Pinellas County
Hurricane Amaranth Exercise
ACS After-Action Report and Improvement Plan

31 May 2022   Revision REV (-)

Abstract

This After-Action Report and Improvement Plan (AAR/IP) documents the outcomes and recommended corrective actions resulting from the ACS component of the Pinellas County Hurricane Amaranth Exercise.

Michael Drake
WA1RYQ

Homeland Security Exercise and Evaluation Program (HSEEP)

FOREWORD

The *Pinellas County Hurricane Amaranth Exercise – ACS After-Action Report and Improvement Plan* documents the outcomes and recommended corrective actions resulting from the Auxiliary Communications Service (ACS) component of the Pinellas County Hurricane Amaranth Exercise.

The document is divided into five sections.

Section 1. Exercise Overview

Section 2. Applicable Documents

Section 3. Analysis of Capabilities

Section 4. Improvement Plan

Section 5. Acronyms and Abbreviations

Comments, suggestions, or questions on this document should be addressed to Michael Drake, WA1RYQ, email: WA1RYQ@arrl.net.

ARES® (Amateur Radio Emergency Service®) is a program of, and both logos are registered trademarks of the American Radio Relay League, Incorporated.

Record of Changes

REVISION	DESCRIPTION	DATE
DRAFT REV (-)	Initial Release	5/15/2022
DRAFT REV (A)	• Corrected minor formatting and spelling issues • Updated section 5, Acronyms and abbreviation. Scrubbed document for first use. • Added Creative Commons copyright. • Moved definition of performance measures to a location before Table I. • Completed updating section 4, Improvement Plan. • Updated page header to include ACS in title. • Added a Legend to each page of Table I.	5/19/2022
REV (-)	• Updated Table I with final event score. • Added an area of improvement to ECT2 and ECT3, Net Control Log. • Added an area of improvement to DCT5 – Municipality connectivity testing via VHF Amateur radio. • Updated Improvement plan to incorporate new ECT2, ECT3, and DCT5 improvement areas. • Updated section 1.1.3 to add summary of VHF amateur radio municipality connectivity testing.	5/31/2022

1   EXERCISE OVERVIEW

The *Pinellas County Hurricane Amaranth Exercise – ACS After-Action Report and Improvement Plan* documents the outcomes and recommended corrective actions resulting from the ACS component of the Pinellas County Hurricane Amaranth Exercise. For detailed exercise planning and execution information refer to the documentation set identified in section 2.1.

Exercise Name	**Hurricane Amaranth Exercise**
Exercise Dates	May 1st, May 2nd, and May 3rd 2022
Scope	This exercise will evaluate the multi-agency and multi-jurisdictional communications objectives and critical tasks performed by Pinellas ACS during the activation of the Pinellas County Emergency Operations Center (EOC) during the approach, landfall, and aftermath of a tropical cyclone. The exercise will be divided into three operational periods.
Focus Area(s)	Response
Capabilities	Operational Communications
Objectives	1. During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will establish and maintain voice Very High Frequency (VHF) radio networks that support the exchange of information between the EOC and simulated emergency evacuation shelters. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures. 2. During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS Radio Operators (RADO)s located at the EOC will exchange tactical and formal message traffic with Pinellas ACS RADOs located at simulated emergency evacuation shelters using voice VHF radio networks. Each message exchange will be conducted in accordance with ACS standard operating procedures.

Exercise Name	Hurricane Amaranth Exercise
Objectives	3. During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS will establish and maintain VHF/Ultra High Frequency (UHF) radio and telephonic voice landline networks that support resource management and tactical message exchanges between Pinellas County municipalities, deployed ACS resources, and the Pinellas County EOC. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures. 4. During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS RADOs located at the EOC will exchange tactical and formal message traffic with the state of Florida EOC using amateur voice and Winlink digital radio networks; SHARES voice and SHARES Winlink digital radio networks; and EMnet, MSAT, and TracStar voice satellite networks. Each message exchange will be conducted in accordance with ACS standard operating procedures. 5. During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will emplace, configure, operate, and maintain deployable satellite ground stations that provide high speed internet, cellular phone, and Voice over Internet Protocol (VoIP) phone services to collocated emergency management personnel. Resource deployment, equipment operation, and demobilization will be performed in accordance with ACS standard operating procedures. 6. During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will emplace, configure, and maintain deployable Communications Command Centers that can support High Frequency (HF), VHF, UHF amateur radio voice and data networks; SHARES voice and data networks; 700 and 800 MHz public safety networks, and maritime VHF radio communications. Resource deployment, equipment operation, and demobilization will be performed in accordance with ACS standard operating procedures.

Exercise Name	Hurricane Amaranth Exercise
Objectives	7. During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will emplace, configure, and maintain deployable Communications Command Centers that support high speed ethernet and Wi-Fi internet service; and VoIP telephone service to co-located emergency management personnel by using a commercially available cellular service Wide Area Network (WAN) backhaul capability. Resource deployment, equipment operation, and demobilization will be performed in accordance with ACS standard operating procedures. 8. During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS RADOs located at deployable Incident Communication Centers (ICC)s will establish and maintain VHF/UHF amateur radio and 800 MHz Public Safety voice and data networks that support resource management and tactical message exchanges between deployed ACS resources, Pinellas County municipalities, and the Pinellas County EOC. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures.
Threat/Hazard	Hurricane
Scenario	On May 2, 2022, a cold front moves over the southern Gulf of Mexico. A tropical depression forms, later becoming Tropical Storm Amaranth. The storm strengthens modestly over the next few days, and on May 6, 2022, Hurricane Amaranth makes landfall in Pinellas County as a Category 2 hurricane with winds of 100 mph and surge of 6 – 8 ft.
Sponsor	Pinellas County Department of Emergency Management (DEM)
Participating Organizations	Pinellas County Auxiliary Communication Service.
Point of Contact	Clayton Parrott PMP, FPEM Pinellas County ACS/ARES EC- RO Phone (727) 464-4526 Cell: (727) 647-2388 cparrott@pinellascounty.org

1.1 SUMMARY OF EXERCISE ACTIVITIES AND OUTCOMES

This section of the document details the significant events, activities, and outcomes that took place during the exercise.

1.1.1 Participation

Twenty-three individuals participated in the exercise.

    a.   Nineteen of the twenty-three participants were assigned to the exercise venues. These venues consisted of six simulated emergency evacuation shelters, two Incident Communications Centers, and the EOC radio room. All the exercise venues were located on the Pinellas County Public Safety Complex.

    b.   Two participants served as general exercise controllers.

    c.   Two Pinellas County risk management team members participated as safety controllers/evaluators.

1.1.2 Message Processing

One major objective of the exercise was to demonstrate our ability to exchange both formal and informal message traffic. ACS demonstrated this objective by exchanging *Twenty-nine* messages between the EOC radio room, the emergency evacuation shelters, the ICCs, and the state of Florida Watch Office.

    a.   *Twenty-three* messages were exchanged during operational period two.

        (1)   Ten informal messages.

        (2)   Ten formal ICS 213 messages were exchanged using a voice net.

