASSIGNMENT WORKSHEET for each location and log each amateur's response. Insure that LOGS are being filled Out at each location.
7. Establish a HOSPITAL NET if indicated. Appoint a NET CONTROL and ask for volunteers to respond to local hospital emergency rooms. Determine if the hospitals are accepting any patients.
8. Once the nature of the incident and its approximate size have been determined, the SHIFT SUPERVISOR will conduct a BRIEFING on the RESOURCE NET. Say what you KNOW to be true and factual; avoid guessing. Estimate the amateur radio response for the next 12 hours and ask for volunteers to contact RESOURCE NET CONTROL for assignment. For those amateurs who do not have an assignment, have them stand-by for informational updates and prepare their emergency equipment and supplies for use.

9. After knowing that local communications needs are being met, consider supplying amateurs to adjacent areas. Ask SATERN staff members to respond to the affected areas to lend assistance.
10. MAINTAIN RADIO DISCIPLINE. Instruct everyone not having an immediate assignment to stay on the RESOURCE frequency. Accept non-emergency traffic as time and conditions warrant.
11. Once your shift is completed, turn over the operation to your relief and get some rest. You cannot do it all yourself, and we need you rested and refreshed for your next scheduled shift.

**Please be familiar with ICS Forms that may be used**

DRAFT

## COMMAND NET CONTROL:

Command net serves two major purposes. SATERN leadership will use this frequency to discuss SATERN related control/management topics. Traffic between cities also takes place on this frequency. For these reasons ALL EOC's should monitor this net during a major operation. This net has a potential for carrying a large volume of traffic so it is a good idea for the NCS NOT to be located at a city EOC or county OES. This allows the NCS to deal primarily with just handling the net, not traffic.

Command NCS will be appointed by the Shift Supervisor, DEC, or other SATERN SCV Section level staff as the net is set up. This net isn't one that comes into being instantly, but rather is created as the need is perceived. The frequency used will be selected at the time of creation depending on the incident.

DRAFT

Considering who will be monitoring this net, it is usually a safe assumption that the members of the net are going to be more familiar with proper net operations. It should be easier to maintain a reasonable net discipline, etc. At the same time all of the comments about controlling by example instead of ordering people still apply.

The NCS should keep an accurate log of activity on this net

Maintain Worksheets on a clipboard

Have amateurs check-in on RESOURCE NET 30 minutes before start of assigned shift to allow for briefing and staffing changes

**NET PAGE FORMATS SHOULD BE CONSISTENT.**



# **TRAFFIC HANDLING PROCEDURES**

DRAFT

**CW**

# SATERN CW NETS

The goal of SATERN is to provide reliable, accurate, and well managed messaging services to disaster response teams using radiotelegraphy. It is not designed to replace voice or digital modes, but rather, it is intended to offer a very valuable alternative in time of emergency. Amateur Radio remains the most survivable and versatile of *all* emergency communications systems because it is decentralized and independent of the complex distributed infrastructure required by many of our familiar common carrier resources, such as cellular telephones and the Internet.

There exists within Amateur Radio a variety of modes and networks, all of which offer specific advantages for specific applications. For example, voice communications is ideal for general coordination and limited exchange of record message traffic, but it suffers from a variety of disadvantages as well, not the least of which is the fact that it suffers from inaccuracy and a tendency on the part of users to transmit unnecessary language. Likewise, Digital methods are ideal for large volumes of data and some digital modes facilitate the transfer of binary files. However, the use of digital modes requires additional equipment of greater complexity and places greater demands on available power supplies. In other words, there is more to go wrong.

CW Nets also have distinct advantages for some applications, and the wise emergency communications specialist will want to take advantage of these benefits:

- CW nets have greater capacity than voice nets for record message traffic. The typical CW net, when properly conducted, will handle three to four times more radiogram messages per hour than voice nets.
- CW nets offer greater immunity to propagation anomalies and adjacent channel interference. This can be a real advantage when one must communicate regardless of conditions.
- CW is an ideal mode for deployment to disaster areas. A portable 10-watt HF CW transceiver offers approximately the same level of reliability as a 100-watt HF SSB (voice) transceiver. This allows for the use of renewable energy sources, such as solar panels and batteries or much smaller and more portable generators.
- CW nets use very narrow bandwidth. Multiple stations can be dispatched to adjacent frequencies to clear message traffic simultaneously, without consuming excessive amounts of spectrum.
- CW equipment is simple. Unlike digital modes, one needn't transport a computer, printer, and similar ancillary equipment to communicate. All that is needed is a compact radio, wire antenna, key, and message blanks, all of which can be carried in a small camera bag thanks to modern technology.
- In actual practice, a skilled CW operator can clear messages as fast as the typical user of digital methods, the later being limited by his typing speed. Likewise, CW has been proven to be faster than "text messaging" via cellular common carrier.

# CW TRAINING NET

**SATERN CW Net Frequency: 10.115 MHz**

**Alternate: 7.115 MHz & 14.055 MHz**

**Weekly Training Net: 10.115 MHz @ 2200Z Thursdays**

## **Weekly Net Operation Guidelines:**

- The weekly net will consist of normal check-in procedures (QNI)
- Any message traffic will be cleared first.
- When possible, traffic will be cleared by moving those stations exchanging the traffic to an adjacent frequency (plus/minus 3, 6, 9 kHz).
- After all traffic is cleared, a training radiogram message will be transmitted.

## **Portable deployment:**

On occasion, the NCS or an assigned station will deploy to the field with a portable station. He will call the net on schedule and transmit either an operational drill message or a training message. This will <sup>DRAFT</sup> simulate a disaster response team operating from a remote location.

Regular net participants are encouraged to check-in occasionally using portable equipment such as they would use in the event of a disaster.

## **Emergency Drills and Exercises:**

Local disaster response teams can request activation of the CW training net in advance to support local disaster drills. Please provide at least two weeks' notice to the SATERN National CW Net Manager:

**James Wades (WB8SIW)**

**PO Box 192**

**Buchanan, MI. 49107**

**(269) 548-8219 office**

**[jameswades@gmail.com](mailto:jameswades@gmail.com)**

## International Q Signals

A Q signal followed by a? Asks a question.

A Q signal without the ? answers the question affirmatively, unless otherwise indicated.

<b>QN Codes for CW Net use only</b>	
<p><b>QNA*</b> Answer in prearranged order.</p> <p><b>QNB*</b> Act as relay Between _____ and _____</p> <p><b>QNC</b> All net stations Copy. I have a message for all net stations.</p> <p><b>QND*</b> Net is Directed (controlled by net control station).</p> <p><b>QNE*</b> Entire net stand by.</p> <p><b>QNF</b> Net is Free (not controlled).</p> <p><b>QNG</b> Take over as net control station.</p> <p><b>QNH</b> Your net frequency is High.</p> <p><b>QNI</b> Net stations report In.* I am reporting into the net. (Follow with a list or traffic or QRU).</p> <p><b>QNJ</b> Can you copy me? Can you copy _____?</p> <p><b>QNK*</b> Transmit message for _____ to _____</p> <p><b>QNL</b> Your net frequency is Low.</p> <p><b>QNM*</b> You are QRming the net. Stand by.</p> <p><b>QNN</b> Net control station is _____ What station has net control?</p> <p><b>QNO</b> Station is leaving the net.</p> <p><b>QNP</b> Unable to copy you. Unable to copy _____</p> <p><b>QNQ*</b> Move frequency to _____ and wait for _____ to finish handling traffic. Then send him traffic for _____</p> <p><b>QNR</b> Answer _____ and Receive traffic.</p> <p><b>QNS*</b> Following Stations are in the net. *(Follow with list.) Request list of stations in the net.</p> <p><b>QNT</b> I request permission to leave the net for _____ minutes.</p> <p><b>QNU*</b> The net has traffic for you. Stand by.</p> <p><b>QNV*</b> Establish contact with _____ on this frequency. If successful, move to _____ and send him traffic for _____</p> <p><b>QNW</b> How do I route messages for _____?</p> <p><b>QNX</b> You are excused from the net.* Request to be excused from the net.</p> <p><b>QNY*</b> Shift to another frequency (or to _____ kHz) to clear traffic with _____</p> <p><b>QNZ</b> Zero beat your signal with mine. * For use only by the Net Control Station.</p>	<p><b>QRA</b> What is the name of your station?</p> <p><b>QRG</b> What's my exact frequency?</p> <p><b>QRH</b> Does my frequency vary?</p> <p><b>QRI</b> How is my tone? (1-3)</p> <p><b>QRK</b> What is my signal intelligibility? (1-5)</p> <p><b>QRL</b> Are you busy?</p> <p><b>QRM</b> Is my transmission being interfered with?</p> <p><b>QRN</b> Are you troubled by static?</p> <p><b>QRO</b> Shall I increase transmitter power?</p> <p><b>QRP</b> Shall I decrease transmitter power?</p> <p><b>QRQ</b> Shall I send faster?</p> <p><b>QRS</b> Shall I send slower?</p> <p><b>QRT</b> Shall I stop sending?</p> <p><b>QRU</b> Have you anything for me? (Answer in negative)</p> <p><b>QRV</b> Are you ready?</p> <p><b>QRW</b> Shall I tell _____ you're calling him?</p> <p><b>QRX</b> When will you call again?</p> <p><b>QRZ</b> Who is calling me?</p> <p><b>QSA</b> What is my signal strength? (1-5)</p> <p><b>QSB</b> Are my signals fading?</p> <p><b>QSD</b> Is my keying defective?</p> <p><b>QSG</b> Shall I send _____ messages at a time?</p> <p><b>QSK</b> Can you work break-in?</p> <p><b>QSL</b> Can you acknowledge receipt?</p> <p><b>QSM</b> Shall I repeat the last message sent?</p> <p><b>QSO</b> Can you communicate with _____ direct?</p> <p><b>QSP</b> Will you relay to _____?</p> <p><b>QSV</b> Shall I send a series of V's?</p> <p><b>QSW</b> Will you transmit on _____?</p> <p><b>QSX</b> Will you listen for _____ on _____?</p> <p><b>QSY</b> Shall I change frequency?</p> <p><b>QSZ</b> Shall I send each word/group more than once? (Answer, send twice or _____)</p> <p><b>QTA</b> Shall I cancel number _____?</p> <p><b>QTB</b> Do you agree with my word count? (Answer negative)</p> <p><b>QTC</b> How many messages have you to send?</p> <p><b>QTH</b> What is your location?</p> <p><b>QTR</b> What is your time?</p> <p><b>QTV</b> Shall I stand guard for you _____?</p> <p><b>QTX</b> Will you keep your station open for further communication with me?</p> <p><b>QUA</b> Have you news of _____?</p>

ARL Message numbers, refer to page xxx

<b><u>AA</u></b> - Separation between parts of address or signature.)	<b><u>HH</u></b> Error in sending. Transmission continues with last word correctly sent.)
<b>AA</b> All after (use to get fills).	<b>HX</b> (Handling instructions. Optional part of preamble.) Initial(s). Single letter(s) to follow.
<b>AB</b> All before (used to get fills).	
<b><u>ADEE</u></b> Addressee (name of person to whom message addressed).	<b><u>IMI</u></b> Repeat; I say again. (Difficult or unusual words or groups.)
<b>ADR</b> Address (second part of message).	<b>K</b> Go ahead; over; reply expected. (Invitation to transmit .)
<b>AR</b> End of message (end of record copy).	<b>N</b> Negative, incorrect; no more. (No more messages to follow.)
<b>ARL</b> (Used with "check," indicates use of ARRL numbered message in text).	<b>NR</b> Number. (Message follows.)
<b><u>AS</u></b> Stand by; wait.	<b>PBL</b> Preamble (first part of message)
<b>B</b> More (another message to follow).	<b>R</b> Roger; point. (Received; decimal point.)
<b>BK</b> Break; break me; break-in (interrupt transmission on cw. Quick check on phone).	<b>SIG</b> Signed; signature (last part of message.)
<b>BT</b> Separation (break) between address and text; between text and signature.	<b><u>SK</u></b> out; clear (end of communications, no reply expected.)
<b>C</b> Correct; yes.	<b>TU</b> Thank you.
<b>CFM</b> Confirm. (Check me on this).	<b>WA</b> Word after (used to get fills.)
<b>CK</b> Check.	<b>WB</b> Word before (used to get fills.)
<b>DE</b> From; this is (preceding identification).	

