

Sussex County Delaware
Amateur Radio Emergency Service



Sussex County ARES

Countywide Hospital Drill

After Action Report Improvement Plan

Executive Summary:

On August 26, 2023 Sussex County ARES executed a quarterly drill to test and exercise the amateur radio stations located at three Beebe Healthcare Facilities. These stations were located at BBMC Lewes, BBMC South Coastal and BBMC Rehoboth Surgical. In addition to the Beebe Stations, TidalHealth Nanticoke, the Sussex County Emergency Operations Center and individual radio operators' home stations also participated.

The goals of the drill were to test several communications methods testing connectivity throughout Sussex County simulating a communications outage. Tested were each of the hospital stations' ability to connect to other stations (see complete list below). The tested connections were done using several voice radio repeaters located within Sussex County, voice using several simplex frequencies (station to station without the aid of a radio repeater) and the ability to connect with other stations using the WinLink Global Email over Radio digital messaging system to transfer emails via radio.

Additionally stations were tasked to photograph their stations (Beebe Facilities only) during setup and use, evacuation wall map, coax connections, provide notes on setup, etc. to provide data for each facility Operations Manual. Each station had three documents to complete and submit at the end of the drill. These documents were the ICS-214 Activity Log, ICS-309 Communications Log (completed via RMS Express) and a spreadsheet noting how well stations were heard via the methods mentioned above.

Participants per facilities:

Net Control Station located in Milton: 1
ARES Assistant Emergency Coordinator: Jim Baker, N3XKJ

TidalHealth Nanticoke Hospital: 6
Team Lead: Pat Ryan, KW3Z

Team Members: Dan, N3WYN
Keith, N3SVB
Bill, KG4MBP
Dave, KB3JBQ
Rod, N3KNT

BBMC - Lewes: 2
Team Members: Bob, K3GHY
Fran, K3TCO

BBMC - Rehoboth Surgical: 3
Team Lead: Steven Keller, KC3DSO
Team Members: Joe, KK3JOE
Lorrie, KC2CHA

BBMC South Coastal: 1
Team Lead: Butch Wlaschin, WA0CIE

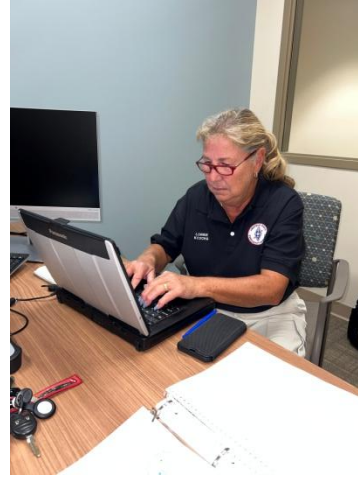
Sussex County Emergency Operations Center – Georgetown: 2
Team Lead: Bill Saunders, N3ID, AUXL
Team Members: Barbara, KC3LGE

Individual Radio Operators: 3
Don, W3DCS – Lincoln
Steve, KC3SFC – Lewes
Wayne, N3UFG - Dagsboro

Total Participants: 18



Joe Kash, KK3JOE, operating voice via a FT-991A at BBMC Rehoboth Surgical



Lorrie Morrow, KC2CHA, maintaining the BBMC Rehoboth Surgical ICS-214 and logging spreadsheet.

Objectives:

- Setup and test equipment in assigned facilities – verify function
- Communicate via several voice radio repeaters
- Communicate via simplex to other stations
- Use RMS Express to send and receive data Peer to Peer (Station to station)
- Maintain detailed notes of station operation to update the current Operations Manual
- Record all contact data via a spreadsheet for future connectivity operations map
- Provide points for an improvement plan derived from station operation

All of the above objectives were met successfully by most stations and exposed objectives requiring attention. All stations were able to contact other stations via most of the tested repeaters within Sussex County. The repeaters tested are listed in the Sussex County ARES ICS-217 and are listed as the five main repeaters for use during an incident. These repeaters were:

