

HOW AMATEUR RADIO was used in EXERCISES at FEMA EMI

2016 PEMA Conference
Sandra Goodman, SCTF-ARWG

PURPOSE

- FEMA EMI requested Amateur Radio be included in EMA training courses
- Show how Amateur Radio provides communications support
- Modes of Communications
- Two Way Learning Experience

PLAYERS

- FEMA Emergency Management Institute
 - Located at FEMA National Emergency Training Center in Emmitsburg, MD
 - Integrated Emergency Management Course (IEMC)
 - Emergency Management Students
- South Central Task Force (SCTF)
Amateur Radio Work Group (ARWG)
 - Cooperative organization of Amateur Radio groups in the eight county SCTF region
 - Support emergency communication functions for EMAs, health care facilities, & other agencies
 - Participate with ACS, RACES, & ARES®

Visiting Emergency Managers

- Ocean City, MD
 - Hurricane scenario
- Citrus County, FL
 - 1st visit – before & during Hurricane
 - 2nd visit - Hurricane aftermath response
- Provo, Utah
 - Earthquake scenario
- Calhoun County, AL
 - Tornados, including derailed train & downed airplane
- Dorchester County, SC
 - Earthquake scenario

Controllers



Doug Kahn
Exercise Planner

SIMCELL Group



Ocean City EMA Staff



Citrus County EMA



AMATEURS IN SIMCELL



AMATEURS IN EOC



TV STATION



'LIVE' TV BROADCASTS



COMMUNICATION MODES

- VOICE
 - ICS-213 message form
 - Tactical message
- DATA using NBEMS
 - ICS-213 message form
 - Files and Lists
- MMSTV or EasyPal
 - Pictures
- Limits - due to bandwidth

NBEMS

- Narrow Band Emergency Messaging System
- Open source software used across the country
 - Fldigi
 - Flmsg
 - Flwrap
- Used during the 2016 Snow Storm to generate weather reports to PEMA from across the state
- paNBEMA has weekly NETS

WHAT WE SEND

- ACTIVATION NOTICES
- EXCHANGES BETWEEN AGENCIES
- DAMAGE REPORTS
- FILES (ie Medications list)
- CALLS FROM PUBLIC

WHO WE SUPPORT

- EMERGENCY MANAGEMENT AGENCIES
 - Federal, State, County, Local
- HOSPITALS
- AMERICAN RED CROSS
- SALVATION ARMY
- train at PUBLIC EVENTS
 - Bike Rides, Walks, Hikes, Fairs

ANTENNAS

inside building



ANTENNAS

inside building



TWO WAY LEARNING

- AMATEURS LEARN ABOUT EOC OPERATION
- EMERGENCY MANAGERS LEARN ABOUT AMATEUR RADIO

DEMO OF NBEMS



GENERAL MESSAGE (ICS-213)

1. Incident Name (optional):		
2. To (Name and Position):	EOC	ARES
3. From (Name and Position):	ARES	RADIO RECEPTION CENTER
4. Subject :	RADIO RECEPTION CENTER 100	5. Date : 6. Time 14:36 08/11/2014
7. Message :		
<p>THIS IS A DRILL MESSAGE</p> <p>SHADES OF GREEN MILITARY RESORT HAS SET UP A RECEPTION CENTER FOR MILITARY RETIREES, DEPENDENTS AND ACTIVE DUTY DISPLACED BY THE STORM. LOCATION IS 1950 MAGNOLIA PALM DRIVE, LAKE BUENA VISTA. THEY CAN SEND A BUS TO PICK IF NEEDED.</p> <p>THIS IS A DRILL MESSAGE</p>		
8. Approved by: Name :	ARES	Signature : _____ Position/Title :
9. Reply :		
10. Replied by: Name :	Position/Title :	Signature: _____
ICS-213	Date/Time :	

GENERAL MESSAGE (ICS-213)