        (3)   Three formal ICS 213 messages passed via Winlink.

    b.   An additional *Six* messages were exchanged during operational period three.

        (1)   Three formal Winlink ICS 213 messages were sent to the state of Florida Watch Office. One message was sent via telnet, one using HF Amateur

radio and a Pactor modem, and the third using an HF SHARES system and
a Pactor modem.

(2)   All three messages sent to the state of Florida Watch Office were
acknowledged. The state of Florida Watch Office responded with
informal Winlink messages sent to the Pinellas County EOC.

1.1.3 Pinellas County Municipality Communication Tests

Another major objective was to perform connectivity tests with the twenty-nine Pinellas County
Municipalities. The ICC teams were able to contact **Twenty** of the **Twenty-nine** Pinellas County
municipalities by using VoIP phone and/or the county's 800MHz P25 radio system. The ICC
teams were only able to contact via VHF amateur radio **one** of the **twelve** municipalities
documented as also having an amateur radio capability.

The ICC teams uncovered several discrepancies in the municipality contact list that the county
will work to resolve.

1.1.4 State of Florida Communication Tests

During operational Period Three, 1500 to 1730, the EOC team performed connectivity tests
with the state of Florida Watch Office.

a.   The team successfully contacted the state of Florida EOC using both the ***MSAT
Satellite*** and Statewide Law Enforcement Radio System (***SLERS***) systems. As
previously mentioned, the EOC team was able to exchange information with the
state using three different Winlink modes.

b.   The EOC team found that the ***EMnet*** satellite system at the state of Florida EOC
location was inoperative. The EOC team was able to demonstrate that the
Pinellas County site was operational by performing an Echo test with the ***EMnet***
satellite system tech support team.

c.   The EOC team successfully deployed the ***TracStar*** antenna system on the roof the Public Safety Complex; however, it was unable to acquire the satellite. After contacting the ***TracStar*** customer support staff it was determined that several software upgrades were needed to the Pinellas County System and this issue is currently being worked to resolution.

1.1.5 Logistics

All equipment used in the exercise, except for individual hand-held transceivers, was distributed to the players by Pinellas County and returned without shortfalls after the exercise. A few logistics problems were encountered during operational period two.

a.   When unpacking one of the shelter radio kits at a simulated shelter, the shelter team found that the kit was missing a radio power cable. Once notified of the shortfall, a replacement cable was delivered to the impacted shelter.

b.   Upon arrival at the simulated shelter locations, three shelter teams found that the Alternating Current (AC) power was inoperative. Once notified of the problem, an electrician was called to repair the problem. The impacted shelter teams made use of available hand-held transceivers (HT) to continue the mission and exchange traffic with the EOC.

It's important to note that these were unscripted problems. However, they are the type of real-world problems ACS is likely to encounter during a deployment. In each case, the shelter teams were able to seamlessly fall back to a casualty mode and continue to perform their missions.

2 APPLICABLE DOCUMENTS

2.1 RELATED DOCUMENTS

The following documents were used to plan, execute, and evaluate the exercise.

a. Pinellas County Hurricane Amaranth Exercise – Exercise Plan, March 22nd, 2022

b. Pinellas County Hurricane Amaranth Exercise – ACS Exercise Plan, April 28th, 2022

c. Pinellas County Hurricane Amaranth Exercise – ACS Exercise Evaluation Guide (EEG) for EOC Radio Room, April 28th, 2022

d. Pinellas County Hurricane Amaranth Exercise – ACS Exercise Evaluation Guide (EEG) for Evacuation Shelters, April 28th, 2022

e. Pinellas County Hurricane Amaranth Exercise – ACS Exercise Evaluation Guide (EEG) for Incident Communication Center, April 28th, 2022

f. Pinellas County Hurricane Amaranth Exercise – ACS Master Scenario Event List (MSEL), May 2nd, 2022

g. Pinellas County Hurricane Amaranth Exercise – ACS After-Action Report and Improvement Plan – Appendix A (Exercise Artifacts), May 15th, 2022

2.2 REFERENCE DOCUMENTS

The following documents were used as standards for evaluating performance.

a. Pinellas County ACS/ARES® Emergency Communications Plan and Standard Operating Procedure, Rev(A), Feb 15th, 2022

b. Pinellas County ACS/ARES® Winlink Training Plan; Rev (-)

3   ANALYSIS OF CAPABILITIES

Table I identifies the exercise objectives, aligned capability targets, and performance ratings for each capability as observed during the exercise and determined by the evaluation team. The critical tasks associated with each capability target are detailed in the EEGs identified in section 2.1 of this document.

The Exercise Objective (**EO**) and Capability Target (**CT**) IDs shown in Table I uniquely identify each objective and capability target that was scheduled for evaluation during the exercise. Each ID has two component parts. The first character identifies the parent EEG from which the exercise objective and associated capability target was sourced and is assigned one of three values.

> a.   **E**: EOC Radio Room EEG
>
> b.   **S**: Emergency Evacuation Shelter EEG
>
> c.   **D**: Incident Communications Center (Deployable resource) EEG

The remaining three characters identify the Exercise Objective (**EO**), or Capability Target (**CT**) number assigned.
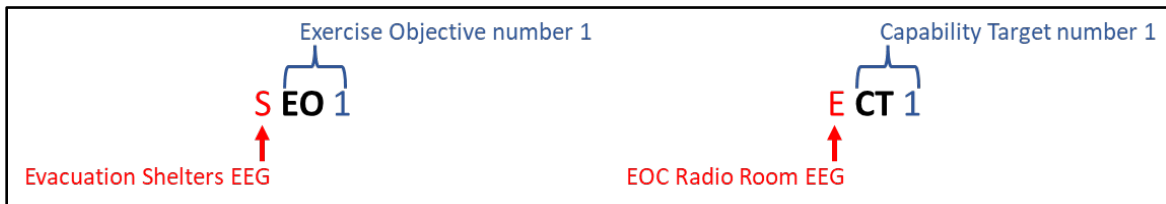

Figure 1. Exercise Objective and Capability Target IDs

The following performance rating definitions are used in this document.

a. **Performed without Challenges (P):** The targets and critical tasks associated with the capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.

b. **Performed with Some Challenges (S):** The targets and critical tasks associated with the capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.

c. **Performed with Major Challenges (M):** The targets and critical tasks associated with the capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.

d. **Unable to be Performed (U):** The targets and critical tasks associated with the capability were not performed in a manner that achieved the objective(s).