- 147.090 repeater located in Millsboro
- 145.715 repeater located in Seaford
- 145.210 repeater located in Nanticoke
- 145.310 repeater located in Georgetown
- 443.200 repeater located in Mt. Joy (ACS)

All repeaters functioned correctly and most stations were able to use all of the repeaters. All stations except BBMC Lewes were able to use all of the repeaters had connectivity issues using both the radio repeaters and simplex modes and was not able to use some radio repeaters in SW Sussex County or . This is due to the compromised location of the antenna. All stations were tested using 'simplex' (station to station) without the use of a radio repeater. These tests exposed several issues with some stations. BBMC Lewes was unable to successfully connect directly with several stations directly in SW Sussex

County via radio repeater and unable to connect to several stations in southern Sussex County. This included both BBMC Rehoboth and BBMC South Coastal. This is due to the location of the antenna at BBMC Lewes being at a compromised location.

Results:

- Test results were similar to the test performed in 2021
- Voice communications through radio repeaters were limited by some stations due to station conditions.
- Voice communications via simplex (station to station) were limited by some stations due to station conditions.
- Lacking a dedicated Digital Net Control Station is apparent.

Major Strengths:

- Voice communications were successful over the main repeater in the county
- Stations that had issues with radios or computers were able to troubleshoot and solve issues
- All radio traffic was professionally handled with stations using proper radio procedures
- Setup of all Beebe Stations were done properly with no noted issues
- The operators' knowledge of RF gear is apparent as troubleshooting was quickly done.
- Net Control Station (NCS) not being on site was a big plus

Primary Areas of Improvement:

- Lack of a dedicated Digital Net Control Station (DNCS). A DNCS is able to direct traffic to grossly reduce stations repeated connection attempts causing packet collisions.
- Continual training via exercises and drills are required to maintain a good working knowledge of the digital messaging system WinLink.
- More training needs to be completed sending Peer to Peer Messages via RMS Express.
- Clear RF gaps created issues for stations to send P2P within the county. Relays will need to be employed until items are resolved.
- Operators need additional training on creating and saving ICS-214's and creating an ICS-309 Via RMS Express.
- The use of the Winlink ACK feature should be addressed. These small but numerous messages created considerable additional traffic over an existing busy packet network. Additional Peer to Peer frequencies should be listed and used as needed.
- Creation of a Standard Operating Procedure in cooperation with the hospital Emergency Management Staff will provide a flow chart guide for the handling of digital traffic. This will provide a list of tasks to be performed and tested.
- Adding High Speed Vara FM in both Peer to Peer and WinLink (using a Gateway) would grossly reduce transmit times for digital messages and would provide an additional path for traffic reducing packet collisions and time

- At the time of the drill a standard frequency list was not available. This has been corrected as of the writing of this report. All hospital station radios will be updated.
- Continued training on the radio equipment installed at each station. This was shown with newer team members who were unfamiliar or have forgotten how to use the radios.

Facility Improvement: Recommended Improvement BBMC Lewes:

- Recommended a second VHF/UHF (tri-band) antenna be installed to assist in both voice and data communications. This antenna should be installed at the highest possible point with a best gain antenna possible. The current antenna should not be removed.
- Although not playing a part in the drill, the N3KNT-11 VHF WinLink gateway on the roof of the BBMC Lewes facility was not in operation. This gateway allows digital data to be easily “repeated” to a remote station as needed. This gateway has been repaired as of the date of this report. The directional antenna at this digital station needs to be replaced as it’s appears to be damaged.

Participant AAR's:

Participants were asked to submit After Action Reports along with the noted ICS forms. These documents provided valuable input from an operators perspective. The data provided in these AAR's are reflected in this report.

Conclusion:

The exercise was overall a success. All stations, including non Beebe Facilities, were able to make contact with other stations in the county. A dedicated DNCS should be considered moving forward to reduce data transfer time and reduce packet collisions. Additional continued training in familiarizing newer radio operators with stations equipment and WinLink operations is needed. All participants were able to participate in various hospital radio operations providing clear benefit of experience.

This report is submitted by Steven Keller, KC3DSO
Beebe Medical Center ARES Coordinator