1. Incident Name (optional):	
2. To (Name and Position): YORK HOSPITAL	
3. From (Name and Position): Gettysburg Reception Center	
4. Subject : Medications requested	5. Date : 2014-03 6. Time 1505L -11
7. Message :	
THIS IS A DRILL	
Medications are needed at the Gettysburg Reception Center. Gettysburg Hospital is in short supply of medications and the medical staff at Gettysburg reception center are requesting the following. Can York Hospital assist?	
Adenosine - 30 mg Albuterol - 10 mg Aspirin - 325 mg chewable Atropine Sulfate - 6 mg Multi-dose Vial of Atropine - 8 mg Atrovent (Ipratropium) - 500 ug Benzocaine -multi-dose spray bottle Calcium chloride - 2 gm Captopril - 25 mg Dextrose 50% - 50 gm Diltiazem - 50 mg Diphenhydramine (Benadryl) - 50 mg Dopamine - 400 mg 25 Epinephrine 1:10,000 - 6 mg Epinephrine 1:1,000 - 3 mg Furosemide (Lasix) - 80 mg Glucagon - 1 mg each Haloperidol (Haldol) - 10 mg Lidocaine 2% - 600 mg Midazolam - 20 mg 26 Morphine Sulfate - 20 mg 26 Naloxone (Narcan) - 5 mg nebulizers Ondansetron (Zofran) - 16 mg Saline bullets (for nebulizer) Nitroglycerin - Spray/ Tab Nitro Paste and applicator - 1 gm Sodium Bicarbonate - 150 mEq Terbutaline - 1 mg Succinylcholine - 200 mg Vecuronium - 10 mg Etomidate - 40 mg 1 cc syringes 3-5 cc syringes 18 or 19 g blunt needles 21 g needles (minimum size 1 1/2 in.) 10 cc syringes THIS IS A DRILL	
8. Approved by: Name : Brian Koenig	Signature : _____ Position/Title : RADO
9. Reply :	

fdigi - WA3USG

File Op Mode Configure View Logbook Help

Spot RxID TxID TUNE

```

... start
[WRAP:begin][WRAP:fn][WRAP:fn MEDS_DEMO.213]<fmsg> 2.0.6
:hdr_fm:22
WA3USG 20161004000957
:hdr_ed:22
WA3USG 20132810123252
<ics213>
:to:27 Gettysburg Reception Center
:fm:13 YORK HOSPITAL
:d1:10 2013-10-28
:t1:5 0831L
:sb:21 Medications requested
:s1:12 Brian Koenig
:p3:5 RADIO
:mg:1165 THIS IS A DRILL

```

Medications are needed at the Gettysburg Reception Center. Gettysburg Hospital is in short supply of medications and the medical staff at Gettysburg reception center are requesting the following. Can York Hospital assist?

- Adenosine - 30 mg
- Albuterol - 10 mg
- Aspirin - 325 mg chewable
- Atropine Sulfate - 6 mg Multi-dose
- Vial of Atropine - 8 mg
- Atrovent (Ipratropium) - 500 ug
- Benzocaine -multi-dose spray bottle
- Calcium chloride - 2 gm
- Captopril - 25 mg
- Dextrose 50% - 50 gm
- Diltiazem - 50 mg
- Diphenhydramine (Benadryl) - 50 mg
- Dopamine - 400 mg 25
- Epinephrine 1:10,000 - 6 mg
- Epinephrine 1:1,000 - 3 mg
- Furosemide (Lasix) - 80 mg
- Glucagon - 1 mg each
- Haloperidol (Haldol) - 10 mg
- Lidocaine 2% - 600 mg
- Midazolam - 20 mg 26
- Morphine Sulf

Transmitted data appears in this upper window

FLMSG: 2.0.6

File Form Template Config AutoSend Help

ICS-213 report file: MEDS_DEMO.213

Originator Responder

To Gettysburg Reception Center Pos.

Fm YORK HOSPITAL Pos.

Sub Medications requested

Date 2013-10-28 Time 0831L

Message

Medications are needed at the Gettysburg Reception Center. Gettysburg Hospital is in short supply of medications and the medical staff at Gettysburg reception center are requesting the following. Can York Hospital assist?

Adenosine - 30 mg
 Albuterol - 10 mg
 Aspirin - 325 mg chewable
 Atropine Sulfate - 6 mg Multi-dose
 Vial of Atropine - 8 mg
 Atrovent (Ipratropium) - 500 ug

Sig Brian Koenig Pos RADIO

base64 MT63-2KL 1482 bytes / 1 m 19 s

Received data would appear in this lower window.

Output data waveform

THE BSA AND AMATEUR RADIO- ITS NOT WHAT YOU THINK!



