



# Pennsylvania Amateur Radio Emergency Service

“ Mission, Roles and  
Challenges in the  
Digital Era”

Larry Keller AB3ER  
SEC WPA-ARES  
John Rodgers N3MSE  
SM WPA

# Purpose

- Mission, Purpose, and Role of Amateur Radio in Emcomm
- Agency and Technology Challenges involved.
- New Working Relationships Needed
- Resistance to change ( If you are not making waves you aren't rowing the boat”



# Amateur Radio Emcomm Many Groups



RACES- (Radio Amateur Civil  
Emergency Service Created in  
Part 97



Military Amateur Radio Service



Auxiliary Communications Service (State  
Related e.g. PA –ACS 4 or 5 including PA



ARES – ARRL “Amateur Radio Emergency Services “ Part 97.1  
VOLUNTARY



Hospital Disaster Communications ARES ?

# With so many Groups – Converging Needs in Post 911 Era

- What we have in common-
  - Amateur radio license
  - Desire to serve in an emergency
  - (b) ...advancement of the radio art
  - (c) ...advancing skills in both communications and technical phases of the art
  - (d) ... reservoir...of **trained operators**, technicians, and electronics experts
- Differences-
  - Who do we serve, coordination of effort
  - TRUST



# ARES and RACES – Best Known

## ➤ History-

- ARES<sup>®</sup> is an organization within the ARRL
- Celebrated 75 years of service
- Began in 1935 as The ARRL “Emergency Corps”

## ➤ “An Emergency Station in Every Community”



**ARRL's Emergency Corps—Join Now**

AT ARES site emergency stations in every community. They should be equipped with auxiliary station equipment for use in emergency. For most emergencies such equipment should be designed to operate from power supplies other than the regular ac or dc lines. Although it is true that much of the most reliable emergency work is done using standard operating circuits from ac or dc outlets, it must be remembered that the "system area" itself is usually subject to power outages. This means a well-stocked site must be equipped with a means of generating power. The most practical means of generating power is by means of a generator. The only equipment in the possession of enough emergency equipment to make a complete station, capable of being used in a short time.

**How to Join the "ARRL Emergency Corps"**

Every member of the Corps will be required to "register" a head station on the emergency equipment available at his station. Application to the Corps will result in effort only during the time when such equipment is on hand and is operating normally. It is not simply a post paid to the Communications Department, A.R.R.L., West Hartford, listing what emergency equipment you have, how many, and how they are used. It is not a membership fee, but a statement of what you have on hand and how you use it. It is not a membership fee, but a statement of what you have on hand and how you use it. It is not a membership fee, but a statement of what you have on hand and how you use it.

**ARRL's Emergency Corps**

The ARRL's Emergency Corps is an organization of amateur radio operators who have volunteered to provide emergency communication services in their communities. The Corps is a part of the ARRL's Emergency Service, which is a national organization of amateur radio operators who have volunteered to provide emergency communication services in their communities. The Corps is a part of the ARRL's Emergency Service, which is a national organization of amateur radio operators who have volunteered to provide emergency communication services in their communities.