### ARL Message numbers, refer to index

# **TRAFFIC HANDLING PROCEDURES**

## **DIGITAL**

DRAFT

**Amtor - Packet**

**RTTY**

**Narrow Band Emergency Messaging System (NBEMS)**

**WinLink (RMS Express)**

**Automatic Link Enable (ALE)**

There are a number of digital communications formats available. The modes described here use a sound card interface and connect a computer to your radio for the purpose of encoding and decoding signals.

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**AMTOR** (amateur teleprinting over radio) is a digital communications method, in which the frequency of errors is reduced by handshaking or character repetition. There are two modes in AMTOR, known as automatic repeat request (ARQ) or Mode A, and forward error correction (FEC) or Mode B.

In ARQ mode, handshaking is used between the source (transmitting station) and destination (receiving station). Characters are sent by the source in groups of three. After receiving each group, the destination sends an ACK (acknowledged) or NAK (not acknowledged) signal back to the source. An ACK signal means that the destination received all three characters according to protocol, so the source sends the next group. A NAK signal means that one or more of the characters did not conform to protocol at the destination, so the source sends the same group again.

In FEC mode, every character is sent by the source twice. The destination tests each pair of characters to see if they are in the proper format. If one or both of the characters are in the right format, then the character is displayed. If neither character has the correct format, the destination displays or prints a blank space or an underscore.

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DRAFT

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**Radioteletype (RTTY)** is a telecommunications system consisting originally of two or more electromechanical teleprinters in different locations, later superseded by personal computers (PCs) running software to emulate teleprinters, connected by radio rather than a wired link.

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**Narrow Band Emergency Messaging System (NBEMS** - pronounced "N-beams") is a suite of software programs designed for point-to-point, fast, error-free, emergency messaging on either HF or VHF/UHF frequencies. Use has shown this to be a reliable mode for either local or long distance communications. The controlling software can utilize a number of encoding formats such as OLIVIA and others to be used dependent on propagation conditions. The software has the ability to command the receiving station to synchronize modes (Reed Solomon ID).

NBEMS has a distinct advantage over AMTOR & RTTY by having the ability to encode and reproduce forms over a radio link. The output is displayed visually at the receiving station as a printable duplicate of the sent information. This is accomplished with a minimum of operator intervention.

Because of this ability to reduce operator workload it should be considered the digital mode of choice.

# WINLINK (RMS EXPRESS)

Winlink 2000™ is a worldwide system for sending and receiving e-mail over radio. Since the connection from the client computer to the Winlink server does not depend on the Internet, Winlink is widely used by mariners, RV campers, missionaries, and various agencies who need to communicate when the Internet is not available.

It is also possible to make direct, peer-to-peer, connections between two client computers (radio stations) that are within radio propagation range without going through a RMS. There are several situations where peer-to-peer connections are useful:

1. In a major emergency operation, traffic through the Winlink system may be very heavy, so a direct connection between two stations reduces the load on RMS and the Winlink system;
2. A station equipped only with VHF/UHF <sup>DRAFT</sup> could make a peer-to-peer connection to a station with VHF/UHF and HF capability, and the second station could then forward the message into the Winlink system using HF.

Stations are assigned a unique, password protected email address.

Error correcting insures messages are received accurately.

[www.winlink.org](http://www.winlink.org)

## AUTOMATIC LINK ENABLE

Automatic Link Establishment, commonly known as ALE, is a digital program that rapidly scans a sequence of predetermined frequencies. At regular intervals the radio transmits an identifying signal. Other network stations which receive these signals can link based on the best available frequency. Traffic can be passed or a chat initiated. This system requires a radio capable of external control and antenna system that can accommodate rapid frequency changes.



More information and PCale available at [www.hflink.com](http://www.hflink.com) Note: this version is a civilian version of the MARS-ALE which is not suitable for US. amateur frequencies under present symbol rate rules.

## SATERN Digital Net Standards and Check-In Procedures

### STANDARD MODES FOR HF KEYBOARD CHAT: OLIVIA 8/500 AND 16/500

The standard mode for short messages/files (under 1K total length) and keyboard to keyboard chat over HF/SSB is OLIVIA. When conditions are adequate, we will use Olivia with 8 tones within a 500 Hz bandwidth at the start of the HF nets. If conditions are poor or deteriorate, we may use 16 tones within a 500 Hz bandwidth or MFSK16/32. These are not particularly noise tolerant modes but often do well when other modes do not. *The selection is solely one chosen by the Net Control Station (NCS) operator.*

All NCS will use the Reed Solomon ID tones on transmit to indicate what mode and bandwidth to use. The SATERN Digital Net NCS will use **fldigi**<sup>1</sup> as the default and standard software for digital mode transmission of any mode except WinMOR. The TxID button of fldigi<sup>1</sup> will be set to active by NCS at the start of any net session. *Listeners should NOT use TxID unless asked to do so by NCS.* Listeners should use the RxID active to allow fldigi<sup>1</sup> to follow the mode and center frequency of all activity on the net.

*The WinMOR protocol is part of the **WinLINK**<sup>4</sup> system and may be employed for peer-to-peer message passing where WinLINK 2000 is the destination. In such a case NCS may use RMS Express for that short period of time. NCS may also designate another station (if available) to move off net frequency to pass the WinLINK message which will follow the same procedure then return to the SATERN Digital Net and report the results.*

### STANDARD MODES FOR HF BULLETINS: MT63-500, PSK250R, MFSK32

MT63-1000 or MT63-500, may be used when sending messages to other agencies that have MT63 as their operating standard mode – such as MARS or ARES.

When sending messages between SATERN stations, the first choice of mode will depend on band conditions. We will always choose the mode that will send the fastest allowed for the band (e.g. PSK1000R may not be used in the digital segment of 20 meters due to the 300 baud symbol rate limit on HF (**not applicable outside the USA**)) with the least errors before falling back to slower and less reliable modes. OLIVIA 8-tones 500 Hz BW will be the slowest fall-back method on any band. We will not use PSK63, or any other non-error correcting mode for message transmission during the net or emergency message transmissions.

The NCS or sending station will use the TxID tones on every transmission. For best results, listeners should use the RxID active in order to automatically follow the current mode used by NCS.

***Do not use TxID unless instructed to do so by NCS.***

DRAFT

## STANDARD METHOD FOR FORMAL MESSAGE TRAFFIC: FLMSG

NCS and net members should use **flmsg**<sup>2</sup> for formal message handling in one of the ICS message forms, NTS/Radiogram, Blank form tabs, or plain text message formats available in the flmsg<sup>2</sup> template forms. The use of HTML, PDF, or other non-message formats is not allowed unless using Internet email MIME type formatting as a binary file transfer using **flamp**<sup>3</sup> (to ensure complete error free transmission of the complete message).

## FORMAL HF NET PROCEDURES

The standard HF frequency for the SATERN Digital Net is 14.065 MHz with 10.135 and 7.065 MHz as backup frequencies. The use of the lower bands may necessitate activating some local or regional SATERN nets to maintain the coverage of the overall net. The frequencies given are dial frequencies for the HF transceiver VFO in USB mode with a center frequency of 1000 Hz as shown in the waterfall.

The VFO dial, and center frequency of 1000 Hz is nominal and will remain the same between Olivia and the other modes used at other times. Listening stations should utilize the RxID active feature of fldigi<sup>1</sup> in order to follow the current mode of transmission used on the net.

The initial mode for the HF net will be 8/500 Olivia, depending upon band conditions.

When changing modes to pass high-speed traffic, NCS will announce the change in mode and then transmit a carrier tone at 1000 Hz in the waterfall for a few seconds. Stations will then change modes and should already be at the net center frequency.

Slower modes will only be used under heavy QRN or other high-noise conditions, such as those that may exist in the summer months during heavy electrical storm activity or where band conditions suffer profound QSB fade conditions. The mode will be selected based on the best character interleave allowing forward error correcting methods (FEC) of the selected mode to work the best.

The SATERN Digital net **will not use PSK63** because it is not error-correcting and has no interleave methods. The better choice is always MFSK16 or similar FEC mode for net chat but not message passing.

When sending messages using flamp<sup>3</sup>, block sizes will be chosen so as to send no less than 20 blocks repeated a minimum of 2 times (including the header blocks). This will ensure that any errors received will occur during very small segments of the message and retransmissions of only those blocks can be repeated quickly even if sent multiple times or at a slower rate.

In rare cases - and only under extremely poor band conditions - NCS may switch to a mode other than OLIVIA or one mentioned above. If the switch to another mode is necessary, all traffic should be as short as possible and limited to priority or emergency messages sent using flamp<sup>3</sup> only.

## STATION CHECK IN PROCEDURES

It is very important for all participating stations checking in to the digital nets to follow the direction of net control at all times and only use break in procedures for legitimate authorized or confirmed priority or emergency traffic. While general check-ins with or without out traffic are often encouraged, please remember to pause a few seconds to give priority to stations checking in with traffic when NCS calls for general check-ins.

### Important additional points on checking in:

Stations should enter a hard return (keyboard enter key) immediately prior to and following their call sign, county and statement of traffic. This separates the station's check in information from the random characters (diddle) at the receiving stations, including NCS. **Do not repeat your check in message more than one other time.**

**DO NOT** check in with extraneous text, general macros or character leaders prior to your text. *Here is an example of an improper check in:*

(i.e. "... Net Control de AD5XJ, good evening from Cajun County, I have no traffic for the net tonight. Back to you, KB3FXI NCS de AD5XJ kn").