Don Kunst, EMT-P Tactical, BSIT, ASM T151, W3LNE

SCTF Medical Strike Team

and

Incident Management Team (IMT) Logistics, COM-T

and

Vice President of K2BSA Amateur Radio Association

JOTA National Committee Chairman



Who am I, many hats

- ▣ 40 years Emergency Services- EMS, Fire
- ▣ Flight, SWAT, Capt. Medic
- ▣ SCTF Med Strike Team, IMT, COMT, ARWG
- ▣ Amateur Extra, VE, Races, AuxCom
- ▣ ARRL Emergency Comms Level 1
- ▣ Asst. Scout Master, VP of K2BSA
- ▣ National Jamboree Medic 2010, 2013
50 K attendance
- ▣ 4 High Adventure Bases



Who are you ?

Amateur Operator- Ham ?

Scout Leader, former Scout ?

Both or Neither ?



Amateur Radio and Scouting

A brief overview of capabilities

5/16/2016

BSA and Amateur Radio- It's Not What You Think!

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**A partnership that will
create the responders,
tele-communicators,
planners, technology
experts and leaders of
tomorrow!**



BUT.....

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Is this the image you have of Ham Radio

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Outdated, and Out of Touch?



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Or this



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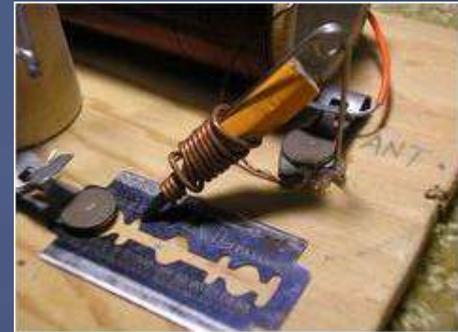


AR
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Radios you grew up with?



Galena Cats whisker



Fox Hole Crystal Radio



Oatmeal tube crystal radio



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Is this your image of Scouting?

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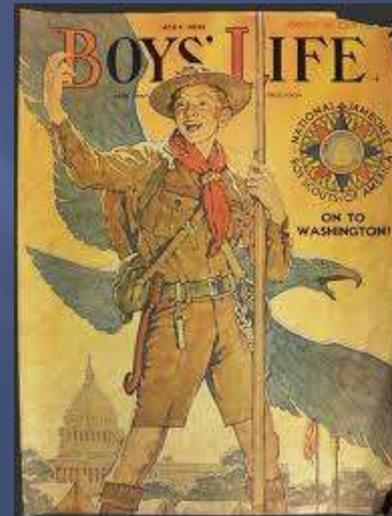
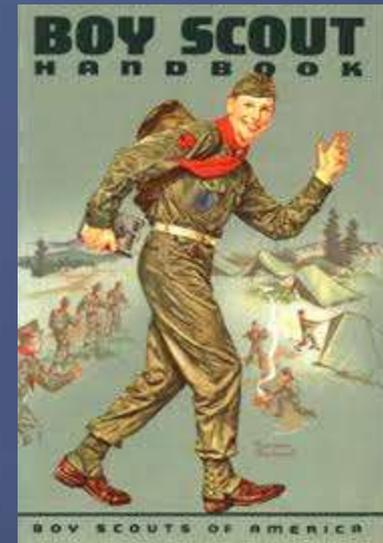
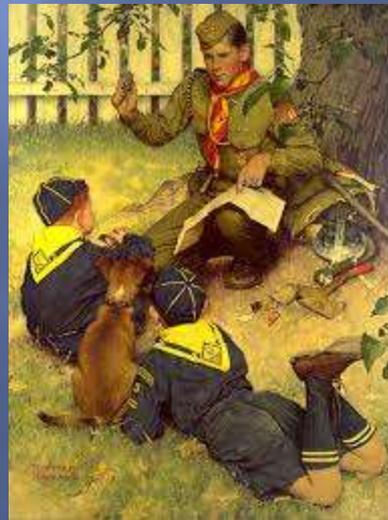
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Guys in the woods