# PURPOSE

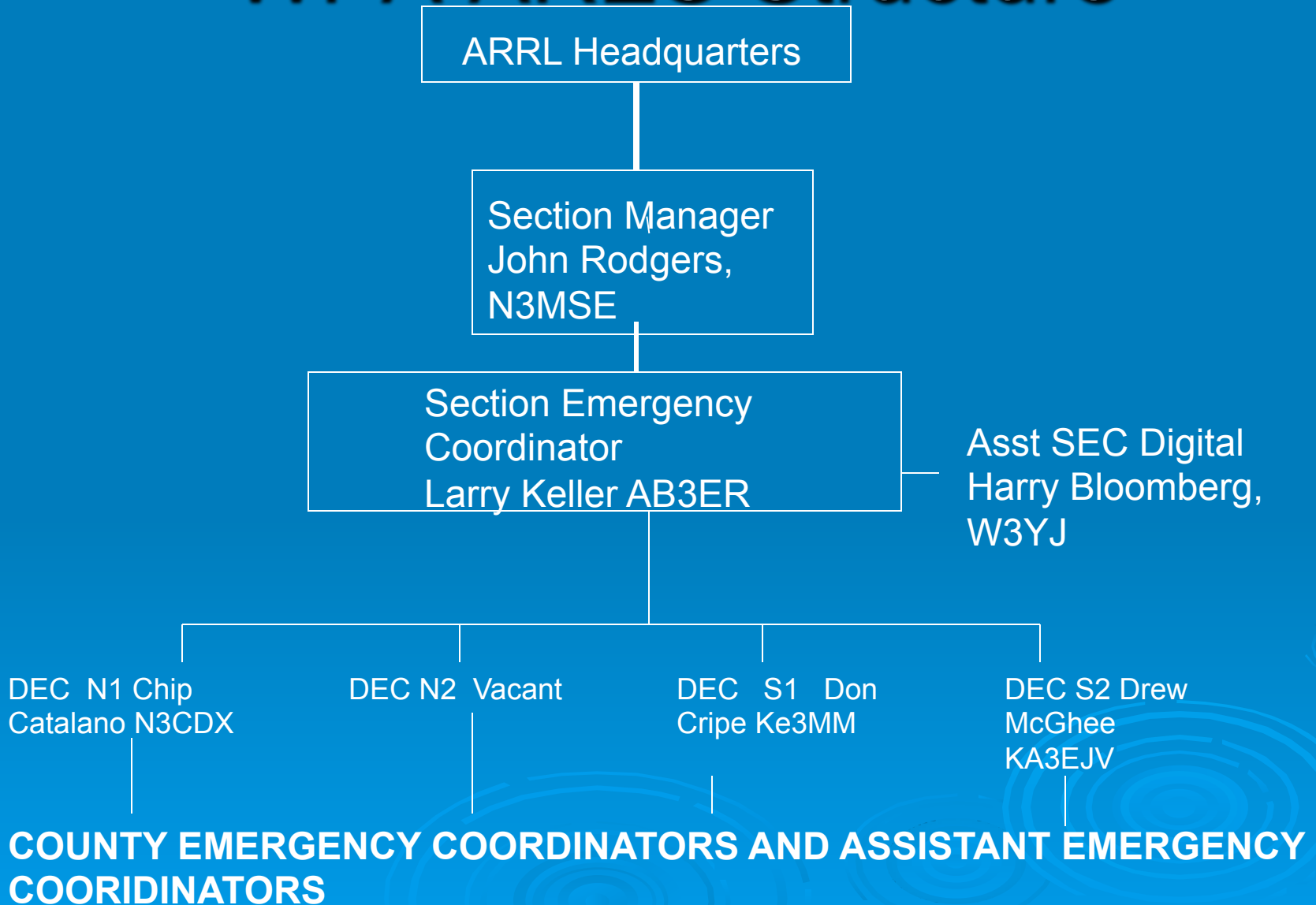


The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service when disaster strikes