Check in time goes from about 6 seconds when checking in properly to almost 30 seconds in the improper example above. In the example above, the proper check in should have been:

AD5XJ, KEN, Houma, LA [ [NO] TRAFFIC] (*when indicating traffic status*)

Whenever possible, prepare your message by typing it ahead of time and prior to transmitting in order to speed up the net keyboard to keyboard operations. Or program macro scripts with proper responses that can be stored in fldigi<sup>1</sup> macro buttons and used instead of trying to type an impromptu message.

NCS may need to change procedures during a net to accommodate changing conditions or situations.

### PLEASE follow the direction of the Net Control Station.

Please listen for a few seconds before transmitting just as you would during an SSB net to avoid doubling. Also, do not wait 30, 40, or more seconds before transmitting to NCS your intention to check in as this slows the net activity considerably and is confusing under high-noise situations.

Often band conditions do not allow all stations to be heard by net control stations. If you can determine that a station you hear is attempting to check in and that it is not heard by net control – use the following relay procedure if you are the designated relay:

Send: <yourcall> <yourcall> relay for <hiscall> <hiscall> <hisname> <hisname>  
<hisloc> <hisloc> relay de <yourcall> bk

When NCS receives your relay NCS will respond by acknowledging the station not heard (although some NCS operators may acknowledge your station as relay).

If you join the net late and the training or closing has begun, you may still check in late using this late check in procedure:

When the NCS calls for late check-ins or after the closing: Send:

LATE CK IN <call> <name> <loc> [TRAFFIC] LATE CK IN de <call> bk

## NET CONTROL PRIORITIES

Priorities of NCS (in order of importance) are:

1. Maintain net discipline to the best of our ability
2. Select the proper modes of operation according to band conditions and traffic volume
3. Identify and acknowledge, to the net, one or more designated stations who will act as relay through the duration of the net session
4. Effective management of emergency and priority traffic
5. Check in and log net liaison stations
6. Check in and logging of stations by location
7. Direct the traffic handling of routine traffic
8. Direct the transmission of informational bulletins of interest to the net
9. Encourage participation in the net by calling any stations with or without traffic, conditions permitting.
10. Adapt Net procedures according to conditions and situations, giving clear direction to the net participants

During drills and actual activations, Net Control Station operations should not be combined with station operations at key locations such as Emergency Operations Center or Official Relay Stations. Instead, an additional liaison station (not the NCS) may be established to work with the EOC or relay station and should have backup emergency power capabilities where available.

## NET CONTROL STATION PROCEDURES

Whenever possible, NCS should call for early check-ins at least 30 minutes prior to the net. From the early check ins, NCS should also request that one or more of the early check ins act to assist the net by calling from their location or relay stations not heard by NCS.

Upon the start of each active emergency net session, NCS will call for stations with Emergency or Priority traffic only. Depending upon the anticipated number of check-ins or band conditions, NCS may decide to first ask for check-ins from stations with traffic only, followed by stations with traffic, and then check-ins by SATERN or Salvation Army Corps Stations or other served agency by geographical criteria as established by NCS. Participating stations should closely follow NCS instructions.

NCS will advise all stations checking in to transmit only their call sign, name, location (city and state) and optionally the word "traffic" when holding traffic. The statement of traffic will consist of the number of messages.

*For example*, if AD5XJ is checking in and has one piece of traffic for KB3FXI, AD5XJ will check in as follows: AD5XJ, Ken, Houma LA, 1- TRAFFIC

It is recommended that NCS record check-ins via paper log in to ensure they maintain this data in the event of a computer crash or short power interruption, which could lead to the loss of any electronically logged data.

In the instance of an actual emergency activation, NCS may prioritize check-ins from stations in specific affected areas or facilities (i.e. NCS calls for stations in Armstrong County or EOC stations in Clarion and Mercer) or by Salvation Army EDS Division or by other priorities agreed to between the NCS and SATERN Territorial Coordinator prior to the net.

After listening for check-ins, NCS will acknowledge stations checked in and may ask for relays. Whenever necessary, NCS will specifically designate one or more relay stations, prior to net start, to help prevent doubling when calling for relays. Participating net stations NOT designated as relays, should not respond to NCS calls for relays from NCS designated relays. NCS may ask for any stations to relay.

*Do not respond to relay requests unless you have solid copy on both NCS and the other station.*

Should a station need to get the attention of NCS for a break-in, the station should transmit

ATTN NCS" followed by <yourcall> bk bk bk.

This procedure should be reserved for stations breaking in with emergency or priority traffic only. The break message may be transmitted over (on top of) an active transmission without negative affect to receiving stations, but breaking stations using this procedure should attempt to transmit the break message, starting immediately, or just prior to, the end of the current transmitting stations transmission.

### **STANDARD MODE FOR VHF/UHF FM: PSK250R2C**

The standard mode for use over single or linked FM repeaters or on FM VHF/UHF simplex channels is 2 carrier PSK250R or 4 carrier PSK125R. Other modes may be used where designated by NCS following the guidelines set out above for HF nets.

### **FORMAL VHF/UHF Local or Regional NET PROCEDURES**

Follow the same procedures for HF nets outlined above. County Emergency Coordinators could designate one repeater and one simplex frequency for their county as digital VHF/UHF channels. Local SATERN net coordinators should seek permission from the repeater trustee, and not allow digital transmissions through a repeater prior to obtaining authorization from the trustee with the only exception being emergency traffic involving the protection of life or property. These agreements should be established well in advance of emergency situations and used for practice nets periodically to ensure knowledge and capability of the SATERN Digital Net.

## TRANSMISSION OF BINARY FILES OR LARGE FILES

Transmission of binary files such as Images, Word documents or Excel spreadsheets is to be extremely limited because of the large size of these files and our limited symbol rate of transmission on a given band. Instead, we should convert Word files to text format and Excel spreadsheets to Comma Separated Values (CSV) text format. Try to limit the total file size to under 3K where possible. Transmission of a 3K file at PSK250R speeds is still more than 2 minutes. Using error free methods like flamp<sup>3</sup> where blocks are transmitted multiple times, it may take twice that long or more.

NCS should move stations with large data files designated to another specific station on the net, off the primary net frequency so as to not disrupt the net with excessively long data transmissions. The chosen frequencies should be well out of the audio pass-band limit (more than 3K up or down).

### WHERE DO WE GO FROM HERE?

The SATERN Digital Net operations will continue to expand and change as we learn more. Although at times decisions and changes will have to be made, it is hoped that we can arrive at these standards through consensus and open-minded constructive discussion, and that these decisions can be validated through on-the-air testing.

Theoretically Olivia 8/500 can be used for up to five separate nets within a single band pass. This would allow a station with the ability to run multiple instances of fldigi to monitor multiple nets. RxID should be OFF to prevent one instance of the program from capturing another transmission. There are software issues but users should be aware this capability exists

Form your own local or regional VHF or UHF SATERN Digital Net and meet on a regular basis. Work with net participants to resolve operational or technical problems using the guiding principles laid out above.

Portions by Ken Standard, AD5XJ SATERN Southern Territory Net Manager.

<sup>1</sup> fldigi - Fast Light Digital software by W1HKJ

<sup>2</sup> flmsg - Fast Light Message software by W1HKJ

<sup>3</sup> flamp - Fast Light Amateur Multicast Protocol software by W1HKJ

<sup>4</sup> Winlink - a worldwide system of volunteer sysops, radio stations and network assets supporting e-mail by radio, with non-commercial links to internet e-mail.

# **TRAFFIC HANDLING PROCEDURES**

DRAFT

## **VOICE**



This section relates to traffic handling procedures specific to voice. For general radio net operations please refer to the **Net Control** chapter

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Radio communication is subject to interference, which can cause messages to be misunderstood. Operation over long distances can lead to weak signals, which can also cause messages to be misunderstood. If two people send at once, neither station will be heard properly. Improper operation while under stress or during emergencies can lead to fatal errors. The basic requirements are accuracy and circuit/network discipline.

### **Speaking Correctly**

Hold the microphone between 1 and 6 cm from the mouth. Ask for a report back to establish the correct distance for your mike. When speaking, keep a natural rhythm, dividing the message into sensible phrases. Speak slightly slower than normal conversation. Volume as for normal conversation. Shouting will cause over-modulation and distortion, and speaking softly will under-modulate the transmitter, causing weak and unintelligible signals. Raise the pitch of voice slightly.

### **DISCIPLINE**

Only one station can speak at a time.

Listen before speaking to ensure that the <sup>DRAFT</sup> frequency is clear.

Don't cut in on another transmission. Allow for other transmissions when only one of the stations in conversation on frequency may be heard by you.

Pause after pressing the PTT (press to transmit) switch to prevent your first words not being transmitted properly.

Pause at the end of a transmission before releasing the PTT.

Ensure that the transceiver returns to a state of receive after transmissions.

### **GENERAL:**

Identify yourself at the beginning of each transmission.

Keep all communications as short as possible.

No swearing, blasphemy, unofficial conversations, etc.

Be careful of what you say on the air – anyone can hear you.

Be considerate of other operators.

The three main things to stress in traffic handling are accuracy, accuracy, and accuracy. A message is of no value unless it is accurate. Therefore, the prime object in traffic handling is one hundred per cent accuracy. Ninety nine percent won't do.

To achieve accuracy when passing traffic, speak slowly and distinctly, enunciate clearly and spell all the questionable words using standard phonetics. Try not to speak faster than you could comfortably write the message yourself.

Use standard phonetics at all times. The stress of passing emergency traffic is no time to try to decipher '*cute*' phonetics. Take the time to learn the standard phonetics and use them always. A list of the standard phonetics is attached. Learn them and use them. Many foreign stations do not understand any English except standard phonetics.

DRAFT

# SATERN NET PREAMBLE

**CQ the SATERN net, CQ the SATERN net, The Salvation Army Team Emergency Radio Net.**

**This net meets weekly on or about (*Freq*) at (*Z Time*) daylight savings time, or (*Z time*) standard time, for the purpose of establishing a pool of trained operators for emergency communications that will enhance the Salvation Army disaster response.**

**Your net control for today's session is (*your call*).**

**I am located at (*your location*). Please tune to my frequency.**

**This is a directed net. All communications will go through the net control station.**

**The net will now stand by for any emergency, priority, or time value traffic. (*If any, handle promptly*)**

**The net will now stand by for any mobile or QRP stations with or without traffic. (*Handle any traffic*)**

**The net will now stand by for general check-ins. Please use full call signs, both the net controls and your own. If you have traffic for the net, just say the word "traffic" and the net control will get your traffic when he acknowledges your check-in.**

Acknowledge check-ins promptly using full call signs. If anyone has traffic, list the traffic and handle it as expeditiously as possible.