Table I. Exercise Performance Summary

Objective ID	Objective Title	Capability Target ID	Performance Rating		
			Shelter	EOC	ICC
SEO1, EEO1	Evacuation Shelters – Establish and Maintain VHF Communications	SCT1, ECT3	S	S	
		SCT2, ECT4	S	S	
		ECT8		S	
		SCT3	S		
SEO2, EEO4	Exchange Message Traffic Between EOC and Shelters (SEO2/EEO4)				
EEO2	Establish and Maintain County-Wide Communications (EEO2)	ECT1		S	
		ECT2		S	
EEO3	Establish and Maintain Communications with state of Florida EOC (EEO3)	ECT5		S	
		ECT6		S	
		ECT7		S	

P – No Challenges   **S** – Some Challenges   **M** – Major Challenges   **U** – Unsatisfactory

Table I. Exercise Performance Summary

Objective ID	Objective Title	Capability Target ID	Performance Rating		
			Shelter	EOC	ICC
DEO1	SatRunner™ CRD™ Emplacement and Configuration (DEO1)	DCT1			P
		DCT2			P
DEO2	CommandRunner™ CRD™ Emplacement and Radio Configuration (DEO2)	DCT3			P
		DCT8			S
DEO3	CommandRunner™ CRD™ Emplacement and Internet Configuration (DEO3)	DCT4			P
DEO4	CommandRunner™ CRD™ RF network establishment and Maintenance	DCT5			S

P – No Challenges　　　**S** – Some Challenges　　　**M** – Major Challenges　　　**U** – Unsatisfactory

The following sections provide an overview of the performance related to each exercise objective and associated capability target, highlighting strengths and areas for improvement.

3.1 EVACUATION SHELTERS – ESTABLISH AND MAINTAIN VHF COMMUNICATIONS (SEO1/EEO1)

During a simulated hurricane activation of the Pinellas County EOC, the Pinellas County ACS will establish and maintain voice and Winlink digital VHF radio networks that support the exchange of information between the EOC and simulated emergency evacuation shelters. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures.

The strengths and areas for improvement for each capability aligned to this objective are described in this section.

3.1.1 Organizational Capability Target (SCT1/ECT3)

Within 2 hours of ACS Activation, establish a VHF radio voice network that supports the exchange of information between *TBD* Pinellas County emergency evacuation shelters and the Pinellas County EOC. Network communications is maintained for the duration of a 72-hour incident.

3.1.1.1 Strengths

The partial capability level can be attributed to the following strengths.

    a. **Strength 1:** Each ACS member participating in the exercise acknowledged the receipt of the text and email alerts issued by the Everbridge system notified the ACS Radio Officer (RO) of his or her intent to participate in the exercise.

    b. **Strength 2:** Both the EOC radio room and deployed shelter teams exchanged informal message traffic accurately and without issue.

    c. **Strength 3:** When teams encountered shore power problems at several simulated emergency evacuation shelter sites, each team seamlessly

transitioned to a casualty mode that made use of personal HTs to continue mission requirements.

d.   **Strength 4:** Job aids containing the procedures used to develop and maintain ICS 214 site activity logs and ICS 309 site communication logs were provided to the EOC radio room and each shelter team.

e.   **Strength 5:** Job aids containing the procedures used to create radiograms and ICS 213 general messages were provided to the EOC radio room and each shelter team.

3.1.1.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The use of message precedence and handling instructions was not always consistent with established procedures.

   (1)   **Reference:** Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2)   **Analysis:** In some cases, the message handling instructions (HX) code "**E**" was mistaken for a message precedence field indicating EMERGENCY. This resulted in the incorrect use of the Test EMERGENCY precedence during message transactions.

b.   **Area for Improvement 2:** Message parameters and header information missing from ICS 309 communication logs.

   (1)   **Reference:** Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2)   **Analysis:** The exercise teams had the most difficulty with this form. A review of all the ICS 309s indicated several missing message transactions and missing message number and precedence information. Several

ICS 309 were used to record significant events unrelated to the exchange of specific message traffic. Also, block one through four and blocks six through eight were incomplete on several forms.

c. **Area for Improvement 3:** Significant events and header information missing from ICS 214 Site Activity logs.

   (1) **Reference:** Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2) **Analysis:** The exercise teams did a good job of documenting most significant events that took place during the exercise; however, in several cases, demobilization departure and arrival times; and power and cable related events were missing. Also, block one through six or block 8 was incomplete on several of the ICS 214s.

d. **Area for Improvement 4:** Formal message traffic was not always recorded on Radiogram forms or information recorded on Radiogram was incomplete.

   (1) **Reference:** Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2) **Analysis:** The message handling experience of the ACS RADOs deployed during the exercise varied widely. Only a few of the RADOs had experience passing formal message traffic on a regular basis. For most of the RADOs, this was one of the first opportunities they had to pass formal message traffic in a voice net. Even with limited experience, the required information was exchanged properly; however, the documentation was not always well maintained.

e. **Area for Improvement 5:** A standalone Net Control Log was not established or maintained for the ACS Shelter Net.

(1)   **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2)   **Analysis:** A stand-alone net control log was not established or maintained for the Tactical-Resource net during the exercise. The lack of a stand-alone log made it more difficult to track the status of individual deployed assets.

3.1.2 Organizational Capability Target (SCT2/ECT4)

Within 2 hours of ACS Activation, establish a VHF radio Winlink data network that supports the exchange of information between *TBD* Pinellas County special needs emergency evacuation shelters and the Pinellas County EOC. Network communications is maintained for the duration of a 72-hour incident.

NOTE: *This capability target was not evaluated during the exercise.*

3.1.3 Organizational Capability Target (ECT8)

Within 3 hours of ACS deactivation, notify all deployed ACS resources of ACS deactivation, manage material resources returned to the Pinellas County EOC, deliver incident specific documentation to ACS leadership, and demobilize resources.

3.1.3.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** During demobilization, each shelter team returned the radio kit it was distributed. Each unit within the kit was properly boxed and all kit components were accounted for.

b.   **Strength 2:** The exercise documentation set (i.e., site activity log, communications log, and message artifacts) maintained by the EOC radio room

team was complete and delivered to the exercise management team immediately following the exercise.

3.1.3.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

a. **Area for Improvement 1:** Departure and arrival information used to track the status of deployed resources is incomplete.

(1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2) **Analysis:** In general, the EOC radio room team did a good job of tracking deployed resources; however, the logs used to document the departure and arrival of each team are not complete. Additionally, the logs do not indicate if the radio room team attempted to contact teams returning to the EOC that may have been late arriving.

b. **Area for Improvement 2:** The procedure used to document the distribution and demobilization of shelter radio kits was unique to the exercise and may not be extensible to a large-scale activation event.

(1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2) **Analysis:** Shelter radio kits are not stored as pre-populated assemblies. Each radio, power supply, and cable assembly is stored as an individual unit within the radio cache storage area at the EOC and assembled into a kit only when being distributed during an activation event. During the exercise, radio kits were pre-populated, and an exercise unique log created to track the distribution and demobilization of each kit. The use of a prepopulated log will not be possible during a real activation event.

c.   **Area for Improvement 3:** The number of ACS RADOs qualified to deinstall, pack, transport, and store the TracStar satellite antenna system is limited.

   (1)   **Reference**: The following reference documents are applicable to this improvement area.

      (a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2)   **Analysis:** Only the ACS RO, his deputy, and one EOC radio room supervisor is qualified to deinstall, pack, transport, and store the TracStar satellite antenna system.