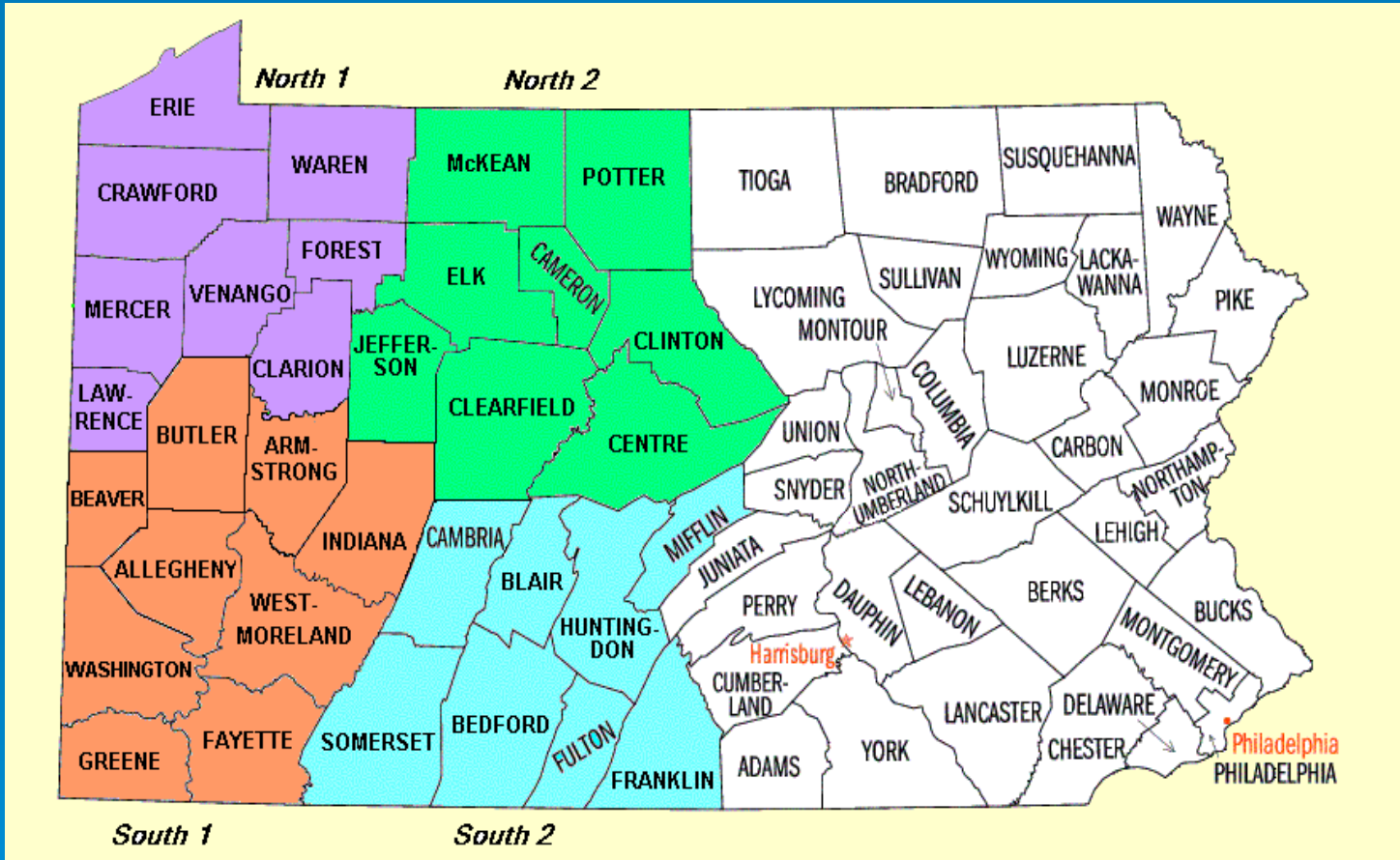
# ARES Structure

- 73 SECTIONS in the U.S.
  - Each Section is headed by an elected “Section Manager” who appoints a “Section Emergency Coordinator” (SEC)
  - SEC’ s appoint Emergency Coordinators as needed to serve all communities,
- PA Section

# WPA ARES Structure



# PA SECTION MAP



# 33 Western PA Counties

## WPA ARES MEMBERS

### N-1 District

|               |    |
|---------------|----|
| Crawford..... | 14 |
| Erie.....     | 32 |
| Clarion.....  | 3  |
| Forrest.....  | 0  |
| Lawrence..... | 11 |
| Mercer.....   | 20 |
| Venango.....  | 4  |
| Warren.....   | 3  |

### N-2 District

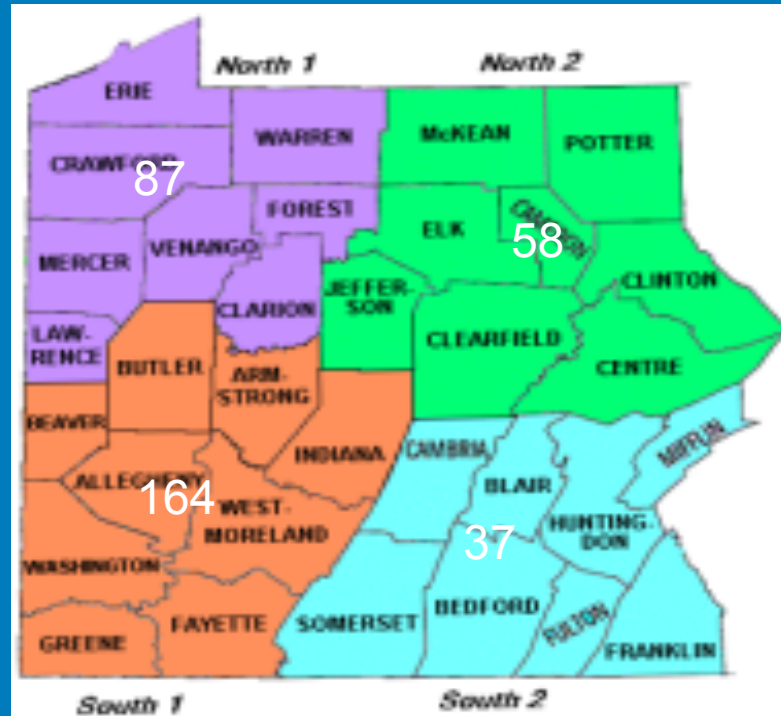
|                 |    |
|-----------------|----|
| Cameron .....   | 0  |
| Centre.....     | 25 |
| Clearfield..... | 11 |
| Clinton.....    | 0  |
| Elk.....        | 0  |
| Jefferson.....  | 5  |
| McKean.....     | 12 |
| Potter.....     | 5  |