A throwback to yesterday



and Out of touch



Lets take a Deeper Look at Amateur Radio today

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AR Disaster Response

- ▣ Titanic SOS
- ▣ September 11, 2001- World Trade Center
- ▣ 2003 North East Blackout
- ▣ 2004 Hurricane Francis- Bahamas on site
- ▣ 2004 Indian Ocean Tsunami
- ▣ 2005 Hurricane Katrina-1,000 Hams deployed, highlighted in Congressional hearings, **“One of the few things that went right”**
- ▣ 2008 Sichuan China Earthquake and Hurricane Ike
- ▣ 2013 Boston Marathon Bombing- tent at the site of the bombing



Numbers

- 700,000 in the United States
- 2.6 million worldwide
- Every Country but Yemen and North Korea



Amateur Radio Capabilities

- ▣ 26 “Amateur Radio” bands set aside by FCC
- ▣ 1.8 MHz to 275 Ghz
- ▣ Multi-mode – analog, digital V/D, image, text/data, Internet
- ▣ Technician, General, Extra- Licenses
- ▣ When nothing else gets through, Ham radio will
- ▣ Typically own gear and own expense and time
- ▣ Innovators- repeaters, digital, satellite, EME



Amateur Radio Capabilites

- ▣ Email with out internet to outside
- ▣ Data without internet to outside
- ▣ Bring own antennas, equipment, trouble shooters
- ▣ Backup operators outside area
- ▣ ARES operators background checked
- ▣ Know how to send receive messages
- ▣ Licensed by FCC, Part 97



What is Amateur Radio

- ▣ Not dependent on terrestrial systems
 - Can be point to point
- ▣ Dispersed through out a community, they may be on-scene before you
- ▣ Experienced in improvising antennas, most equipment 12V DC powered
- ▣ Use to operating on the fly
- ▣ Have hundreds of frequencies to talk locally and nationally



What is a Amateur Radio Operator (HAMs)

- ▣ FCC- tested
- ▣ Volunteer
 - ARES
 - RACES
 - CERT
 - SkyWarn
- ▣ Most with Technical Background
- ▣ Many are COMTs
- ▣ Probably your neighbor



This is Amateur Radio today



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State of the Art



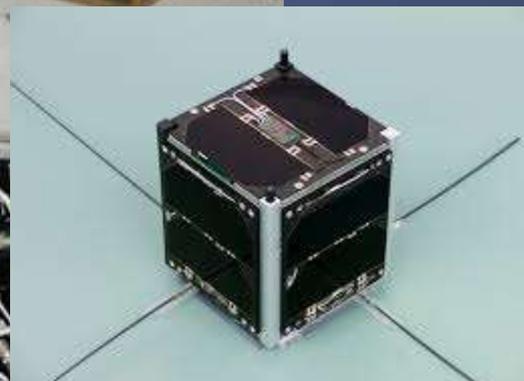
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Ham radio On ISS- Satellites

KF5BOC Doug Wheelock, Expedition 5 ISS Commander



ISS024E013398

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Last Man Standing



[photo: John Amodeo, NN6JA]

KK6OTD

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and Old School in the field....



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Contributions of Amateur Radio

- 1923- Transatlantic contacts begin
- 1941- Key role in WWII
- 1961- First Amateur satellite in orbit, OSCAR built by Amateurs
- 1982 Falklands war only connection on parts of island
- 1980- Repeaters proliferate leading to cell phone technologies
- 1980s- Packet radio begins
- 1990s- Computers begin to be used for signal processing for digital and SDR (software defined radio)



Practice makes perfect

- Field Day
- Contesting
- Nets
- World Radio Day
- Marathons
- Storm Warning- Sky Warn
- SAR
- Marine nets



Amateur Radio is Everywhere

- ▣ Parades
- ▣ Horse rides
- ▣ Marathons
 - Boston
 - Marine Corps, Washington DC
- ▣ Shuttle disaster
- ▣ Lost airplanes
- ▣ Search and Rescue



A Deeper Look at Scouting



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Scouting Numbers

- 2.7 million in the United States
- 1 million Leaders
- 28 million world wide
- 216 Countries



Scouting History 1908

- After the Pearl Harbor attack, Scouts set up first-aid and emergency stations and manned 58 air-raid sirens
- Accompanied Admiral Byrd to Antarctica
- Of the 12 men who walked on moon 11 were Scouts
- 181 Astronauts 57%, were Scouts
- At World Trade Center collected 153,000 water bottles
- 288 million volunteer hours a year



What are the capabilities?