3.1.4 Organizational Capability Target 2 (SCT3)

Within 3 hours of ACS deactivation, vacate deployment locations, return material resources to the Pinellas County EOC, deliver incident specific documentation to ACS leadership, and demobilize resources.

3.1.4.1 Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** During demobilization, each shelter team returned the radio kit it was distributed. Each unit within the kit was properly boxed and all kit components were accounted for.

b.   **Strength 2:** The exercise documentation set (i.e., site activity log, communications log, and message artifacts) maintained by each shelter team was delivered to the exercise management team immediately following the exercise. Only minor discrepancies were noted.

3.1.4.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

a. **Area for Improvement 1:** Shelter teams did not always notify the EOC radio room of site departure or EOC arrival.

(1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2) **Analysis:** A review of the EOC radio room and shelter team ICS 309s and ICS 214s indicates that several shelter teams failed to notify the EOC radio room when they were departing a shelter location or when they arrived back at the EOC.

3.2 Exchange Message Traffic Between EOC and Shelters (SEO2/EEO4)

During a simulated hurricane activation of the Pinellas County EOC, Pinellas ACS RADOs located at the EOC will exchange tactical and formal message traffic with Pinellas ACS RADOs located at simulated emergency evacuation shelters using both voice and Winlink digital radio networks. Each message exchange will be conducted in accordance with ACS standard operating procedures.

NOTE: The critical tasks that should be aligned to this exercise objective are currently incorporated into organization capabilities that are aligned with other exercise objectives. As a follow-up task to the exercise, a reallocation of objectives and tasks will take place so that each exercise objective is properly aligned.

3.3 Establish and Maintain County-Wide Communications (EEO2)

During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS will establish and maintain VHF/UHF radio and telephonic voice landline networks that support resource management and tactical message exchanges between Pinellas County municipalities, deployed

ACS resources, and the Pinellas County EOC. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures.

The strengths and areas for improvement for each capability aligned to this objective are described in this section.

3.3.1 Organizational Capability Target ECT1

Within 1 Hour of EOC activation in support of an incident with potential impacts to county communication systems, manage the activation and deployment of ACS resources to locations activated by the Pinellas County Department of Emergency Management.

3.3.1.1 Strengths

The partial capability level can be attributed to the following strengths.

    a.   **Strength 1**: Text and email alerts authored by the ACS RO and generated by the Everbridge system were clear and unambiguous.

    b.   **Strength 2:** The reports generated by the Everbridge system allowed exercise managers to quickly identify those individuals who acknowledged receipt of each activation alert and those who would be participating in the exercise.

    c.   **Strength 3:** Shelter radio kits planned for use during the exercise were tested and updated with the latest frequency code plug information. The distribution and demobilization of the kits took place with only minor issues identified.

3.3.1.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

    a.   **Area for Improvement 1:** Many of the ACS members listed in the Everbridge system did not acknowledge receipt of the text or email alerts issued during the exercise.

(1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2) **Analysis:** The name and associated contact information for the ACS membership held within the Everbridge system may be out of date.

b. **Area for Improvement 2:** Only a limited number of shelter radio kits have been inventoried, tested for operational status, and updated with the latest frequency code plug.

(1) **Reference:** The following reference documents are applicable to this improvement area.

(a) Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(b) Pinellas County ACS/ARES® Emergency Shelter Plan and Standard Operating Procedures

(2) **Analysis:** The number of shelter kits that were updated and tested in support of the exercise is not sufficient to support the activation of more than six evacuation shelters. A county wide activation event could result in more than thirty shelters being opened. Furthermore, even though each radio kit was tested and found to be operational, the contents of each radio and power supply box were not inventoried. During the exercise, one shelter kit was found to be missing a power cable.

3.3.2 Organizational Capability Target ECT2

Within 2 hours of ACS Activation, establish VHF/UHF radio and telephonic voice landline networks that support resource management and tactical message exchanges between twenty-nine Pinellas County municipalities, deployed ACS resources, and the Pinellas County EOC. Network communications is maintained for the duration of a 72-hour incident.

NOTE: *The 800MHz P25 radio system installed in the EOC radio room was not scheduled for test during the exercise. Connectivity testing with Pinellas County municipalities was allocated to the simulated ICC sites.*

3.3.2.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** Each radio used during the exercise was preconfigured prior to ACS activation. Radio room RADOs were not required to program, tune or adjust any radio during the exercise.

b.   **Strength 2:** An experienced EOC radio room supervisor was assigned to the radio room team to aid less experienced RADOs.

c.   **Strength 3:** Written net control scripts for the Tactical-Resource and Shelter nets were available in the EOC radio room and used to establish and deactivate both nets.

3.3.2.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** Cross talk between the shelter net and Tactical-Resource net radios in the EOC radio room degraded net management and performance.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(b)   Incident specific ICS 205

(2) **Analysis:** During network operations, transmissions on the Tactical-Resource net simplex frequency could be heard on the shelter net radio in the radio room. Additional investigation to determine the root cause is required.

b. **Area for Improvement 2:** The EOC radio room was a noisy environment with numerous distractions that complicated and degraded network management and complicated message exchanges.

   (1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2) **Analysis:** Several factors contributed to the creation of a noisy environment. First, the three radio nets operating simultaneously within the radio room were routed to speakers. This was required due to the limited number RADOs assigned to the radio room team. Second, individuals unassociated with the radio room team would congregate in or near the radio room adding to the background noise.

c. **Area for Improvement 3:** The time displayed on the clocks within the EOC radio room were not aligned to local time or UCT.

   (1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (2) **Analysis:** The primary digital clock in the EOC radio room was set to Eastern Standard time rather than daylight savings time.

d. **Area for Improvement 4:** A standalone Net Control Log was not established or maintained for Tactical-Resource Net.

   (1) **Reference**: Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2)   **Analysis:** A stand-alone net control log was not established or maintained for the Tactical-Resource net during the exercise. The lack of a stand-alone log made it more difficult to track the status of individual deployed assets.

3.4   ESTABLISH AND MAINTAIN COMMUNICATIONS WITH STATE OF FLORIDA EOC (EEO3)

During a simulated Hurricane activation of the Pinellas County EOC, Pinellas ACS RADOs located at the EOC will exchange tactical and formal message traffic with the state of Florida EOC using amateur voice and Winlink digital radio networks; SHARES voice and SHARES Winlink digital radio networks; and EMnet, MSAT, and TracStar voice satellite networks. Each message exchange will be conducted in accordance with ACS standard operating procedures.

The strengths and areas for improvement for each capability aligned to this objective are described in this section.

3.4.1 Organizational Capability Target (ECT5)

Within 2 Hours of ACS Activation, establish High Frequency (HF) voice and data networks that support the exchange of information between the Pinellas County EOC and the state of Florida EOC using amateur radio equipment and frequencies. Network communications is maintained for the duration of a 72-hour incident.

**NOTE**: Amateur HF voice communications with the state of Florida EOC was not scheduled or attempted during the exercise.