### S-1 District

|                  |    |
|------------------|----|
| Allegheny.....   | 67 |
| Armstrong.....   | 9  |
| Beaver.....      | 24 |
| Butler.....      | 19 |
| Greene.....      | 0  |
| Fayette.....     | 6  |
| Washington.....  | 9  |
| Westmoreland.... | 36 |

### S-2 District

|                |    |
|----------------|----|
| Bedford.....   | 7  |
| Blair.....     | 5  |
| Cambria.....   | 14 |
| Fulton.....    | 0  |
| Franklin.....  | 4  |
| Huntington.... | 1  |
| Mifflin.....   | 2  |
| Somerset.....  | 4  |





# INFORMATION

## www.wpaares.org

Application, Technology,  
County Information,  
Reports

**Western Pennsylvania ARES**

Please see an important message regarding registration here

Please Fill in as Complete as Possible

Check the Bands that you can operate

First Name:

Last Name:

Call Sign:

Address:

City:

State:

Zip Code:

Email:

Home Phone:

Work Phone:

Cell Phone:

License Class:

County:

Can your home station operate without commercial power?

Please SUBMIT will send your information

File version 1.0

**Western Pennsylvania ARES**

**SET Drill**

The team needs will be starting the Investigation in more than a week on October 1 and 2 when the annual ARRL Simulated Emergency Test is conducted. The WPA ARES SET will be held Saturday October 1 between 0800 and 2000 hours (12 AM - 12 AM) for all 22 counties. This year's scenario is very realistic involving terrorism and is attached for your information and plan for participation.

The goal of SET is to perform a national test and assessment of our ability to respond if we are asked. This is the best time for us to take stock and prepare. The weather events of the summer have fortunately passed (where Pennsylvania but we cannot take much comfort that we are not the weakest. Our Section has been asked to prepare for support of the Red Cross and the Eastern PA Section. If the number of the ARES member registrations are any indication, many of you want to get prepared to plan or if called upon.

The SET drill is the most important event of the ARES year for testing and refining skills. It should not be fun and it is a contest unless you do it all at once. Please don't think about the SET, we are going to have our own time competition. You have to read the scenario to know what is at stake. Please stay very calm. Thanks to Harry for the plan.

73,  
Harry ARES  
Section Emergency Coordinator

ARES - Manual  
FEMA - Training  
PEMA - Website  
NEMEM - Standards  
Staff Positions Open  
Contact Us

One of the goals of this year's SET plan is to make it easier to determine what is expected of each county. The drill's objectives are clearly described in the plan:

- Activate hams using standard call-out procedure.
- Deploy hams in accordance to plan.
- Interface with each local Service Agency and pass simulated traffic on their behalf.
- Send one digital message to each adjacent county.
- Send one voice message to each adjacent county.
- Send one voice message to the Section voice net.
- Send one digital message to the Section digital net.
- Relay the 100W and 110W HF signal bulletins over a local repeater using NEMEM.
- Send drill summary to the county's DEC using NEMEM over a local repeater.
- Submit SET summary form to ARRL in time for publication in QST.
- HAVE FUN!!!

We believe these are reasonable objectives and reflect what we expect to happen during an actual wide-scale emergency. Our members will be called out and deployed in accordance with existing plans and then asked to communicate within your county, with neighboring counties, and within the WPA Section using both voice and data. We've been introducing NEMEM into the Section for three years now, so we believe that at this point it's use should be considered routine. If you still think NEMEM, Clivia and our toolset of Plug, Firm, and Privac are something exotic, then we have a problem. Having said that, our philosophy in WPA ARES is not to believe at you and throw you under the bus, it's to help you get on the bus we're all riding together. So if you do need help with NEMEM, let us know and we promise we won't be judgmental.

In the spirit of the last objective of having fun, we are adding the elements of a contest and certificate hunting to the SET. Any county that meets all the drill's objectives will receive a special certificate from the Western PA ARRL ARES leadership. We encourage you to think of SET as a contest where you have three hours to meet all the above objectives.

We are also adding a few small touches of realism to the drill and have also decentralized the drill's management. We have asked Erie County to work with Ohio ARES District 10 and Western NY ARES to send simulated traffic for an approaching storm. We have also asked the sponsors of our five wide-area repeater network to work with local ECs in working the repeater network into the drill. And we're hoping Mercer County can put their stations in local hospitals to use.