- ▣ Organized
- ▣ Leadership Structure
- ▣ Able to operate in austere environments
- ▣ Credibility- background checks
- ▣ Large personnel base
- ▣ Dispersed though out the country



Large event planning

Local Camporees- 3,000
participants

National Jamboree- 50,000
participants

JOTA/JOTI- International-
700,000 participants



Core Values

- Citizenship
- Leadership
- Youth Development



Focusing on
Science
Technology
Engineering
Math



Related MBs- 74 of 136

- ▣ Astronomy
- ▣ Automotive Maintenance
- ▣ **Aviation**
- ▣ Backpacking
- ▣ Camping
- ▣ Canoeing
- ▣ Chemistry
- ▣ Chess
- ▣ Citizenship in the Community
- ▣ Citizenship in the Nation
- ▣ Citizenship in the World
- ▣ Climbing
- ▣ Communication
- ▣ Composite Materials
- ▣ Crime Prevention
- ▣ **Digital Technology**
- ▣ Disabilities Awareness
- ▣ Dog Care
- ▣ **Electricity**
- ▣ **Electronics**



Related MBs 74, cont.

- ▣ **Emergency Preparedness**
- ▣ Energy
- ▣ Engineering
- ▣ Environmental Science
- ▣ Farm Mechanics
- ▣ Fingerprinting
- ▣ **Fire Safety**
- ▣ **First Aid**
- ▣ Forestry
- ▣ **Geocaching**
- ▣ Geology
- ▣ Hiking
- ▣ Home Repairs
- ▣ Horsemanship
- ▣ Kayaking
- ▣ Law
- ▣ Lifesaving
- ▣ Medicine
- ▣ Metalwork
- ▣ Mining in Society



Related MBs 74, cont.

- ▣ Model Design and Building
- ▣ Motor boating
- ▣ Moviemaking
- ▣ Nuclear Science
- ▣ Oceanography
- ▣ Orienteering
- ▣ Personal Fitness
- ▣ Photography
- ▣ Pioneering
- ▣ Plumbing
- ▣ **Programming**
- ▣ **Public Health**
- ▣ Public Speaking
- ▣ **Radio**
- ▣ Rifle Shooting
- ▣ **Robotics**
- ▣ **Safety**
- ▣ Scuba Diving
- ▣ **Search & Rescue**
- ▣ **Signs, Signals, and Codes**

Related MBs 74, cont.

- ▣ Small-Boat Sailing
- ▣ Snow Sports
- ▣ **Space Exploration**
- ▣ Surveying
- ▣ Sustainability
- ▣ Swimming
- ▣ **Traffic Safety**
- ▣ Truck Transportation
- ▣ Veterinary Medicine
- ▣ **Weather**
- ▣ Welding
- ▣ Whitewater
- ▣ **Wilderness Survival**
- ▣ Woodwork

What does all this mean?

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Two capable organizations

AMATEUR RADIO

- ▣ Community Based
- ▣ Technology oriented
- ▣ Emergency Oriented
- ▣ Technology advancement
- ▣ Service

SCOUTING

- ▣ Community Based
- ▣ Leadership skills
- ▣ MBs =Broad Based
- ▣ Response capabilities
- ▣ Citizenship/Service
- ▣ First Aid Trained

= Capable Responders, Communicators, Tech Specialist



Come together in the form of Radio Scouting



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WWW.K2BSA.NET

- Clearing house of information
- Resource Center
- Supports the Local Level Event
- Support National Events
 - National Jamboree- 50 K
 - Special Event Stations K2BSA/3
 - JOTA- jamboree on the Air- 700K
 - JOTI- Jamboree on the Internet



What can you do?

Get involved with Amateur Radio
or Scouting or maybe both

- Support events
- Get licensed
- Join Scouting
- Teach classes
- Integrate into your exercises



Questions



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Thank you for your attention

Please contact me at Don Kunst W3LNE@ARRL.NET

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Links

[Amateur Radio Saved New Orleans](#)

<https://www.youtube.com/watch?v=7ZihufrqNog>

[Amateur radio Overview](#)

<https://www.youtube.com/watch?v=bcfJUjcSEz8>

Robert Gates on Scouting

https://www.youtube.com/watch?v=HX_S_5NTI80

We are Scouting

<https://www.youtube.com/watch?v=7qvSJyeGZmM&list=PLC71DC26FD66AB6A0&index=35>



Planning as a Recovery Tool

A Whole Community Approach



Importance of Partnerships

- Exploring the Role of the Volunteer Management Coordinator
- Engaging the Whole Community
- Lessons Learned from Creating a Long-Term Recovery Committee without a Disaster



Phases of a Disaster



We must turn...