3.4.1.1 Strengths
The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** Experienced Winlink operators were assigned to the EOC radio room.

b. **Strength 2:** The Amateur HF Winlink station was fully configured with a Pactor modem prior to the exercise. Radio room RADOs were not required to reconfigure or adjust any component of the Winlink station.

c. **Strength 3:** The exchange of Winlink messages was coordinated with the Florida state Watch Office prior to the start of the exercise.

3.4.1.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

a. **Area for Improvement 1:** Only a limited number of ACS RADOs are qualified to operate a Winlink terminal.

(1) **Reference:** The following reference documents are applicable to this improvement area.

(a) Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(b) Pinellas County ACS/ARES® Winlink Training Plan

(2) **Analysis:** The number of ACS RADOs qualified to operate a Winlink terminal is not sufficient to fully staff the EOC radio room and all the Pinellas County evacuation shelters that are classified to support clients with special needs.

3.4.2 Organizational Capability Target (ECT6)

Within 2 Hours of ACS Activation, establish HF voice and data networks that support the exchange of information between the Pinellas County EOC and the state of Florida EOC using amateur radio equipment and SHARES radio frequencies. Network communications is maintained for the duration of a 72-hour incident.

NOTE: _HF SHARES voice communications with the state of Florida EOC was not scheduled or attempted during the exercise._

3.4.2.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** Experienced Winlink operators were assigned to the EOC radio room.

b.   **Strength 2:** The Amateur HF SHARES Winlink station was fully configured with a Pactor modem prior to the exercise. Radio room RADOs were not required to reconfigure or adjust any component of the Winlink station.

c.   **Strength 3:** The exchange of SHARES Winlink messages was coordinated with the Florida State Watch Office prior to the start of the exercise.

3.4.2.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** Only a limited number of ACS RADOs are qualified to operate a Winlink terminal.

    (1)   **Reference**: The following reference documents are applicable to this improvement area.

        (a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

        (b)   Pinellas County ACS/ARES® Winlink Training Plan

    (2)   **Analysis:** The number of ACS RADOs qualified to operate a Winlink terminal is not sufficient to fully staff the EOC radio room and all the Pinellas County evacuation shelters that are classified to support clients with special needs.

b. **Area for Improvement 2:** The number of RADOs qualified to operate a SHARES voice or Winlink terminal is not sufficient to fully staff the EOC radio room.

  (1) **Reference**: The following reference documents are applicable to this improvement area.

    (a) Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

  (2) **Analysis:** Only the ACS RO and one EOC radio room supervisor is qualified to operate the Radio Room's SHARES terminal. As a minimum, two ACS RADOs are needed per shift to fully staff the radio room during an activation event. Since the ACS RO will normally be assigned duties outside the radio room during EOC activation, the SHARES terminal cannot currently be operated during one of two 12-hour shifts.

3.4.3 Organizational Capability Target (ECT7)

Within 2 Hours of ACS activation, establish satellite voice communications with the state of Florida EOC using the EMnet (Alert and Notification System), MSAT (Satellite Radio Dispatch and Telephone system), and TracStar systems.

NOTE: The EMnet satellite system at the state of Florida EOC was inoperative during the exercise period. The EMnet system at the Pinellas County EOC was tested by performing an echo test with the system technical support team and found to be fully operational.

3.4.3.1 Strengths

The partial capability level can be attributed to the following strengths.

  a. **Strength 1:** An experienced EOC satellite system operator was assigned to the EOC radio room team.

b.   **Strength 2:** The satellite communication tests were coordinated with the Florida State Watch Office prior to the start of the exercise.

c.   **Strength 3:** The EMnet and MSAT systems were fully configured and operational prior to the exercise. ACS RADOs were not required to reconfigure or adjust any component of these satellite systems.

3.4.3.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to operate EOC satellite systems is not sufficient to fully staff the EOC radio room.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2)   **Analysis:** Only the ACS RO and one EOC radio room supervisor is qualified to operate the Radio Room's satellite systems. As a minimum, two ACS RADOs are needed per shift to fully staff the radio room during an activation event. Since the ACS RO will normally be assigned duties outside the radio room during EOC activation, the satellite terminals cannot currently be operated during one of two 12-hour shifts.

b.   **Area for Improvement 2:** The number of ACS RADOs qualified to deploy and install the TracStar satellite antenna system is limited.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and
Standard Operating Procedures

(2)   **Analysis:** Only the ACS RO, his deputy, and one EOC radio room
supervisor is qualified to install and configure the TracStar satellite
antenna system.

c.   <u>**Area for Improvement 3:**</u> The TracStar satellite system was unable to acquire
satellite lock.

(1)   **Reference**: The following reference documents are applicable to this
improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and
Standard Operating Procedures

(2)   **Analysis:** After discussing the problem with the TracStar system service
center, it was determined that the earth station equipment at the
Pinellas County EOC needed a software upgrade.

3.5   SatRunner™ CRD™ Emplacement and Configuration (DEO1)

During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will
emplace, configure, operate, and maintain deployable satellite ground stations that provide
high speed internet, cellular phone, and VoIP phone services to collocated emergency
management personnel. Resource deployment, equipment operation, and demobilization will
be performed in accordance with ACS standard operating procedures.

3.5.1 Organizational Capability Target (DCT1)

Within 30 minutes of arrival at an ICC, Incident Command System (ICS) staging area, or point of
distribution center, emplace and configure a SatRunner™ Compact Rapid Deployable (CRD™) to
provide AT&T Firstnet® and Verizon cellular service; high speed ethernet and Wi-Fi internet

service; and VoIP telephone service to co-located emergency management personnel by using an embedded Satellite WAN backhaul capability. Communication and internet services are to be maintained for the duration of a 72-hour incident at locations that provide shelter from the elements but are unable to provide AC power for equipment operation.

__NOTE__: The default configuration of the Cradlepoint™ modem within the SatRunner™ CRD™ is designed to prioritize local internet, Wi-Fi, and cellular service for WAN backhaul services. The Satellite service will only be used if all the higher priority services are unavailable. During the exercise, both Wi-Fi and local cellular services were available.

__NOTE:__ Use of the SatRunner™ CRD™ gasoline powered AC generator was not scheduled for use during the exercise. The SatRunner™ CRD™ was configured to operate on shore power throughout the exercise.

3.5.1.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** An experienced SatRunner™ ACS RADO was assigned to each ICC team.

b.   **Strength 2:** Each SatRunner™ CRD™ was prepositioned prior to the exercise.

c.   **Strength 3:** Each ICC team demonstrated the ability to verify satellite and cellular network connectivity.

3.5.1.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to emplace and configure a SatRunner™ CRD™ is not sufficient to fully staff the SatRunner™ CRD™ sites planned for deployment during a significant activation event.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2)   **Analysis:** Prior to the exercise, only two ACS RADOs had experience emplacing and configuring a SatRunner™ CRD™. Pinellas County plans to deploy as many as four SatRunner™ CRDs™ during a major incident.

3.5.2 Organizational Capability Target (DCT2)

Within 1 Hour of ACS and site deactivation, power down; inventory and stow all ancillary equipment; and configure for transport a SatRunner™ CRD™. Once complete, demobilize resources.