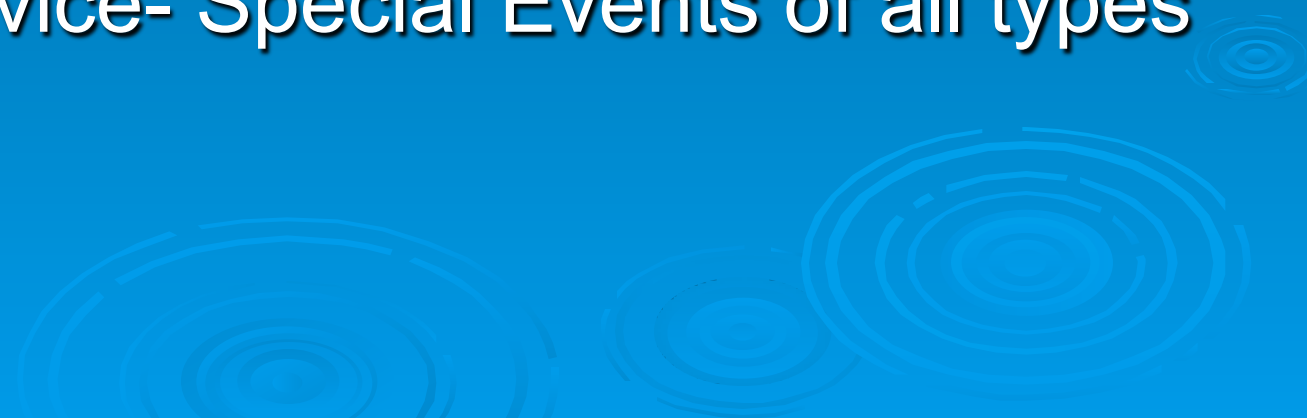
By good fortune, the Red Cross in Allegheny County has scheduled a small drill for the same morning as the SET. We have decided to integrate this drill into Allegheny County's portion of the SET. We realize this is all being organized on short notice. But guess what so are actual disasters!

73,  
Harry Bloomberg W3YJ  
hbl@hbl.com  
Assistant SEC, Western PA ARES

Click Here for the Western PA ARES 2011 SET Plan



# Some Current Activities

- Skywarn - Nets support storm tracking and on ground reports to NWS
  - Red Cross- Sheltering and other support
  - Salvation Army- “Sally” wagons
  - EOCs – as needed
  - Public Service- Special Events of all types
- 

# Memoranda of Understanding “MOU” With

- American Red Cross+
- Association of Public-Safety Communications Officials-International (APCO-International)+
- Boy Scouts of America+
- Citizen Corps (Department of Homeland Security)+
- Civil Air Patrol (CAP)+
- Federal Emergency Management Agency (FEMA)+
- National Frequency Coordinators Council +
- National Volunteer Organizations Active in Disaster (NVOAD)+
- REACT International Inc.+
- Salvation Army & SATERN+
- SKYWARN (National Weather Service)+
- Society of Broadcast Engineers (SBE)+
- United States Power Squadrons+
- **Locally Negotiated MOU' s eg with PEMA**

# Served Agency Relationship

- The American Red Cross is a Served Agency of the ARRL.
- The ARRL is considered a Partner of the American Red Cross.
- Relationship established through a national level MOU (May 2010) and will be implemented through a regional MOU between WPA ARES and SWPA Red Cross
- As a served agency, the Red Cross requests the assistance of the local ARES organization in the event.



# ARES and the Red Cross in Western Pennsylvania

## ➤ Emergency Services Provided

- **Mobilization**

- **CONOPS**

- **Mobilization** -Red Cross unit determines requirement for communications support
    - Sends request to the WPA Section Emergency Coordinator
    - WPA SEC sends request to ARES volunteers that are in the ARES database



# ARES and Red Cross in WPA

- Logistics requirements
  - Shelters
  - Situational awareness
  - Mass care and bulk distribution
  - Disaster assessment Communication and Relay
- Coordination
  - Emergency Operations Centers
  - Incident Command Post
  - Solved the “Background Check
- Communication Modes – Whatever Works

# Communication Requirements

## ➤ Accuracy

- Have messages be written to ensure that what was communicated is accurately transmitted

## ➤ Accountability

- Maintain a record of messages sent and received
- Maintain record of responses that have not been sent/received