Try to give a net call and identify the net at least every ten minutes. You are required by law to identify your station every ten minutes, and a net call up is a good way to comply with the FCC regulations.

When all of the business of the net has been completed, secure the net. At the present time we are striving for a 30 minute net, but we will use whatever time is needed. To secure the net, simply say:

**This is (*your call*), net control for the SATERN net, now securing this net and returning the frequency to normal amateur use. This is (*your call*), clear.**

## MESSAGE FORMS ICS-213R & ARRL RADIOGRAM

Acquaint yourself with the ICS-213R used by Emergency Responding Agencies. In many situations this replaces the ARRL Radiogram. The ICS-213R form is similar and includes a reply portion. The normal ICS-213 does not include the word boxes adapted from the Radiogram. **If you transcribe an agency form over to the ICS-213R or Radiogram, attached the original to the back of your form.** This should be used in place of the ARRL form if the message will be handled by other agencies.

Pay special attention to the preamble, which is the first line of blanks on the message form. Study the order of them and don't vary from the sequence.

**1- Number.** Use a sequential numbering system of some type. One idea is to start with number one on the first of every month, but any method that affords a unique message number can be used.

**2- Precedence.** They are **EMERGENCY** (never abbreviated), **Priority (P)**, **Welfare (W)**, and **Routine (R)**.

Routine precedence is the most common precedence but in emergency work Priority and Welfare precedence's are used quite frequently.

**3- Optional handling instructions (HX).** These are prosigns used when special handling instructions are needed.

**HXA--**(Followed by number) Collect landline delivery authorized by addressee within. \_\_\_\_ miles. (If no number, authorization is unlimited.)

**HXB--**(Followed by number) Cancel message if not delivered within. \_\_\_\_ hours of filing time; service originating station.

**HXC--**Report date and time of delivery (TOD) to originating station.

**HXD--**Report to originating station the identity of station from which received, plus date and time. Report identity of station to which relayed, plus date and time, or if delivered report date, time and method of delivery.

**HXE--**Delivering station get reply from addresses, originate message back.

**HXF--**(Followed by number) Hold delivery until. \_\_\_\_.(date).

**HXG--**Delivery by mail or landline toll call not required. If toll or other expense involved, cancel message and service originating station.

**4- Call sign of the station of origin.** This is the station from which the message was first sent.

**5- Check.** This is the number of words in the text of the message.

**6- Place of origin.** This is the name of the city or town where the message actually originates, not the location of the station of origin.

**7- Time that the message was filed.** Always use UTC or 'Zulu' time. Using local time leads to confusion when spanning several time zones.

**8- Date on which the message was filed.** The best method to use is the ICS method of month, day and year. For example, Feb. 15, 2017. In amateur messages, just use the month and day. The year is assumed. For example, Feb 15. **This is a change from the original method and complies with the new standard.**

**9- Address.** If at all possible, use a complete address with street number, ZIP code and telephone number.

**Text of the message.** Try to limit the text to 25 words or less. Refer to the ARL numbered abbreviations located below and use them if it reduces traffic handling time

**The signature** is next and is usually the name of the person originating the message.

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The flmsg program (ver. 1.1.30) has an ARL Message tab that will ensure the correct message is selected and will automatically provide a fill-in box if required. The program also includes a check function to provide the word count.

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DRAFT

The ARRL has some very good publications for information about traffic handling. ***Operating an Amateur Radio Station*** and ***Public Service Communications Manual*** are two that are very reasonably priced and have a lot of information about traffic handling and emergency communications in general. The ***ARRL Operating Manual*** is another very good publication, but more expensive.

Properly filled out examples of a message are included at the end of this chapter.

One of the best ways to gain expertise in traffic handling is to be active in your state and regional traffic nets. Hands on experience is the best way to learn, and it's a lot of fun to boot.

**And one more time, accuracy, accuracy, and more accuracy.**

## ARL Numbered Radiograms

Numbered messages have been established for some of the more common texts sent during emergencies. When this common text can be used, an **ARL NUMBER** is substituted for the text and sent. The delivering station reads the actual text to the address, not the **ARL NUMBER**.

The letters **ARL** are inserted in the preamble in the check and in the text before spelled out numbers, which represent texts from this list. Note that **ARL** is included in the text before spelled out numbers, which represent texts from this list. Note that some **ARL** texts include insertion of numerals or words.

### ARL NUMBERS SHOULD BE SPELLED OUT AT ALL TIMES.

Non emergency messages omitted

**Emergency/priority messages originating from official sources must carry the signature of the originating official.**

**ONE** Everyone safe here. Please don't worry.

**TWO** Coming home as soon as possible.

**THREE** Am in \_\_\_\_\_ hospital. Receiving excellent care and recovering fine.

**FOUR** Only slight property damage here. Do not be concerned about disaster reports.

**FIVE** Am moving to new location. Send no further mail or communication. Will inform you of new address when relocated.

**SIX** Will contact you as soon as possible.

**SEVEN** Please reply by Amateur Radio through the amateur delivering this message. This is a free public service.

**EIGHT** Need additional \_\_\_\_\_ mobile or portable equipment for immediate emergency use.

**NINE** Additional \_\_\_\_\_ radio operators needed to assist with emergency at this location.

**TEN** Please contact \_\_\_\_\_. Advise to standby and provide further emergency information, instructions or assistance.

**ELEVEN** Establish Amateur Radio emergency communications with \_\_\_\_\_ on \_\_\_\_\_ MHz.

**TWELVE** Anxious to hear from you. No word in some time. Please contact me as soon as possible.

**THIRTEEN** Medical emergency situation exits here.

**FOURTEEN** Situation here becoming critical. Losses and damage from \_\_\_\_\_ increasing.

**FIFTEEN** Please advise your condition and what help is needed.

**SIXTEEN** Property damage very severe in this area.

**SEVENTEEN** REACT communications services also available. Establish REACT communication with \_\_\_\_\_ on channel \_\_\_\_\_.

**EIGHTEEN** Please contact me as soon as possible at \_\_\_\_\_.

**NINETEEN** Request health and welfare report on \_\_\_\_\_. (State name, address and telephone number.)

**TWENTY** Temporarily stranded. Will need some assistance. Please contact me at \_\_\_\_\_.

**TWENTY ONE** Search and Rescue assistance is needed by local authorities here. Advise availability.

**TWENTY TWO** Need accurate information on the extent and type of conditions now existing at your location. Please furnish this information and reply without delay.

**TWENTY THREE** Report at once the accessibility and best way to reach your location.

**TWENTY FOUR** Evacuation of residents from this area urgently needed. Advise plans for help.

**TWENTY FIVE** Furnish as soon as possible the weather conditions at your location.

**TWENTY SIX** Help and care for evacuation of sick and injured from this location needed at once.

## PHONETIC ALPHABET

Please note pronunciations for clarity

<b>Alpha</b>	<b>Bravo</b>	<b>Charlie</b>	<b>Delta</b>	<b>Echo</b>	<b>Foxtrot</b>	<b>Golf</b>
<b>Hotel</b>	<b>India</b>	<b>Juliet</b> (ju-liette)	<b>Kilo</b> (keelo)	<b>Lima</b> (leema)		<b>Mike</b>
<b>November</b>	<b>Oscar</b>	<b>Papa</b> (pa-pa)	<b>Quebec</b> (kwibeck)		<b>Romeo</b> (rohemo)	
<b>Sierra</b>	<b>Tango</b>	<b>Uniform</b>	<b>Whiskey</b>	<b>X-Ray</b>	<b>Yankee</b>	<b>Zulu</b>

<b>1</b> wun	<b>2</b> too	<b>3</b> thuh-ree	<b>4</b> fo-wer	<b>5</b> fife
<b>6</b> six	<b>7</b> se-ven	<b>8</b> ate	<b>9</b> niner	<b>Ø</b> zero

## PROWORDS

To further enhance effective communications, we need to become acquainted with several prowords. The term "proword" is a contraction for "procedural word," and the ones we'll be using were developed and still in use by US military forces. While the use of these may, at first, seem awkward (and, in some cases, outdated), once you get used to using them, you'll find that they will dramatically enhance your station's ability to communicate - both as a transmitter and receiver of information - more efficiently. The prowords are segregated by sections and in alphabetical order but not necessarily precedence. Some material may be duplicated

### Operation

#### Initial contact:

**ALL STATIONS** A call to all stations on net.

**EXEMPT (*call signs*)** Stations excluded from a 'all stations' call

**RADIO CHECK** Used by a station when calling for a report of how it is being heard by other stations

**TIME CHECK** Request for a time check.

**THIS IS:** This is self explanatory. THIS IS should precede your call sign in every transmission during a DIRECTED NET operation. For example, W9FX replies to the net control station (NCS), K7JAD: **THIS IS** WHISKEY NINER FOXTROT X-RAY. ROGER, etc.

**UNKNOWN STATION** The identity of the station calling or replying to this station is unknown.

**5. SIGNAL STRENGTH REPORTS** You may be asked, or you may ask for a signal strength report, especially when establishing communications.

**RADIO CHECK** Used by station when asking for a report of how it is being heard.

**DISTORTED** Incoming signal is distorted.

**FADING** Communications may fail due to loss of your signal. **ROGER** Indicates that station is being heard loud and clear.

**GOOD AND READABLE** Communications satisfactory for working.

**INTERMITTENT** Indicates intermittent reception.

**WEAK** Communication is workable but with difficulty.

**WITH INTERFERENCE** Having trouble reading due to interference.

**UNREADABLE** Impossible for communications.

#### **During and at the end of the conversation:**

**NOTHING HEARD:** This is used to indicate that no response has been heard from the called station. This does not mean the other station did not reply but that the message was not received. The operator may then request a **RELAY** (if available) or say **OUT:** This is an indication that the other station is not expected to continue to attempt communications.

**OVER:** This is used at the end of a transmission when additional communications is expected with another party. For example, Harry, W9IB, is communicating with Pat, WW9E. Here's Harry's transmission: *WHISKEY WHISKEY NINER ECHO, THIS IS WHISKEY NINER INDIA BRAVO. DO YOU HAVE ANYTHING FURTHER, MAJOR PAT? OVER.* Harry's use of **OVER** indicates that he expects a transmission from Pat. An NCS asking for check ins to a net would also use this to end his/her transmission:

*ADDITIONAL STATIONS FOR THIS NET, OVER.*

**OUT:** This is used to indicate that no further communication is expected from the other party. Using the above example, Pat, WW9E replies:

*THIS IS WHISKEY WHISKEY NINER ECHO. NOTHING FURTHER. OUT.*

It is similar to hanging up the telephone - the conversation between the parties has ended. This would also be used by an NCS to terminate net operations:

*ALL STATIONS, THIS IS WHISKEY NINER INDIA BRAVO. THIS NET IS SECURED. OUT.*

**ROGER:** This means that you understood the transmission of another station. This is not to be confused with answering a question in the affirmative. If you are asked a question and the answer is in the affirmative, use **YES**, or **AFFIRMATIVE** - not **ROGER!**

**SAY AGAIN:** In a perfect world, all communications would be understood by all parties on the first attempt. Alas, the world is not perfect (nor is 20 meter propagation), and repeats or "fills" of transmitted information will be required. **SAY AGAIN** tells the other operator that you need a fill or repeat of information that was previously transmitted. If you are copying formal traffic, other prowords may follow.