3.5.2.1 Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** An experienced SatRunner™ ACS RADO was assigned to each ICC team.

3.5.2.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to disassemble, stow ancillary equipment, and configure for transport a SatRunner™ CRD™ is not sufficient to fully staff the SatRunner™ CRD™ sites planned for deployment during a significant activation event.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and

Standard Operating Procedures

(2)   **Analysis:** Prior to the exercise, only two ACS RADOs had experience

demobilizing a SatRunner™ CRD™. Pinellas County plans to deploy as

many as four SatRunner™ CRDs™ during a major incident.

3.6   CommandRunner™ CRD™ Emplacement and Radio Configuration (DEO2)

During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will

emplace, configure, and maintain deployable Communications Command Centers that can

support HF, VHF, UHF amateur radio voice and data networks; SHARES voice and data

networks; 700 and 800 MHz public safety networks, and maritime VHF radio communications.

Resource deployment, equipment operation, and demobilization will be performed in

accordance with ACS standard operating procedures.

3.6.1 Organizational Capability Target (DCT3)

Within 1 Hour of arrival at an ICC, ICS staging area, or point of distribution center, emplace and

configure a CommandRunner™ CRD™ to support Amateur Radio (VHF, UHF, and HF) voice and

Winlink Digital networks; SHARES voice and data networks, 700 and 800 MHz public safety

networks, and maritime VHF communications. Communication services are to be maintained

for the duration of a 72-hour incident at locations that provide shelter from the elements but

are unable to provide AC power for equipment operation.

NOTE: HF Amateur, SHARES, and maritime radio terminals were not scheduled for use during

the exercise and were not energized or configured for operation.

NOTE: Use of the CommandRunner™ CRD™ gasoline powered AC generator was not scheduled

for use during the exercise. The CommandRunner™ CRD™ was configured to operate on shore

power throughout the exercise.

3.6.1.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** An experienced CommandRunner™ ACS RADO was assigned to each ICC team.

b.   **Strength 2:** Each CommandRunner™ CRD™ was prepositioned prior to the exercise.

c.   **Strength 3:** Experienced Winlink operators were assigned to each ICC team.

3.6.1.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to emplace and configure a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.

 (1)   **Reference**: The following reference documents are applicable to this improvement area.

 (a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

 (2)   **Analysis:** Prior to the exercise, only two ACS RADOs had experience emplacing and configuring a CommandRunner™ CRD™. Pinellas County plans to deploy as many as five CommandRunner™ CRDs™ during a major incident.

b.   **Area for Improvement 2:** Glare on the computer monitors mounted within the CommandRunner™ CRDs™ made the computer system difficult to use.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(2)   **Analysis:** Each CommandRunner™ CRD™ was emplaced in an open sun-lit area. The equipment was not installed within a shelter that would provide shade from the sun or protection from the elements.

3.6.2 Organizational Capability Target (DCT8)

Within 1 Hour of ACS and site deactivation, power down; inventory and stow all ancillary equipment; and configure for transport a CommandRunner™ CRD™. Once complete, demobilize resources.

3.6.2.1 Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** An experienced CommandRunner™ ACS RADO was assigned to each ICC team.

3.6.2.2 Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to disassemble, stow ancillary equipment, and configure for transport a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and
Standard Operating Procedures

(2)   **Analysis:** Prior to the exercise, only two ACS RADOs had experience
demobilizing a CommandRunner™ CRD™. Pinellas County plans to deploy
as many as five CommandRunner™ CRDs™ during a major incident.

b.   **Area for Improvement 2:** The internal battery within a CommandRunner™
CRD™ was found to be fully discharge several days after the exercise.

(1)   **Reference**: The following reference documents are applicable to this
improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and
Standard Operating Procedures

(2)   **Analysis:** The main power switches within the CommandRunner™ CRD™
had not been secured during the demobilization phase of the exercise.
This caused the internal battery to fully discharge. It was also noted the
power switch was not illuminated.

3.7   COMMANDRUNNER™ CRD™ EMPLACEMENT AND INTERNET CONFIGURATION (DEO3)

During a simulated Hurricane activation of the Pinellas County EOC, the Pinellas County ACS will
emplace, configure, and maintain deployable Communications Command Centers that support
high speed ethernet and Wi-Fi internet service; and VoIP telephone service to co-located
emergency management personnel by using a commercially available cellular service WAN
backhaul capability. Resource deployment, equipment operation, and demobilization will be
performed in accordance with ACS standard operating procedures

3.7.1 Organizational Capability Target (DCT4)

Within 1 Hour of arrival at an ICC, ICS staging area, or point of distribution center, emplace and configure a CommandRunner™ CRD™ to support high speed ethernet and Wi-Fi internet service and VoIP telephone service to co-located emergency management personnel by using a commercially available cellular service WAN backhaul capability. Communication services are to be maintained for the duration of a 72-hour incident at locations that provide shelter from the elements but are unable to provide AC power for equipment operation.

NOTE: *Use of the CommandRunner™ CRD™ gasoline powered AC generator was not scheduled for use during the exercise. The CommandRunner™ CRD™ was configured to operate on shore power throughout the exercise.*

3.7.1.1   Strengths

The partial capability level can be attributed to the following strengths.

a.   **Strength 1:** An experienced CommandRunner™ ACS RADO was assigned to each ICC team.

b.   **Strength 2:** Each CommandRunner™ CRD™ was prepositioned prior to the exercise.

3.7.1.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** The number of ACS RADOs qualified to emplace and configure a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and

Standard Operating Procedures

(2)   **Analysis:** Prior to the exercise, only two ACS RADOs had experience

demobilizing a CommandRunner™ CRD™. Pinellas County plans to deploy

as many as five CommandRunner™ CRDs™ during a major incident.

3.8   CommandRunner™ CRD™ RF network establishment and Maintenance (DEO4)

During a simulated hurricane activation of the Pinellas County EOC, Pinellas ACS RADOs located at deployable Communications Control Centers will establish and maintain VHF/UHF amateur radio and 800 MHz Public Safety voice and data networks that support resource management and tactical message exchanges between deployed ACS resources, Pinellas County municipalities, and the Pinellas County EOC. Network establishment, network management, resource deployment, and demobilization will be performed in accordance with ACS standard operating procedures.

3.8.1 Organizational Capability Target (DCT5)

Within 30 minutes of the CommandRunner™ CRD™ attaining a fully operational status, establish VHF/UHF voice and data networks that support the exchange of information with the deployed ACS resources, Pinellas County municipalities, and the Pinellas County EOC using VHF amateur radio and 800-MHz radio networks. Network communications is maintained for the duration of a 72-hour incident.

3.8.1.1 Strengths
The partial capability level can be attributed to the following strengths.

a   **Strength 1:** Experienced Winlink operators were assigned to each ICC team.

b.   **Strength 2:** ACS RADOs experienced in the exchange of formal voice message traffics were assigned to each ICC team. As a result, all formal message traffic, voice and digital, was exchanged with only minor errors noted.

c.   **Strength 3:** All Pinellas County municipalities were notified of the date and time for communication tests with the Pinellas County EOC.