# Exercise Lessons Learned

- Beware single points of failure
  - Individuals within ARES who have unique skills and resources
- Need to keep written record of transmissions
  - Technical communications require exactness in transmitting messages
  - Digital communications modes do this automatically. NBEMS works and D STAR will as well



# Next steps

- Finalize MOU between WPA ARRL and SWPA Red Cross
- Establish chapter/county level CONOPS for mobilization
- Including amateur radio in chapter/county level training and exercises
- Regional disaster drill May 2012

# WPA Section Future

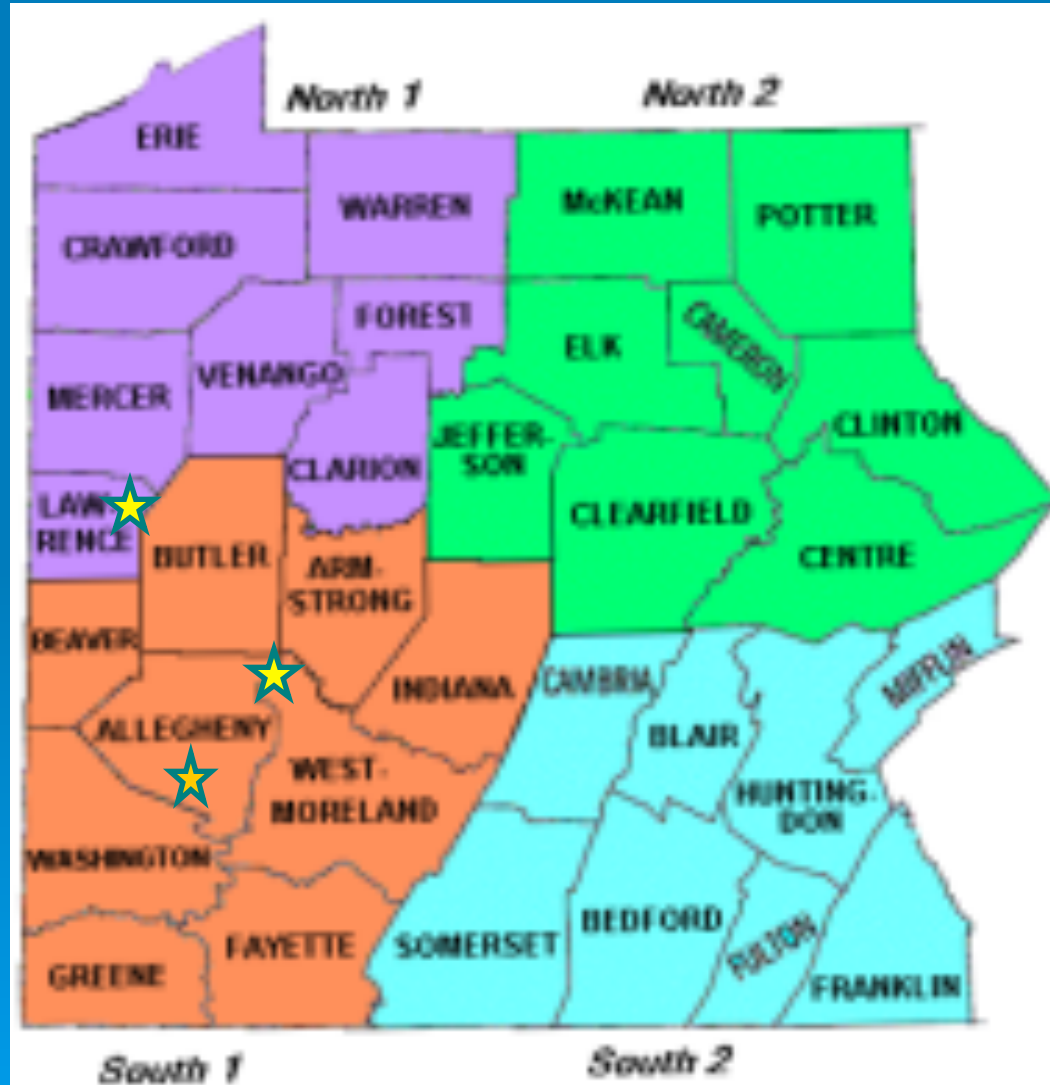
- Establish “Official Emergency Station”  
“Official Relay Stations” for cross platform communication
- Capabilities-
  - HF / VHF Voice
  - Repeater – WAN
  - Digital Modes – NBEMS D-STAR WinLink
  - CB FRS
- Strategic Locations