**SAY AGAIN ALL AFTER xxxx** tells the other operator that you need him or her to repeat everything in the message after a certain word or group of figures (xxxx).

For example, you might transmit **SAY AGAIN ALL AFTER SCHOOL, OVER**. If you only missed a word or two or a short phrase, you can transmit **SAY AGAIN FROM xxxx TO xxxx**. This tells the other operator that you need all the information contained in the message **FROM** the word (xxxx) **TO** the word (xxxx).

For example, **SAY AGAIN FROM ELEPHANT TO MONKEY, OVER**.

**WAIT:** There are two forms of use of. **WAIT**, or **WAIT, OVER** is used when an operator experiences a brief delay.

For example, if you drop your pencil or have to reach into a drawer to retrieve a piece of paper or pen, transmit **WAIT** or **WAIT, OVER**. The transmitter can be either be unkeyed or remain on the air during the delay. If, however, the delay is anticipated to be longer than a few seconds, transmit **WAIT, OUT**. Circumstance that might dictate the latter use of this proword includes a visitor in the radio room, a telephone call, or other disturbance. In any event, **WAIT** is similar to putting someone you're talking to on the telephone on hold. Just as you must take the person on the phone off hold to conclude your conversation, don't forget to finish your communication with the station to which you transmitted **WAIT**. If you are not acting as NCS and you've used **WAIT, OUT**, be sure to once again obtain the permission of the NCS to resume your communications with the other station. By using **OUT**, you terminated whatever communications were earlier taking place. **WAIT, OUT**, releases the frequency for use by the NCS and other net members.

### THE MESSAGE

**FIGURES:** Routinely, in handling messages, we encounter groups of numbers telephone numbers, latitude and longitude indications, street addresses, and so forth. In order to let the operator on the other end of the communication pipeline know that what we're about to transmit is a group of numbers, or, a mixed group containing both numbers and letters but beginning with a number, we use the proword **FIGURES**. Here's how it works: We need to transmit this telephone number: 800-374-7279.

We transmit that information as **FIGURES EIGHT ZERO ZERO DASH THREE SEVEN FOUR DASH SEVEN TWO SEVEN NINE**.

**GRID** Used before any grid reference.

**I SAY AGAIN** Used by a sender when making repetitions for emphasis.

**I SPELL:** Here again, we rely on the International Phonetic Alphabet. Many words in the English language sound alike but have entirely different meanings. To, too, and two, for example, sound exactly the same. In order to make certain that the recipient of information understands what word we're using, when we encounter words we cannot pronounce, words that sound like other words, or uncommon words, we phonetically spell them out. In order to use this proword, we: *SAY THE WORD, SPELL THE WORD PHONETICALLY, and then, SAY THE WORD AGAIN.* Here's how it sounds in practice:

*I AM GOING TO I SPELL TANGO OSCAR TO SEND YOU TWO I SPELL TANGO WHISKEY OSCAR TWO FORMS COMMA TOO I SPELL TANGO OSCAR OSCAR TOO PERIOD*

**MIXED GROUPS:** You will, from time to time, encounter groups of letters and numbers that, taken together, represent a single group. Ham call signs are a very good example. The rule for transmitting mixed groups by voice is very simple: If the group starts with a letter, use **I SPELL**.

*I SPELL WHISKEY FIVE ALPHA BRAVO.*

If the group starts with a number, use **FIGURES**.

*FIGURES SIX ONE FOUR SIX ALPHA.*

**SPEAK SLOWER** Reduce speed of transmission.

#### **CORRECTIONS AND REPETITIONS**

**ALL AFTER** or **ALL BEFORE** Used with <sup>DRAFT</sup> references to a words or phrases when requesting or giving repetitions or corrections.

**CORRECTION:** We all, occasionally, make errors in our transmissions. When an error is made, **CORRECTION** should be communicated, followed by the correct information. Example:

*THIS IS WHISKEY FIVE **CORRECTION** WHISKEY EIGHT ALPHA INDIA. OVER*

**CORRECT** You are correct.

**DISREGARD THIS TRANSMISSION** This transmission was made in error.

**READ BACK** Request to a station to repeat back a message exactly as received.

**WORD AFTER** I refer to the word following .....

**WORD BEFORE** I refer to the word that precedes .....

#### **RELAY PROCEDURE**

**RELAY TO** Transmit this message to all addresses or the address designation immediately following.

**RELAY FROM** Used by relaying station to indicate the originating station of the message.

**RELAY THROUGH** Instruction to a station to relay through another.

## MISCELLANEOUS INSTRUCTIONS

**ASSUME CONTROL** Ordering a substation to assume control of the net.

**DO NOT ANSWER** Stations called are not to answer this message or otherwise to transmit in connection with this transmission. When this is used, the transmission should be ended with **OUT**.

**FETCH** Used to indicate to whom the caller wishes to speak.

**SILENCE X3** Cease transmitting immediately (and until instructed to resume).

**SILENCE LIFTED** Resume normal transmissions. Silence can only be lifted by the station imposing it. (Normally the net control station, or by a higher authority)

### Q signals (edited for voice use)

<b>QRA</b> What is the name of your station?	<b>QSG</b> Shall I send _____ messages at a time?
<b>QRG</b> What's my exact frequency?	<b>QSL</b> Can you acknowledge receipt?
<b>QRH</b> Does my frequency vary?	<b>QSM</b> Shall I repeat the last message sent?
<b>QRK</b> What is my signal intelligibility? (1-5)	<b>QSO</b> Can you communicate with _____ direct?
<b>QRL</b> Are you busy?	<b>QSP</b> Will you relay to _____?
<b>QRM</b> Is my transmission being interfered with?	<b>QSW</b> Will you transmit on _____?
<b>QRN</b> Are you troubled by static?	<b>QSX</b> Will you listen for _____ on _____?
<b>QRO</b> Shall I increase transmitter power?	<b>QSY</b> Shall I change frequency?
<b>QRP</b> Shall I decrease transmitter power?	<b>QSZ</b> Shall I send each word/group more than
<b>QRQ</b> Shall I send faster?	<b>DRAFT</b> once? (Answer, send twice or _____)
<b>QRS</b> Shall I send slower?	<b>QTA</b> Shall I cancel number _____?
<b>QRT</b> Shall I stop sending?	<b>QTB</b> Do you agree with my word count? (Answer negative)
<b>QRU</b> Have you anything for me? (Answer in negative)	<b>QTC</b> How many messages have you to send?
<b>QRV</b> Are you ready?	<b>QTH</b> What is your location?
<b>QRW</b> Shall I tell _____ you're calling him?	<b>QTR</b> What is your time?
<b>QRX</b> When will you call again?	<b>QTV</b> Shall I stand guard for you _____?
<b>QRZ</b> Who is calling me?	<b>QTX</b> Will you keep your station open for further communication with me?
<b>QSA</b> What is my signal strength? (1-5)	<b>QUA</b> Have you news of _____?
<b>QSB</b> Are my signals fading?	

# 10-CODES

The use of 10-Codes is generally frowned upon inside the Amateur Radio Community. Their heavy use on Citizen Band services has lead to Amateur Operators equating anyone using 10-Codes as a CBer.

Public Safety and Business radio users, however, also use the codes, extensively. Some Salvation Army units have Business Band Radios and non amateur users probably use 10-Codes.

Therefore is it suggested that Amateur operators be familiar with the basic codes. Different Public Safety agencies use conflicting versions but the more universal ones are listed here.

- 10-1 I cannot understand you
- 10-4 I acknowledge (QSL)
- 10-7 Off the air (QRT) DRAFT
- 10-8 On the air, available
- 10-9 Say again
- 10-12 Visitors present, be careful what you say
- 10-20 Location (QTH)
- 10-33 EMERGENCY (MAYDAY)**
- 10-100 Off the air for personal necessity

# SATERN CALL-UP

In the event of disaster, SATERN will operate on 14265 KHz or 7265 KHz. If propagation is unfavorable, 3.920 MHz will be the alternate frequency. MIDCARS (7258 KHz) may be used as a message medium for SATERN. If you cannot locate any SATERN activity during the early stages of a disaster, check MIDCARS for any information regarding SATERN. That is where the initial information will be found before the SATERN net convenes.

If you need to **advise** the SATERN network on an emergency, call the SATERN coordinator (WD9HTJ) ~~collect at 312-725-1100 (office)~~ or 312-338-8239 (home). If for some reason you cannot locate the SATERN coordinator, call the SATERN net manager (KA9KLZ) at 608-744-2704.

As SATERN expands, this list of numbers will expand to include regional coordinators, and in the case of a local emergency, you would contact the coordinator for the affected region. One such regional coordinator is in the Southwest portion of the United States. His name is Warren Andreasen (N6WA), and he is located in Phoenix Arizona. He may be **reached** at The Salvation Army Divisional Headquarters, 602-267-4159 during the day, and ~~602-392-9260 (home)~~ during off hours.

These calls will be accepted regardless of the time. Be sure to identify yourself as a SATERN member and inform us that it is <sup>DRAFT</sup> an emergency. If you contact the office of the coordinator, and he is not there, even though you have left a message, still follow through and call the net manager. Be sure you talk first hand with an officer of the net.

If at all possible, the coordinator or the net manager will try to contact the net members by telephone to tell them when the net is in operation. At times that may not be practical or possible, however, so if you think something might be in progress, follow the instructions in the first paragraph.

During a response which requires 20 meter communication, we have generally met on 14.275 MHz to support and relay. At the time of the emergency, the net members will be apprised of that decision on the regular SATERN net on 14265 KHz or 7265 KHz.

This call-up will be amended and changed as *SATERN* grows and changes. Please adhere to this guideline whenever possible for now.