Chaos, Confusion, and Crisis



**INTO... COOPERATION,
COMMUNICATION, COORDINATION,
AND COLLABORATION**

Importance of Personal Experience

Streets of Philadelphia following the August 2011 Virginia Earthquake



<http://usatoday30.usatoday.com/tech/news/story/2011-08-23/Post-quake-West-teases-East-on-social-networks/50110768/1>

Second Only to Alaska



West Nickel Mines School Lancaster County



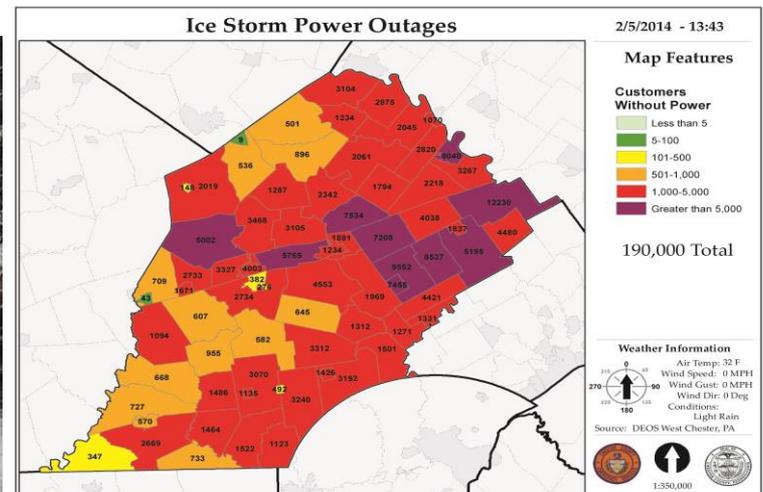
Article & Photo Credit:

<http://www.jems.com/article/major-incidents/west-nickel-mines-school-shoot>

Volunteer Management Coordinators & 2011 Weather Events



Ice Storm Niko: 2014



*Risk = Hazard * (Vulnerability – Resources)*



Photo by Rob Phillips

In Chester County, the 2 greatest hazards are fire and flooding.

Challenge: Limit Vulnerability & Increase Resources



Business Continuity Workshops

- Initially a project of the Functional Needs Subcommittee
- Utilized local business continuity experts
- Coordinated with the United Way of Chester County
- Incorporated into local grant requirements

Drexel School of Public Policy White Paper

<http://unitedforimpact.org/uploads/about/publications-and-reports/HSA-White-Paper.pdf>

SEPA VOAD Symposium: June 2014

<http://www.sepavoad.com/#!sepa-symposium-2014/c12gj>

Emergency Network of Los Angeles

<http://enla.org/wp-content/uploads/2011/06/Non-Profits-Continuity-and-Recovery-Plan.pdf>

Faith-Based Breakfast Series

- **October 2013: Explore How Faith-Based Organizations Can Better Weather the Storm**
- **April 2014: Community Conversation: Ice Storm 2014**
- **October 2014: Learn how you can tie Emergency Preparedness to everyday activities, and why it is important to prepare all year long.**

Rethinking Approach to Engaging with Faith-Based Partners

Chester County Faith Community Health Ministries

Faith Leaders Gathering

Speed Networking Event

Pennsylvania Disaster Spiritual Care Network

www.pdscn.org

Development & Implementation of Comfort Centers

Long-Term Recovery Committee (without a disaster)

- Conversation started in 2011
- Reinforced following Super Storm Sandy
- Launched November 2013 with the assistance of LDR and SEPA VOAD
- Bylaws adopted March 2014
- Membership Applications Accepted & Steering Committee Formed: May 2014
- 2016 Update: www.chescostrong.org

Need Additional Information?



Any Questions?

Janet Zeis

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610 344-5014

Chester County DES

www.chesco.org/des

www.facebook.com/CCDES

@CCDES (Twitter)