# OES / ORS Stations

## Stations

W3KWH

K3MJW



# WPA Emcomm 2012

Date: May 11, 12

Location: University of Pittsburgh – Johnstown

Features:

- Digital Applications
- Exercise
- Served Agencies
- WAN technology

Cost \$20 registration Room and Meals \$120

INFORMATION at [www.wpaares.org](http://www.wpaares.org)

We need commitments to make this happen!! See form



## THE AMERICAN RADIO RELAY LEAGUE, INC.

Larry Keller AB3ER  
Western Pennsylvania Section

Section Emergency Coordinator  
AB3ER@ARRL.NET

January 6, 2012

WPA Emergency Communications Conference



All Western PA ARES Members,

We are planning a Section-wide ARES Conference to enhance ARES communications support and communications support capabilities for emergency and public service. **YOUR IMMEDIATE ATTENTION** is needed to make this possible and to insure a first rate program. Your commitment is important as WPA-ARES has no budget or resource to cover expense. We must also assure participation to justify the time and effort of presenters. **Your input is essential.**

**General concept:** Consider a 1 – 1 ½ day conference. A 1 ½ day format starting Friday afternoon may attract more people traveling more than 250 miles. Overnight accommodations and meals are available at reasonable price. This format and offers more contact time and networking opportunities. The May date(s) occur after close of the regular University main session and accommodations are available

**Theme:** Communications Continuum

**Target attendance:** 150

**Program:** Served agencies needs and relationships, Digital Applications, Smartphone and Tablet Apps, Repeater WAN , PEMA ACS, OES and more. Parking lot for vehicle display. Special event Table top plus.

**Proposed Date:** May 11, 12

**Place:** University of Pittsburgh, Johnstown. First class facilities, good location and accommodates a wide variety of activities.

Examples include an all media auditorium and two classrooms for breakout sessions / displays. Overnight accommodations and meals at a very reasonable cost .

**Amenities:**

Meals- Breakfast \$7.50 / person, Lunch \$ 9.90 / person; Dinner \$13.20 / person Parking area for displays

Overnight – Two options

Rooms: Conference Center \$60.00 per room per night (carpeted, air-conditioned, have a private bath, a mini microwave/fridge unit and are attached to the LLC meeting rooms.)

Residence Hall: \$40.00 per room per night (Residence Halls are not carpeted or air-conditioned, but have a “suite” style setup where 2 rooms share a bath.)

\*All rooms on campus have 2 single beds

**Cost:** Registration Fee \$20 by March 15, 2012 Meals and overnight accommodations in addition to registration . This may be reduced by sponsorship and donations. If you or your club can donate, please let me know asap.

PLEASE COPY AND PASTE INTO YOUR BROWSER AND EMAIL TO [AB3ER@COMCAST.NET](mailto:AB3ER@COMCAST.NET) SUBJECT: "CONFERENCE"

I will attend the conference at a cost of \$20.00 to be paid by March 15. If the conference is cancelled due to lack of attendees, my check will be refunded. AGREE \_\_\_\_\_ ( Initials )

NAME: \_\_\_\_\_ CALLSIGN: \_\_\_\_\_ COUNTY: \_\_\_\_\_

SUGGESTED TOPICS \_\_\_\_\_

I WISH TO PRESENT A TOPIC: YES \_\_\_\_\_ I WILL ASSIST WITH THE PROGRAM: YES \_\_\_\_\_

Since 1914 - Of, By and For the Radio Amateur

Official Journal

# New Technology and Organizational Challenge

## PEMA ACS

- Establish a true Cross Organization, Cross Platform Emergency Communications Program
- Auxiliary Communications System- started in California about 30 years ago
  - 4 or 5 states
  - Brings Amateur Radio into a process for cross platform use.
- Establishes an ACS framework

# ARES Flexibility is Key to ACS

- Self Activation
- All licensed hams can be members
- The pathways are well traveled
- All volunteers
- Uniform Structure within ARRL

UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
AMATEUR RADIO LICENSE  
KB3NWK

KELLER, LAWRENCE W  
3907 BRIDGWOOD CIRCLE  
MCKEYSVILLE PA 15668

FCC Registration Number: (FCC) 0013247241

Special Conditions/Endorsements

None

| Grant Date | Effective Date | First Date | Expiration Date |
|------------|----------------|------------|-----------------|
| 08-02-2006 | 08-02-2006     | 08-23-2006 | 08-02-2016      |

| File Number | Operator Privileges | Station Privileges |
|-------------|---------------------|--------------------|
| Mo 170e-495 | General             | PC1XART            |