Digital stations should monitor 14065 KHz Olivia 8/500 RXID **ON**

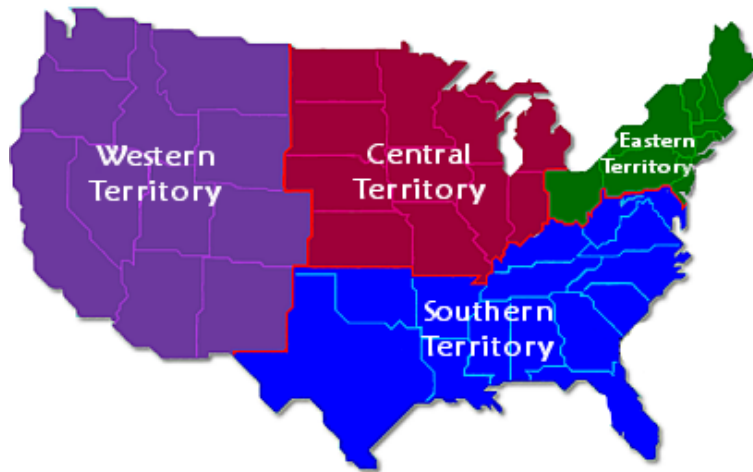
CW Stations monitor SATERN CW Net Frequency 10115 KHz

Alternate 7115 KHz and 14055 KHz

ALE Frequencies 3565 Khz, 5403.5 Khz, 7065 Khz 14065 Khz and 21065 KHz

**LBT ON**, 60 minute sounding

# U.S.A. REGIONAL INFORMATION



## Central Territory

10 West Algonquin Road, Des Plaines, IL 60016-6006 (847) 294-2000

Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North & South Dakota, Wisconsin.

## Eastern Territory

DRAFT

440 West Nyack Road, Box C-635, West Nyack, NY 10994-1739 (845) 620-7200

Connecticut, Delaware, NE Kentucky, Maine, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Puerto Rico & Virgin Islands

## Southern Territory

1424 Northeast Expressway, Atlanta, GA 30329-2088 (404) 728-1300

Alabama, Arkansas, Florida, Georgia, SE Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Washington DC & West Virginia

## Western Territory

180 East Ocean Boulevard, Long Beach, CA 90802-4709 (562) 436-7000

Alaska, Arizona, California, Guam, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington & Wyoming

## National Headquarters

615 Slaters Lane, P.O. Box 269, Alexandria, VA 22313-0269 (703) 684-5500

## SATERN Headquarters Major Rick Shirran,

2 Overlea Blvd, Toronto Ontario, CANADA, M4H 1P4 (416) 422 6199

# NET FREQUENCIES - Central Territory

## Regional High Frequency Radio Nets

**7,265 KHz SSB 1630 Z Saturday**

**3,920 KHz SSB 2030 CT Tuesday, KANSAS & MISSOURI**

**3,963 KHz SSB 1900 CT Tuesday & Thursday, MISSOURI**

## Regional VHF-UHF Radio Nets

<b>Detroit, MI, 2100 ET, Monday</b>	<b>145.330 MHz, CTCSS 100.0 Hz</b>
<b>Chicago – Cook County IL, 2000 CT, Tuesday</b>	<b>146.760 MHz, CTCSS 107.2 Hz</b>
<b>Rockford – Winnebago IL, 2000 CT, Thursday</b>	<b>146.610 MHz, CTCSS 114.8 Hz</b>
<b>Metro Kansas City, 1930 CT, Tuesday</b>	<b>145.130 MHz</b>

## International High Frequency Radio Nets

**14,265 KHz SSB 1500 Z Monday through Friday**

**14,265 KHz SSB 1500 Z Saturday – SAROF (Salvation Army Radio Operator Fellowship)**

**7,265 KHz SSB 1600 Z Saturday – SAROF**

## Contacts

# NET FREQUENCIES - Eastern Territory

## Regional High Frequency Radio Nets

**7,265 KHz SSB 1400 Z Saturday**

## Regional VHF-UHF Radio Nets

<b>Boston MA, 2100 ET Friday</b>	<b>145.230 MHz. CTCSS 88.5 Hz</b>
<b>Cleveland – NE Ohio, 1900 ET Tuesday</b>	<b>146.820 MHz, CTCSS 110.9 Hz</b>
<b>New Jersey - New York, 2030 ET Tuesday</b>	<b>449.975 MHz, CTCSS 114.3 Hz</b>
<b>Linked repeater system of W2NJR consisting of 8 VHF/UHF repeaters linked across NJ into PA, DE &amp; NY</b>	
<b>Pittsburgh PA, 2000 ET, Tuesday</b>	<b>146.610 MHz or 146.955 MHz</b>
<b>Southern EPA, 2000 ET, Thursday</b>	<b>146.910 MHz</b>
<b>Counties of Berks, Chester, Lancaster, Lebanon &amp; Montgomery</b>	

## International High Frequency Radio Nets

**14,265 KHz SSB 1500 Z Monday through Friday**

**14,265 KHz SSB 1500 Z Saturday – SAROF (Salvation Army Radio Operator Fellowship)**

**7,265 KHz SSB 1600 Z Saturday – SAROF**

## Contacts



# NET FREQUENCIES - Southern Territory

## Regional High Frequency Radio Nets

7265 KHz LSB, 10–11 AM, Central Time Saturdays

14065 KHz USB-D, OLIVIA 8/500 +1000 Hz, 12-1 PM Central Time Saturdays

Please refer to page xx for instructions on the use of the SATERN Digital system

## Regional VHF-UHF Radio Nets

Fort Smith AR, 1900 CT Wednesday

146.940 MHz

Central Louisiana, 1830 CT **day??**

147.330 MHz

We realize it may not be able to check in on some occasions, either due to band conditions or time constraints. You may still be counted on the regular net check in log if you send an Internet email message to:

[ad5xj@winlink.org](mailto:ad5xj@winlink.org) with the subject line: //WL2K check in

(do it exactly as shown including the //WL2K).

## International High Frequency Radio Nets

14,265 KHz SSB 1500 Z Monday through Friday

14,265 KHz SSB 1500 Z Saturday – SAROF (Salvation Army Radio Operator Fellowship)

7,265 KHz SSB 1600 Z Saturday – SAROF

## Contacts

**Ken Standard**, AD5XJ SATERN Southern Territory Net Manager.

[ad5xj@arrl.net](mailto:ad5xj@arrl.net) or [ad5xj@winlink.org](mailto:ad5xj@winlink.org)

**Bill Feist**, Southern Territory SATERN Coordinator

Office (601) 961-7720 - cell (601) 421-1493

[Bill\\_Feist@uss.salvationarmyusa.org](mailto:Bill_Feist@uss.salvationarmyusa.org).

**EDS Center Switchboard** (601) 969-6868, fax (601) 696-7756

# NET FREQUENCIES - Western Territory

## Regional High Frequency Radio Nets

3.9777 MHz SSB, 0400 Z Sunday

## ALASKA Regional High Frequency Radio Nets

5.3305 MHz SSB 0400 Z Daily

5.3465 MHz SSB (Alternate frequency)

## Regional VHF-UHF Radio Nets

Imperial & San Diego CA, 2030 PT Thursday 147.320 MHz, CTCSS 107.2 Hz

Northern California, 2000 PT, Monday 147.060 MHz, CTCSS 100.0 Hz

Riverside & San Bernadino, CA 2000 PT, Sunday 146.985 MHz, CTCSS 146.2 Hz

## International High Frequency Radio Nets

14,265 KHz SSB 1500 Z Monday through Friday

14,265 KHz SSB 1500 Z Saturday – SAROF (Salvation Army Radio Operator Fellowship)

7,265 KHz SSB 1600 Z Saturday – SAROF

**Contacts**

# CANADA

Because of close proximity of the two countries it is conceivable that amateurs from either will be able to help in emergencies. The Canadian Territory includes Bermuda is part of that area of responsibility in the same way that Guam, Puerto Rico & Virgin Islands are parts of Continental Territories..

*During the 1972 Nicaragua earthquake an amateur station on Baffin Island in Northern Canada was able to monitor 20 meters overnight when the Texas control station had lost contact. Through cooperation there was 24 hour coverage until the marine cable had been repaired.*

It is essential that the Territories maintain uniform communications standards and be prepared to assist stations distant from your territory.

## International High Frequency Radio Nets

**14,265 KHz SSB 1500 Z Monday through Friday**

**14,265 KHz SSB 1500 Z Saturday – SAROF (Salvation Army Radio Operator Fellowship)**

**7,265 KHz SSB 1600 Z Saturday – SAROF**

## DIGITAL NETS

***No nets scheduled but will follow this format***

**14065 KHz USB-D, OLIVIA 8/500 +1000 Hz**

**3565 KHz, 5403.5 KHz, 7065 KHz, 14065 KHz and 21065 KHz.**

**Sounding 60 minutes, LBT ON**

**Please note some modes are not permissible on USA HF Frequencies**

## Regional High Frequency Radio Nets

**3,740 KHz SSB 2000 CT Monday**

## Regional VHF-UHF Radio Nets

**Ontario IRLP Net 2100 ET, Monday Reflector 9032**

## Contacts

# FOREIGN

**Australia HF Radio Nets - 7,100 KHz SSB 0300 Zulu Monday**

# SHIFT SUPERVISOR'S HANDBOOK

Adapted from **ARRL** and **ARES** material

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# INTRODUCTION

During an extended operation where there are several operators at specific sites a SHIFT SUPERVISOR may be appointed by the Emergency Coordinator, District Emergency Coordinator or the Section Emergency Coordinator to help administer the incident. The role of the SHIFT SUPERVISOR is not to dictate policy and force decisions; rather it is to help coordinate operations in a large scale incident particularly when it involves more than one Emergency Coordinator. (EC)

The SHIFT SUPERVISOR can help coordinate disaster relief efforts by providing repeater frequencies to the EC that are available, by making sure that the RESOURCE frequency is getting volunteers to the incident quickly and efficiently, and providing a sort of backbone on frequency to answer questions and be a “*second set of eyes*” to the Emergency Coordinator.

It is the intention of this Handbook to be a supplement to a basic Emergency Plan. You are encouraged to add to this Handbook pages which you feel you may need in the event of a major incident. Revisions are noted in the upper right hand corner of each page. New revisions will be made available from time to time and will be sent out as needed.

The appointment of a SHIFT SUPERVISOR can take a large strain away from you during a major incident. The SHIFT SUPERVISOR can be an Emergency Coordinator or Assistant Emergency Coordinator from outside the affected area, a SATERN official, or a SATERN member with exceptional skills in leadership and crisis management.

This Handbook is provided to give a SHIFT SUPERVISOR hints and suggestions based on the training and experience of other Emergency Service workers.

***This section does not include details on net operation but serves as a guide to managing personnel at a communications point.*** Please refer to the appropriate detained chapters for specific information.

# THE SHIFT SUPERVISOR - CONCEPTS

DECs, ECs, or AECs will usually be our SHIFT SUPERVISORS and in fact we try to make this so, but this isn't always true. Some ECs are not well enough trained to handle a major emergency incident. Some non-ECs have deep experience in various emergency services. EC is a title, SHIFT SUPERVISOR is a function created for that incident.