3.8.1.2   Areas for Improvement

The following areas require improvement to achieve the full capability level.

a.   **Area for Improvement 1:** Unable to verify phone or 800MHz P25 radio connectivity with all Pinellas County municipalities.

  (1)   **Reference**: The following reference documents are applicable to this improvement area.

   (a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

   (b)   Pinellas County Municipality phone list

  (2)   **Analysis:** The ICC teams were unable to contact nine of the twenty-nine municipalities within Pinellas County. The teams attempted to contact each municipality by phone and the county's the 800MHz P25 radio system.

b.   **Area for Improvement 2:** Unable to verify VHF amateur radio connectivity with all Pinellas County municipalities.

  (1)   **Reference**: The following reference documents are applicable to this improvement area.

   (a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(b)   Pinellas County Municipality phone list

(2)   **Analysis:** Twelve of the twenty-nine municipalities were documented to have a VHF amateur radio capability. The ICC teams were only able to contact one of the twelve municipalities via amateur radio. The remaining municipalities contacted via VoIP or the 800MHz P25 system indicated that they either were unaware of how to access the amateur radio, or that the amateur radio operator wasn't on duty that day.

c.   **Area for Improvement 3:** The logs documenting the municipality connectivity tests were difficult to interpret.

(1)   **Reference**: The following reference documents are applicable to this improvement area.

(a)   Pinellas County ACS/ARES® Emergency Communication Plan and Standard Operating Procedures

(b)   Pinellas County Municipality phone list

(2)   **Analysis:** The municipality connectivity logs maintained by each ICC did not use a clear and unambiguous method for documenting positive and negative connectivity with each municipality. In some cases, it is difficult to determine if connectivity was achieved and by what mode.

4   IMPROVEMENT PLAN

This Improvement Plan was developed specifically for the Pinellas ACS. Thirty-one improvement areas were identified during post exercise evaluation. Table II documents each improvement area and the recommended corrective actions needed. Each area of improvement is linked to its associated capability target through its capability ID. The status of each corrective action, open or closed, is also documented in the table.

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
1	SCT1, ECT3	1. The use of message precedence and handling instructions was not always consistent with established procedures.	1. Incorporate message precedence and handling instructions into weekly training net curriculum.	Open
			2. Add message exchanges to monthly drills. Place emphasis on message precedence and handling instructions.	Open
			3. The net control station should create an audio record of the net. The audio record can be used post exercise as a training aid and to better document network activity.	Open
			4. Create new laminated job aid sheets for radiograms. Add to all shelter radio kits.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
2	SCT1, ECT3	2. Message parameters and header information missing from ICS 309 communication logs.	1. Incorporate ICS 309 communication logs into tabletop drills conducted at monthly in person ACS meetings.	Open
			2. Create new laminated job aid sheets for ICS 309 maintenance. Add to all shelter radio kits.	Open
3	SCT1, ECT3	3. Significant events and header information missing from ICS 214 Site Activity logs.	1. Incorporate ICS 214 Site Activity logs into tabletop drills conducted at monthly in person ACS meetings.	Open
			2. Create new laminated job aid sheets for ICS 214 maintenance. Add to all shelter radio kits.	Open
4	SCT1, ECT3	4. Formal message traffic was not always recorded on Radiogram forms or information recorded on Radiogram was incomplete.	1. Add message exchanges to weekly training net.	Open
			2. Add message exchanges to monthly drills. Place on Radiogram forms.	Open
5	SCT1, ECT3	5. A standalone Net Control Log was not established or maintained for the ACS Shelter Net.	1. Establish and maintain a net control log throughout each exercise, drill, and training net.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
6	ECT8	1. Departure and arrival information used to track the status of deployed resources is incomplete.	1. Create a procedure for tracking deployed resources that includes a time element for tracking and follow-up. Document the procedure in a job aid for the EOC Radio Room. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room.	Open
			2. The net control station should create an audio record of the net. The audio record can be used post exercise as a training aid and to better document network activity.	Open
7	ECT8	2. The procedure used to document the distribution and demobilization of shelter radio kits was unique to the exercise and may not be extensible to a large-scale activation event.	1. Investigate and develop a procedure for tracking the operational status, deployment, and demobilization of shelter radio kit components. Document the procedure in a job aid. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room. Evaluate the new procedure during the next ACS exercise.	Open
8	ECT8	3. The number of ACS RADOs qualified to deinstall, pack, transport, and store the TracStar satellite antenna system is limited.	1. Create and deploy a Position Task Book (PTB) for prospective EOC RADOs. The PTB should cover all EOC radio room systems and operating positions.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
			2. Develop a procedure for the installation and deinstallation of the TracStar satellite antenna system. Document the procedure in an EOC job aid. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room.	Open
			3. Schedule and perform semi-annual training on the installation, operation, and deinstallation of the TracStar satellite system.	Open
9	SCT3	1. Shelter teams did not always notify the EOC radio room of site departure or EOC arrival.	1. Create a procedure for tracking deployed resources that includes a time element for tracking and follow-up. Document the procedure in a job aid for the EOC Radio Room. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room.	Open
10	ECT1	1. Many of the ACS members listed in the Everbridge system did not acknowledge receipt of the text or email alerts issued during the exercise.	1. Review the contact list maintained by the Everbridge system. Attempt to contact each ACS member listed in the system to determine if they are still active ACS members. Remove from the system those members who cannot be contacted or who indicate they no longer plan to be an active member of ACS.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
11	ECT1	2. Only a limited number of shelter radio kits have been inventoried, tested for operational status, and updated with the latest frequency code plug.	1. Review and update the master shelter radio code plug.	Open
			2. Update each shelter, EOC, and CommandRunner™ radio with the latest shelter radio code plug.	Open
			3. Inventory and test each radio, power supply, and cable set used to populate a shelter radio kit. Identify and resolve all identified discrepancies.	Open
12	ECT2	1. Cross talk between the shelter net and Tactical-Resource net radios in the EOC radio room degraded net management and performance.	1. Investigate and attempt to replicate the crosstalk issued seen during the exercise. Once the root cause is identified, determine and implement a corrective action plan.	Open
13	ECT2	2. The EOC radio room was a noisy environment with numerous distractions that complicated and degraded network management and complicated message exchanges.	1. The use of headphones is an option to reduce the distraction; however, this would require a third RADO in the EOC radio room to monitor the 800MHz P25 radio and satellite systems.	Open
14	ECT2		1. Adjust the wall clocks in the EOC radio room to align with local time.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
		3. The time displayed on the clocks within the EOC radio room was not aligned to local time or Universal Coordinated Time (UTC).	2. Examine the time maintained by each computer system and radio within the EOC radio room and align each to a common time base. If the computers can support Network Time Protocol (NTP) time synchronization, configure them to do so.	Open
15	ECT2	1. A standalone Net Control Log was not established or maintained for Tactical-Resource Net.	1. Establish and maintain a net control log throughout each exercise, drill, and training net.	Open
16	ECT5	1. Only a limited number of ACS RADOs are qualified to operate a Winlink terminal.	1. A bi-monthly Winlink training net has already been put into place by ACS. Continue to encourage members to take part in the existing training.	Open
17	ECT6	1. Only a limited number of ACS RADOs are qualified to operate a Winlink terminal.	1. A bi-monthly Winlink training net has already been put into place by ACS. Continue to encourage members to take part in the existing training.	Open
18	ECT6	2. The number of RADOs qualified to operate a SHARES voice or Winlink terminal	1. Create and deploy a PTB for prospective EOC RADOs. The PTB should cover all EOC radio room systems and operating positions.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
		is not sufficient to fully staff the EOC radio room.	2. Schedule and conduct SHARES training for prospective EOC RADOs.	Open
			3. Coordinate with the SHARES program office the addition of EOC SHARES operators.	Open
19	ECT7	1. The number of ACS RADOs qualified to operate EOC satellite systems is not sufficient to fully staff the EOC radio room.	1. Create and deploy a PTB for prospective EOC RADOs. The PTB should cover all EOC radio room systems and operating positions.	Open
			2. Create and implement a training schedule for prospective EOC RADOs.	Open
			3. Create job aids for each EOC Radio Room system and operating position. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room.	Open
20	ECT7	2. The number of ACS RADOs qualified to deploy and install the TracStar satellite antenna system is limited.	1. Create and deploy a PTB for prospective EOC RADOs. The PTB should cover all EOC radio room systems and operating positions.	Open
			2. Develop a procedure for the installation and deinstallation of the TracStar satellite antenna system. Document the procedure in an EOC job aid. A hardcopy of all ACS EOC job aids should be available in the EOC radio Room.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
			3. Schedule and perform semi-annual training on the installation, operation, and deinstallation of the TracStar satellite system.	Open
21	ECT7	3. The TracStar satellite system was unable to acquire satellite lock.	1. Create and implement a preventive maintenance schedule that incorporates a check for satellite system software updates.	**CLOSED**
22	DCT1	1. The number of ACS RADOs qualified to emplace and configure a SatRunner™ CRD™ is not sufficient to fully staff the SatRunner™ CRD™ sites planned for deployment during a significant activation event.	1. Create and deploy a PTB for prospective SatRunner™ RADOs.	Open
			2. Develop a procedure for the installation, configuration, operation, and deinstallation of the SatRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all SatRunner™ job aids should be stored within each SatRunner™ CRD™.	Open
			3. Schedule and perform semi-annual training on the installation, configuration, operation, and deinstallation of the SatRunner™ CRD™.	Open
23	DCT2	1. The number of ACS RADOs qualified to disassemble, stow ancillary equipment, and	1. Create and deploy a PTB for prospective SatRunner™ RADOs.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
		configure for transport a SatRunner™ CRD™ is not sufficient to fully staff the SatRunner™ CRD™ sites planned for deployment during a significant activation event.	2. Develop a procedure for the installation, configuration, operation, and deinstallation of the SatRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all SatRunner™ job aids should be stored within each SatRunner™ CRD™.	Open
			3. Schedule and perform semi-annual training on the installation, configuration, operation, and deinstallation of the SatRunner™ CRD™.	Open
24	DCT3	1. The number of ACS RADOs qualified to emplace and configure a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.	1. Create and deploy a PTB for prospective CommandRunner™ RADOs.	Open
			2. Develop a procedure for the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all CommandRunner™ job aids should be stored within each CommandRunner™ CRD™.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
			3. Schedule and perform semi-annual training on the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™.	Open
25	DCT3	2. Glare on the computer monitors mounted within the CommandRunner™ CRDs™ made the computer system difficult to use.	1. Investigate and test the use of antiglare screens for the monitors in each CommandRunner.	Open
26	DCT8	1. The number of ACS RADOs qualified to disassemble, stow ancillary equipment, and configure for transport a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.	1. Create and deploy a PTB for prospective CommandRunner™ RADOs.	Open
			2. Develop a procedure for the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all CommandRunner™ job aids should be stored within each CommandRunner™ CRD™.	Open
			3. Schedule and perform semi-annual training on the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
27	DCT8	2. The internal battery within a CommandRunner™ CRD™ was found to be fully discharge several days after the exercise.	1. Investigate why the main power switch is not illuminated when the CommandRunner™ CRD™ is energized. Once the root cause is identified, fix the underlying problem.	Open
			2. Develop a procedure for the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all CommandRunner™ job aids should be stored within each CommandRunner™ CRD™.	Open
28	DCT4	1. The number of ACS RADOs qualified to emplace and configure a CommandRunner™ CRD™ is not sufficient to fully staff the CommandRunner™ CRD™ sites planned for deployment during a significant activation event.	1. Create and deploy a PTB for prospective CommandRunner™ RADOs.	Open
			2. Develop a procedure for the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™. Document the procedure in a position specific job aid. A hardcopy of all CommandRunner™ job aids should be stored within each CommandRunner™ CRD™.	Open