THIS LICENSE IS NOT TRANSFERABLE

*Lawrence W Keller*  
Licensee's Signature

FCC 402 APR 2012



# ARES compared with ACS

## ➤ ARES

- Self Activating
- FCC Part 97
- No drill limitations
- Public Service Events
- Organization ARRL
- Membership a license
- Training not specific
- Insurance none unless negotiated
- Hundreds of volunteers with ham license

## ➤ ACS

- Government Activation
- FCC Part 97 - Races Limitations ?
- Drills limited
- No generally involved in Public Service
- Organization – PEMA entity
- Membership categories and additional requirements
- Training specified
- Insurance – Act 35
- Limited membership



# Points for Consideration

- ACS must unify both groups but also technology.
- “During times of disaster or emergency declaration PEMA shall serve as the lead agency and have authority for emergency direction and control”

# ACS` Activation limitations

- ACS has primary access to RACES \* volunteers and may activate them. ACS maintains rosters, qualifications, background check and training. (PEMA Directive 2010-1)
- \*To transmit in RACES, an amateur station must be certified and registered by a civil defense organization or an FCC-licensed RACES station. RACES is administered by the Federal Emergency Management Agency (FEMA) and acts as a communications group of the government. Registered members of RACES are authorized to respond when a civil defense organization requests amateur radio assistance. Typically these activities occur during periods of local, regional or national civil emergencies such as hurricanes, earthquakes, floods or wildfires. RACES stations may only communicate with specified stations [47CFR 97.407 (c), (d)].

# ARES / ACS Activation

- When activated by an authorized PEMA / ACS official are ARES recruited volunteers considered “Duly enrolled” and covered by Sec 7706?
- Documentation and Criteria Required

# ACS Activation and ARES

- Interface with ARES Many volunteers must be “deputized” since they may not be a “Duly Enrolled Volunteer”
  - Information to be provided
  - Who actually is responsible for initiating deployment?

# ACS Activation and ARES

- Contact with ARES leadership (i.e. County to County State to Section)
- Specifics of Request (specific Emergency Official declaring emergency.
- Operational specifics e.g. contact persons, go kit specification
- Time location of deployment?

# ARES – ACS MOU Status

- ARRL Need Resolution to
  - List of specific requirements
  - Elimination of “Save Harmless” Language
  - Elimination of “Commonwealth Standard Contract Terms and Conditions
  - Specific Requirements for compliance with PA “Right to Know” Law
- ACS in PA is still a work in progress



# Some Concerns

- ARRL provides no real support to the Field ARES Program
  - Training
  - Logistics ie roster, webpage
- ARRL has refused involvement in assisting with ACS MOU in PA
- The Responder community has mixed feelings re use of amateur instead of their own personnel. “If it isn’t in my control it is out of control.”



# What is the Role of Technology?

➤ Can D-Star Help?

➤ **D-Star Has Many Uses**

- Wireless Internet
- Automatic Position Reporting System
- Spectral Efficiency
- Simultaneous Voice and Data capability
  - 2m (144MHz) & 70cm (440MHz)
- High-Speed Data capability
  - 23cm (1.2GHz)
- Internet Linking capability
- Microwave Linking capability

# DStar Uses

- Simultaneous Voice and Data capability
  - 2m & 70cm
  - 2.4 kb/sec
- 4800 baud Data Stream
  - 2400 baud Digital Voice
  - 1200 baud FEC on Digital voice
  - 1200 baud Serial Data

# Can We Make it Work

## ➤ DStar Hurdles

- Limited System Deployment – but growing
- Not Ordinary Ham Radio – new technology
- Cost
- Integration with other systems

# FEMA Study Request

## ➤ Text HR 81 - The Amateur Radio Emergency Communications Enhancement Act of 2011

To promote and encourage the valuable public service, disaster relief, and emergency communications provided on a volunteer basis by licensees of the Federal Communications Commission in the Amateur Radio Service, by undertaking a study of the uses of amateur radio for emergency and disaster relief communications, by identifying unnecessary or unreasonable impediments to the deployment of Amateur Radio emergency and disaster relief communications, and by making recommendations for relief of such unreasonable restrictions so as to expand the uses of amateur radio communications in Homeland Security planning and response.

# Summary

- Amateur Radio has served well, but, the post 911 era presents new challenges to all amateurs who enjoy the hobby
- We must protect our privilege through a demonstrated able Emcomm capability.
- Show beneficial use of the spectrum.
- **BECOME INVOLVED.**
- Encourage greater ARRL support.

THANK YOU