The SHIFT SUPERVISOR has both the understanding and the perspective to manage the net(s) operation as a whole, for a limited amount of time. The SHIFT SUPERVISOR must not lose this perspective by getting too tired or hungry (SHIFT SUPERVISORS are typically serious burnout candidates), or at the other extreme by isolation from operations. The SHIFT SUPERVISOR by definition should rotate in shifts just like any other position. The SHIFT SUPERVISOR should be able to operate in the field yet be accessible at all times.

We have a good core of trained net control operators. They know, by and large, how to run a directed net, how to pass traffic, how to use tactical call signs, etc. This is not enough.

The SHIFT SUPERVISOR must be able to accomplish the following, either personally or by delegating at a volunteer:

1. Help net control operators with policy and procedure questions.
2. See that net control operators' checklists are done and to do the SHIFT SUPERVISOR checklist.
3. Open and close directed nets, especially TACTICAL and COMMAND nets.
4. COORDINATE with the Incident Commander in a leadership role.
5. Set up schedules for shifts of amateurs to provide continuous coverage where needed. Make shift changes orderly. Brief every shift.
6. Establish "instant training" for the untrained (i.e. never worked with .ARES), either off-air or on-air.
7. Conduct periodic situation briefings to keep amateurs up-to-date on the incident.
8. Make sure amateurs on shift are fed, and have the resources they need. Insure that shift changes are made frequently, and that amateurs stand down between shifts, if possible.
9. Establish net traffic priorities, including NTS liaison.
10. Establish liaisons and work with adjacent jurisdictions to help allocate resources (amateur and governmental).
11. Insure that amateur radio resources are kept operational.

# SHIFT SUPERVISOR CHECKLIST

These functions are the responsibility of the SHIFT SUPERVISOR, but MAY be delegated to volunteers during the incident. The SHIFT SUPERVISOR should not be a Net Control Station (NCS) or have any other incident-related position.

1. Ask Net Control operator(s) what they need. Do it OFTEN. Do your best to deliver what they ask for.
2. Ask Net Control operator(s) if they have completed their CHECKLIST. Help them complete it.
3. Make sure a LOG is started. Forward all shift logs to the following shifts.
4. Direct all messages be taken on message forms. Use the forms of the agency served if possible, the form in this Handbook if not. Whatever the form, try to use the general guidelines in this handbook for filling them out.
5. Repeaters may be down and need repair. Antenna drops may be broken. Generators may fail or run out of gasoline. Portable repeaters may need to be set up. Organize teams to make these resources work.
6. Set up LIAISON with other organizations. Liaison is a separate task; don't assign to net control or shadows. Ask for volunteers with an EXTRA RADIO of the appropriate type to check in on the other frequencies (see this Handbook or Repeater Directory).
7. Set up and dedicate TACTICAL and COMMAND nets as necessary Establish LIAISONS between all Tactical nets and their Resource net. SHIFT SUPERVISORS must be available for on-the-air traffic yet be aware of the ongoing incident. If necessary, contact other ARRL Section Managers and State OES by telephone, packet or HF (WESTCARS or Western Public Service Net can be utilized SEE FREQUENCY LIST). State the nature of the incident, resources committed to the incident, and any mutual aid assistance that may be required. Keep the other areas notified of our situation as our needs change. Give periodic briefings as necessary. Set up a Mutual Aid channel on HF if needed.
8. Start a SCHEDULE so everyone can be relieved after a 6-8 hour shift. Any amateurs working with the deceased should be relieved every TWO hours. An Assignment Worksheet is included in this Handbook. Review the Assignment requested on each worksheet one or two shifts ahead. Consider doing schedules on flip chart paper or a blackboard to avoid desk clutter. To make shift changes orderly, log the phone numbers of every volunteer AND have them check in on the RESOURCE frequency at least a half hour before they show up for an assignment. This will allow for any last-minute changes in assignment BEFORE volunteers travel long distances with possibly the wrong equipment, or to an incorrect assignment.

9. Work with the Incident Commander (IC) or whoever is in charge to allocate amateur resources where they are NEEDED. It is demoralizing for amateurs to sit around doing nothing; on the other hand, it is also demoralizing to have them burn themselves out by trying to spread themselves too thinly. KEEP ON TOP OF OPERATIONS, both by listening to the radios and by talking to the IC. However, it is a good idea to have a few amateurs in reserve, who are not committed to a particular task: just make sure that they really agree with it.
10. Establish basic SATERN training for the untrained. During disasters amateurs will come out of the woodwork to *help*, having had no prior training in SATERN field operations. Assign an unused frequency (don't get in the way of traffic), to do training in bite-sized chunks, about five minutes at a time. From the SVECS Handbook<sup>1</sup>, refer to N6CMJ's *How to Operate in a Tactical Radio Net* over the air. Read the Emergency Equipment Checklist over the air, as well as the *Quick Reference for Tactical Responders*. Suggest obtaining a Thomas Guide or US NATIONAL GRID map.
11. Make sure all amateurs are fed. Remind the NCS's that they should check with the amateurs on their net to see if they have been fed. Be a pest, if necessary, to get them fed.
12. Make sure all amateurs are informed of both local events and the larger picture. Being kept in the dark is demoralizing. Also, the information will help make better net control operators and shift supervisors in the future. Put out media information only when it has been verified locally. Do not mention specific names of people affected
13. Assign the Shift Supervisor a simplex frequency so he can be reached without interrupting net communications. This is especially important during rest periods.

## SAFETY

**In all probability, during initial response there will be personnel on the scene of the disaster communicating with the EOC or Net Control. It is advisable to establish a method of checking in with field units on a regular basis especially if they are operating alone and/or in an unstable environment. *Don't become a victim!***

<sup>1</sup> SVECS, Silicon Valley Emergency Communications System <http://www.svecs.net>



**Incident Assignment Worksheet  
SATERN Emergency Service**

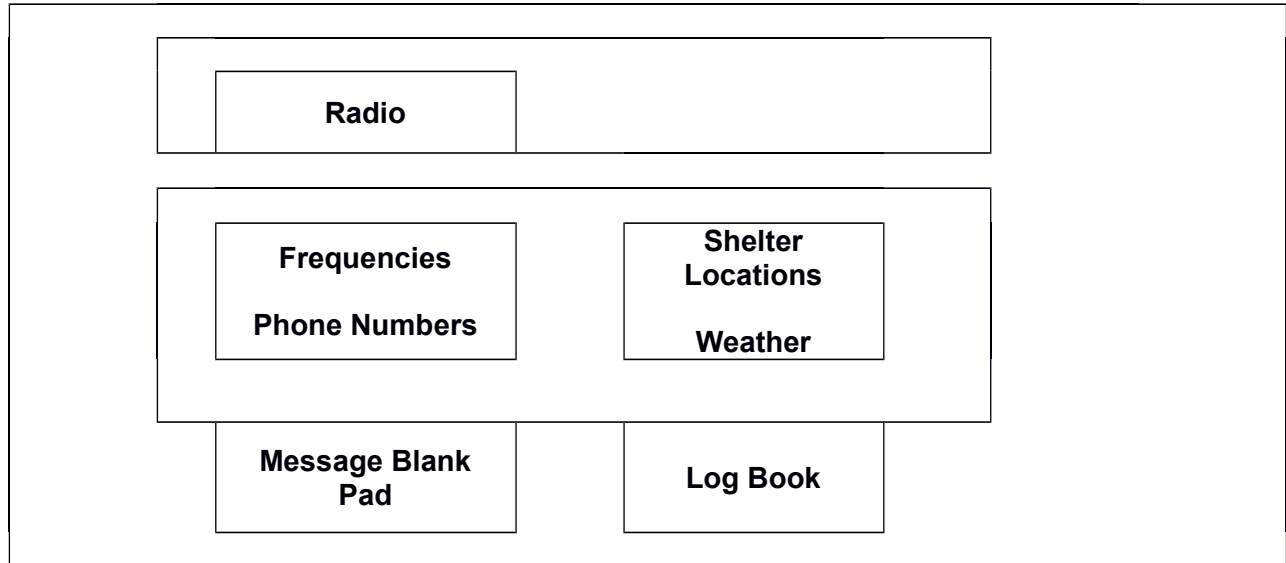
<b>Date:</b> <i>May 24, 1013</i>	<b>Shift 1</b> <i>0600-1230</i>	<b>Shift 2</b> <i>1200-1830</i>	<b>Shift 3</b> <i>1800-0300</i>	<b>Shift 4</b> <i>0000-0630</i>
<b>Location:</b>  <i>Redwood City Police 1020 Middlefield Road Redwood City 415-555-1212</i>  <b>Staffing:</b> <i>2 amateurs per shift</i>	<i>N6AAA Tom 251-1111</i>  <i>K6EEE Joe 676-1212</i>	<i>K6BBB Dick 249-2222</i>  <i>W6FFF Bob 555-1212</i>	<i>W6CCC Harry 953-4444</i>  <i>WA6GGG John 853-1212</i>	    <i>WA6DDD Jane 942-6789</i>
<b>Talk-in:</b> <i>147.57 simplex</i>				
<b>Special needs and equipment</b> <i>Thomas Bros. map ref 36 F2 Two-meter equipment and extra batteries, Headphones or earphone required, Knowledge of digital equipment desirable, Handicapped equipped access routes, Contact Watch Commander</i>				
<b>Shift Supervisor</b>	<i>N6JJJ Ron 555-1616</i>	<i>K6KKK Toby 555-2727</i>	<i>W6LLL Cathy 555-6622</i>	<i>WA6MMM Sheila 654-3605</i>
<b>Resource Net Controller</b>	<i>N6NNN Karen 555-2156</i>	<i>K6OOO Don 765-0978</i>	<i>W6PPP Susan 776-2315</i>	<i>WA6QQQ Steve 897-9009</i>

# Emergency Communications Kit

- 6 Spiral-bound steno pads (for operator logs)
- 6 Message blank pads & quantity of ICS 213 forms
- 1 Dozen Black ball point pens
- 1 Dozen #2 pencils, *sharpened*
- 1 Box Paper Clips
- 1 Stapler/Tape Dispenser
- 1 Dozen Plastic page protectors (for operator reference information).
- 1 Box Push pins (to post page protectors)
- 20 Resource net staffing worksheets
- 6 Folders for traffic copies and staffing worksheets
- 1 Clipboard (for staffing worksheets)
- 1 Shift Supervisor's Guide
- Local maps of the area
- Repeater guide or list of repeaters for your service area
- Signage (see appendix for sample)
- Copy of this manual

All above items to be packaged in a sealed corrugated cardboard box marked on all four sides **SATERN Emergency Communications Kit** and stored at appropriate emergency communications facilities (Salvation Army Unit, County Communications, City EOC 's, etc.).