Table II. Improvement Plan

No	Capability ID	Area for Improvement	Corrective Action	Status
			3. Schedule and perform semi-annual training on the installation, configuration, operation, and deinstallation of the CommandRunner™ CRD™.	Open
29	DCT5	1. Unable to verify phone or 800MHz P25 radio connectivity with all Pinellas County municipalities.	1. This corrective action has been allocated to the Pinellas County Department of Emergency Management.	Open
30	DCT5	1. Unable to verify VHF amateur radio connectivity with all Pinellas County municipalities.	1. This corrective action has been allocated to the Pinellas County Department of Emergency Management.	Open
31	DCT5	2. The logs documenting the municipality connectivity tests were difficult to interpret.	1. Update logs used to perform municipality connectivity tests. Add instructions to the logs that detail the process for documenting results.	Open

5 ACRONYMS AND ABBREVIATIONS

5.1 ACRONYMS

The following acronyms are used in this document.

ACRONYM	DEFINITION
AAR/IP	After-Action Report / Improvement Plan
AC	Alternating Current
ACS	Auxiliary Communication Service
ARES®	Amateur Radio Emergency Service
ARRL®	American Radio Relay League
CRD™	Compact Rapid Deployable
CT	Capability Target
DEM	Department of Emergency Management
EEG	Exercise Evaluation Guide
EO	Exercise Objective
EOC	Emergency Operations Center
HF	High Frequency
HSEEP	Homeland Security Exercise and Evaluation Program
HT	Hand-held Transceiver
ICC	Incident Communications Center
ICS	Incident Command System
MSEL	Master Scenario Event List
NTP	Network Time Protocol
PTB	Position Task Book
RO	Radio Officer

ACRONYM	DEFINITION
SLERS	State Law Enforcement Radio Service
UHF	Ultra-High Frequency
UTC	Universal Coordinated Time
VHF	Very-High Frequency
VoIP	Voice over Internet Protocol
WAN	Wide Area Network

5.2   ABBREVIATIONS

The following abbreviations are used in this document.

ABBREVIATION	DEFINITION
HX	Handling Instructions
MHz	Megahertz
RADO	Radio Operator
SHARES	Shared Resources