## Suggested operating position



For each operating position (in clear page protectors):

- Frequency list (Resource, Command, Tactical, H&W)
- Phone number list (Salvation Army Units, Red Cross, County Comm, etc.)
- Shelter location list
- Weather reports/Road conditions

NOTE: The Resource Net desk will have the staffing worksheet clipboard.

- Write it down!
- Don't use scrap paper
- ALL notes for yourself -- use the Net Logbook
- ALL notes for someone else -- use Message Blanks Amateur Radio Emergency Service

# APPENDIX A

# TRAINING RESOURCES

## INCIDENT COMMAND SYSTEM

<http://training.fema.gov/IS/NIMS.aspx>

IS-100.B: Introduction to Incident Command System, ICS-100

<http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-100.b>

IS-200.B: ICS for Single Resources and Initial Action Incidents

<http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-200.b>

IS-700.A: National Incident Management System (NIMS) An Introduction

<http://training.fema.gov/EMIWeb/IS/courseOverview.aspx?code=IS-700.a>

## ARRL ADDITIONAL RESOURCES

- **ARES Field Resources Manual, *A Quick Trainer and Field Resource Guide For the Emergency Communicator*.** This inexpensive (\$5) manual contains NTS nets schedules and frequencies, information regarding how to originate NTS messages, and a host of additional EMCOM related information.
- ***The ARRL Operating Manual***
- ***ARRL Emergency Coordinator's Manual***
- ***Public Service Communications Manual***

# Interoperability & Technology

At most situations you will be sharing space and interacting with other agencies. In all probability you will find yourself approached to move traffic for them. The primary function of SATERN is support of EDS but there is no reason that other traffic can be handled as long as it does not interfere with your traffic. The problem is that most services have their own communications networks without to ability to interact with each other. In an EOC each agency will probably have their communicator and position. In the field you may be it. Modern ham radios have the capability to monitor a wide range of frequencies and some have the capability to operate outside the assigned bands.

The temptation should be avoided for a number of reasons. First is a question of legality. The average ham radio is not approved for such use and more importantly it reduces the ability for you to perform your primary function, support of EDS operations.

When dealing with non-amateurs avoid the use of jargon. Plain English is still an acceptable form of communication.

If your situation allows you internet access it is advisable to have easy access to on-line maps and weather services. Google Street View will allow you to get pictures of dwellings in an undamaged state. In addition set up an e-mail account specifically on your portable computer (or smart phone) that will allow messages to be sent to you without being diverted to your regular e-mail service.

<yourcall>-1@yourmailprovider.??? Is suggested

**Be prepared for not being able to charge or power your radios, gas stations may be inoperative and restaurants closed. Leave charged, fueled and fed.**

Above all do not assume that services will exist, you may be all there is.

# US NATIONAL GRID

## A Geo-Spatial Tool for Public Service Communications

As a result of Hurricane Sandy, northeast responders were certainly faced with response situations in unfamiliar areas or where common navigation aids were gone, flooded or burned over. When such conditions exist, what should be the tool employed to quickly allow for positional reporting and navigation? The answer that many may not be familiar with is: US National Grid (USNG), a national standard coordinate system designed for land-based operations and which is consistent with military operations since 1949.

Amateur Radio operators staffing EOCs and supporting emergency communications should be familiar with USNG as responders and emergency managers will be using it. In October, 2012, the Florida Division of Emergency Management issued a new Field Operations Guide that describes how Florida emergency services will use USNG which has been a part of Florida's high level planning documents since 2010 with references going back to 2006.

USNG is effectively the same as Military Grid Reference System (MGRS), and is a derivative of the Universal Transverse Mercator (UTM), which hikers employ routinely. USNG can be displayed on your smartphone easily. However, a GPS receiver is not mandatory. Paper maps are always a priority and all should include USNG grid lines when created. Fire and law enforcement computer aided dispatch and mobile data terminals can also be made to display properly labeled grids.

All maps need a grid system in order to be most usable. Maps already in use or those found in office supply or convenience stores typically display non-interoperable "bingo" grids. Maps from the Internet are generally devoid of grid lines and thus are effectively just "pictures." What responders and emergency communicators need are properly labeled, gridded USNG maps. USNG can specify areas of 1 Km, 100 meters or 10 meters with as little as four, six or eight digits respectively and without dashes, decimal points or degrees. This facilitates easier radio communications of coordinates. 15S UB 6912 0927 represents a coordinate with precision of 10 meters square (33' x 33'). When the components 15S UB are truncated by local users, 691 092 represents 100 meters square (330' x 330') and 69 09 is the 1 Km square area. In words, 6912 0927 is a location 12% right and 27% up in 1 Km grid 69 09.

USNG area references will be used tactically. 100 meter or 10 meter grids can identify helispots, structures, homes, bridges, specific damage, etc. in combination with or in place of the paradigm of street address, as appropriate. Out-of-area personnel may have no familiarity with local addresses, but when versed in the simple x-y nature of USNG, finding a location can be less stressful and certainly more efficient. USNG coordinates for all locations such as shelters, points-of-distribution, staging areas, etc., should be added to all planning documents.

USNG is designated by the States of Minnesota and Florida as the preferred coordinate system. Federal agencies comprising the National Search and Rescue Committee have designated USNG as the coordinate system for all land search and rescue operations as of November 2011.

When the street addressing system is unfamiliar, blown away, burned over, flooded or is non-existent in a rural or wilderness areas, the interoperable coordinate system to report position and to navigate by is US National Grid. –

Al Studt, CFPS, KF4KIR, Florida Fire Instructor III, [kf4kir@gmail.com](mailto:kf4kir@gmail.com), Cocoa, Florida

# DEPLOYMENT

In the eventuality that you are deployed outside an area that allows you to return to your home for meals and clothing, please be prepared that facilities may not be immediately in place at your destination.

You should have extra clothing appropriate to the season, medications and other items for personal needs. Canteens and sleeping facilities might not be immediately available so bringing a cot or sleeping bag, meals and adequate water before arriving is advisable.

Make sure your vehicle has enough fuel to safely leave the site in case situations require it. Have extra oil, coolant, washer fluid, booster cables and a few basic tools.

There are many versions of Go-Kits on-line. Choose one that suits you best and ensure all the material is available on short notice.

## **IN CASE OF AN EMERGENCY, DO NOT SELF DEPLOY**

**For those who are thinking about going, DON'T unless you have been requested to do so by your Divisional EDS Director.**

**It is vital that people DO NOT SELF-DEPLOY.**

**Self-deploying volunteers of any kind are not helpful and in fact, they hurt and complicate the on-going operation and make everyone's job more difficult.**

If there are any requests made the standard protocol for The Salvation Army would be for the Territorial SATERN Coordinator to contact the Divisional Emergency Disaster Services (EDS) Directors and ask them to recruit SATERN volunteers from within their respective Divisions. This is the same protocol used for deploying anyone - Officer, staff member or volunteer - to a disaster scene. That means that, if needed, you would be contacted by the EDS Director for your Division.

If you do not know what Division you are in, go to the National Disaster Services website (see address below) and click on your state on the map at the bottom of the homepage. It will take you to a page that gives the contact information for your specific Division.

If you have not set up or updated your profile within the national volunteer database, NOW is an excellent time to do so. The national volunteer database is one of the first places all of the Divisional EDS Directors will go to search for deployable volunteers, including SATERN volunteers. To set up a profile, go to the National Disaster website and click on the Join Our Team - Volunteer button and follow the instructions. The Divisional EDS Director will receive an automatic e-mail from the web site letting them know of your interest and your contact information.

If you are already in the database, be sure to make sure it is updated with the latest information by signing in with your user name and password. If you have forgotten your user name or password, the web site will help you recover that information.

Finally, you may also help by monitoring the nets:

For the latest news about The Salvation Army's response to disasters, check out the National Disaster Services website at: <http://Disaster.SalvationArmyUSA.org/>

Finally, please keep everyone involved with operations including the survivors and victims' families, the first responders and all of the non-profit organizations, including The Salvation Army, that are involved in disaster response in your prayers.



# APPENDIX A

## FORMS

# LOCAL RESOURCE LIST

Municipality			Phone		
		Name	Phone	Cell	Pager
Nearest Salvation Army					
SATERN Supervisor					
EDS Contact					
ARES Contact					
EOC					
Police Administrative					
Fire Administrative					

**Incident Assignment Worksheet  
SATERN Emergency Service**

<b>Date:</b>	<b>Shift 1</b>	<b>Shift 2</b>	<b>Shift 3</b>	<b>Shift 4</b>
<b>Location:</b>				
<b>Staffing:</b>				
<b>Talk-in:</b>				
<b>Special needs and equipment</b>				
<b>Shift Supervisor</b>				
<b>Resource Net Controller</b>				

# SATERN

## Instructions for Incident / Event Radio Communications Plan (ICS Form 205-AR)

Note:	This form is used to list the incident / event communications plan and is distributed to each communications team member	
Purpose:	This form is to be used to summarize the event radio communications requirements, assignments, frequencies and any other communications usage information.	
1.	Event / Incident name	Enter the Incident or Event name assigned
2.	Date / Time prepared	Enter the date and time form created, use local 24 time, if Zulu include Z beside time
3.	Operational Period	Enter the operational date and time prepared, use local 24 time, if Zulu include Z beside time
4.	Basic Radio Channel Utilization	Enter the following information for radio channel use
	Ch #	At the Communications Leaders discretion, Ch # may equate to the Radio's channel number or used as a reference line.
	Function	Net function each channel is assigned (i.e. command, medical, logistics, etc).
	Channel Name / trunked system	Nomenclature or commonly used name for the channel or talkgroup
	Assignment	How / who this channel will be used by (net control, tactical, APRS, etc.)
	RX Freq, N or W	Received frequency as the mobile or portable unit would be programmed using nnn.nnnn followed by a "N" for narrowband or "W" for wideband.
		Name of specific trunked radio system for the talkgroup may be entered across fields normally used for channel information
	RX Tone/NAC	CTCSS tone or Network Access Code or the received frequency.
	TX Freq, N or W	Transmitted frequency as the mobile or portable unit would be programmed using nnn.nnnn followed by a "N" for narrowband or "W" for wideband.
	TX Tone/NAC	CTCSS tone or Network Access Code or the transmitted frequency.
	Mode	"A" for analog, "D" for digital, or "M" for missed mode operations
5.	Prepared by	Name, call sign and contact phone number of preparer.
6.	Incident Location	Location that the incident / event occurs.

The convention calls for frequency lists to show four digits after the decimal place, followed by either an N or a W, depending on whether the frequency is narrow or wide band.

Mode refers to either A or D indicating analog or digital (e.g.D-Star) or M indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with RX and TX reversed

# CREDITS

We gratefully acknowledge the contributions of the following sources. Some material contained herein is provided by the following and may be subject to copyright and should not be reproduced without due permission and credit.

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Wikipedia

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*To be developed*